Historical Monetary
and Financial Statistics for Sweden

VOLUME 3

⚜

BANKING, BONDS, NATIONAL WEALTH, AND STOCKHOLM HOUSE PRICES, 1420–2020

RODNEY EDVINSSON, TOR JACOBSON, AND
DANIEL WALDENSTRÖM (EDS.)

Sveriges Riksbank | Ekerlids Förlag

Historical Monetary
and Financial Statistics for Sweden,
Volume III:

Banking, Bonds, National Wealth, and Stockholm House Prices, 1420–2020

Edited by Rodney Edvinsson, Tor Jacobson,
and Daniel Waldenström (eds.)

Ekerlids Förlag

SVERIGES RIKSBANK

Contents

Introduction to Historical Monetary and Financial Statistics for Sweden, Volume III

Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström

Introduction and background

This book is the third volume in the research project coordinated by Sveriges Riksbank, *Historical Monetary and Financial Statistics for Sweden*. The first volume, published in 2010, dealt with exchange rates, consumer prices, and wages from as far back as the Middle Ages to the present day. The second volume, published 2014, included chapters on historical house prices, real GDP, stock returns, and money supply from the seventeenth century onwards. In the present third volume, the series include a considerably extended property price index for Stockholm, private-sector bank balance sheets, primary bond market issues and bonds in circulation, and the national wealth of Sweden.

The Riksbank historical research project has compiled existing evidence and assembled new data. Its overall ambition has been to construct time series that are both consistent over time, as well as adjusted so as to fit – as closely as possible – the data definitions as applied today. There is a great difference between compiling contemporary statistics, for which data are often readily accessible from the internet, and historical statistics, for which the availability of data is much more problematic and often requires considerable in-person archive work. Linking long-run time series requires not only an understanding of the economic importance of whatever phenomena are at hand, but also a thorough knowledge about the relevant historical circumstances during which the data were generated. Needless to say, both aspects create great challenges for the researchers when compiling the series.

History offers economists and others an opportunity to study the roots of today's economic and political institutions as well as make specific inquiries into events that resemble our current developments but in a different context. Having comparable series that span extensive time periods enables analysis of a number of important issues. For example, understanding the relationship between money supply and

inflation or detecting specific long-run patterns in the macro economy require consistent and comparable data across time periods. Economic forecasting can also be based on consistent historical series which go a long way back in time and not only the last 10–15 years. Moreover, our comprehension of the causes and effects of financial crises arguably rely on historical analysis, e.g., by comparing the course of events leading up to the Great Depression around 1930 and the recent financial turmoil starting in 2007.

It is our intention that the series generated within this project will not only be used in academic research. People working with policy analyses, or perhaps journalists wanting to draw conclusions from historical comparisons, as well as teachers and students at universities and high-schools, should find much useful material here. In order to make the database accessible to as many as possible, all data and data descriptions presented in the three volumes, as well as additional material used to construct the series, are freely available on the website of the Riksbank.[1]

There are similar historical projects that compile long-run monetary and financial statistics within the central bank sphere. An important source of inspiration for the Riksbank project is and has been the pioneering work at Norges Bank, the central bank of Norway, which to date has produced two volumes presenting new macroeconomic historical evidence on prices, money, banking statistics, interest rates, exchange rates, property prices, and GDP for Norway (Eitrheim, Klovland and Qvigstad 2004, 2007). Currently, the Norges Bank project is finalizing a third volume in the series, entitled *Historical Monetary and Financial Statistics for Norway*. More recently, the Bank of International Settlement (BIS) has initiated a working group for the purpose of enhancing central banks' efforts in the collection and production of historical monetary and financial statistics. The working group – with members representing close to a dozen central banks world-wide – aims to provide methodological contributions towards best practice for historical statistics, as well as a coordinated stock-taking of available data. In the near future, two working papers reflecting these themes will be released as a result of the initiative: Borio, Eitrheim, Flandreau, Jobst, Qvigstad, and Thomas (2022) and BIS (forthcoming). Among the BIS working group participants, two central banks can be mentioned. The Danish Nationalbanken has documented prices and wages in Denmark from the Middle Ages and forward, as well as Danish national wealth from the mid-1800s as prominent examples, (Abildgren, 2016, 2017). The Bank of England presents historical databases with impressive coverage and depth, see Thomas and Dimsdale (2022) and Bank of England (2022). However, interesting and important work in historical sta-

---

1   The database address is http://www.riksbank.com/research/historicalstatistics (English version) and http://www.riksbank.se/forskning/historiskstatistik (Swedish version).

tistics is also carried out in many other central banks. All for the benefit of future economic research and policy analysis.[2]

Why would the Riksbank undertake the responsibility of constructing a new publically accessible database for historical monetary and financial statistics? There are several good reasons. First, building and maintaining a scientific database is a public good that individual researchers cannot be expected to provide. As scholars regularly tend to move on to different places or topics, the continuous work which is necessary in order to maintain a scientific database may prove difficult to uphold on an individual basis. In contrast, a public institution is better suited to run a database and, in the context of a monetary database, the Riksbank represents perhaps the most natural "focal point" for the research community. Second, the Riksbank has already long-standing traditions in taking an active part in promoting the Swedish monetary and financial system, as well as gathering information about it. The Riksbank – arguably the world's oldest central bank, founded in 1668 by the Swedish Parliament – has played a central role in the monetization of Sweden.[3] Moreover, in the 1920s, the Riksbank initiated a research project very similar to the current one. Although the older project was mainly aimed at documenting the history of the bank, a considerable part of the undertaking was the assembly of historical monetary and financial statistics, including long-run series on prices, interest rates, exchange rates and bank balance sheets (Sveriges Riksbank, 1918–1931). A fourth reason for why the Riksbank should take responsibility for a project like this as that it continues where the Bank of Norway started, extending the work towards an extensive international historical statistical database. As noted above, the early Norwegian efforts have been followed by central banks in other countries, running projects with similar aims and to a considerable degree under the guidance of the BIS working group.

Contents of the volume

The eight Chapters 2 to 9 in this volume present novel time series collected exclusively for this project. In all chapters, readers are offered a careful description of how the series were constructed, addressing the specific nature of the historical source material, as well as the influence of contemporary surrounding institutions on the measured economic activities.

Chapters 2 and 3 present statistics on the Swedish commercial banking system and its predecessors. There were early variants of private banks and bankers that offered depositing and lending services in the latter half of the eighteenth century.

---

2 Earlier academic contributions to the literature on historical monetary statistics include e.g. Friedman and Schwartz (1963) and Cagan (1965) on the United States, Jonung (1975) on Sweden and Capie and Webber (1985) on the United Kingdom.

3 One can, of course, discuss whether the Riksbank was the first central bank in a modern sense. The Bank of England was established later, in 1694, but carried out more central bank-like practices such as being lender of last resort before the Riksbank did (Brisman, 1918).

The first savings banks came in the 1820s and the first commercial retail banks came a decade later. A particular feature of the Swedish private commercial banks of the nineteenth century was that they were granted the right to issue banknotes, which means that their private money constituted an important part of Sweden's monetary stock until the Riksbank's formal monopoly as note-issuer was instated in 1904. During the twentieth century, the Swedish banking system developed to become a more homogenous system. Agrarian banks, mortgage associations and thrifts gradually went out of business or were incorporated into the savings or commercial banks. By the end of the century, the organizational developments had continued to change the Swedish banking system. In the 1990s, foreign banking companies were allowed to set up businesses in Sweden and the rules for chartering banks were relaxed to open up for other financial firms, and even some non-financial companies, to set up banks in Sweden. Since the beginning of the twenty-first century, new financial technology firms have started offering bank services in ways that will change the banking industry even further.

Chapter 4 deals with the evolution of the Swedish bond market from the 1830s to the present day. The chapter presents newly collected data over aggregate amounts of new bond issues and bonds in circulation, covering the universe of Swedish bonds issued by the government, municipalities, different kinds of financial institutions, and corporations. The series cover both domestic debt issued to Swedish investors and denominated in Swedish kronor, and external debt issued to foreign markets and denominated in foreign currency. In the nineteenth century, bonds were initially a way for farmers to attract funding through mortgage association bonds issued mainly in Germany. The state soon became a dominant bond issuer later in that century. First, the purpose was to finance the state-led railway expansion, and later in the twentieth century, bonds have been used to fund military armaments, especially during the World Wars, and later to finance the welfare state. Municipalities have used bond financing to fund larger investments as well as welfare-related expenditures. Looking at private-sector bond issues over the past two centuries, financial institutions, mainly banks, have used bonds to fund their lending, in recent decades in the form of mortgages. Corporations used bonds to finance their investments up to the interwar era, then stopped doing so due to the tightening of post-war regulations, but have again started issuing bonds on a larger scale since the 2000s.

Chapters 5 to 8 jointly present a new historical house price index for Stockholm covering a 600-year period from the late Middle Ages until today. Chapters 5 to 7 are chronological and each covers data and data sources for a particular sub-period, chosen on the basis of the specific circumstances that prevailed in that period, but then changed over time.

Chapter 5 presents the database on property sales in Stockholm from the late Middle Ages up to the year 1600. Throughout this entire period, Stockholm remained a small town with fewer than 10,000 inhabitants. The earliest records of house prices are from 1283, however it is only from 1420 and onwards that suffi-

cient price notations are observable to enable reasonably accurate inference on averages, hence that year has been chosen as the starting point for the full period index. The chapter discusses how Stockholm prices varied over time, and in comparison with prices for the town of Arboga, as well as price developments across various house types. It is shown that both stone and wooden houses became cheaper over time when nominal values are deflated by the Consumer Price Index. A plausible explanation is that falling wages may have pushed down construction costs.

Chapter 6 covers data and data sources for the period 1600–1726/1730, but presents an index construction for a longer period, namely 1420–1730, thus including the data presented in Chapter 5. Prior to 1726, no information exists on the exact location of sold properties, therefore the so-called repeated sales method cannot be used. For the early period, 1420–1730, we instead present a hedonic price index, where quality is controlled for by differentiating between various types of houses. The population of Stockholm increased rapidly in the 17th century and the city expanded geographically. In order not to bias the index construction by including properties that were transformed in their belonging from countryside to township, only observations of properties pertaining to the Old Town have been used for the period 1636–1730. The chapter shows that real prices increased substantially in the 1630s and 1640s, accompanying the rapid increase in the population of Stockholm. In the 1670s and 1680s real prices reached a peak. Prices then fell substantially in the 1710s, following wars and plagues. Although prices subsequently picked up again in the 1720s, real prices remained below the levels reached in the 1670s and 1680s.

Chapter 7 presents an index for the period 1730–1875. Since we can identify the geographical location for most of the sold properties in this period, the so-called repeated sales method has been used for the index construction. This method is also applied for the overlapping years of 1726–1729, thereby allowing for a comparison with the results using the hedonic price index approach. The chapter shows that real prices stagnated during most of the studied period, which reflected a general stagnation in the population numbers. Thus, this was a period quite in contrast with the more dynamic developments of the 17th century discussed in Chapter 6. Towards the middle of the 19th century, real prices started to increase, again accompanied by demographic expansion as well as economic growth and liberal reforms.

Chapter 8 provides a summary of house price developments during the full time period, i.e., an index for 1420–2021. This chapter also includes a discussion about the period after 1875 up until the present day, previously covered in the second volume of the series. A comparison of alternative approaches and methods used for the construction of indices for various periods is provided. The very long time period covered enables fruitful identification of extended periods of upswings in property prices, and also the occurrences of the deepest downturns over time. Four secular upturns in real prices can be found: 1570/79–1670/79, 1710/19–1750/59, 1800/09–1900/09, and 1950/59–2010/19. All four upturns were initially rebounds

from low price levels. The trajectory of real prices is similar to that of Paris from around 1500, while before that, Paris seems to have started from a lower level than Stockholm. The chapter also shows that a majority of downturns in real prices were accompanied by rampant inflation, while nominal house prices were prone to be quite stable.

Finally, Chapter 9 offers a detailed description of the assets and liabilities of the Swedish economy and all its sectors: the government, corporations and households, for the period 1810–2020. The chapter consists of two parts. The first presents basic facts on the historical evolution of Sweden's national wealth, as well as descriptions of earlier Swedish studies of national wealth, basic methodologies and measurement problems. The second part contains a set of appendices, which discuss details of the database, methodological considerations, further measurement problems and robustness checks. In the nineteenth century, Sweden was a poor, agrarian country that consumed most of its income and therefore was unable to accumulate capital on its own. Industrialization brought new opportunities for the country, raised income and boosted investments in productive capital. The twentieth century saw a steady wealth growth driven by both savings and capital gains. There was also an extraordinarily large growth of government wealth in the postwar era, precisely at the time of the most intensive expansion of the social democratic welfare state.

Acknowledgements

References

Abildgren, K. (2016). The National Wealth of Denmark 1845–2013 in a European Perspective, *Danish Journal of Economics* (Nationaløkonomisk Tidsskrift), Vol. 154(1), pp. 1–19. Data.

Abildgren, K. (2017). Trends in real wages in Denmark since the Late Middle Ages, *Historical Methods*, Vol. 50(2), pp. 67–78.

Bank of England (2022). Historical Data UK Repository, https://www.escoe.ac.uk/research/historical-data/

Borio, C., Eitrheim, Ø., Flandreau, M., Jobst, C., Qvigstad, J.F., and Thomas, R. (2022). *Historical monetary and financial statistics for policy makers: towards a unified framework.* BIS Papers No 127.

BIS (Forthcoming). *Historical monetary and financial statistics for policy makers: towards a unified framework, Vol II: Country contributions.* BIS working paper.

Cagan, P. (1965). *Determinants and Effects of Changes in the Stock of Money, 1875–1960*, New York: Columbia University Press.

Capie, F. and Webber, A. (1985). *A Monetary History of the United Kingdom, 1870–1982: Data, Sources and Methods*. London: Allen & Unwin.

Eitrheim, Ø., Klovland, J.T. and Qvigstad, J.F. (2004). *Historical Monetary Statistics for Norway 1819–2003*, Norges Banks skriftserie/Occasional Papers No. 35.

Eitrheim, Ø., Klovland, J.T. and Qvigstad, J.F. (2007). *Historical Monetary Statistics for Norway: Part II*, Norges Banks skriftserie/Occasional Papers No. 38.

Friedman, M. and Schwartz, A. J. (1963). *A Monetary History of the United States, 1867–1960*. Princeton: Princeton University Press.

Jonung, L. (1975). *Studies in the Monetary History of Sweden*, dissertation, UCLA.

Thomas, R and Dimsdale, N (2022) *A Millennium of UK Macroeconomic Data, version 4*, Bank of England Research Database, https://www.bankofengland.co.uk/-/media/boe/files/statistics/research-datasets/a-millennium-of-macroeconomic-data-for-the-uk.xlsx

Sweden's banks 1772–1870: Institutions, data, and size*

Klas Fregert

This chapter presents yearly data for banks in Sweden between 1772 and 1870. It is a survey of how they operated according to their legal status, ownership, profitability and liquidity management. Balance sheets show how they were funded, how they lent, and how they created media of exchange. While the origins and activities of early banks have been extensively researched, no quantitative survey has to my knowledge been attempted before.[1] The end year 1870 coincides with the end of Sweden's proto-industrial period by which time modern forms of banking had already been established. The evolution is summarized in terms of measures of financial development regarding depth, access, and efficiency. I conclude with a list of the distinguishing characteristics of the Swedish evolution in an international perspective.

The chapter divides the sample into two sub-periods according to the financial sector structure. I refer to all institutions by their Swedish name; see glossary below for recurring institutions.

1. 1772–1817: Private banks and the central bank, the *Riksbank,* in cooperation. The *Riksbank* was the fulcrum of the banking system as a lender and cashier to unlimited, joint-stock banks, so-called *diskonter*. They were established in three waves, the first in the 1770s, *older diskonter,* which ceased in the 1790s; the second in the 1790s, *riksgäldsdiskonter*, which used currency issued by the National Debt Office; and the third from 1803, *younger diskonter*, which ceased in 1817.

1   For historical overviews in English, see Sandberg (1978), Nygren (1983), Ögren ed. (2010), Grossman (2010), Andersen (2011), and Ögren (2013). Fritz (1967, summary) covers *diskonter* in 1772–1789 and Andersson (1983) *diskonter* in Gothenburg in 1784–1818. Nygren (1970, summary) covers *sparbanker* in 1820–1913. An early overview is Flux (1910), written for the United States monetary commission. The monograph on *Stockholms Enskilda Bank* by Gasslander (1956/1962) is available in English. Brisman (1924, 1934) and Nygren (1981, 1985) provide surveys in Swedish. Fregert (2014, 2018) discusses the history of the *Riksbank*.

2. 1818–1870. Bank competition. New lending institutions, which have survived until today, were started in the form of deposit-based thrifts, *sparbanker*, in 1820; followed by note-based, unlimited-liability, joint-stock banks, *enskilda banker*, in 1831; bond-based building societies, *hypoteksföreningar*, in 1832*;* and deposit-based, limited-liability, joint-stock banks, *kreditaktiebolag*, in 1864.[2] An attempt to create unlimited, joint-stock banks named *filialbanker* supported by loans from the *Riksbank* without note issue rights was made in 1852, which were gradually dismantled after 1862.

Glossary of institutions (official name in English in italics)

Swedish	English
Diskont	Joint-stock unlimited-liability bank 1772–1817
Enskild bank	Joint-stock unlimited-liability note-issuing bank 1832–
Filialbank	Joint-stock unlimited-liability bank 1852–
Finansdepartementet	*Ministry of Finance*
Hypoteksförening	Building society 1832–
Kreditaktiebolag	Joint-stock limited-liability bank 1852–
Riksarkivet	*Swedish National Archives*
Riksbank*	*The Riksbank* (central bank)
Riksgäldskontoret	*National Debt Office of Sweden*
Sparbank	Thrift 1820–
Statistiska centralbyrån (SCB)	*Statistics Sweden*

*The full name before 1865 is *Riksens Ständers Bank* and from 1865 *Sveriges Riksbank*.

The decisions to switch from fiat money to convertibility in 1772, 1800, and 1830, implemented in 1777, 1803, and 1834, were the main driving force behind the formation of new lending institutions.[3] The first period of *diskonter,* 1772–1817, was successful in that no failure occurred until a general run in 1817. New financial institutions and legislation developed from 1820 onwards and a modern banking structure was in place by 1870. The development took place in a period of peace from 1815 and a stable convertibility regime from 1834. From the beginning, the legal system provided reliable and stable protection for lenders in the formal as well as in the informal financial sector. No bank failed in this period. The formal bank sector was smaller than the informal sector for the whole period, but grew and gradually replaced the informal sector. Banks, except for *hypoteksföreningar*, provided

---

2   Joint-stock banks are referred to as *affärsbanker* (commercial banks).
3   The deeper causes of the changes in the monetary regime were wars and changes in the constitution in 1772, 1789, and 1809, with switches between the power of the parliament and the government, see Fregert (2018) and Nyberg (2010).

short-term finance mainly for goods in production, as did the informal sector, and did not play a role in early industrialization until the late 1860s.

The slow evolution was due to the political economy of banking. The constitutions of 1721, 1789, and 1809 defined the separation of powers between the government, appointed by the King, and the parliament, and gave the government the right to enact "economic legislation", which included the chartering of banks, while the parliament was the principal of the *Riksbank*. The chartering of banks after 1830 was often a cause of tension between the government and the parliament. The government favored a private banking sector, while the four-chamber parliament, in particular the social estates of the clergy and the yeomanry, favored the *Riksbank*. The political economy of banking is surveyed in Nilsson (1981), Nygren (1983), and Ögren (2019).

1. The setting

The legal framework

The legal framework for financial institutions changed slowly. *Diskonter* and *enskilda banker* with unlimited liability were chartered for a limited period of ten to twenty years by the government (*oktroj*). These charters were published as government ordinances (*Kongl. Majt:s nådiga kungörelse*) along with the banks' statutes (*bolagsordning*). They appeared in the government gazette *Post- och inrikes tidningar* and in the yearly *Svensk författningssamling*, where all laws and ordinances have been published since 1825. The first general bank ordinance, issued by the government in 1824, set out general rules for banks in two pages. The 1846 bank ordinance for *enskilda banker*, amended in 1855 and 1864, set rules for equity, reserves and banknote issue. Not all applications that fulfilled the requirements were chartered before 1864. Free entry was granted to all such applications and prolongations were authorized from 1864. *Filialbanker* were chartered according to an ordinance in 1851 with similar provisions, except the right to issue banknotes.[4]

Sparbanker and *hypoteksföreningar* were not chartered, but their statutes were subject to government approval published in individual ordinances. This implied free entry for these institutions. They were subject to general corporation law, which only allowed for unlimited liability. From 1861, *hypoteksföreningar* were not allowed to issue their own bonds, which were acquired through the new *Sveriges Allmänna Hypoteksbank*, owned by the *hypoteksföreningar*. In 1863, the government declared that banks with limited liability – *kreditaktiebolag* – could be chartered according to the general corporation act of 1848. Lending and deposit-taking, but not banknote issue, were declared to be within their realm of activities.

The chartered banks were supervised with increasing intensity by the government. The charters for *enskilda banker* and the 1846 ordinance (§15) stipulated that they must provide quarterly statements to the government, first to the county boards (*länsstyrelserna*) and then to the Ministry of Finance.[5] *Sparbanker* were required from 1864 to supply information to Statistics Sweden (SCB).[6]

Commercial law was codified in the officially sanctioned collection of laws *Sveriges Rikes lag 1734* (*handelsbalken*). The code set a ceiling for the lending rate at 6 per

---

4   The 1824 ordinance is published in Brisman (1924, pp. 229–230). The ordinances thereafter are published in *Svensk författningssamling*: SFS 1846:1, SFS 1851:39, SFS 1855:86, and SFS 1864:31. According to the constitution of 1809, the government had the prerogative of economic legislation (*ekonomisk lagstiftning*), which was published as ordinances. Other legislation in the form of acts was decided jointly by the government and the parliament.

5   See Wendschlag (2012, pp. 23–28) on the early history of financial oversight.

6   See Sommarin (1942, pp. 178–182) on the start of official *sparbank* statistics.

cent, which lasted until 1863. This rate was used by *diskonter*, *sparbanker*, and *hypo-teksföreningar*. *Enskilda banker* and *filialbanker* were limited by their charters to 5 per cent until 1857.

The code of 1734 protected loans in the form of promissory notes (*reverser*) issued either with two witnesses or in written form. A defaulter could be sent to debtor's prison (*bysättning*) until 1867. Promissory notes became the prime loan instrument for the banks as well as for the informal sector until the 1860s. They were secured in various ways. The enforcement code of 1734 (*utsökningsbalken*) covered the legal procedures for retrieval of collateral (*utsökning* or *lagsökning*) by government bailiffs (*kronofogde*). Collateral was mortgages (*inteckningar*) in fixed property (*fast pant*, *hypotek*), finished and unfinished goods (*lös pant*), financial claims such as bonds and stocks, and cosigners (*namnsäkerhet* signed by *borgensman, kautionist*). Unsecured loans (*namnsäkerhet* with borrower's signature, *enskilda förbindelser*) were rare before the 19th century. Mortgages were registered at the local courts (*tingsrätter*), which issued abstract of titles (*gravationsbevis*).[7] They were typically assessed based on their taxation value. A bankruptcy code was included in the law of 1734, amended by ordinances in 1767, 1773, 1798 and 1818, which strengthened and accelerated bankruptcy proceedings to the benefit of creditors.[8]

One source of legal uncertainty concerned the status of bills (*växlar*). Domestic and foreign bills were protected by a royal ordinance of 1671. Some uncertainty, however, prevailed after 1752, when the ordinance for domestic bills was revoked.[9] New ordinances in 1835 and 1851 strengthened their status.[10] Private banks began discounting bills in 1854. While promissory notes could be transferred like bills, they were not as liquid and as safe.[11] The fact that promissory notes were used instead of domestic bills testifies to the uncertain legal status of bills as well as to the wide-spread trust in the legal system. To sum up, banks developed in a secure and stable legal environment, a precondition for the development of a financial system.[12]

7　For an overview of the historical evolution of property and mortgage registration, see Lantmä-teriet (no date).

8　Olivecrona (1862).

9　Fritz (1967, p. 73, p. 126) and Brisman (1924, pp. 217–218).

10　SFS 1835:31 and SFS 1851:27.

11　Only the original issuer of a promissory note could be sued for late payment, as opposed to bills for which the originator and the acceptors were jointly responsible, which made promissory notes less safe than bills. This feature often resulted in late payments. Perlinge (2005, p. 69) points out that the issuer had to approve the transfer of the promissory note, which made them less liquid than bills.

12　For a survey of the connection between the legal and the financial system, see Beck and Levine (2005). They characterize the Scandinavian legal system as stable and independent of the state.

The informal credit market

While comprehensive data are lacking, studies of cities and rural communities indicate that informal credit was at least as widespread as formal credit until the end of the 19th century.[13] The domestic informal credit market operated either directly between firms and individuals or through middlemen.

Firms extended trade credit between themselves in the chain of production through book credit registered in current accounts (*leverantörsskulder, kontantlån*). Raw material producers extended credits to manufacturers; manufacturers extended credit to wholesalers, who in turn extended credits to retailers. Credit could also flow in the opposite direction, which was common in the export trade as described below. Employers and employees extended credits to each other. For example, probate records include debts for unpaid wages.

Direct credit between individuals occurred mainly through promissory notes. An important category of lenders was private bankers, that is, wealthy individuals who lent their equity on a regular basis to several individuals. Perlinge (2005) coined the term 'parish banker' (*sockenbankir*) for those bankers active in rural communities, a definition used by Lindgren (2017) and Hallén (2015a).

Indirect credit between individuals and firms was intermediated through city brokers (*stadsmäklare*), who also used promissory notes.[14] They operated in the larger cities and were regulated by a royal ordinance of 1720, reformed in 1853, and had to be registered by the city magistrate.[15] The ordinance forbade them to trade in goods or bills on their own account to safeguard their probity.[16] In addition to being parties in the setting-up of contracts, they intermediated loans. Meetings between middlemen occurred in the 19th century in the large cities and were reported under the title of *Stockholms börs* (exchange) and *Göteborgs börs* in the newspapers.[17]

Brisman (1924, pp. 64–70) describes how informal credit began in the 18th century with mortgage credit and developed in the early 19th century with credit provided with cosigned and personal short-term promissory notes, which increased the scope of both the informal and the formal credit market.[18] Promissory notes could also circulate as a medium of exchange.[19] They had an advantage over *Riksbank* and private banknotes in that they yielded interest, while they were less liquid as they

---

13 See Hallén (2015a) for a survey of Swedish empirical studies and Nyberg (2010) for a general historical survey of informal credit in Sweden with international comparisons.

14 Their activities were similar to the notaries in France, see Hallén (2015a, p. 169; 2015b, p. 216). There was, however, no compulsory legal registration of loans in Sweden.

15 Hallén (2015b).

16 The legal framework for *stadsmäklare* is described by Hallén (2015b, pp. 217–218).

17 Brisman (1924, p. 68).

18 Brisman (1934, pp. 55–57) gives an overview of the informal credit market around 1855.

19 Perlinge (2005, pp. 76–787, 227–228) and Brisman (1924, pp. 69–70).

Probate inventory 1784 of professor Carl von Linné, the son of his more famous father with the same name, where it is stated that he owed his sisters 333 riksdaler and 16 skilling and an interest payment of 110 riksdaler over 5.5 years. That would imply a non-compounded interest rate of 6 per cent per year, or 0.5 per cent per month. Before the rise of banking, informal credits were important, for example, between relatives.

Source: ArkivDigital (Svea Hovrätt, Adelns bouppteckningar EIXb:119), https://app-arkivdigital-se.ezp.sub.su.se/volume/v364254?image=1310

were less transferable outside the local community and not accepted as payment for taxes and government fees.[20]

   Research on the size of the informal credit market in Sweden is based primarily on probates measuring the participation of households and sole proprietors in the credit market. The pioneering study is Lindgren (2002) of the eastern port city Kalmar. He found that the informal sector was about three times larger than the formal sector for the periods 1841–1845 and 1871–1875.[21] Hallén (2015a) used probate records for the port city of Gothenburg for every 20th year during the 19th century beginning in 1800. The formal sector made up less than 5 per cent of the total credit market in Gothenburg up to 1840. From 1840, the formal sector grew to such an extent that its market share had reached 25 per cent by 1860.[22] Thus, both the Gothenburg and Kalmar figures show the informal sector to be three times larger than the formal

---

20   Perlinge (2020) argued, based on 18th century records, that private bankers sometimes could act as fractional reserve banks by issuing promissory notes which the borrowers could use as money in the local community. The notes were accepted based on the reputation of the private bankers who kept reserves of Riksbank notes. Thus they effectively could engage in credit creation in the manner of fractional reserve banks.
21   Lindgren (2002, Table 7, p. 827).
22   Hallén (2015a, Table III:3, p. 176).

sector in the 1860s and 1870s. In both cities, the absolute amount of formal as well as informal credit grew.[23] Overall, the formal sector grew faster and eventually replaced the informal sector. Still Hallén and Aldman (2015, p. 337) venture in their conclusion that the informal and formal sectors in Gothenburg were of equal size in 1900. The total growth rate of the credit market was thus considerably lower than the growth rate in the formal sector during the 19th century.

A few studies using probate records exist for rural communities, where formal credit arrived later. The most detailed long-run study is Perlinge (2005) who examines probates in the small rural parish *Vånga socken* from 1840 to 1900, where the first thrift was established in 1870.[24] Lindgren (2017) provides a detailed study of rural credit relations in *Norra Möre socken* in the 1840s. Both studies find that a substantial part of lending emanated from wealthy individuals who acted as private bankers.

Almost all lending in all three studies was conducted with promissory notes. Regarding rural lending, unsecured promissory notes dominated smaller loans, while larger loans were secured with mortgage collateral or cosigners. Almost all the promissory notes were redeemable on demand with a set notice period of less than year. The average effective maturity varied between 3 and 4 years. The share of informal credit supplied by private bankers increased between the 1840s and 1860s from 6 to 22 per cent.[25] Regarding urban lending, almost all promissory notes were secured with mortgages or cosigners.[26]

These studies show lending practices in the informal sector with respect to maturities and collateral, as well as the dominant use of promissory notes, to be similar to the formal sector. Less is known about interest rates in the informal sector. Hallén and Aldman (2015, p. 329) reported that the probate records for Gothenburg seldom show interest rates, but that they were not exorbitant in the examples they found.[27] Perlinge (2015, pp. 82–83) reported that rural loans were generally given at the legal maximum of 6 per cent interest rate, though loans between relatives often ran at 5 per cent. The interest rate could effectively be higher than 6 per cent in the informal market by charging fixed commission fees (Brisman (1924, p. 69, Kock (1931a, p.22).

Funds were also intermediated by benevolent associations, *publika kassor*, with the aim of providing pensions, sickness insurance, schools or poverty relief. It is a matter of definition whether these should be categorized as formal or informal. *Finanskom-*

---

23 Lindgren (2002, p. 826) and Hallén and Aldman (2015, p. 329).
24 Hallén (2015b, Table III:4, p. 178) summarizes the size evolution of informal credit in the three studies.
25 Perlinge (2005; p. 229. P. 234, p. 82–83).
26 Lindgren (2002) and Hallén (2015a) do not report maturities. Hallén (2015a, pp. 191–213) describes private bankers' activities in Gothenburg using the definition of a private banker by Perlinge (2005, p. 124), but does not provide an estimate of their share in the informal credit market.
27 Lindgren (2002) did not report interest rates for Kalmar.

mittén (1863, pp. 75–77) calculated the total assets of *kassor* in 1857 to be 80 million SEK, of which 25 per cent were owned by private associations and 75 per cent by the state. This is roughly equal to the combined lending of *sparbanker*, *enskilda banker* and *filialbanker,* in turn equal to the lending of *hypoteksföreningar.* Only a small part of their lending appears to have been placed as deposits in financial institutions. This is indicated by the fact that their lending categorized by collateral type totaled 70 million SEK in 1859 (Finanskommittén 1863, p. 78). This is supported by Brisman's (1934, p. 54) description of their activities in Stockholm.[28] Based on this point estimate, the inclusion of *publika kassor* would make the formal sector 50 per cent larger until 1857 than the aggregate figures presented in the final section.[29]

Several studies have analyzed the financing of the export industry, beginning with the iron industry, then the timber industry and from the 1850s agricultural exports. Most of the financing concerned the seasonal need for goods in production. Merchant houses in Gothenburg and Stockholm had, since the 18th century, helped finance iron and steel producers with seasonal loans for goods in production with foreign credits, their own equity, and borrowing from the informal and formal sectors. It is not known how important the foreign credits were, but it is well documented that merchants as well as early industrialists had long-standing credit arrangements with foreign bankers. Situated in the port cities, merchant houses also had more access to funds from both the local formal and informal sectors.[30]

Large-scale iron works and sawmills needing finance for fixed investment began in the 1830s. The main sources of industrial finance before 1870 were domestic in the form of initial equity, internal finance from retained profits, and bond issues beginning in the 1860s. Bank finance of industrial firms, short- as well as long-term, was a small portion of total industrial finance before 1870 as documented from company records by Gårdlund (1947, ch. 6).

The existence of an extensive informal credit market during the whole period affected the growth and practices of the formal sector. The formal sector had to obey the maximum lending rate of 6 per cent or 5 per cent for *enskilda* and *filialbanker*, while it appears the interest was generally higher in the informal market. Brisman (1924, pp. 143–149) described the formal credit market in the 19th century as one in a permanent state of illiquidity due to the inability to change the lending rate: "It happened perhaps in one of ten years that the interest rate in the open [informal] market decreased to a level such that [formal] lending could be kept liquid." At the

---

28 Finansskommittén (1863, p. 77) and Brisman (1934, p. 54).

29 Hallén (2015a, pp. 182–183), however, found little evidence in probates of debts to *kassor* in Gothenburg and noted the discrepancy between his findings and the findings of Finanskommittén (1860).

30 The finance of export firms in the iron and steel industry is surveyed in Hildebrand (1992), the forest industry in Söderlund (1951), and agricultural exports by Fridlizius (1957). The role in finance of the merchant houses in Stockholm 1730–1815 is discussed in Samuelsson (1951). Aldman (2015) examines the role of informal and formal credit among unlimited and limited liability corporations during the 19th century in Gothenburg using bankruptcy records.

same time, its deposit rates were set in the charters to 3 or 4 per cent. Thus, the banks typically encountered a funding deficit relative to the demand for loans and had to ration loans.

The fact that both the formal and informal sectors coexisted during the whole period indicates that they were close substitutes. Both were based on short-term credit with promissory notes backed by the legal system. Through reputation, based on local knowledge and long-term relations, peer-to-peer informal credit was arranged with relatively low transaction costs. Still, from its inception in the 1770s, the formal sector could compete for funds from depositors, the ultimate lenders, through improved liquidity and safety by pooling default risks. Some of these gains were transferred to borrowers who could borrow more cheaply. Gradually, they also contributed by better monitoring of borrowers. Banks thus conferred social benefits by the change from informal to formal credit. The estimates of the large informal sector for the entire 19th century indicate that the transformation from the informal to the formal sector was slow.

Lending institutions created before 1772

The first joint-stock banks, *diskonter*, were not the first lending institutions. The *Riksbank* was set up with two separate departments in 1668: an exchange bank with 100 per cent reserves, the *Wexelbank*, and one lending bank, the *Lehnebank,* financed by interest-bearing deposits. Its lending was concentrated to long-term mortgages in fixed property, but it also provided credit to iron ore manufacturers by lending against controlled iron stored in the ports (*vågfört järn*). The *Riksbank* lending bank was effectively closed in 1709 and did not reopen until 1738. The *Riksbank* began limited short-term commercial lending in Stockholm in 1803 through the subsidiary *Riksdiskonten*, and on a larger scale from 1829 under the name *Handels- och närings- diskonten*.

Two other non-bank lending institutions functioned as support vehicles for Swedish economic development. The state-run *Manufakturdiskonten,* created 1756, provided subsidized state lending to manufacturing firms financed by taxes.[31] The private *Jernkontoret*, constituted in 1748 at the instigation of the government, is an association of iron ore owners and manufacturers still in existence, which provided subsidized short-term lending to its members, financed by member fees and accumu- lated equity. It issued 6- to 9-month loans to its members for working capital during the year based on the size of their production. *Riksbanken, Manufakturdiskonten* and *Jernkontoret* thus complemented as well as competed with banks during the whole period**.** Figure 2.6 and Figure 2.25 include their lending for comparison.

---

31 It had forerunners in *Landshjälpsfonden* from 1727 and *Manufakturkontoret* from 1739. Regar- ding these institutions and *Manufakturdiskonten* in the 18th century, see Åmark (1961) and Fritz (1967). Gårdlund (1944) describes the lending of *Manufakturdiskonten* in the 19th cen- tury.

Monetary units and inflation

I present figures in contemporary currency units used in the sources. All values in the original sources are given in *riksdaler* of three types.[32] The *riksdaler* existed as coins, *riksdaler specie*, *rdr sp,* containing 25 grams of silver for the whole period. The *Riksbank* kept accounts and issued notes denominated in *riksdaler banco*, *rdr bco*, which were convertible one-to-one to *riksdaler specie* until 1808, when the *riksdaler banco* became an inconvertible fiat currency. In 1834, the *riksdaler banco* became convertible to silver and was devalued to 3/8ths of one *riksdaler specie*. A new currency unit was introduced in 1858 – *riksdaler riksmynt, rdr rmt,* at an exchange rate of 1.5 *rdr rmt = 1 rdr bco.*

The sources used for the period 1820–1870 were published from 1860 and are all in *riksdaler riksmynt,* which were relabeled *svenska kronor*, SEK, in 1873, which is the currency label used in the figures for this period. The data for the first period, 1772–1820, given in *riksdaler specie* and *riksdaler banco* can be converted to SEK by multiplying by 1.5.

During the convertible periods, that is 1777 to 1808 and 1834 to 1870, inflation was low, around 1 per cent per year, so nominal values mirror roughly real values, say across two decades. During the inconvertible period, 1808–1834, high inflation occurred between 1808 to 1812, when prices doubled. A consumer price index is available in Edvinsson and Söderberg (2010) used below for conversion of the nominal *riksdaler banco* values to real values for the 1803–1818 period.

Table 2.1. *Monetary regime, main currency unit, legal framework, and lending institutions. 1728–1870*

Year	Monetary regime/currency unit	Legal change	Lending institutions
1772	Fiat standard, dsm notes*		Older *diskonter*
1776	Silver standard, dsm notes convertible to *riksdaler specie* (rdr sp, metal) at 1 dsm = 1/6 rdr sp**		
1789	Fiat standard with National Debt Office notes in *riksdaler riksgälds* (rdr rg)***		
1792			Riksgäld-note *diskonter*
1803	Riksgäld notes convertible to *riksdaler specie* at 1 rdr = 1.5 rdr rg		

---

32   The time series data presented here for 1772–1776 when the main currency unit was *daler silvermynt, dsm,* have been estimated in *rdr sp*. The price level in *dsm* was stable during this period.

1803			Younger *diskonter*
1809	Fiat *standard, riksdaler banco, rdr bco*		
1817			Bank run, end of *diskonter*
1820			*Sparbanker*
1824		Ordinance for banks	
1831			*Enskilda banker*
1832			*Hypotekföreningar*
1834	*Riksdaler banco* convertible to silver at 1 *enskilda banker* = 3/8 *rdr sp*		
1835		Ordinance for domestic bills	
1846		Ordinance for *Enskilda banker*	
1851		Ordinance for domestic bills	
1852			*Filialbanker*
1855		Ordinance for *Enskilda banker*	
1856			*Stockholms Enskilda Bank*
1857		Interest at 6 % allowed for non-discount loans	
1858	1 *riksdaler riksmynt (rdr rmt)* = 1 krona (SEK) = 2/3 *rdr bco*		
1861			*Sveriges Allmänna Hypoteksbank*
1862			Parliament orders dismantling of *filialbanker*
1863		Interest maximum at 6 % revoked	Limited liability deposit banks
1864		Ordinance for *enskilda banker*	
1869			*Folkbanker*****

* Parallel currencies with floating exchange rates between copper and silver with three currency units: *dsm* in copper, *dsm* in silver, and the main currency *dsm* in fiat notes.

** 1 *riksdaler specie* = 25 gram silver during the whole period.

*** Parallel currencies with floating exchange rates with two currency units: the silver currency *rdr sp* and the fiat currency *rdr rg*.

**** Not discussed, see Ahnland (2022).

Note: For more details about the currency system, see Edvinsson (2010a, b).

2. 1772–1818: Banks cooperating with the *Riksbank - Diskonter*

Data, ownership, regulations and profitability

In the period 1772–1818, 10 banks were chartered by the government.[33] All of them, except the first, were named *diskonter*.[34] They were established in three waves:

- the 4 older *diskonter* established from 1772, as part of a plan to restore the silver standard which occurred in 1777, all of which had expired by 1795
- the 3 *riksgäld diskonter* active between 1789 and 1804
- the 3 younger *diskonter* from 1803 after the return to the silver standard in 1803, which expired in 1817.

The *Riksbank* supported the banks with credit lines in the first and the third wave, while *Riksgäldkontoret* (Swedish National Debt Office) provided funds for the second wave. An overview of the sources, ownership, statutory capital and credit lines from the *Riksbank* and *Riksgäldkontoret* is given in Table 2.2.[35] Their importance is indicated by the financial depth measured as lending as a share of GDP, reaching 4 per cent (Figure 2.2).

Background data in this section come from the sources listed in the table. The four older *diskonter* are discussed by Sven Fritz (1967) and the younger *diskonter* by Bertil Andersson (1976, 1983, 1985). Both these authors provide quantitative data from archival sources preserved at *Riksarkivet* (Swedish National Archives). Additional yearly data, in the form of a summary table of deposits and assignations at year-end (see below) of the younger *diskonter* for 1803–1817, were produced by the parliament's *Bankoutskottet* (Committee on Banks) in 1824, and is reproduced by Brisman (1924). The *riksgäldsdiskonter* in Stockholm have not been studied to my knowledge and have therefore been left out. Andersson (1980) covers the private *Göteborgs Riksgäldsdiskont*.

The *diskonter* were created to fill a gap not provided by *Manufakturdiskontkontoret* and the *Riksbank* (central bank of Sweden), namely, the need for short-term funding for working capital for trade and artisan firms secured by personal collateral

---

33 *Åbo diskont* in present-day Finland, which is not included, was founded in 1805. Finland ceased to be Swedish in 1809.

34 The individual bank was called a *diskont*, plural *diskonter*.

35 *Riksdiskonten* was wholly owned by the state from 1815 and in practice a department of the Riksbank.

or goods in production. They emanated from a *finansplan* for 1772 drawn up by *Bankoutskottet* (parliamentary banking committee) for the monetary and financial system to return to convertibility to silver and new credit institutions.[36] The plan was sent to the government who worked out the details. It issued the charters for the new banks and declared the convertibility of *Riksbank* notes into silver starting 1st January 1777.

Export firms had access to credit from foreign merchants, but also looked for domestic financing as evidenced by the location of *diskonter* to the port cities of Stockholm, Gothenburg and Malmö. The *Riksbank* was not considered an appropriate institution for issuing loans against personal collateral for two reasons. First, it did not have the expertise in judging the solvency of borrowers that a private company directed by merchants would have had. Second, the *Riksbank* as a state institution could be accused of corruption, if it discriminated between potential borrowers.[37]

Table 2.2 *Diskonter, 1772–1817.*

Firm, city, period,	Ownership Statutory equity* Charter length # Owners (approx.)	Riksbank credit line, interest rate	Sources
1772–1795: older *diskonter*			
Generalassistanskontoret** Stockholm 1772–1792	Private: 375,000 dsm State: 1,125,000 dsm Indefinite 80	1786: 50,000 rdr sp, 4%	Fritz (1967)
Diskontkompaniet, Stockholm 1773–1787	Private: 2,400,000 dsm 12 years + 3 Unkown	1773: 100,000 rdr sp, 3 % 1777: 200,000 rdr sp, 6%	Fritz (1967)
Göteborgs diskontkontor Göteborg 1783–1795	Private: 278,000 12 years 74	1783; 50,000 rdr sp, 4%	Fritz (1967), Andersson (1983)
Generaldiskontkontoret Stockholm 1788–1795	State: 400,000 rdr sp	1789: 100,000 rdr sp, 3 % 1789: 200,000 rdr sp, 6%	Fritz (1967)
1789–1803: *Riksgäld (NDO) diskonter*			
Riksgäldsdiskontkontoret Stockholm 1789–1792	State: 150,000 rdr rg Private: 100,000 rdr rg		Åmark (1961)

---

36 Fritz (1967, pp. 21, 99, 136).
37 Fritz (1967, p.128).

Riksgäldsdiskonten Stockholm 1792–1800	State: 200,000 rdr rg Private: 50,000		Åmark (1961)
Göteborgs Riksgäldsdiskont Gothenburg 1797–1804	Private: 100,000 rdr rg Indefinite 80	50,000 rdr rg, 4 %***	Andersson (1980)
1802–1817: younger *diskonter***			
Riksdiskonten Stockholm 1802–1815	State: 600,000 *enskilda banker* Private: 200,000 *enskilda banker*		Brisman (1924)
Göteborgs diskont Gothenburg 1803–1817	Private: 200,000 *enskilda banker* 15 years Unknown	1804:200,000 *rdr bco*, 3 % 1805: 50,000 *rdr bco*, 6% 1809: 200,000 *rdr bco*, 6% 1815: 400,000 *rdr bco*, 6%	Andersson (1983) Brisman (1924)
Malmö diskont Malmö 1803–1817	Private: 100,000 *enskilda banker* 15 years 202	1804: 100 000 *rdr bco*, 3% 1805: 30,000 *rdr bco*, 6% 1809: 100,000 *rdr bco*, 6% 1815: 700,000 *rdr bco*, 6%	Andersson (1985) Brisman (1924) Kärrlander (2008, 2011, 2013)
Göta kanal diskont Gothenburg, 1810–1817	Owned by Göta kanal corporation, 20 years	1810: 800,000 *rdr bco*, 3% 1815: 800,000 *rdr bco*, 6%	Andersson (1983) Brisman (1924)

* Initial capital paid in cash, paid-in capital, was usually lower than statutory capital.
** Initially a pawn bank (Lombard bank).
*** Credit line from *Riksgäldkontoret*.
**** For the younger *diskonter* banks, the funds were lent from *Riksdiskonten* (*Riksdiskontverket*) affiliated with the *Riksbank*. *Riksdiskonten* was wholly owned by the *Riksbank* from 1815

Notes: The *Riksbank* lending at 6% against security was offered as a temporary liquidity reserve.

The *diskonter* were joint-stock banks with unlimited liability funded by equity, credit from the *Riksbank* and deposits as described in Table 2.2. The charter stipulated the size of the statutory capital and the maximum *Riksbank* credit. The private stock certificates were sold by subscription to the public. There was no limit on the number of stockholders, which allowed for a rather large number of stockholders (Table 2).[38]

---

38   The legal set-up is most akin to the Scottish unchartered, note- and deposit-based, joint-stock banks under unlimited liability, which had a large number of stockholders. The English and Irish banks were partnerships with unlimited liability ("private banks") limited to six partners. The three chartered, joint-stock Scottish banks had limited liability. Joint-stock banks with unlimited liability were allowed from 1826 in England and Wales.

The charters specified the required amount of equity. Fritz (1967, 105–106) found that 60 per cent of the initial stock of *Generalassistanskontoret* was owned by businessmen (*näringsidkare*) with civil servants as the second largest group. The owners of *Diskontverket* in Stockholm and *Göteborgs diskontkontor* were dominated by the "commercial elite" (Fritz (1967, p. 168). Andersson (1983, pp. 52–53) and Fritz (1967) similarly found that *Göteborgs diskontkontor* and the two successors *Göteborg riksgäldsdiskont* and *Göteborgs diskont* were predominantly owned by "prominent merchants". The *Malmö diskont*'s ownership was heterogeneous according to Andersson (1985, pp. 18–19) and Kärrlander (2008, p. 43) with civil servants outnumbering merchants. *Göta kanal diskont* was wholly owned by the *Göta Kanal-kompaniet*.

The first wave of the older *diskonter* began with *Generalassistanskontoret* in 1772 in Stockholm. It was set up as a lending bank against pawn collateral geared to the poor to be financed by owners' equity, including the state. Over time, it shifted to discount lending with promissory notes funded by deposits.[39] The next one was the private *Diskontkompaniet*, which started in 1773 in Stockholm, followed by the private *Göteborgs diskontkontor* in 1783 in Gothenburg. The charter of *Diskontkompaniet* expired in 1785, but was extended until the end of 1788. It was replaced by the wholly state-owned *Generaldiskontkontoret* in 1787, which took over the lending, deposits, rules and employees from *Diskontkompaniet*.

The second wave of the *riksgäldsdiskonter* was a result of the new currency – *riksdaler riksgälds* – issued by the National Debt Office from 1789. This currency turned into a fiat currency with floating exchange rate against the silver *riksdaler*, which crowded out *Riksbank* notes. The *diskonter* lost their ability to intermediate as they saw deposits in *riksdaler banco* increase while the demand for lending switched to loans in the depreciating *Riksgäld* notes. The law prescribed that all contracts concluded with *riksdaler banco* should be honored in the same currency. *Riksgäldsdiskontkontoret*, started in 1789 in Stockholm with the government as majority owner, and was reorganized in 1792 as *Riksgäldsdiskonten*. *Generalassistanskontoret* and *Generaldiskontkontoret* were forbidden to use *riksdaler riksgälds* and ceased operations in 1792 and 1795. *Göteborgs diskontkontor* was allowed to use *riksdaler riksgäld*, but was not rechartered when its charter expired in 1795. The government chartered a new private *Göteborgs riksgäldsdiskont* in 1797, which in exchange for a credit line of *riksgäld* notes paid *Riksgäldskontoret* half of its profits.[40]

The third wave of the younger *diskonter* began after a monetary reform in 1800 that fixed the exchange rate in 1803 between the fiat currency *riksdaler riksgäld* notes and the *Riksbank riksdaler* banco notes, which were convertible to silver. Thus, as with the older *diskonter*, the return to a silver-based currency was accompanied by new financial institutions chartered by the government. Two private *diskonter* were chartered in 1802 and 1803 and started operations in 1803 and 1804: *Göteborgs diskont* and *Malmö diskont.*They were of the same type as the earlier *diskonter* with

---

39   From 1776 against its charter, sanctioned by the government 1783 (Fritz 1967, p. 120).
40   Data for *Göteborg riksgäldsdiskont* are available in Andersson (1983).

Malmö diskont, *opened 1803, had its office on the first floor of* Berghska huset *(low building in the middle) at Stortorget in Malmö, which was built in the 1760s and still exists. The house was owned by its director, Mayor Carl Magnus Nordlindh. A government audit in 1817 revealed that the bank was insolvent; soon a bank panic ensued and the diskont was declared bankrupt. Several board members, including Nordlindh, had taken out large loans, which were found to be in arrears. Nordlindh was prosecuted for fraud and put in jail. The parliament decided to reimburse the depositors in full to avoid further repercussions. The National Debt Office took over the debts, which were only partly recovered over several years. The bankruptcy of* Malmö diskont *triggered runs on the other two* diskonter, Göteborgs diskont *and* Göta kanalbolagets diskont, *which closed down shortly after. Thus ended the era of private banks in 1817, which began in 1772. The first private bank after 1817,* Skånes Enskilda Bank *opened in Ystad 1831 under the rules of the bank law of 1824, which declared that the state would not support any bank under any circumstances.*
Source: Malmö stadsarkiv.

financing from deposits, equity and subsidized loans from *the Riksbank*. A third private *diskont*, *Göta kanal diskont,* opened in 1810. It was set up to finance *Göta Kanal* to be constructed between the east and the west coast of Sweden. It became the largest *diskon*t in terms of lending and deposits, helped by its reputation from being owned wholly by *Göta Kanalbolaget* with close ties to the government. In return for the subsidized funding, *the Riksbank* was entitled to one-third of the profits after the owners were paid a 7-per cent return.

Göta kanal *diskont was instituted in 1810 to support the construction of* Göta Canal*, the greatest civil engineering project in Sweden up to that time. Pictured, the opening of* Göta Canal *in 1832.*

https://digitaltmuseum.se/021046500588/gota-kanals-oppnande-vid-mem-1832

No private *diskont* was chartered in Stockholm. Instead, the new state institution, *Riksdiskonten,* started in 1803. Though with private minority owners until 1815, it was in practice a department of the *Riksbank*. It lent to the public and handled loans to the private *diskonter*, but did not accept deposits. This led the *Malmö diskont* and *G*öteborgs *diskont* to attract funds from Stockholm through exchange agents in Stockholm.

The older and younger *diskonter* were profitable. Regarding the older *diskonter*, Fritz (1967) calculated an average return on paid-in equity of 6 per cent for *General-assistanskontoret*, 14 per cent for *Diskontkompaniet*, and 10 per cent för *Göteborgs Diskontkontor*.[41] Regarding the younger *diskonter,* Anderson (1983, 1985) calculated

---

41 Fritz (1967, Table 5; Table 7; p. 244).

19 per cent for *Malmö diskont* and 17 per cent for *Göteborgs diskont* for the period 1810–1816.[42]

The balance sheet and cash management

Balance sheets for the older *diskonter* are available for the 1780s for *Generalassistanskontoret* (Figure 2.2) and *Göteborgs diskontkontor* (Figure 2.3) in Fritz (1967). For *Diskonkontoret*, only data on *Riksbank* borrowing and equity are available. Data on lending and major funding are available for *Generaldiskonten*, but not complete balance sheets.[43] For the younger *diskonter*, Kärrlander (2008) published balance sheets for *Malmö diskont* (Figure 2.4) from 1813 to 1816.

The main items of the balance sheets of the *diskonter* are shown in Table 2.3.

Table 2.3. *The balance sheet of diskonter.*

Assets	Debt and Equity
Loans	Interest-bearing deposits (*obligationer*)
Reserves:	Sight deposit account*
Riksbank notes	Loans from the *Riksbank*
Riksbank deposits	Outstanding assignations
	Equity

* *Göta Kanal diskont.*

The older and younger *diskonter* used their accounts at the *Riksbank* for most of their transactions. Brisman (1924, p. 22) referred to the *Riksbank* as the cashier to the *diskonter*.[44] The owners paid their equity to the bank's account at the *Riksbank*. The borrowers amortized their loans and the depositors paid at the *Riksbank* in Stockholm. The *diskonter* in turn paid out funds for their loans and dividends with drafts on the *Riksbank*, so-called *assignationer*, the method used by *Manufakturdiskonten* and *Jernkontoret*. The *diskonter* paid 3 per cent for the *Riksbank* loans, but in emergencies, they could borrow at 6 per cent up to a limit (Table 2.2).

Fritz (1967, p.168, 199) surmised that the cash reserves held at the offices for *Diskonkontoret* and *Generaldiskontkontoret* were small and mainly used for running expenses and interest payments. The balance sheet data of *Generalassistanskontoret* (Figure 2.2) similarly indicate low cash reserves held in its office. *Göteborgs diskontkontor* (Figure 2.3) carried low reserves the first years, which increased in the last years, which may be explained by its location outside Stockholm where the *Riksbank* had its office and its more seasonal deposits and lending. Reserves of the younger

---

42 Andersson (1983, Table 13; 1985, Table 4).
43 Fritz (1967, p. 159 and 199).
44 Fritz (1967, pp. 161–162) describes in detail these transactions for *Diskontkontoret.*

diskonter are only known for *Malmö diskont*, which varied around 10 per cent of deposits (Figure 2.4).

Funding and the *diskonter* as creators of money

Sight deposits were issued at 3 per cent and time deposits with 6 weeks' notice at 4 per cent. The 3-per cent deposits were the most common for the younger *diskonter*.[45] Each deposit was regarded as a loan to the bank, for which a bearer certificate was issued under the name "*obligation*" (bond) as opposed to account-based deposits.

Fritz (1967, pp. 174–175) and Brisman (1924, p.10) report that the obligations issued by *Diskontkompaniet* were occasionally used as money, often with round denominations. Fritz (1967, p. 205). did not find any evidence for this for *Generaldiskontkontoret*, The younger *diskonter* issued *obligationer* in fixed denominations from 100 *riksdaler bco*. While the denominations were much larger than *Riksbank* notes (1/6 of a *riksdaler bco*), the fact that they paid interest made them an attractive alternative to *Riksbank* notes for businesses. Compared to promissory notes in the informal market, they had a lower return, but were more liquid and safer. Obligations were issued as certificates of deposits with the exception of the *Malmö diskont*, which issued them to borrowers from 1813 until 1815, when they were forced to end this credit creation at the order of the parliament.[46]

Assignations used for lending constituted a source of interest-free funds to the extent that they were held outside the *Riksbank* before being cashed at the *Riksbank*. This would happen if they circulated as money. They appeared then as debts to the *Riksbank* in the *diskonter* balance sheets, but did not affect the *Riksbank*'s balance sheet until they were cashed. When cashed, they either reduced the *diskonter*s' deposits at the *Riksbank* or increased the credit from the *Riksbank* and then became interest-carrying loans on the liability side of the *diskonter*. The evidence indicates that the assignations of the older *diskonter* were cashed quickly at the *Riksbank* so they were not used as money.[47] In contrast, the younger *diskonters'* assignations circulated for extended periods, encouraged by their issue in printed form in fixed denominations from 5 *riksdaler banco*, that is, much lower than the deposit obligations, though still several times the lowest denomination *Riksbank* note. In this respect, the younger *diskonter* were forerunners of the note-issuing *enskilda banker*, which created credit through the issue of fixed-denomination printed notes.

The provision of private note issue in the form of fixed-denomination deposit obligations and assignations by the younger *diskonter* was significant, reaching a maximum of 50 per cent in 1814 of the *Riksbank* note issue as shown in Figure 2.1.

---

45 Andersson (1983, p. 54; 1985, p. 34).
46 Brisman (1924, pp. 44–45).
47 Fritz (1967, p. 8, p. 166, p. 205)

Figure 2.1. *Sum of outstanding assignationer and obligationer (deposits), and Riksbank notes at end of year 1804–1818.*
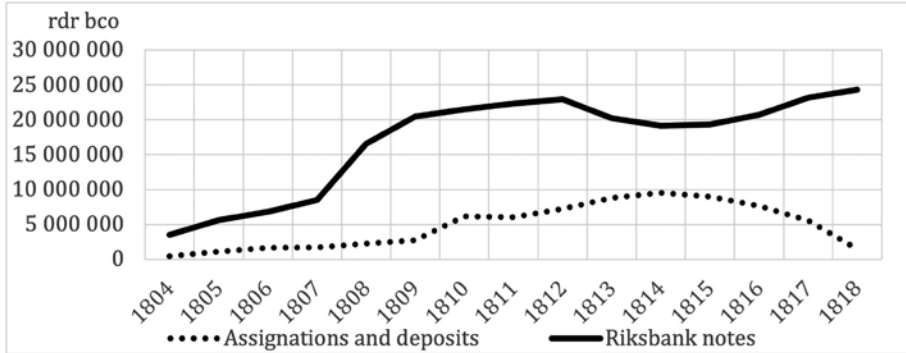
Sources: Brisman (1924, p. 244) and Riksbanken (1931).

The relative use of funds by the older *diskonter* funds can only be gauged approximately due to the incomplete data of their balance sheets. The balance sheets for *Generalassistanskontoret* (Figure 2.2) and *Göteborgs diskontkontor* (Figure 2.3) are known for some years. *Generalassistanskontoret* initially used only equity. It began receiving deposits around 1775 on a small scale, which reached approximate parity with equity in 1783 when data begin. Limited borrowing at the *Riksbank* began in 1787 and increased until 1789. Equity was the dominant source of funds for *Göteborgs diskontkontor* with deposits growing over time (Figure 2.3). Fritz (1967, pp. 164–165) estimated that *Diskontkompaniet* used more outside funding (*Riksbank* loans and deposits), relative to its equity than *Generalassistankontoret* and *Göteborgs diskontkontor*. which suggests that deposits were the dominant funding source for *Diskontkompaniet*.[48] In sum, deposits at the older *diskonter* in Stockholm were a significant and increasing source of funds.

---

48   Fritz (1967, Figure 13, p. 203).

Figure 2.2. *Generalassistanskontoret balance sheets, 1779, 1783–1785, 1787.*
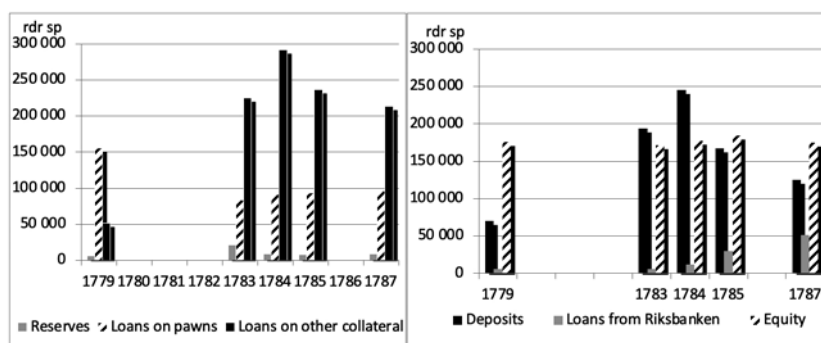
Source: Fritz (1967, p. 256, Table XIII).

Figure 2.3. *Göteborgs diskontkontor balance sheets, 1783–1789.*
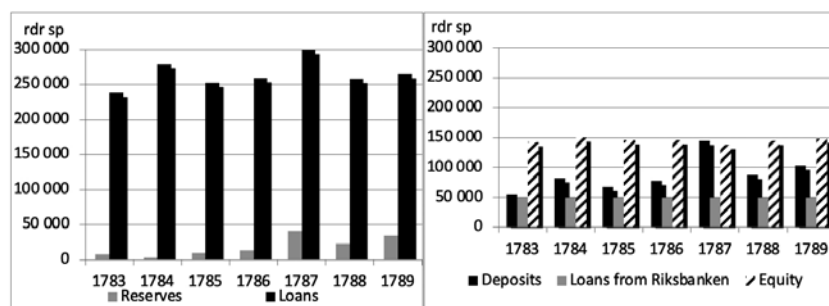
Source: Fritz (1967, p. 256, Table XXI).

Figure 2.4. *Malmö diskont balance sheets, 1813–1816.*
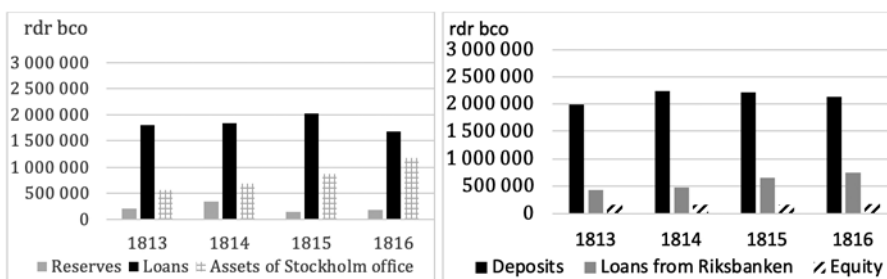
Source: Kärrlander (2008, p. 50).

Note: Assets of the Stockholm office, "Conto med Tit. Wilhelmsson", contain reserves and loans. Loans from ("Wexelbanken räkning no 2") may be assumed to contain both recorded loans at the *Riksbank* and outstanding assignations. Equity is the sum of statutory capital and reserved profits. The reserve ratio (reserves/(deposits+loans from *Riksbank*en)) varied between 5 and 13 per cent. The solvency ratio (equity/total liabilities) was stable at 5 per cent.

The relative use of funds by the younger *diskonter*, may be estimated indirectly from the size of deposits and outstanding assignations at the end of the year. These are shown for each *diskont* in Figure 2.5 together with loans from Andersson (1983, 1985). Equity and loans from the *Riksbank* are only known for *Malmö diskont* (Figure 2.4). Deposits dominated as a source of funding at *Malmö* and *Göta kanal diskont*, while deposits and outstanding assignations were of equal size for *Göteborgs diskont*. Together assignations and deposits funded almost all of the increase in lending (Figure 2.7). This is consistent with the low reserve and solvency ratios below 10 per cent seen in the case of *Malmö diskont* (Figure 2.4, note).

Figure 2.5. *Assignations and deposits 31 December and average loans for the younger diskonter, 1803–1817.*
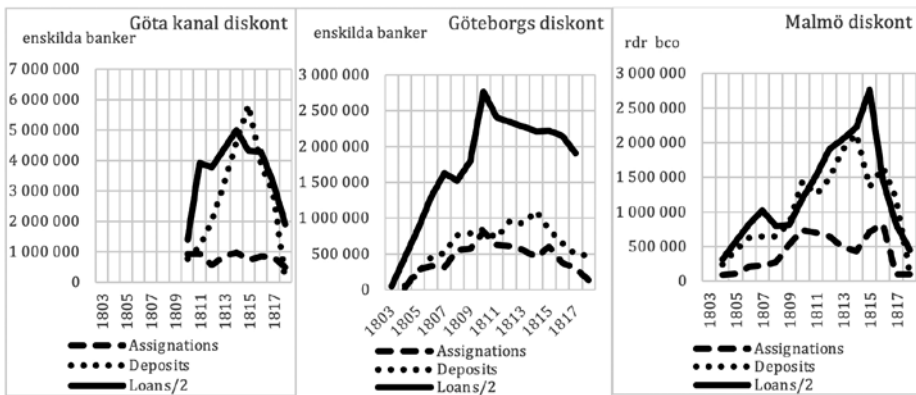
Source: Deposits and assignations from Bankoutskottets akter, 1823, del III, p. 1639, Riksarkivet (Swedish National Archives) with the title "… de uphörde Filial-Diskonternes utelöpande Assignationer och 3 procents Sedlar [reverser in column heads] 31 December", that is, outstanding values at year-end. The figures are reproduced in Brisman (1924, p. 244), under the title "Assignationer och depositioner". Loans from Andersson (1983, 1985).

Note: The loans are accumulated loans over the year divided by 2. With an assumed loan maturity of ½ year, "Loans/2" is the average at any time in the year, comparable to end-of-year data. Lending of Göteborgs diskont has been interpolated between the years 1811 and 1814. Andersson (1983, 1985) presents yearly accumulated assignations, deposits, and loans, but not end-of-year data.

Lending

The charters' provisions for lending for the older and younger *diskonter* were identical. They issued discount loans with interest at 6 per cent paid upfront and subtracted from the amount paid out. The loans could be secured with a personal pledge, personal pledge with cosigner (*borgen*) or with security in property (*hypotek*, mortgage), goods, or securities. The loans were issued with 3 to 9 months' maturi-

ty.[49] *Diskontkompaniet* and *Generaldiskontkontoret* only allowed maturities up to 6 months, which appears to be the most common maturity for all the *diskonter*.

The maturity of loans was enforced by charging late payers a penalty rate backed up by prompt enforcement after giving notice to the bailiffs. From the beginning, the loans were granted the same legal protection as foreign bills. Prolongations (*omsättning*) were occasionally allowed on the condition that at least part of the original loan was repaid.[50] *Diskontkompaniet, Göteborgs diskontkontor,* and *Generaldiskontkontoret* avoided prolongations of existing loans*,* while *Generalassistanskontoret* allowed them.[51] Andersson (1976, 1983, 1985) indicates that the majority of loans granted by the younger *diskonter* were paid on time or even before. Loan defaults occurred, but never threatened solvency except in the case of the demise of *Malmö diskont* in 1817. This testifies to both the good security offered, which was backed by the legal system, and loan rationing to the most reliable borrowers.

Regarding the identity of borrowers, Fritz (1967, pp. 182–185, 209–213) provides data for the older *diskonter*. Fritz (1967, pp. 236–238) and Andersson (1983, pp. 60–61) provide data for *Göteborgs diskontkontor.* The general result of their investigations shows that the majority of the borrowers were businessmen (*näringsidkare*), which according to the statutes should be the prime eligible group. The largest group was merchants, who also borrowed the largest amounts, with artisans coming second. The loans financed working capital in the form of inventory of finished goods or goods in production, which were used as collateral together with personal bonds. Other borrowers at the *diskonter* were the state-appointed middlemen (*stadsmäklare*), who lent to individual borrowers lacking sufficient collateral; public corporations; and iron ore owners, but also public officials, against the statutes.[52]

The lending in *rdr sp* for each of the older *diskonter* is shown in Figure 2.6. Complete data exist for *Göteborgs diskontkontor* and for *Generaldiskontkontoret* from their founding until 1789. No data on lending exist for *Diskontkompaniet*. Instead, estimates have been made by assuming that its lending in 1787 was equal to the lending of its immediate successor *Generaldiskontkontoret* from 1780. For *Generalassistanskontoret* there are only five observations. The missing years' lending has been estimated by interpolations. Details of these estimates are given in the note to the figure. The lending of *Jernkontoret* and *Manufakturdiskonten* is included for which there are yearly data for all years. The estimates of the yearly series are used in the calculation of financial depth in the last section.

---

49 Fritz (1967, p. 120) reports that *Generalassistanskontoret* applied in 1774 for the right to open cash credits, that is, fixed credit lines backed by securities inspired by Scottish banks. Whether or not this was implemented is not known.
50 Fritz (1967, p.122, p. 177, 213–214, 241).
51 Fritz (1967, pp. 122, 187, 215, 240–241, 243)
52 Brisman (1924, p. 11).

Figure 2.6. *Lending at year-end of the older diskonter, Manufakturdiskonten, and Jernkon-
toret ,1773–1789.*
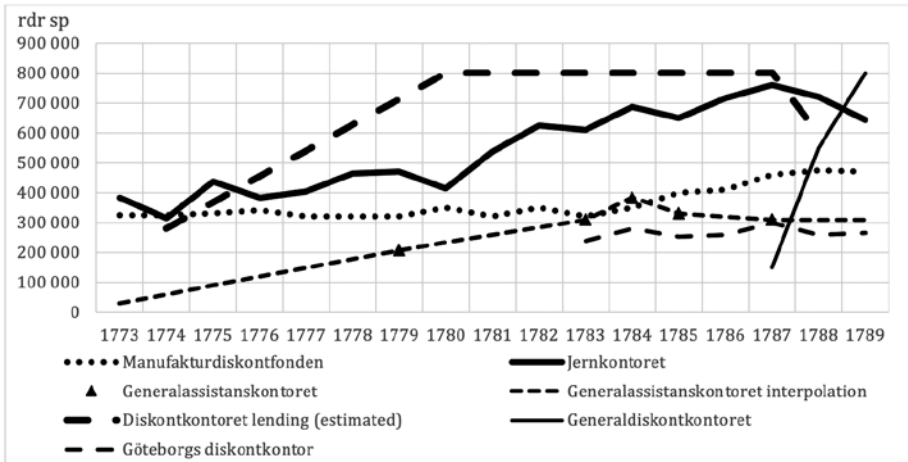
Sources: Manufakturdiskontfonden: Fritz (1967, Figure 7, series B, p.85), Generalassistanskontoret:
Fritz (1967, Table XIII, p. 256), Diskontkompaniet, see note), Generaldiskontkontoret Fritz (1967,
Figure 13, series C, p. 203)**,** Göteborgs diskontkontor: Fritz (1967, Table XXI, p. 266), Jernkon-
toret and Manufakturdiskonten: see Figure 2.26.

Note: For the period 1773–1774, the lending of *Diskontkompaniet* is assumed to be equal to its
paid-in statutory equity which was fully paid in by 1774, (Fritz (1967, p. 163). Deposits and lend-
ing increased from 1775 to 1780, when growth stagnated, see Fritz (1967, pp.168–169). I have
assumed that its lending in 1780–1787 was constant and equal to the level of lending reached by
its successor *Generaldiskontkontoret* in 1789 at 800,000 *rdr sp*. The starting point for *Generalassistan-
skontoret* is its equity, which was its only source of funds when it began. Thereafter, the series have
been linearly interpolated for the missing years.

Regarding the younger *diskonter*, the available data on lending are the accumulated
yearly loans in Andersson (1976, pp. 133–135; 1983, 60–61; 1985, 27–29). To trans-
late the accumulated data to average-year data to be comparable to end-of-year data,
I have assumed that the maturity of all loans is six months. On average, the lending
stock at a point in time is then the yearly accumulated value divided by two, which
is shown for the individual *diskonter* in Figure 2.5. Support for the assumption is
given by Andersson (1983, 1985) who found that on average 40 per cent of the accu-
mulated loans were outstanding at the end of the year for the *Göteborgs diskont*, 50
per cent for the *Göta kanal diskont,* and 45 per cent for *Malmö diskont*. The sum of
lending for all the *diskonter* follows closely the total funding from assignations and
deposits as seen in Figure 2.7. Due to the inflation 1808–1812, which doubled the
price level, the real increase in lending was half the nominal increase.

Figure 2.7. *The sum of assignations and deposits at year-end and lending (accumulated lending/2) of the younger diskonter, 1804–1817.*
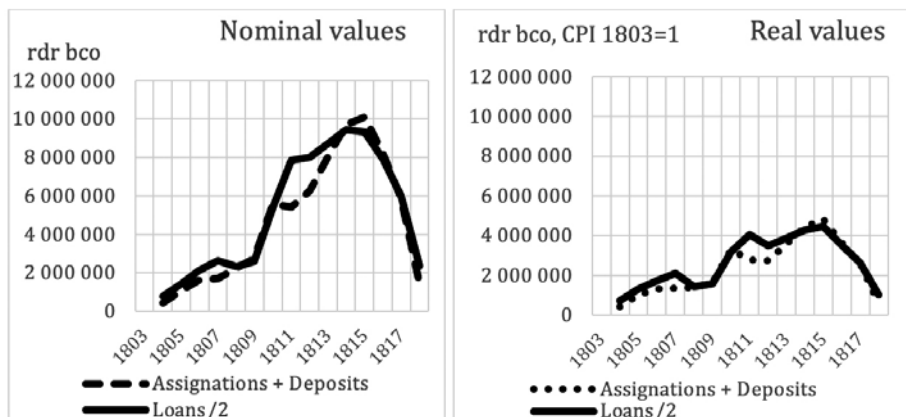
Sources: See Figure 2.5. CPI: Edvinsson and Söderberg (2010, Table I.A8.1).

Liquidity management and the demise in 1817 of the younger *diskonter*

The legal 6-per cent lending maximum and the 3 per cent deposit rate precluded the use of interest rate variations to equalize the supply to demand for loanable funds. At the same time, the *diskonter* were fractional reserve banks with a maturity mismatch between short-term funding and mostly 6-months loans. All the *diskonter* had access to a credit line from the *Riksbank* (Table 2.2), and they used it more or less continuously. The credit line reduced the need to carry precautionary non-interest-bearing reserves and explains their occasional use of the 6-per cent credits as a liquidity reserve. This in turn enabled the *diskonter* to extend more credit than without the backing of *Riksbank* credit.[53] There was a supply effect on the amount of credit given as the *diskonter* could carry more deposits for given reserves and degree of deposit volatility. There was also a demand effect from the *diskonter* receiving more deposits as these were perceived to be backed by the *Riksbank* credit line.

These effects improved the liquidity of lending by less rationing. An indicator of the degree of rationing is whether new lending was available continuously. *Diskontkompaniet* never completely stopped new lending, while it occurred at the other older *diskonter*. The younger *diskonter* appear also to have avoided longer lending stops, despite the larger incidence of crises. The backing of the *Riksbank* credit line at a constant interest rate at the central bank is reminiscent of current central bank practice of supplying banks with central bank money at a given interest rate.

---

53 This conclusion is drawn by Fritz (1967, p. 274) for the older *diskonter* and by Andersson (1983, p. 66;1985, p. 48) for the younger.

While the younger *diskonter* were set up as the old, they gained a new source of funds in the assignations which circulated as money. They were also granted increasing *Riksbank* credits. The cause was the larger volatility in the business cycle. Shocks emanated from the Napoleonic wars and the war with Russia 1808–1809. Crises years with declines in deposits occurred in 1805, 1808, 1809, 1812, 1815, and 1817 (Brisman 1924, pp. 34–51). The crises in 1809 and 1815 caused the most severe runs, which were quelled by extended emergency credit lines at 6 per cent from the *Riksbank* through the *Riksdiskont* (Table 2.2).[54] The *Riksbank* thus acted as a lender of last resort following the Thornton-Bagehot rule of lending at a high interest rate against good security. As part-owner, the *Riksbank* had a strong incentive to give liquidity assistance. The *Riksbank* stopped the panics, which were short-lived and therefore do not show up in the yearly series (Figure 2.7).[55]

All three of the younger *diskonter* were closed in 1817 after a general bank run precipitated by credit losses in *Malmö diskont*. The Riksdag decided to reimburse all the creditors to avoid a deeper general business downturn, which began 1815 at the end of the Napoleonic wars. *Riksgäldskontoret* administered their assets, that is, the loans, to recover the losses, a process that lasted until 1848.[56] The loans were fully recovered from *Göteborgs diskont* while the *Malmö diskont* and *Göta kanal diskont* credit losses could not be fully recovered.[57]

To sum up, the *diskonter* appear internationally unique in their modern form of fractional reserve banking with the central bank as a liquidity provider – the banks' bank – in both normal and panic times. They were regarded as questionable institutions by contemporary observers after their demise. Andersson (1983, pp. 61–63; 1985 pp. 47–49) points to the inherent difficulties caused by the volatile environment during the Napoleonic wars, but also argued that they contributed to the economic development in their locations. It should also be pointed out that the *Riksbank* acted successfully as lender of last resort for the younger diskonter, and only when *Malmö diskont* became insolvent did the system break down. The older *diskonter* closed down not because of panics or credit losses, but because the demand for loans disappeared with the change to the new currency *riksdaler riksgälds*.

---

54   Brisman (1924, p. 42, p. 52). Fritz (1967, p. 43) reports a similar extension of 6 per cent emergency credit 1780 to *Diskontkontoret*.

55   The Riksbank appears to be a pioneer. The concept and the case for the central bank as a lender of last resort was laid out in detail by Thornton (1802), but I have not found any example before 1847 when the Bank of England acted as such. See Humphrey (1989) for the development of the lender-of-last-resort function by Thornton and Bagehot.

56   *Riksgäldskontoret*, the Swedish National Debt Office, is an authority governed by the Ministry of Finance since 1988 and today is the caretaker of insolvent banks.

57   The credit losses at *Malmö diskont* were caused by large loans to three of its directors, who were subsequently found guilty of fraud and imprisoned. See Kärrlander (2013) for a study of *Malmö diskont* from an institutional economics perspective and Andreen (1958, pp. 347–350, 397–408) for the process in the *Riksdag* taking responsibility for the debts through *Riksgäldskontoret*, then an authority under the *Riksdag*.

3. 1820–1870: The creation of a modern bank system

Overview

The banking system developed from 1820 to 1870 with new private institutions:

- thrifts, *sparbanker,* from 1820
- joint-stock unlimited-liability note-issuing banks, *enskilda banker,* from 1831
- building societies, *hypotekföreningar,* from 1832
- joint-stock unlimited-liability banks, *filialbanker,* from 1852
- joint-stock limited-liability banks, *kreditaktiebolag,* from 1864

The period 1820–1870 is the formative period for the modern banking system. The growth in lending relative to GDP per institutional type 1820–1870 is shown in Figure 2.8. Ahnland (2022, this volume, Figure 3.1) shows the continued development from 1870 to 2018.[58] *Hypoteksföreningarna* was the largest lender over the whole period. The lending of *sparbanker* grew steadily, while *enskilda banker* grew in bursts in the 1830s, late 1840s and after 1857. The lending of *filialbanker* was comparatively small and they were gradually dismantled after 1862. The first limited -liability bank started in 1864 with *Skandinaviska Kreditaktiebolaget*, for which data only are available from 1869.

The lending of the two 18th-century institutions *Jernkontoret* and *Manufakturdiskonten* continued throughout the whole period. While limited, their lending was significant in the hiatus of commercial banks between 1817 and 1831 (Figure 2.6). For this period, they and the fledgling *sparbanker* were the only lending institutions outside the *Riksbank*.

---

58 The figures for 1870 are 22 per cent higher in Ahnland (2022) due to his inclusion of the insurance sector and Riksbank lending.

Figure 2.8. *Lending/GDP of private financial institutions 1834–1870, %.*
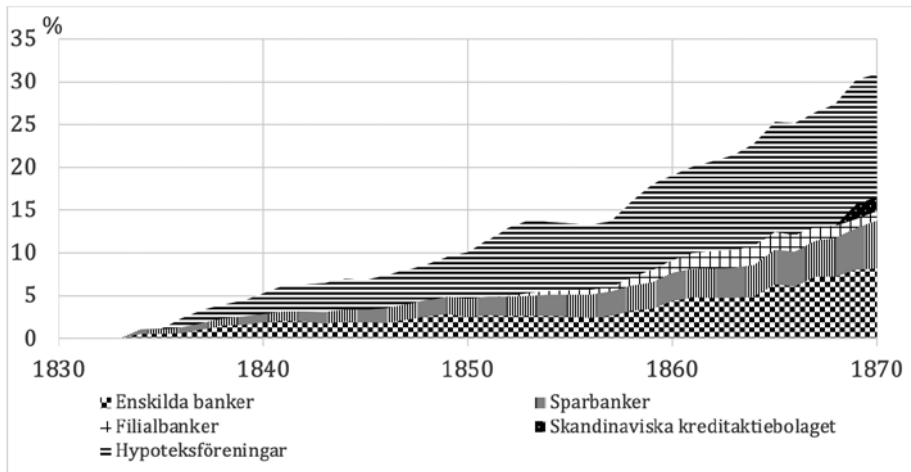
Sources: *Sparbanker* 1834–1860: *Finanskommittén* (1863) Table XXII; 1861–1865: *Statistisk tidskrift* 1865, second volume, booklet 8–14, Table no. 3, p. 335; 1866–1870, *Sveriges officiella statistik*, Summary, 1870, 1872, Table 42. For the other institutions, see figures below.

Notes: Lending is proxied by the sum of equity and deposits (= assets) for *sparbanker*.

The new banks' main sources and uses of funds are summarized by institutional type in Table 2.4.

Table 2.4. *Main sources and uses of funds by private institution, 1820–1870.*

Institution	Ultimate sources	Main debt type	Uses
sparbanker 1820–	domestic savings	deposits	smaller local loans
enskilda banker 1831–	seigniorage, domestic savings	notes, deposits	local loans
hypoteksföreningar 1832–	foreign savings	bonds	larger local loans
filialbanker 1852–	domestic savings	deposits, Riksbank loans	local loans
kreditaktiebolag 1864–	domestic savings	deposits	larger loans

The number of banks is shown in Figure 2.9.

Figure 2.9. *Number of banks, 1820–1870.*
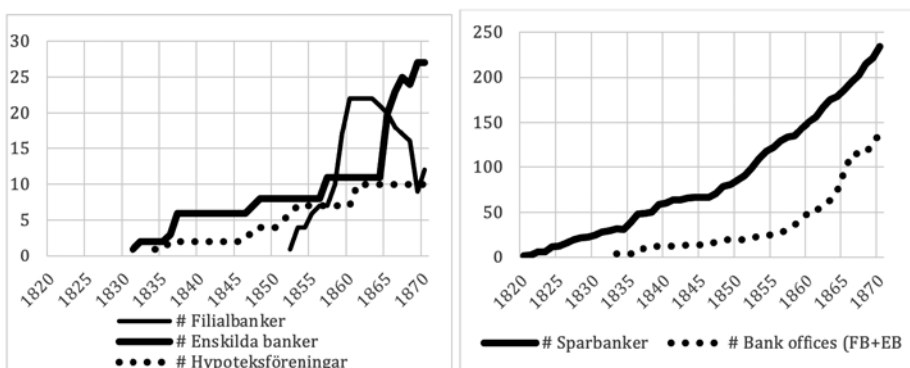
Sources: Number of *enskilda banker* and bank offices: Brisman (1924, p. 245) and Brisman (1934, p. 219); *sparbanker*: Statistics Sweden (1960, p. 102), *filialbanker: 1852–1859: Finanskommittén* (1860a), *1860–1870*: Söderlund (1964, p. 103), *hypoteksföreningar: Nordisk familjebok*, 1910.

Data

A wealth of data are provided in the reports (*underdånigt betänkande*) by the government inquiry *1858 års finanskommitté*, which cover the period from the return of convertibility 1834 to 1859/1860. The official statistics begin 1866. The gap between 1860 to 1865 has been filled with balance sheet data for *enskilda banker* and *filialbanker* summarized in yearly *Tablåer* from Bankbyrån (1860–1865), at the Ministry of Finance, which are available at *Riksarkivet* (Swedish National Archives). Since 1866, quarterly data have been published by Statistics Sweden in *Sammandrag af de enskilda bankernas qvartalsuppgifter*, which included *Skandinaviska Kreditaktiebolaget* from 1869.

Data for *Filialbanker* and *sparbanker* are published in *Sveriges Officella Statistik* (included in *Statistisk Tidskrift*) published by SCB since 1865. Finanskommittén (1863), which discussed the general economic and financial development of Sweden, includes data on deposits and equity for *sparbanker* at five-year intervals from 1834 to 1860. Yearly data from 1861 on deposits and equity for *sparbanker* were published in *Statistisk Tidskrift*.[59] The series began with Berg (1865) covering the period 1861 to 1864. Finanskommittén (1860b) provides yearly data of the *hypoteksföreningar*

---

59 See Sommarin (1942, pp. 178–182) on the foundation and organization of *sparbank* statistics.

from 1834 to 1859. Data are missing from 1860 to 1869 before official statistics start in 1870.[60]

Thrifts – *sparbanker*

The first Swedish *sparbank* opened in Gothenburg in 1820.[61] Its immediate inspiration was an inquiry into the English thrifts initiated by the Riksdag in 1818 and published in 1819 as a royal ordinance. Its author, Carl D. Skogman, was a civil servant who had studied the movement in England.[62] The inquiry included a proposal for statutes, which became widely used as a template. In the early period, several *sparbanker* were initiated by the county governor (*landshövding*) appointed by the government. Their statutes were published as royal ordinances, which implied that they could not be changed without government approval. Thus *sparbanker* were officially sanctioned and encouraged, though unregulated and with free entry.

The goal was to encourage saving among the poor. These savings would give the poor contingency and pension buffers to smooth consumption. As in England, they were seen as a substitute to poor relief, which would encourage thrift, sobriety and work ethic. In practice, the bulk of funds came from deposits from well-to-do city dwellers for the first decades.[63]

Sparbanker were non-profit corporations governed by boards consisting of prominent members of the community with the depositors as the owners. Initially they were run without employees with business on Saturdays conducted in rooms supplied by benefactors or the city magistrate. The low costs enabled them to offer 5 per cent interest on deposits, while charging the maximum lending rate of 6 per cent. These interest rates continued during the whole period covered here with the exception of some city *sparbanker*, which offered 4 per cent on deposits.[64] Deposits were limited to maximum amounts. Gradually they came to hire employees and extend

---

60   Yearly balance sheet data for *enskilda banker* are also available in Riksbanken (1931). The balance sheets in Riksbanken (1931) consolidate *grundfondhypotek* and bond holdings, and for that reason are not used here. A third source for notes, bank reserves and total assets is Ögren (2003; pp. 45–46, 285–287), who collected data from the government gazette *Post- och inrikes tidningar*. The three sources are identical, with the exception of a few years. The note supply for the years 1860 to 1864 differs between Bankbyrån and Riksbanken (1931). Ögren (2003) reports lower note supplies than Riksbanken (1931) for 1866 and 1868. The differences range between 2 and 6 per cent. Figures in Brisman (1924, pp. 246–247) for 1834 to 1856 are identical to Riksbanken (1931).

61   The history of *sparbanker* is discussed by Sommarin (1834, 1940). Nygren (1967) published data on lending for the larger *sparbanker* and in Nygren (1970) for *sparbanker* in Western Sweden. See Lilja (2004) for the role of *sparbanker* from a household savings perspective.

62   Skogman was state secretary at the Ministry of Finance from 1821 and became the key actor in banking legislation until the 1850s. See Andreen (1947) for a biography.

63   Finanskommittén (1863, Table XIII) reported that 30 per cent of the deposits in 1860 belonged to the working class.

64   Sommarin (1942, p. 145).

opening hours. Accumulated profits were used to pay off initial capital, build offices and for benevolent purposes in the local community.
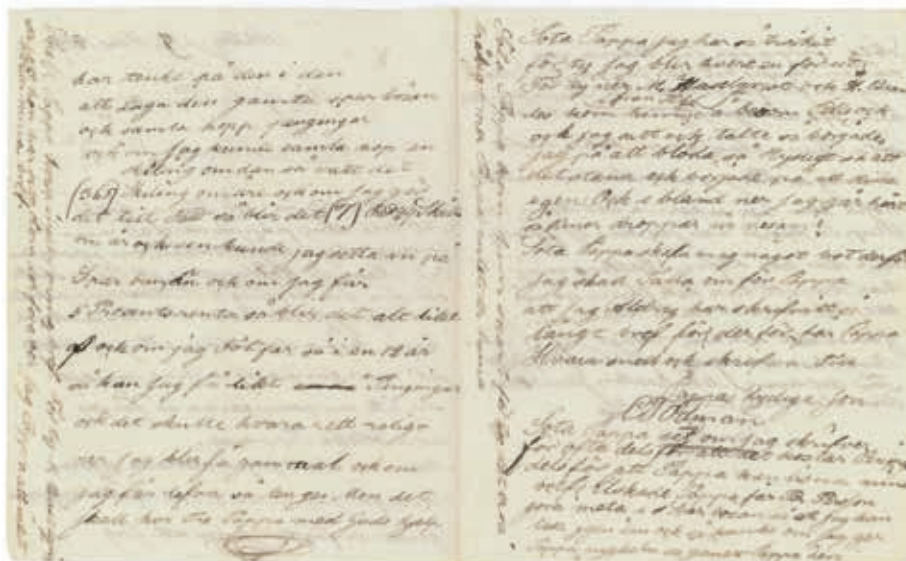
Letter from 1849. An 11 year-old boy explains to his father why he needs to give him money for a pipe shaft in order for the boy to save his own money at the saving bank at a 5 per cent interest rate payment.
Source: https://stockholmskallan.stockholm.se/post/31324

Nygren (1980, pp. 89–97) describes how lending gradually changed from small short-term consumption loans with cosigners to larger long-term mortgage loans with amortization, which carried less administrative cost in spite of more paper work with mortgage certificates etc. The mortgage loans were callable, but could last for several years. In times of deposit withdrawals, the short-term loans with cosigners were the first to be withheld. Nygren (1981) emphasized the uniqueness of the Swedish development in its adaption to local circumstances, made possible by the lack of government regulation and any central organization. Swedish thrifts differed from their Anglo-Saxon and French equivalents, which mainly lent to the state through bond purchases.

The number of *sparbanker* increased eightfold (Figure 2.9) and their combined funds rose 26-fold between 1834 and 1870 (Figure 2.8). The growth in their number followed a regional pattern starting with cities from the 1820s, then regions (*läns-*, and *häradsbanker*) from the 1840s, and finally villages (*sockenbanker*) from the 1860s. In the process, the scope of depositors and borrowers broadened. The viability and size of the *sparbanker* varied greatly with the largest ones located in the large

cities. The regional *sparbanker* helped with the transfer of savings from wealthier city depositors to agricultural investments.

Finanskommittén (1863) presented an aggregate balance sheet for the *sparbanker* in 1860, presented in Figure 2.10. Total available funds is equal to total equity as the depositors are the owners of the bank, so deposits represent the dominant part of equity in addition to the reserve fund at about 8 per cent of the balance sheet total. Virtually all funds were lent out in 1860 since reserves (cash reserves and deposit with other banks) amount to only 3 per cent of total assets. The 1860 balance sheet suggests that total funds may be used as a proxy for total lending for all years as in Figure 2.8.

Figure 2.10. *Liabilities and equity (top) and assets (bottom), 1860.*
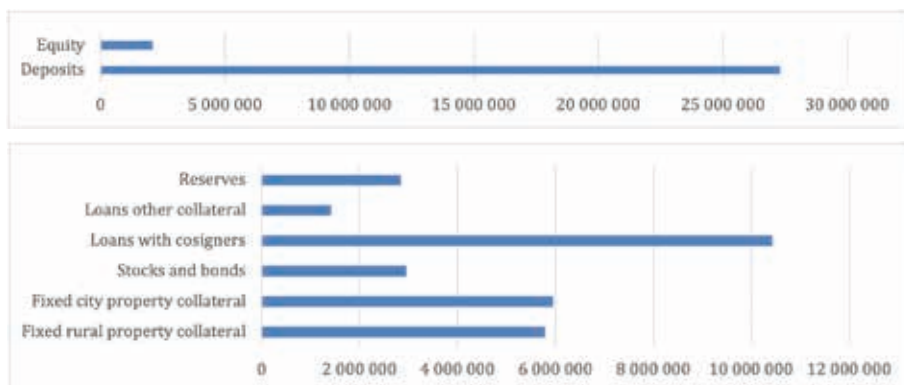
Source: Finanskommittén (1863, Table XXIII).

Note: Reserves have been calculated as: (equity and deposits) – (lending + stocks and bonds + deposits at other banks).

The *sparbanker* faced the same liquidity problems as other banks. Their history is described by Nygren (1970, pp. 14–23) as switches between periods of "deposit surpluses" and "lending surpluses". Deposit surpluses were managed with a combination of: 1) rationing the right to deposit by reducing the maximum size of deposits, 2) depositing funds at the *enskilda banker*, or 3) investing in bonds. In periods of lending surpluses, loans were rationed by: 1) stopping new loans, 2) increasing amortization of existing loans, and 3) setting limits on loans. In cases of increased deposit withdrawals, deposit maturity terms were enforced more strictly.

The most severe test for all the banks occurred during the international crisis in 1857 and 1858. The *sparbanker* experienced increasing withdrawals and decreasing new deposits, so a lending surplus occurred. Sommarin (1942, pp. 138–139) ventured that the cause was the increased interest rates in the informal market, and not

a panic. In addition to restrictions on lending, some *sparbanker* borrowed money at *enskilda banker* or in the informal market. No *sparbank* failed, nor any other bank, see below.

Building societies – hypoteksföreningar[65]

Building societies, *hypoteksföreningar,* started in 1832 with *Bruksägarnas hypotek-skassa* for the iron industry. It was followed by *hypoteksföreningar* for the agricultural sector. *Skånska hypoteksföreningen*, established in 1836, was the first, followed by five more between 1846 and 1852, and three in 1861. The inspiration for *Bruksägarnas hypotekskassa* and *Skånska Hypoteksföreningen* came from Prussia, where they had existed since the late 1700s. The immediate inspiration for *Skånska Hypoteksföreningen* was a booklet by professor Carl Adolf Agardh (1833), who also participated in its founding.[66] They were set up to provide long-term loans with maturities between 30 and 40 years against mortgages in real estate. Initially they consolidated short-term loans and continued with financing land purchases and improvements in the increasingly export-oriented agricultural sector. The statutes for each *hypoteksförening* were published as royal ordinances. They were owned by the borrowers with voting rights proportional to the size of their loans. Thus they were officially sanctioned, while largely unregulated and with free entry like the *sparbanker*.[67] The agricultural *hypoteksföreningar* were dominated by large land-owners, often belonging to the nobility.

   The main part of funding was foreign bonds (Figure 2.11). *Bruksägarnas hypotekskassa* was the first to borrow long term abroad, followed by the agricultural *hypoteksföreningar*. They issued 30- or 40-year bonds, which were marketed in Berlin and Hamburg, and later in London. In a few years, foreign long-term bonds dominated funding (Figure 2.11).[68] They issued domestic long bonds from 1853.

   The foreign borrowing was supplemented by short-term domestic bonds, used primarily by *Skånska hypoteksföreningen*. They constituted around 20 per cent of the funding of *hypoteksföreningar* (Figure 2.11). Given their large total lending, 20 per cent represented a large part of domestically funded lending, constituting the same size as the total lending of the *enskilda banker* or the *sparbanker* around 1850. They were similar to the private promissory notes with six-month maturity or callable and were traded alongside promissory notes at the city exchanges in the large cities. They were attractive as they were safer than the individual promissory notes and there were few alternatives. *Enskilda banker* were reluctant to offer deposit accounts before 1857 and then only at 3 per cent. *Sparbanker* had maximum limits on deposit size. These institutions were instead buyers of the short-term bonds issued by the *hypoteksfören-*

---

65 This section builds on Nygren (1981, 1983) and Sommarin (1936).

66 See Boëthius and Komnow (1968b, pp. 652–655) and Sommarin (1936, pp. 7–12).

67 One restriction imposed by the government was a maximum limit on foreign borrowing, which appears not to have been binding.

68 An exception was *Skånska Hypoteksföreningen*, which did not issue foreign bonds before 1858.

ingar, especially in periods with low market interest rates. They were also bought by *Riksgäldkontoret* from 1842, when the government had been instructed by the parliament to invest budget surpluses to receive the highest yields.[69]

The maturity mismatch caused by the redeemable bonds, most pronounced for *Skånska Hypoteksföreningen*, did not create liquidity problems as long as the demand for their short bonds grew. This ended in 1856, when Swedish exports fell at the end of the Crimean war. The downturn was exacerbated with the international financial crisis in 1857. The liquidity crisis was solved by a combination of lending reductions, temporary loans, and reserve reductions. Most of these reserves, which emanated from funds not yet lent, were placed in *enskilda banker* and *publika kassor*, shown in Figure 2.12 as short lending. New lending was temporarily stopped and amortization was enforced more strictly. *Riksgäldkontoret* agreed to convert their holdings of redeemable bonds issued by the *hypoteksföreningar* to longer bonds at a higher interest. Liquidity support was given by the government, who had taken up a foreign loan of 12 million *riksdaler banco*, which was distributed by the *Riksbank* to *hypoteksföreningar* and *enskilda banker*.

The 1857 crisis triggered a government initiative to regulate the funding of the *hypoteksföreningar* through a new institution, *Sveriges Allmänna Hypoteksbank* (SAHB), which was granted a monopoly in 1861 on all long-term borrowing with land as security. The bank was chartered through an ordinance (SFS 1861:25), which also provided rules for the local *hypoteksföreningar* who were the owners of SAHB.[70]

The only data available between 1859 and 1869 are SAHB bond holdings. From 1870, official statistics are available for all outstanding bonds, divided between SAHB and *Hypoteksföreningar*, and lending. Figure 2.11 and Figure 2.12 include interpolated values between 1858 and 1870.

---

69   See Nygren (1983, pp. 29–35) on *Riksgäldskontoret* as a borrower, issuing bonds, in the 1820s and 1830s, and from 1842 as a lender, buying bonds from *hypoteksföreningar*, but also direct lending to *enskilda banker*.

70   The government provided a state guarantee and appointed the chairman and vice chairman of the five-member board.

Figure 2.11. *Bond debt of Hypoteksföreningar, Bruksägarnas hypotekskassa, 1836–1870, Sveriges Allmänna Hypoteksbank (SAHB) 1861–1870, and total bond issue, 1834–1870.*
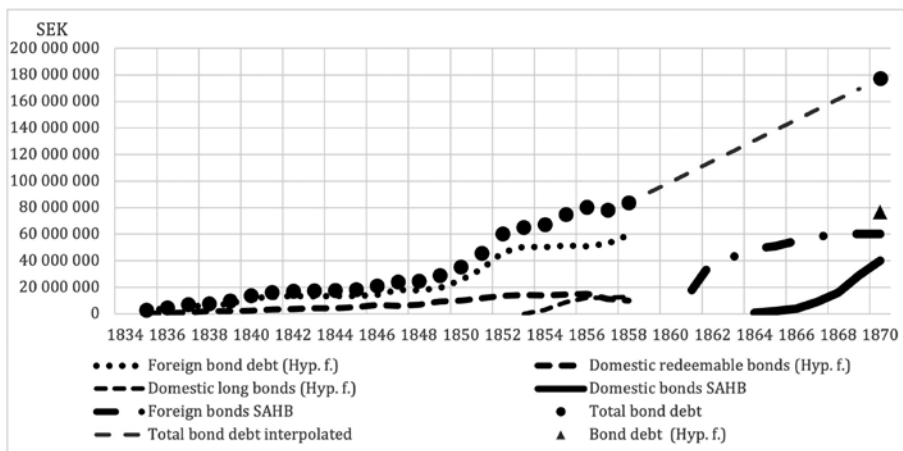
Sources: 1835–1858: Finanskommittén (1860b), Table XX, XXII, XIX; 1861–1870: Sveriges Allmänna Hypoteksbank (1911, figure last page). 1870: Statistics Sweden (1960, Table 82).

Note: Data for the *hypoteksföreningar* are missing from 1859–1869. Total bond debt is the sum of the debt of *hypoteksföreningar*, *Bruksägarnas hypotekskassa* and SAHB, linearly interpolated for 1859–1869 from the known values for 1858 and 1870.

Figure 2.12. *Total lending of Hypoteksföreningar and Bruksägarnas hypotekskassa, 1834–1870.*
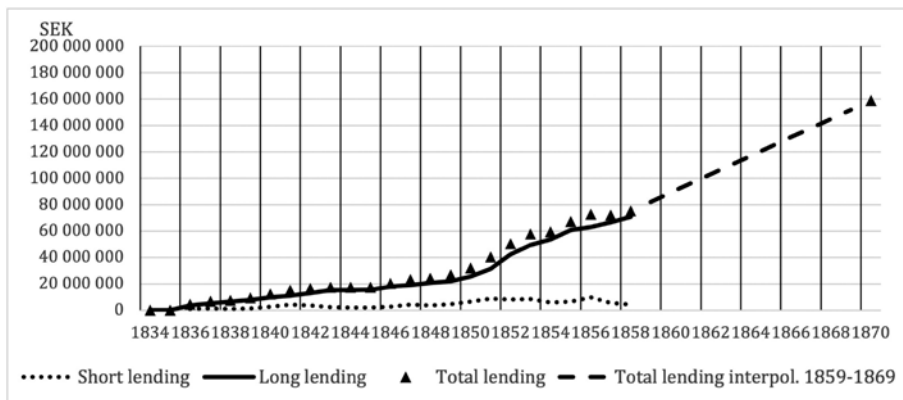
Sources: 1835–1858: Finanskommittén (1860b), Table IV, VI, XXVII, 1870: Statistics Sweden (1960, Table 82).

Note: Long lending for *hypoteksföreningar* is calculated as the sum of: 1) the previous year's long lending plus the change from the previous year's original loan values "*Amorteringslånens primitiva belopp*" minus amortization (*inbetalning på kapitalet*) (Table IV), and 2), Long lending for *Bruksägarnas hypotekskassa* is the remaining value of amortization loans "*Amorteringslånens återstående belopp*" (Tabell VI). Short lending: Table XXVII. Total lending is linearly interpolated between 1859 and 1869.

Joint-stock, unlimited-liability, note-issuing banks – *enskilda banker*[71]

Ownership, regulations and profitability

The bank ordinance of 1824 paved the way for privately owned, commercial banks. The ordinance declared that the state would not help under any circumstances, and that strict unlimited responsibility, expressed as "all for one and one for all" (*solidarisk ansvarighet*), would be imposed. Uncertainty over the future return to convertibility of the *riksdaler banco* delayed the foundation of new banks. In 1830, a convertibility rate to silver was ratified jointly by the parliament and government and implemented in 1834. The first bank, *Skånes Enskilda Bank*, was chartered in 1830 and began operations in 1831. It soon began using fixed-denomination, printed notes as its main funding.[72] The number of note-issuing banks grew to 6 in 1837. No new banks were chartered between 1838 and 1846. After the new ordinance in 1846, the number of banks increased from to 6 to 12 by 1857, when the international crisis hit Sweden. No new *enskilda banker* were founded between 1857 and 1863, after which a period of quick growth meant that there were 27 *enskilda banker* in 1870, covering most of Sweden (Figure 2.9).

The 1824, 1846, 1855, and 1864 bank ordinances stipulated that bank charters (*oktroj*) were given for ten-year periods. Before 1864, not all charter applications were accepted, due to resistance towards *enskilda banker* from the Riksdag. From 1864, all charter applications were accepted, so banking became a free-entry business.[73] In addition, the ordinance paved the way for regular charter prolongations. Their name, "*enskilda banker*" (private banks), was used in the 1846 ordinance and gradually adopted by all the note-issuing banks. Note issue was not mentioned in the 1824 ordinance and first appeared to be in violation of the constitution, but the issue was unclear.[74] The government, who issued the bank charters, choose to regard the private notes as legal, though not legal tender. Leading politicians with liberal leanings and the state secretary Skogman, who authorized the charters, were also knowl-

---

71   The information is based on the survey by Brisman (1924, 1934) and the monographs of the early individual banks written by economists and economic historians: Kock (1931a) *Skånska Privatbanken*, Kock (1937) *Smålands Enskilda Bank*, Brisman (1937) *Östergötlands Enskilda Bank*, and Söderlund (1977) *Örebro Enskilda Bank*.

72   Before 1858, it was called *Skånska Privatbanken*. Kock (1931b) cites a memoir of Aulin, who initiated the founding of the bank in Ystad, where he referred to banking in "England and America" as an inspiration. At first, the bank used printed fixed-denomination assignations on the Riksbank, hoping that they could issue more assignations than their deposits at the Riksbank by the assignations circulating as money. Their assignations were, however, quickly cashed. The idea was then born to issue fixed-denomination interest-free deposit receipts to borrowers, that is, notes.

73   Söderlund (1964, p. 102).

74   Montgomery (1934, p. 30) and Brisman (1924, pp. 84–90).

edgeable about the stable, note-issuing Scottish banks. The general opinion was that banks were needed, but that there would not be enough supply of deposits from the public to sustain their funding, so private note issue would be necessary. Thus, private note issue was accepted despite its dubious legality.

A private note issued in 1867 by Östergötlands bank, promising to redeem the note on call for 5 riksdaler riksmynt.
Source: https://digitaltmuseum.se/021029518409/sedel

The first two *enskilda banker* were subject to requirements on equity but not on note issue. Between 20 and 40 per cent of the required equity was required to be paid in cash according to the charters. For the remaining statutory capital, *grundfond,* the owners were required to provide mortgages in fixed property. The mortgage certificates, so called *grundfondshypotek,* were kept at the state's county office (*Lantränteriet* at *Länsstyrelsen*) in a box with two locks with one key kept by a member of the bank's board and the other by a state representative. These appear on the asset side of the balance sheet and constitute an illiquid part of the statutory capital on the liability side.

    Grundfondshypotek provided security for the depositors as well as for the individual owners in the case of bankruptcy when unlimited liability came into force. Brisman (1924, pp. 110–11) argued that the existence of *grundfondhypotek* was a necessary provision to attract buyers of the initial stocks.[75] The unlimited liability was an

---

75 It was considered a sufficient guarantee by the government, when it chartered *Östergötlands Enskilda Bank* in 1837 as a limited-liability bank, in contradiction with the 1824 ordinance, stating that "a private bank can even without unlimited liability fulfill all righteous claims for responsibility and security" (Brisman 1924, p. 110).

uncertain guarantee given the costly retrieval should a bankruptcy occur, manifested in the bankruptcy of *Malmö diskont* 1817. The *grundfondhypotek* was a credible guarantee for both depositors and owners as the mortgages were enough to cover any realistic credit losses (Table 2.6). In addition, several banks' charters included a clause that stipulated that the bank would cease if credit losses reached 10 per cent of the statutory capital.[76] In 1864, the unlimited liability was diluted by the provision that half of the paid-in capital could be issued as limited liability shares (*kommanditaktier*).[77]

The 1846 ordinance set the amount of minimum paid-in capital, paid-in cash, to 25 per cent. This requirement was kept in the 1864 ordinance, but the *grundfondshypotek* was required to include a minimum of one third easily saleable bonds and stocks. Figure 2.13 shows paid-in capital as a share of total statutory equity (*grundfond*) for *enskilda banker* and *filialbanker* banker, which after 1846 was close to the minimum requirement of 25 per cent.

Figure 2.13. *Paid-in capital as share of total statutory capital (grundfond) for enskilda banker and filialbanker, 1834–1870.*
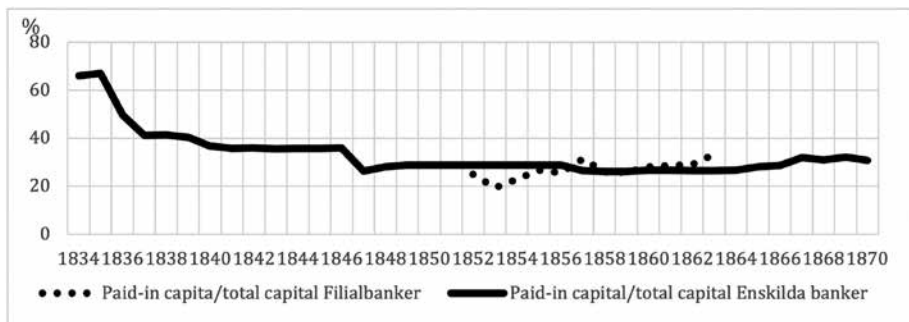
Note: Paid-in capital is what was paid in as cash by the original owners and calculated as grundfond – grundfondshypotek.

Sources: Finanskommittén (1860a, Table III), Bankbyrån (1860–1865), Statistics Sweden (1866–1867).

---

76 The provision occurs in the charters before 1848 in the *enskilda banker* of Örebro 1837, Wermland 1832 , Östergötland 1837, 1846, Småland 1837, Stora Kopparberg 1846, and Skåne 1839. It became a requirement in the 1864, SFS 1864:31, § 35.

77 SFS 1864:31, §3.

The 1846 and 1864 ordinances set a limit to the note issue, first used in the charters from 1836.[78] The maximum note issue was set as the sum of the *grundfondhypotek*, the reserve of *Riksbank* notes and deposits at the *Riksbank*, and half of the collateral put up for cash credits (credit lines). The minimum denomination was set in 1846 to 3 1/3 *rdr bco* (= 5 *SEK* or 5 *rdr rg*).[79] This was a restriction compared to before 1846, when the banks were allowed 2 *rdr bco* notes.[80] This restricted the demand for private notes and gave an advantage to the *Riksbank* who issued notes of as low as 1/6 *rdr bco* until 1834 and 1/2 *rdr bco* from 1834.[81] Yet the private 3 1/3 *rdr bco* note was a desired note denomination, which was not available from the *Riksbank*.

The number of owners was large with between 100 and 400 owners. The main category of owners was not businessmen, in contrast to the *diskonter*. The largest group of owners was "Other owners" who owned 51 per cent (Table 2.5). "Merchants, manufacturers and artisans" made up the second largest group, though only 18 per cent. Brisman (1924, p. 103) noted that the boards consisted mainly of civil servants and aristocrats, with the odd businessman.[82] It is likely that this represented the owners' characteristics. Personal wealth was necessary to put up the necessary capital, including the *grundfondshypotek*.[83] Trade in shares was rare as the board had to approve any sale and the collateral had to be approved by the government.

---

78 The charters from 1836 became stricter according to a law for *enskilda banker* adopted by the parliament in 1835, though never legally ratified, see Brisman (1924, pp. 94–97, 105). At this parliamentary meeting, the general opinion was positive to note-issuing banks despite constitutional doubts.

79 The daily wage for a laborer between 1812 and 1846 was about 0.5 *rdr bco*, when wages rose to 0.8 *rdr bco* in 1850 (Söderberg (2010, Table A9.1). It was considerably smaller than the minimum denomination in Scotland and England of 1 pound (≈ 11 *rdr bco* from 1834). The non-round denomination in *rdr bco* was due to the common use of *riksdaler riksgälds*, *rdr rg,* as an accounting unit using the convertibility rate from 1803: 1.5 *rdr rg* = 1 *rdr bco*, so the 3 1/3 *rdr bco* note represented 5 *rdr rg* relabeled as 5 *rdr rmt* in 1858 and 5 SEK in 1873 (*femma*). The size of the Riksbank note supply for different denominations is available in Riksbanken (1931, pp. 44–47).

80 This was the lowest denomination issued by *Skånes Enskilda Bank* from 1831, which became the minimum denomination in subsequent charters before 1846, see Platbārzdis (1965, p. 62).

81 Platbārzdis (1963, p. 28).

82 The composition of the boards coincides with the "aristocratic-bureaucratic" character of the government during the 19th century as described by Nilsson (1981). An exception was the first *enskilda bank*, *Skånska Privatbanken*, which was founded and owned by businessmen, see Kock (1931a, p. 56).

83 Brisman (1934, p. 229) characterized the owners as wealthy individuals.

Table 2.5. *Shares in per cent of number of individual owners and number of stocks of enskilda banker and filialbanker according to social group.*

	Owners *Enskilda banker*	*Filialbanker*	Stocks *Enskilda banker*	*Filialbanker*
Farmers	9	16	4	9
Estate owners	12	14	16	22
Iron ore owners	10	3	21	7
Merchants, manufacturers, artisans	18	34	15	30
Other social classes	51	34	44	32
Total	100	100	100	100

Source: Finanskommittén (1860a, Table XIII and XIV).

Note: The figures for *filialbanker* refer to 1860, for the *enskilda banker* the average of 1847–1859.

Table 2.6. *Key indicators of enskilda banker, 1831–1856 and filialbanker, 1852–1859.*

Enskild bank	Period	Losses/paid-in capital, %	Net profit/(paid-in capital + reserve fund), %	Reserve fund/ paid-in capital, %	Use of note issue right, %
Skåne	1831–1840		9		84
	1842–1846	0.2	21	3	93
	1847–1856	0.0	20	8	n/a
Wermland	1834–1841	0.0	13	10	55
	1842–1846	1.0	11	5	78
	1847–1856	0.1	13	7	67
Kopparberg	1836–1847	0.0	13	19	48
	1848–1858	0.5	12	16	n/a
Östgöta	1837–1847	0.1	15	15	74
	1848–1857	1.1	16	11	73
Örebro	1838–1847	0.0	16	4	77
	1848–1857	0.0	15	5	68
Småland	1838–1847	0,0	20	13	76
	1848–1857	0.3	15	4	66
Mälare	1848–1857	0.7	12	10	81
Göteborg	1848–1857	0.0	10	14	n/a
Mean: *Enskilda banker*	1831–1857	0.3	16	9.5	72
Mean: *Filialbanker*	1852–1859		5.3	5.4	

Sources: *Enskilda banker*: Finanskommittén (1860a), Table VIII. Skåne 1831–1840: Kock (1931a, p. 183); *filialbanker*: Finanskommittén (1860a), Table IX.

Table 2.6 shows profitability for the eight *enskilda banker* before 1857 calculated as net profits divided by paid-in capital plus reserve funds, that is, total equity (capital) minus *grundfondhypotek*. The yearly profit rates for *enskilda banker* and *filialbanker* 1850 to 1870 is shown in Figure 2.14. Kock (1931a, 1937) and Brisman (1937) use the slightly different net profits measure divided by paid-in capital. The difference though is small since reserve funds were low in the first decades due to the short ten-year charters. The standard measure of return on total equity (ROE), results in significantly lower profitability (Figure 2.14), since total equity includes the *grundfondhypotek,* the largest part of total equity. The character of this illiquid part of the equity as collateral in the case of bankruptcy, while still being owned individually and yielding a return, is reason to exclude it from the calculation of the profitability of the bank.[84]

Figure 2.14. *Profitability of enskilda banker and filialbanker, 1850–1870.*
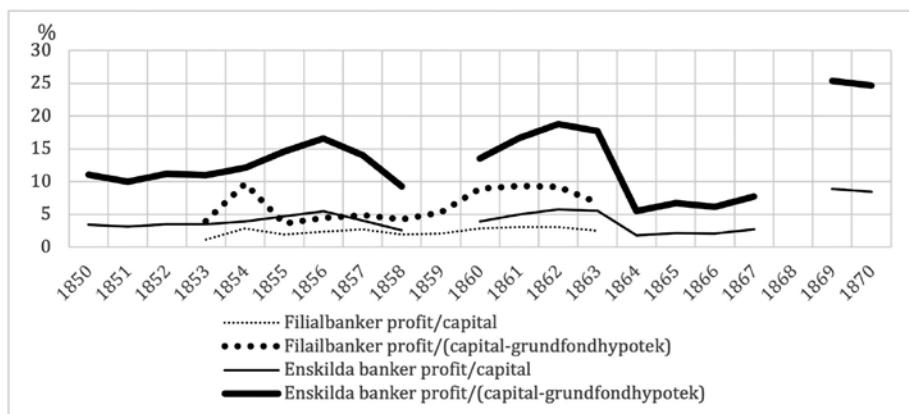
Sources: *Enskilda banker*,1850–1858: Finanskommittén (1860a, Bihang, Tables II and III), net profit/ paid-in capital, with paid-in capital = *grundfond - grundfondhypotek*; 1860–1865: Bankbyrån (1860–1865) and Statistics Sweden (1866–1867), with paid-in capital equal to "*till lottägare – grundfond-hypotek*", *Filialbanker, 1853–1859* Finanskommittén (1860a, Bihang, Table V, litt. B, with paid-in capital (*lottägarna tillskjutet kontant*). Smålands Bank: Kock (1937, Table 1, p. 194).

Funding and the enskilda banker as creators of money

Table 2.7 shows the balance sheet items. Funding of lending before 1857 consisted mainly of private notes paid out for loans, that is, credit-created money. The note-lending ratio varied around 100 per cent between 1836 and 1856 after which it decreased to 40 per cent due to the rapid rise in deposit financing. The ultimate

---

84 According to Nilsson (1981, p. 391) owners who provided cash instead of g*rundfondhypotek* received 5 per cent interest.

source of income from the note issue was the seigniorage paid by the note holders by foregoing interest income.

Table 2.7. *The balance sheet of enskilda banker.*

Assets	Debt and Equity
Owners' mortgages (*grundfondhypotek*)	Interest-bearing deposits (*depositionsräkning*)
Loans	Non-interest-bearing deposits (*upp- och avskrivningsräkning*)
Reserves:	Notes
Riksbank notes	Equity:
Riksbank deposits*	*grundfond*
Bonds and stocks	*reservfond*

* From 1855.

For the public to accept the notes, the ready convertibility of private notes to *Riksbank* notes was vital, in particular to pay taxes and other public fees as the private notes were not legal tender. Convertibility of private notes into *Riksbank* notes was not mentioned in the charters and the ordinance of 1846. The 1864 ordinance (SFS 1864:31, §28), however, required convertibility and in case it was not upheld, that the depositor should receive 5 per cent interest on the amount (like the Scottish bank option clause before 1765). The government could in that case revoke the charter. Convertibility of private notes to *Riksbank* Banco notes, in turn convertible to silver (*riksdaler specie*) at the *Riksbank*, was a *sine qua non* for the *enskilda banker* from the beginning, no matter legal requirements. Their notes were inscribed: "[Name of bank] exchanges this note for [denomination] Riksdaler Banco".

The note issue required costly efforts to keep them in circulation. One cost was the payment of commissioners at locations outside the bank's residence to exchange private notes for *Riksbank* notes. At the same time, the banks strived to keep their notes in circulation by spreading them as widely as possible by giving businessmen and shopkeepers interest-free loans as note distributors (*sedelspridare*), who collected *Riksbank* notes in exchange for private notes.[85] The farther away from the bank's residence and the smaller the denomination, the longer they circulated. The banks also paid tax and custom collectors for receiving private notes, which the bank then changed to *Riksbank* notes. Other costs were the printing of notes and clearing arrangement with other banks, which included arranging safe transports of notes by post. The banks gradually increased cooperation by accepting each other's notes, which decreased, but did not eliminate, costly transports of notes.[86] A more efficient clearing system evolved after the first *enskilda* bank, *Stockholms Enskilda Bank*, was

---

85   Brisman (1934, p. 24).
86   Kock (1931a, pp. 170–176), Söderlund (1964, pp. 95–98).

established in Stockholm 15 October, 1856, which became an exchange agent for many of the banks.[87]

Ultimately, the note issue was determined by the public's demand for notes as a medium of exchange and their willingness to hold private rather than *Riksbank* notes. The share of private notes in the total note supply gradually increased over the period and reached 50 per cent in 1860 (Figure 2.15). Behind the increase in the demand for private notes was increased acceptance of private notes for tax payments, and increased acceptability of all private notes at *enskilda banker* from bank cooperation. Improved printing quality may also have contributed as forgeries were common. On the other hand, it appears that many banks accepted forged notes of decent quality in exchange for *Riksbank* notes to sustain their reputation.[88]

The banks learned from experience the amount of notes they could keep in circulation by lending and by the replacement of *Riksbank* notes with their own notes. Kock (1931a, p. 80) quotes the audit report of 1863 from *Skånes Enskilda Bank*: "The notes return at a more or less constant rate and it is not possible to keep notes in circulation by more than 500,000 *riksdaler*". The bank reduced its equity by 20 per cent the same year to maximize profits from its equity, when they realized that they could not use all their equity and reserves to back up lending. Brisman (1924, pp. 129–132) summarizes by saying that the amount of lending was determined by the note issue demanded by the public, not vice versa. In that case, the size of note issue was self-regulating such that the note issue limitations appear not to have been binding; vindicated by the relatively low share of issued notes to the maximum allowed (Table 6).

Figure 2.15 shows how the *Riksbank* note issue *de*creased between 1834 and the final year of private notes in 1904, while the *enskilda bank* note issue *in*creased. The private note issue grew on average by 7 per cent per year from 1834 to 1870, while the total outstanding note issue grew by 0.7 per cent per year. This suggests that the *enskilda bank* notes mainly replaced *Riksbank* notes, rather than contribute to the

---

87 The history of *Stockholms Enskilda Bank* and its role as a transformer of banking practices is discussed by Gasslander (1962) and Nilsson (1981). Its role in note clearing was taken over from 1864 by *Skandinaviska Kreditaktiebolaget*, see Söderlund (1964, pp. 115–120).

88 Brisman (1934, p. 25) and Platbārzdis (1965, pp. 39–43). Forgeries of private notes were legally treated as fraud until 1845, when an ordinance, SFS 1845:11, prescribed hard labor for 1 to 3 years. Forgery of Riksbank notes carried the death penalty according to the text printed on the notes until 1858 "*den som denna sedel efterapar eller förfalskar skall warda hängd … enligt förordningen 1754/1818*" (he who imitates or forges [changes denomination] this note shall be hanged according to the ordinance of 1754/1818), see Lindgren (1968, pp. 65–68, 157–159).

growth of the total note issue. In that case the *enskilda banker* to a large extent were funded by seigniorage appropriated from the *Riksbank*.[89]

Figure 2.15. *Riksbank and Enskilda bank note issue held by the public1834–1904.*
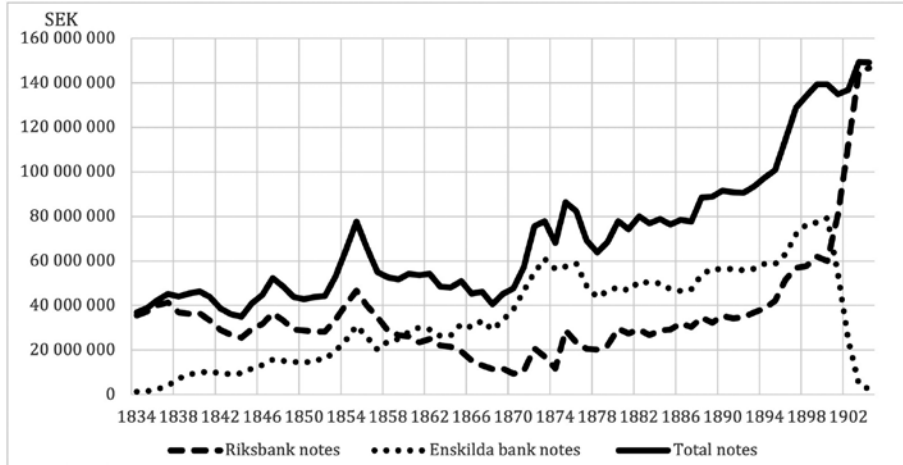
Source: *Riksbank*en V (1931), Finanskommittén (1860a), Bankbyrån (1860–1865), Statistics Sweden (1866–1904).

Note: *Riksbank* note issue held by the public = *Riksbank* notes– *Riksbank* notes held by private banks. *Enskilda bank* note issue held by public = *Enskilda bank* notes– *Enskilda bank* notes held by other private banks.

Sight deposits (*upp- och avskrivningsräkning*) were offered by most banks from the beginning with a limit in the charters to a maximum of 3 per cent interest. Time deposits (*depositionsräkning*) first appeared in 1856 at yields from 4 to 5 per cent. They were issued with a preassigned maturity between 1 to 6 months or with a stipulation of due notice between 2 and 6 weeks, or some combination thereof with a minimum amount. Sight and time deposits were predominantly issued against receipts of the individual deposit, that is, without an account book.

Deposits increased from less than 10 per cent of total funding in 1856 to 40 per cent by 1870. Until 1857, banks generally considered deposits too unstable and rationed their access by setting minimum and maximum amounts. The informal

---

89 Seigniorage calculated from the bank's perspective is equal to the interest earned on lending with notes minus foregone interest on reserve holdings of Riksbank notes and the costs of producing and spreading the notes. Since seigniorage may be considered a rent, the cost of spreading the notes incurred by the *enskilda banker* to drive out the Riksbank notes can be considered rent-seeking costs, which dissipate a portion of the seigniorage. A tax of 0.2 per cent per year on private note issue was imposed in 1860, Rosenberg (1878, p. 48).

market with high-yielding promissory notes was an established alternative for lenders. In 1857, the majority of *enskilda banker* followed the lead of *Stockholms Enskilda bank* by expanding time deposits as a funding source as seen by comparing Figure 2.16 and Figure 2.18. Behind the change to deposits with high interest was the gradual erosion of the 6 per cent interest ceiling described in the next section. Another factor was the international crisis of 1857, which made bank deposits safer than the promissory notes in the informal market. Rosenberg (1878, p. 17) reports that the two major categories of time deposit holders were individuals who lived on a small capital, like widows, and frugal workers outside the cities. A third category were *publika kassor*. Finally, public and parliament opinion demanded reforms to increase the supply of loanable funds through increases in deposit finance to spur economic development.[90]

Did deposits constitute money? In principle, the deposit receipts were bearer securities which could be transferred.[91] The transferability and hence moneyness of deposits was hampered by an initial lack of a general clearing system which would restrict payments without notes to within a single bank, in contrast to England and Scotland, where payments with check clearing across banks were common. The increase in deposit finance after 1856 was followed by a new clearing instrument – the banker's bill (*postremissväxel*). They were introduced by the *Riksbank* in 1855 for payments between its offices. From 1859, *Stockholms Enskilda Bank* established itself as clearing node through agreements between other banks. The banks accepted each other's banker's bills, which were cleared by *Stockholms Enskilda Bank*. They reduced the cost of money transfers considerably compared to the costly transport of notes as they were payable on demand without interest or taxes, only subject to stamp costs. Payment with banker's bills could thus be made without the use of cash across the country.[92] The increasing use of banker's bills thereby increased the moneyness of sight deposits in particular and simultaneously reduced the demand for notes. Still, after the initial jump in deposits between 1857 and 1860 in both sight and time deposits, the money supply, measured as media of exchange for immediate use, M1 (notes and coins plus sight deposits of *enskilda banker*), grew slowly at 1 per cent over the 1857–1870 period.[93]

---

90 Brisman (1934, pp. 30–44) and Lilja (2010).

91 The properties of different deposit accounts and the mechanics of payments are described in Rosenberg (1878, pp. 16–27).

92 See Söderlund (1964, pp. 95–97) and Nilsson (1981, pp. 233–239) on the origin of *postremissväxlar*.

93 Nominal GDP, from Edvinsson (2014), also grew by 1 per cent 1857 to 1870, so M1-velocity (nominal GDP/M1), remained constant. Edvinsson and Ögren (2014) report the components of the money supply, but only the broad M3 and the narrow M0 totals. They also include deposits from *sparbanker* in M3, excluded here. The constant M1-velocity could be the result of increased monetization which decreases velocity and increased financial sophistication, which increases velocity, from the increased use of time deposits (not included in M1) relative to notes (included in M1) as a store of value.

Figure 2.16. *Liabilities and equity of all Enskilda banker, 1834–1870).*
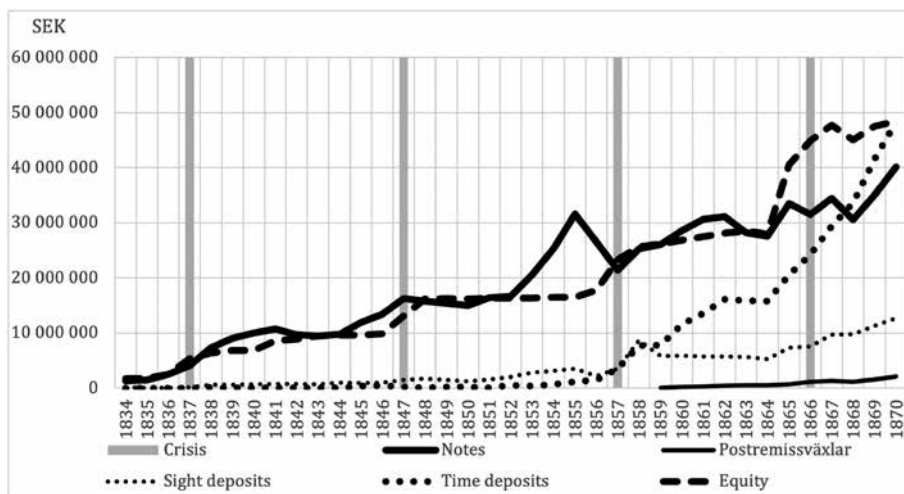
Source: Finanskommittén (1860a, Table III, IV), Bankbyrån (1860–1865), Statistics Sweden (1866–1870).

Note: *Postremissväxlar* (bankers bills), a minor item, are included in deposits.

Lending

Loans were initially issued as discount loans (*diskontlån*) or cash credit (*kassakreditiv*). The discount loans were secured with short-term promissory notes (*revers*) with a maximum of 6 months maturity, usually with cosigners (*borgenslån*), with the interest deducted at the start.[94] The discount loans included rights to reschedule part of the loan, so that its maturity could reach up to three years. The interest rate for loans was set at 5 per cent in the charters, following the *Riksbank*, which had lowered its lending rate in 1824 to 5 per cent.

Cash credit was issued as a credit line with a maximum amount. The inspiration, including its name *kassakreditiv*, came from Scottish banks. It was intended for use by businesses that needed ready cash intermittently and was granted against a fee and collateral in the form of cosigners or mortgages. A limit to the fee was set to 0.5 per cent by the 1846 ordinance, which was scrapped in 1857. After 1857, the banks could raise the effective interest rate above 5 per cent. An added advantage of the cash credits was the practice of requiring repayment at the end of each year, which let the banks exchange *Riksbank* notes for their own notes.

---

94 According to Finanskommittén (1860a, p. LIV), about 80 per cent of all lending was covered by cosigners and 15 per cent by personal security. Curiously, its tables do not include mortgages as security. Brisman (1934, p. 46) expressed skepticism against these figures and ventured that a large portion of the loans were actually covered by mortgages either directly or indirectly through mortgages of the cosigners.

A third form of lending, discounting of bills (*växeldiskontering*), was first introduced in 1854 by *Skånes Enskilda Bank* and grew from 1857 as a share of lending. Lending against bills was not subject to the interest maximum, since the law classified the lending against bills as purchases of assets, not loans. In addition, it was discovered that the 5 per cent lending rate only applied to loans with interest paid at the start of the loan, so the banks could lend at the maximum legal rate of 6 per cent, simply by changing the form of the loan. [95] These changes eroded the effect of the legal 6 per cent interest ceiling before it was lifted in 1863.

The shift in lending through cash credit and bills was pioneered by *Stockholms Enskilda Bank* (Figure 2.17 and Figure 2.18). Thus the changes in funding and lending practices from 1856 were both parts of a program initiated by *Stockholms Enskilda Bank*. As most of the direct lending was local, the types of borrowers reflected the main local economic activities; agriculture in the south of Sweden and iron ore industry in mid-Sweden in the early period.[96]

The evolution of the three lending categories is shown in Figure 2.17. A fourth type of lending arose from the development of the bond market in the 1860s. *Stockholms Enskilda Bank* began intermediating bonds in 1861, which also involved outright purchases of bonds in addition to selling bonds on commission.[97] Comparing Figure 17 with Figure 2.18, we see that virtually all of the bonds held by *enskilda banker* belonged to *Stockholms Enskilda Bank*. The bonds were issued by the state, cities and industries. Most bonds held before 1861 were issued by the *hypoteksföreningar* and by the state from 1856.

---

95 The change occurred when it was discovered and confirmed by the government that the 1846 ordinance only set 5 per cent if the interest was paid at the *beginning* as a discount on the loan amount, which was the general custom. By charging the interest at the *end* of the loan, the interest could be raised to the legal limit of 6 per cent. On this and the evolution of deposits from 1857, see Brisman (1934, pp. 30–44). Finanskommittén (1860a, p. LIV) reported that almost all banks charged 6 per cent after 1857.

96 See Brisman (1924, pp. 137–141) on the relative use of lending forms and borrowers.

97 See Gasslander (1956, pp. 64–67).

**Figure 2.17.** *Assets of all Enskilda banker, 1834–1870.*
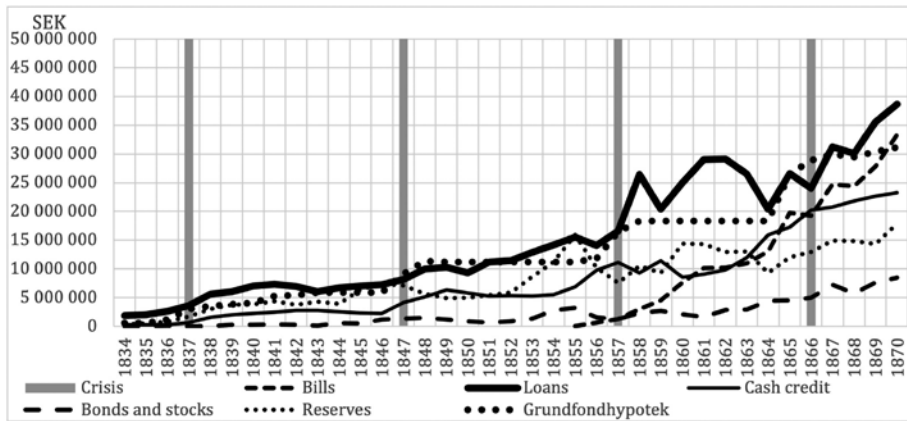
Sources: Finanskommittén (1860a, Table III, IV), Bankbyrån (1860–1865), Statistics Sweden (1866–1870).

Figure 2.18. *Stockholms Enskilda Bank: Assets (top) and liabilities (bottom), 1856–1870.*
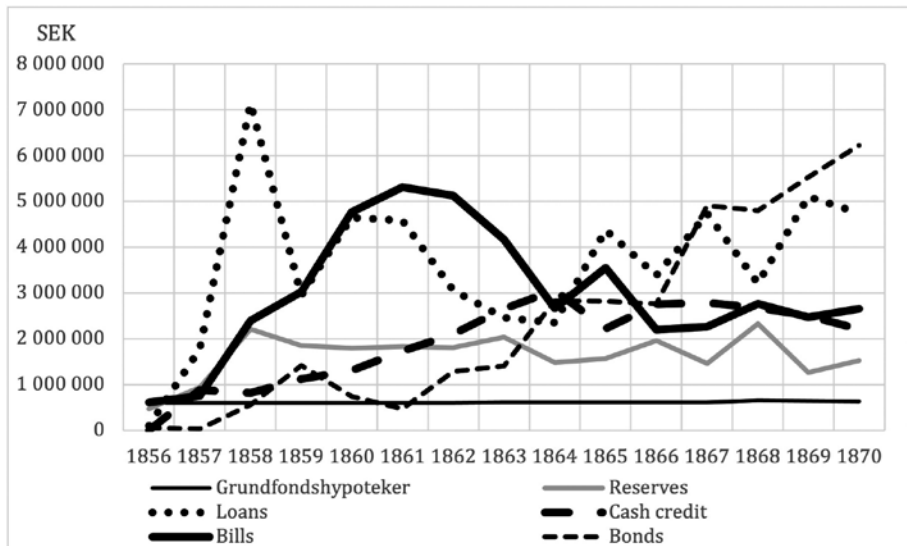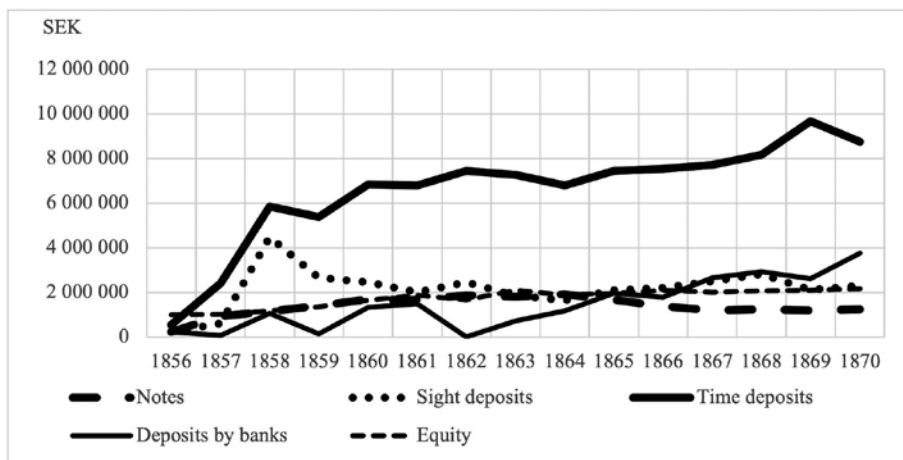
Sources: Finanskommittén (1860a, Table III, IV), Bankbyrån (1860–1865), Statistics Sweden (1866–1870).

Liquidity management

The banks had to manage temporary changes in the public's demand for *Riksbank* notes.[98] The seasonal changes due to tax payments and interregional and international trade could be foreseen, but increases in demand due to business cycles could not.

The cyclical changes emanated from Sweden's main trading partner Great Britain, which imported iron and timber products and from the 1850s agricultural products. The international crises are marked in Figures 2.16 to 2.23. They hit Sweden in two ways at the same time: a decrease in export earnings and a decrease in foreign credit. To accommodate the reductions in foreign exchange, the public demanded *Riksbank* notes at the banks, which were converted at the *Riksbank* into silver and sent abroad as payments for imports and to creditors. To prevent their reserves from decreasing too fast, which could precipitate a run, the banks reduced notes by rationing new lending. They sometimes borrowed reserves in crisis from *publika kassor* and from abroad, using credit lines with foreign trading firms or banks. Another method was to sell short-term bonds. From 1855, they also kept reserves in interest-yielding accounts at the *Riksbank*.

The yearly data mask sudden changes during the year. The movements in reserve and solvency ratios are modest in connection with crises as seen in Figure 2.19 and Figure 2.20. The international crisis in the fall of 1857 instigated the only bank panic that struck the *enskilda banker* before World War I.[99] The worst hit was *Skånes*

---

98   See Brisman (1934, pp. 107–110) on liquidity management during normal times.
99   Brisman (1934, pp. 104–107).

Enskilda Bank, which received a loan from the *Riksbank* in December 1857.[100] Further loans were arranged by the government who took up a foreign loan of 12 million SEK, which was lent at 8 per cent in February 1858 to *enskilda banker* and *hypoteksföreningar* through the *Riksbank*. These efforts contained the panic, and the crisis ended in the summer of 1858, with negligible credit losses.

Figure 2.19. *Reserve ratios of enskilda banker, filialbanker, Stockholms Enskilda Bank, and Skandinaviska Kreditaktiebolaget, 1834–1870.*
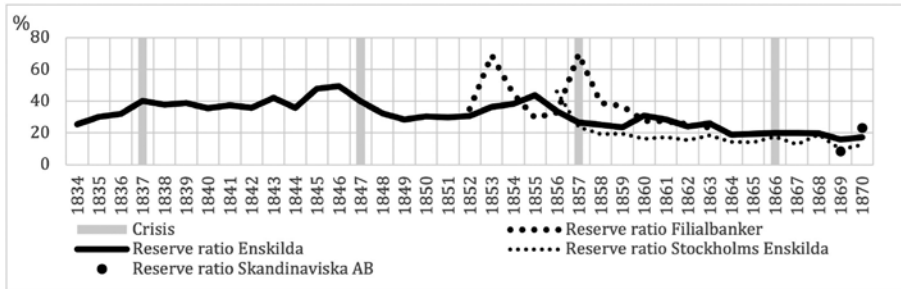
*Source*s: 1856–1859: Finanskommittén (1860a*)*; 1860–1865: Bankbyrån (1860–1866); 1866–1870: Statistics Sweden (1866–1870).

Note: Reserve ratio = (*Riksbank* cash + *Riksbank* deposit)/(notes + sight deposits + bankers' bills + time deposits).

Figure 2.20. *Solvency ratios of enskilda banker, filialbanker, Stockholms Enskilda Bank, and Skandinaviska Kreditaktiebolaget.*
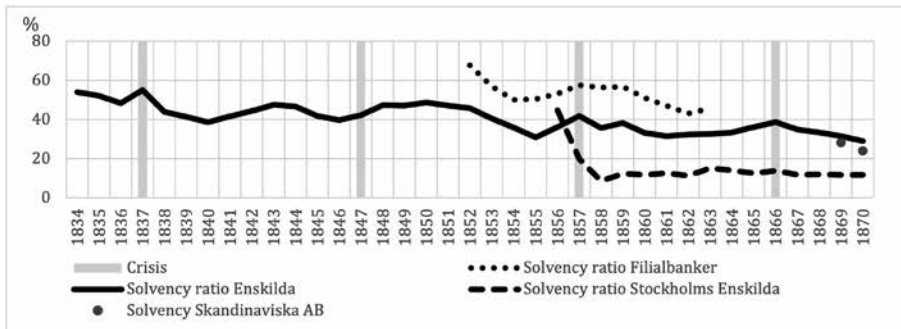
*Source*s: 1856–1859: Finanskommittén (1863*)*; 1860–1865: Bankbyrån (1860–1866); 1866–1870: Statistics Sweden (1866–1870).

Note: Solvency ratio = equity/total assets = (*grundfond + reservfond + outdelade vinster*)/total assets.

---

100 The loan was granted against collateral of bonds issued by *Skånes hypoteksförening* and with A.O. Wallenberg, the founder of *Stockholms Enskilda Bank,* as cosigner. The bonds issued by *Skånes hypoteksförening* were in turn lent by *Skånes Hypoteksförening* to *Skånes Enskilda Bank* against collateral in loans issued by *Skånes Enskilda Bank*. The event testifies both to the fear of contagion and to the solvency of *Skånes Enskilda Bank*, see Kock (1931a, pp. 164–169).

Joint-stock, unlimited-liability, *Riksbank*-affiliated banks – *filialbanker*

A new type of bank was created 1852 at the initiative of the Riksdag, regulated by an ordinance of 1851 (SFS 1851:39), the joint-stock, unlimited-liability, so-called *filialbanker*.[101] The parliament offered subsidized 3-per cent loans from the *Riksbank* to make up for the lack of the right to issue notes, which is why they were called *Riksbank*-affiliated banks. The farmer and clergy estates in the Riksdag had become critical of the *enskilda banker*, who they thought unfairly gained from the seigniorage income of their note issue and mostly favored wealthy property owners who could present mortgage collateral for the required statutory equity. One purpose was to spread *Riksbank* notes at the expense of *enskilda bank* notes. The *filialbanker* were funded by equity and deposits in addition to the *Riksbank* funds. The initial equity (*grundfond*) was made up of paid-in capital (*kontant inbetalt*) and collateral (*grund-fondshypotek*) according to the same rules as for the *enskilda banker* from 1846. Paid-in capital was close to the minimum requirement of 25 per cent (Figure 2.13).

The *Riksbank* provided funds to the *filialbanker* as loans and cash credit. The cash credit was used by the banks to pay out loans with assignations (*invisningar*) on the *Riksbank*, which were issued by the banks in fixed denominations. The assignations had a higher minimum denomination (100 *riksdaler banco*) than the *enskilda bank* notes and were a minor source of funds.[102] The development of their funding sources is shown in Figure 2.22. The *filialbanker* were thus funded as the younger *diskonter* with equity, *Riksbank* credit, deposits, and outstanding assignations.

Though their total lending increased substantially between 1857 and 1860, the lending per bank was small as the number of banks increased from 7 in 1857 to 22 in 1860 (Figure 2.21).[103] This increase implied that almost all cities had at least one commercial bank by 1860 in addition to *sparbanker*. Figure 2.22 and Figure 2.23 show their assets and liabilities.[104]

---

101 This section builds on Brisman (1924, 1934) and Nygren (1981).

102 Platbārzdis (1964, p. 50).

103 The *filialbanker* did not experience severe liquidity problems in the 1857 crisis due to their credit line with the Riksbank, see Brisman (1934, p. 106). The *filialbanker* stood out by issuing loans against security in bonds and stocks (*publika papper*) with a maximum of 48 per cent in 1858. Finanskommittén (1860a, p. LIV) noted that some banks had advanced cash credits to their owners against security in their stock holdings in the bank, representing between 30 and 80 per cent of the total cash credit.

104 The balance sheets in Riksbanken (1931) include from 1852 the item "Advances to *filialbankerna*", which disappear in 1863. They were not fully dismantled until 1874.

Figure 2.21. *Lending per bank: filialbanker and enskilda banker, 1834–1870.*
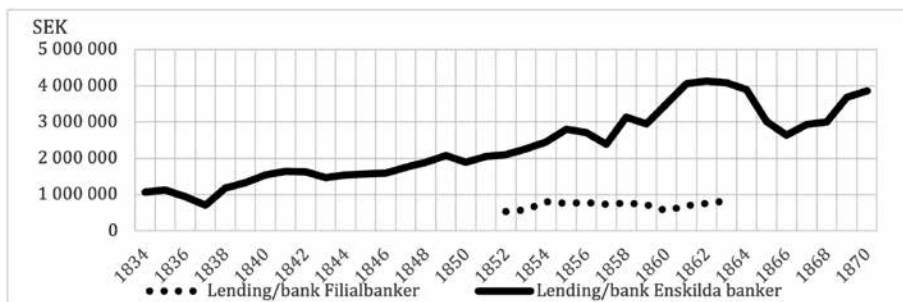
Sources: See Figure 2.9, Figure 2.17, and Figure 2.23.

Deeming them inefficient and expensive, the Riksdag decided to dismantle them from 1862.[105] This was also the recommendation of Finanskommittén (1860a). As is evident from Figure 2.8 and Figure 2.21, they had not lived up to expectations as their total size as well as their individual sizes remained small compared to the *enskilda banker*. They were, however, profitable, as shown in Figure 2.14. The main motive for dismantling them was the cost of supporting them by subsidized *Riksbank* loans. The *Riksbank* had begun a redirection of its own lending towards commercial lending away from subsidized lending and thus the funds used by the *filialbanker* could be more profitably used by the *Riksbank* through their own cash credits and discounting of bills. A contributing factor was the failure of the *filialbanker* to increase the circulation of *Riksbank* notes. Instead, they helped to spread the *enskilda banker* notes by cooperating with them. They issued assignations to the *enskilda banker* in exchange for *enskilda bank* notes, and then spread them through their lending. There was also a concern expressed by Finanskommittén (1860a) that the part of the *Riksbank* funding to the *filialbanker*, given as cash credit, may threaten convertibility. In a crisis, the *filialbanker* could increase their lending by borrowing at the *Riksbank* up to the credit limit. Finally, the opposition to *enskilda banker* from the 1840s and the early 1850s had waned.

Finanskommittéen (1860a) and leading politicians considered that the banks' main function should be to collect the public's savings through deposits to finance economic development. This the *enskilda banker* proved able to do from 1857. The government encouraged the founding of new *enskilda banker* through the granting of charters to all that qualified from 1864, many of them *filialbanker* which reorganized themselves as *enskilda banker* (Figure 2.9).

---

105 See Brisman (1934, pp. 111–122).

Figure 2.22. *Liabilities and equity of filialbanker, 1852–1870.*
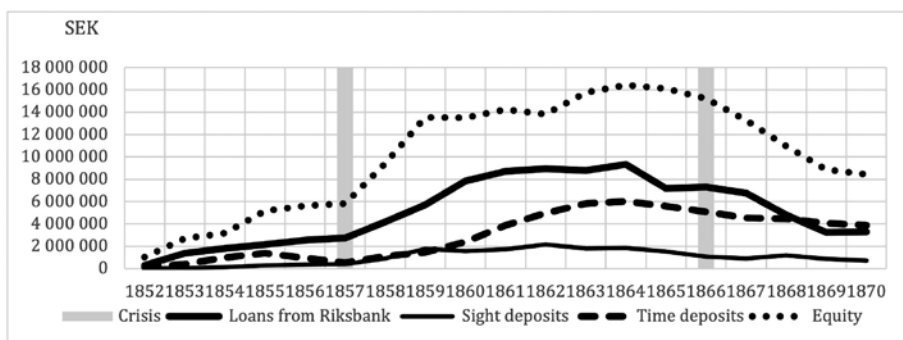
Source: 1852–1859: *Finanskommittén* (1860a), Table V, litt B; 1860–1864, 1865–1870: Bankbyrån (1860–1866). Statistics Sweden (1872).

Note: Equity is calculated as: *grundfond + accumulated reservfond+ profit for the year*.

Figure 2.23. *Assets of filialbanker 1852–1870.*
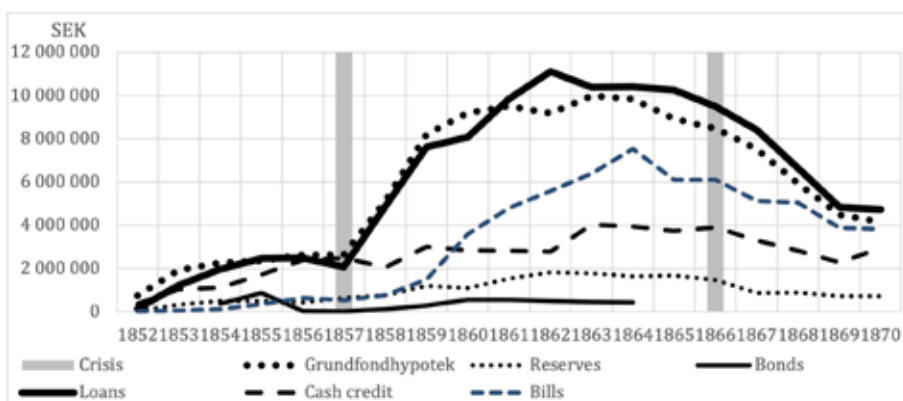
Source: 1852–1859: *Finanskommittén* (1860a), Table V, litt B; 1860–1864, 1865–1870: Bankbyrån (1860–1866). Statistics Sweden (1872).

Joint-stock, limited-liability banks – *kreditaktiebolag*

Skandinaviska Kreditaktiebolaget was founded in Gothenburg in 1864 as the first joint-stock bank with limited liability.[106] The government had announced in 1863 that banks could be established as limited-liability corporations according to the lim-

---

106 This section builds on Söderlund (1964).

ited-liability company act of 1848, but not issue notes.[107] A supplementary reform was the scrapping in 1863 of the 6 per cent interest limit on lending rates. *Skandinaviska Kreditaktiebolaget* was from the beginning geared to long-term financing of industrial activities through direct lending, lending against industrial bonds or buying bonds. It established a branch in Stockholm in 1865 and became a competitor of *Stockholms Enskilda Bank*. It grew fast and quickly took over *Stockholms Enskilda Bank's* central bank function with clearing and rediscounting to banks. It also took the lead as an investment bank handling new bond and stock issues. Complete balance sheet data are only available from 1869 as shown in Figure 2.24.[108] In 1870, its total balance sheet of 25 million SEK made it the second largest bank behind *Skånes Enskilda Bank* at 28 million SEK, but larger than *Stockholms Enskilda Bank* at 18 million SEK. Figure 2.25 shows that the profitability of *Stockholms Enskilda Bank* was double that of *Skandinaviska Kreditaktiebolaget* in 1865–1870.

Figure 2.24. *Assets (left) and liabilities and equity (right) of Skandinaviska Kreditaktiebolaget, 1869 and 1870.*
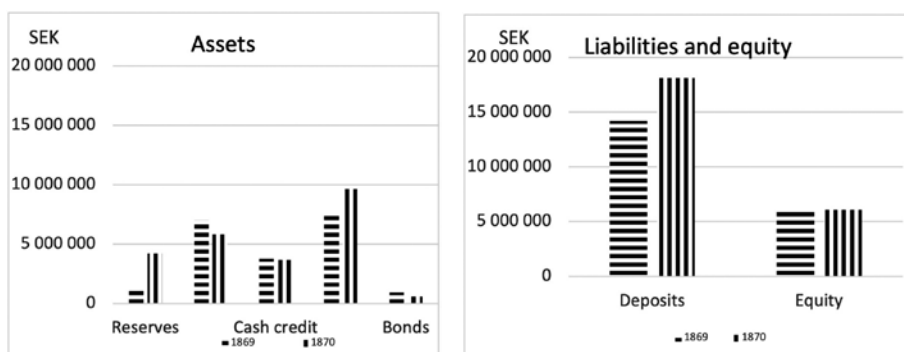
Source: Bankbyrån (1866–1870).

Note: *Postremissväxlar* (bankers' bills), a minor item, are included in deposits. The small "other items" has been excluded.

---

107 Joint-stock, limited-liability banks in England were allowed from 1858, following the Joint Stock Companies Act of 1856.

108 Söderlund (1964, Table 15, p. 172) contains a table of equity, profits and dividends 1864–1879. Söderlund (1964, pp. 110–111) describes the banks' reporting to the *Bankbyrån* at the Ministry of Finance. It published quarterly balance sheets from 1866 of the *enskilda banker* available at Statistics Sweden (1866–1870). *Skandinaviska kreditbolaget* was included from 1869.

Figure 2.25. *Profitability of Stockholms Enskilda Bank and Skandinaviska Kreditaktiebolaget, 1857–1870.*
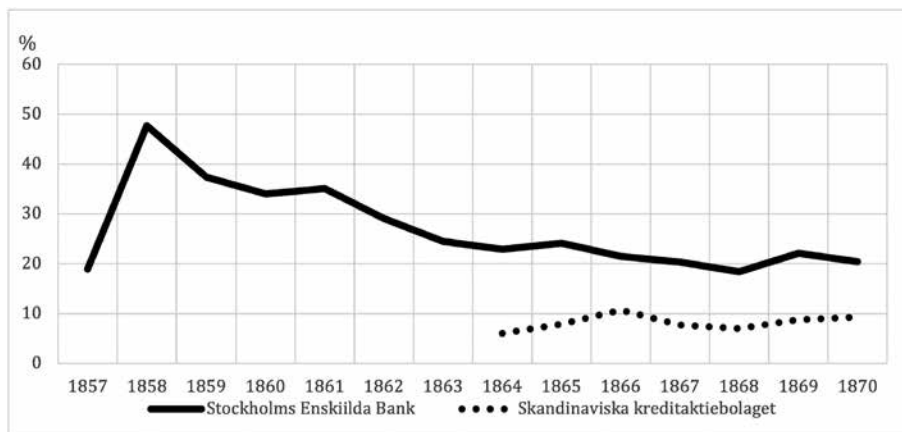
Sources: *Stockholms Enskilda Bank* Gasslander (1962, p. 43), *Skandinaviska Kreditaktiebolaget* Söderlund (1964, p. 172).

Note: Profitability is calculated as net profits/equity for *Skandinaviska Kreditaktiebolaget* and as net profits/(equity – *grundfondshypotek*) for *Stockholms Enskilda Bank*.

A second limited-liability bank *Industrikreditaktiebolaget* started in 1865 in Stockholm. Its activities are described by Söderlund (1964, pp. 311–324). No published data exist before 1875.

4. Estimates of financial development, 1772–1870

Financial development occurs in several dimensions. Three key aspects are depth, access, and efficiency, which can be measured with a number of indices. The first attempts to measure financial depth were made by Cameron (1967) and Goldsmith (1969) to analyze long-run financial development. Today the World Bank and the IMF maintain international databases with series starting in 1960. These measures only include the formal sector. The evidence from Swedish studies indicates that the absolute size of the informal and formal sectors grew at a similar pace, with the formal sector increasing its share of total credit. This implies that that the measures of formal financial development overstate total financial development.

Figure 2.26. *Lending as a share of GDP, 1772–1870.*
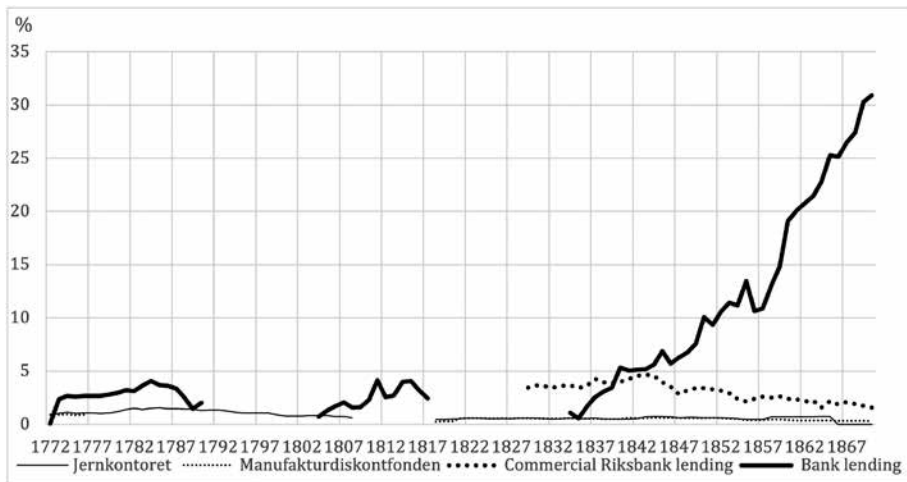
Sources: Bank lending: *diskonter, sparbanker, enskilda banker, filialbanker, hypoteksföreningar* and *Skandinaviska Kreditaktiebolaget* (1869–1870) as described in the previous figures. Commercial *Riksbank* lending: Sveriges *Riksbank* (1931), vol. V. *Manufakturdiskonten* 1772–1776: Åmark (1961, Table 78), 1820–1865 Gårdlund (1944, Tabell 1); *Jernkontoret* Boëthius och Kromnow (1947, 1968a, 1968b); Nominal GDP: Edvinsson (2014).

Note: Lending of *Jernkontoret* and *sparbanker* are proxied by the sum of equity and deposits. The ratios for *Manufakturdiskonten* and *Jernkontoret* are close and vary between 0.5 and 2 per cent. *Riksbank* commercial lending as defined by Brisman (1931, p. 60): loans against collateral of registered iron (*vågförda effekter), löpande räkning* (loans on current account*), guld och silver, aktier och obligationer* (stocks and bills), *kreditiv* (cash credit), and *växlar* (bills).

Depth

The key indicator of financial depth in the formal sector is private lending as a share of GDP shown in Figure 2.26.[109] The figure also shows the lending of *Jernkontoret*, *Manufakturdiskonten*, and the *Riksbank*.

The outcome is closely related to changes in the institutional set-up:

- The period 1772–1788 of the older *diskonter* reaching a depth of 4 per cent.
- The period 1803–1817 of the younger *diskonter* reaching a depth of 4 per cent.
- The period 1818–1831 with no joint-stock banks and *Jernkontoret*, *Manufakturdiskonten* and *sparbanker* as the only lenders reaching a total depth of 2 per cent.
- The initial period 1831–1846 of modern banking with slow growth of the new institutions *enskilda banker*, *sparbanker* and *hypoteksföreningar*, reaching a depth of 6 per cent on par with the previous *diskonter*.
- The period 1848 to 1870 with accelerated growth to 31 per cent depth by 1870.

The overall conclusion is that the institutional sector did not grow significantly before the late 1850s. The growth in institutional credit intermediation implied better liquidity to borrowers and lenders with better access and security, and a social gain from the creation of a national money market with greater pooling of savings.[110] Yet the growth in financial depth of the total credit market, formal and informal, was lower than the growth in the formal sector due the replacement of informal with formal credit.

Sweden reached a financial depth in 1870 that was almost on the same level as Switzerland, a much richer country at the time (Figure 2.27). One explanation for the high level may be that the data for Sweden are more comprehensive due to high coverage of official statistics. Yet the high growth in depth from 1857 suggests that Sweden, still being a poor country in 1870, was well advanced by 1870 and in the words of Sandberg (1978) an "impoverished financial sophisticate".

---

109 It is labeled "Private credit to the private sector by deposit banks and other institutions to GDP" by the World Bank, "Financial depth index for institutions" by IMF, and "Total Loans to GDP" by Jordà et al (2016). The early studies by Cameron (1967), Goldsmith (1969), Sandberg (1978), and Nygren (1983) use total assets of the financial sector, which include securities and cash reserves in addition to loans, and thus give higher estimates.

110 See Lobell (2010) on the growing financial integration domestically and internationally in Sweden, 1830–1890.

Figure 2.27. *Financial institutional depth (Total lending/GDP) for five countries 1870 and real GDP per capita.*
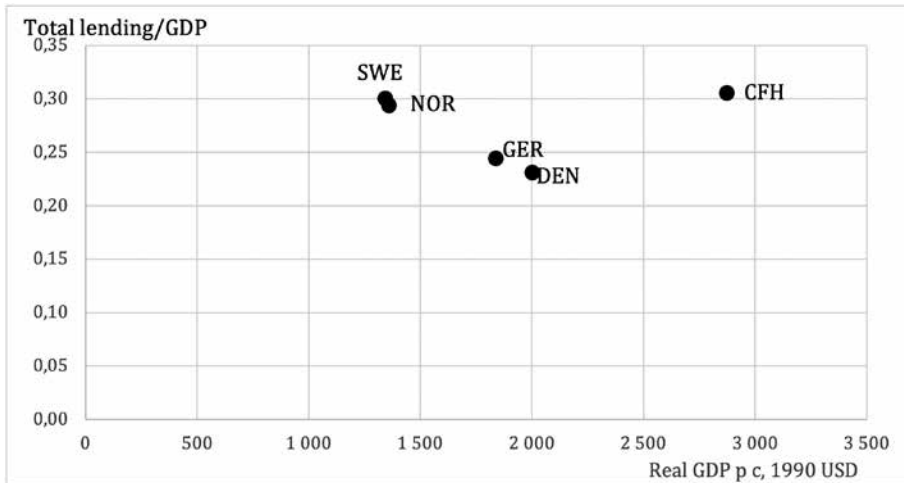
Source: Jordà et al (2016), www.macrohistory.net/data.

Note: The financial depth for Sweden is calculated by me (not included in Jordà et al).

Access

The financial deepening since 1820 is accompanied by increased access as measured by the number of bank offices per adult (over 15 years of age) (Figure 2.28). In 1860, there were 8 bank offices per 100,000 adults, which increased to 13 in 1870.[111] This is double the number in England and Wales in 1841, and two thirds of the number in Scotland in 1865 (Cameron (1967, p. 22, p. 66). The same relative growth occurred in the number of deposit accounts per thousand adults from 75 in 1860 to 145 in 1870 (Figure 2.29). Behind the growth in access is primarily the increase in *sparbanker* from 150 in 1860 to 234 in 1870, in addition to the increase in *enskilda banker* from 10 in 1864 to 25 in 1870. The growth occurred largely through new banks in new locations to such an extent that, by 1870, the country was covered by a geographically fine-meshed financial network.

---

111 Fourteen bank offices per 100,000 adults correspond to a country rank of about 80 in the international comparisons published by the World Bank in 2018.

Figure 2.28. *Bank offices per 100,000 adults 1820–1870.*
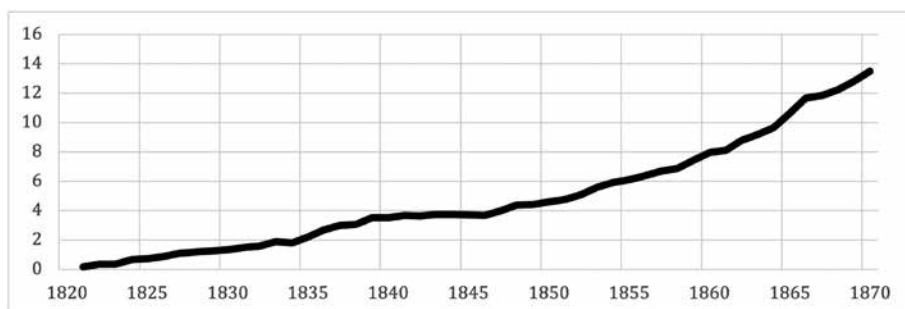
Sources: Number of *enskilda banker* and bank offices: Brisman (1924, p. 245) and Brisman (1934, p. 219); *sparbanker*: Statistics Sweden (1960, p. 102), *filialbanker: 1852–1859: Finanskommittén (1860a),* 1860–1870: Söderlund (1964, p. 103). Adult population: Statistics Sweden (1955).

Note: The series is calculated as the number of bank offices of *enskilda banker*, *filialbanker* and number of *sparbanker* divided by population. It has been assumed that *sparbanker* only had one office. Adult population is interpolated between 1820, 1830, 1840, 1859, 1860, 1870 from Statistics Sweden (1955, Table A16): Total population – population 0–14 years of age.

Figure 2.29. *Number of depositors per 1,000 adults 1834–1870.*
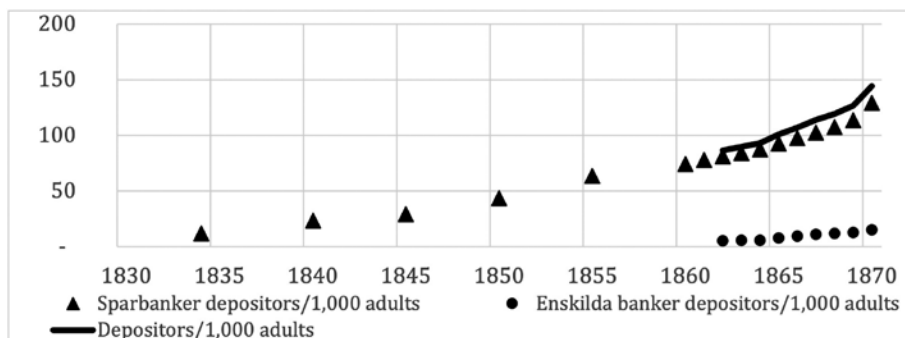
Sources: Sparbanker: 1834–1860: Finanskommittén (1863), 1861–1870: Statistisk Tidskrift (1866, 1871); *Enskilda banker*: 1860–1865: Bankbyrån (1860–1865), 1866-1870: Statistics Sweden (1866–1870), Adult population: Statistics Sweden (1955).

Efficiency

A key measure of the efficiency of financial intermediaries is the spread between lending and funding rates. The spread is the main determinant of banks' profits. The more competitive the bank market is, the lower the spread and the more efficient are the banks. We first consider the joint-stock banks (*diskonter, enskilda banker, filialbanker*). The *diskonter* lent at 6 per cent, while the *enskilda banker* and *filialbanker* lent at 5 per cent. Before 1857, the deposit rate was set to 3 per cent for sight depos-

its, which was the dominant deposit type from the time of the *diskonter* until 1856. The interest-free sources of funds, assignations and notes, bore costs for production, handling, and distribution. Söderlund (1977, p. 19) estimated the cost of notes for the *enskilda banker* as "almost surely below 2 per cent of the total amount", while Brisman (1924, p. 112) cited a higher cost of 2.37 per cent estimated by *Östgöta-banken.*

Thus, the spreads differed according to the sources of funds before the lending rate was set free. The spread for the old *diskonter* may be estimated as 3 per cent given the lending rate of 6 per cent and the predominance of 3 per-cent deposits. The use of interest-free assignations for the younger *diskonter* implies that their spread was higher than 3 per cent. The spread for the note-issuing *enskilda banker* may be calculated as the lending rate of 5 per cent minus a cost of issuing notes at around 2 per cent, which also gives a spread of 3 per cent. After 1856, the lending rate (loans, cash credits and bills) may be estimated at 7 per cent and the deposit rate on time deposits at 5 per cent for the next few years, that is, a spread of 2 per cent for deposit-funded lending and 5 per cent for note-financed lending. Since the note source of funds started to diminish from 1857 onwards, the average spread decreased towards 2 per cent in the 1860s. By 1866, when entry to banking had become essentially free in accordance with the ordinance of 1864, the lending rate settled at 6 per cent and the deposit rate at 4 per cent for the rest of the 1860s.[112] Thus, the dismantling of financial repression between 1857 and 1864 increased efficiency through the lowering of the spread from above 3 towards 2 per cent.

Sparbanker and *hypoteksföreningar* appear unaffected by the freeing of the interest rate as their lending rate remained at 6 per cent. *Sparbanker* continued during the whole period to offer 5 per cent on deposits. *Hypoteksföreningar* paid between 4 and 5 per cent yield on their bonds.[113] Being non-profit associations with low costs, they were run with slim interest rate margins between 1 and 2 per cent. From that perspective, they were efficient from the beginning, while their lending and deposits were rationed.

---

112 Statistics Sweden (1866–1870) contains quarterly reports of lending and deposit rates.
113 Sommarin (1936, p. 113).

5. Conclusions

Several features of Swedish banking evolution appear to stand out in an international context:

- The early start of joint-stock chartered banks with unlimited liability in 1772.

- The causality from monetary stability to establishment of banks starting in connection with an announced return to convertibility 1772 (1777), 1804 (1803), and 1830 (1834), with convertibility year in parenthesis.

- The importance of legal protection for lenders for the robustness of the financial institutions with negligible credit losses and only two banking panics: 1817 with bankruptcies and 1857 without bankruptcies.

- Deposits as a funding source, starting with interest-bearing deposit accounts by the *diskonter* in 1772–1795 and 1804–1817, reappearing as a major source of funds from 1857.

- The involvement of the state through the *Riksbank* as a lender of funds to the *diskonter* and the *filialbanker*.

- The *Riksbank* as lender of last resort to the *diskonter* during the crises of 1805–1817.

- The early issue by the younger *diskonter* from 1803 of private, fixed-denomination assignation notes, which provided an additional source of funds akin to private bank notes.

- The use of private bank notes from 1831 as a major source of funds for lending by *enskilda banker* competing with the state's *Riksbank* notes.[114]

- The early start of thrifts, *sparbanker*, in 1820 with lending to the private sector and nationwide coverage.

- The first general bank law in 1824.[115]

- The growth of lending by building societies, *hypoteksföreningar,* which became the largest lender, funded mainly by foreign bond issues.

- The gradual replacement of informal by formal credit with absolute growth in both sectors. The total growth in credit was thereby considerably lower than the growth of credit in the formal sector for the whole of the 19th century.

- The watershed year 1857 with the unrelated appearance of *Stockholms Enskilda* Bank and the international financial crisis, which led to the abandoning of the interest ceiling before it was legally scrapped in 1863 and to stable funding with transferable deposits.

---

114 Private, note-issuing banks after 1844 only existed in Switzerland and Germany, which lacked a central bank. The Bank of England received a virtual monopoly on note issue under the Banking Charter Act 1844 (Peel Banking Act).

115 Grossman (2010, p.198).

References

Agardh, Carl Adolf (1833), *Om möjligheten af hypotheks-inrättningar för provinserne och synnerligen för Skåne*, Lund: Lundberg & Lönnegren.

Ahnland, Lars (2022), "Swedish banks and credit institutions since 1870", chapter 3 this volume.

Aldman, Lili-Annè (2015), "Företagens kreditmarknad 1799–1900" in Hallén et al. (2015).

Åmark, Karl (1961), *Sveriges statsfinanser 1719–1809*, Stockholm: Norstedt & Söner.

Andersen, Steffen E. (2011), *The evolution of Nordic Finance*, Palgrave Macmillan.

Andersson, Bertil (1976), "Göteborgs diskont 1802–1818. Kommentarer kring ett endast delvis bevarat källmaterial" in *Göteborg förr och nu,* vol. XII*,* Göteborg: Göteborgs hembygdsförbund.

Andersson, Bertil (1980), "Göteborgs riksgäldsdiskont 1797–1804", *Historisk tidskrift* 100: 459–482.

Andersson, Bertil (1983), "Early history of banking in Gothenburg. Discount house operations 1783–1818", *Scandinavian Economic History Review* 37: 50–67.

Andersson, Bertil (1985), "Malmö diskont 1803–1818", Rapport 2, Ekonomisk-historiska institutionen, Göteborgs universitet.

Andreen, Per G. (1947), "Carl David Skogman", in *Stockholms stads sparbanks 125-årskrift*, Stockholm: Norstedt & Söner.

Andreen, Per G. (1958), *Politik och finansväsen. Från 1815 års riksdag till 1830 års realisationsbeslut. Del I: 1815–1818*, Stockholm Studies in History, Stockholm: Almqvist & Wiksell.

Bankbyrån (1860–1865), *Tablå över Rikets Banker* Vol. HII:1 Finansdepartementets bankbyrå, Riksarkivet (Swedish National Archives) SE/RA/420067/H II/1.

Beck, Thorsten and Ross Levine (2005), "Legal Institutions and Financial Development", in Menard C., Shirley M.M. (eds.) *Handbook of New Institutional Economics*. Boston, MA: Springer.

Berg, Fredrik, T. (1865), "Sparbankerna i Sverige", *Statistisk Tidskrift*, Band 2: 283–369.

Boëthius, Bertil and Åke Kromnow (1947), *Jernkontorets historia. Del 1. Grundläggningstiden,* Stockholm: Norstedt & Söner.

Boëthius, Bertil and Åke Kromnow (1968a), *Jernkontorets historia. Del I1:1, L'Ancien régime,* Stockholm: Norstedt & Söner.

Boëthius, Bertil and Åke Kromnow (1968b), *Jernkontorets historia. Del I1:2 Den ekonomiska liberalismens genombrottstid,* Stockholm: Norstedt & Söner.

Brisman, Sven (1924), *Sveriges affärsbanker. Grundläggningstiden*, Stockholm: Norstedt & Söner.

Brisman, Sven (1931), "Den stora reformperioden 1860–1904", *Sveriges Riksbank, 1668–1924. Bankens tillkomst och rörelse,* vol. IV Stockholm: Norstedt & Söner.

Brisman, Sven (1934), *Sveriges affärsbanker. Utvecklingstiden*, Stockholm: Norstedt & Söner.

Brisman, Sven (1937), *Östergötlands Enskilda Bankaktiebolag 1837–1937*, Stockholm: Norstedt & Söner.

Cameron, Rondo (1967), *Banking in the early stages of industrialization. A study in comparative economic history,* New York: Oxford University Press.

Edvinsson, Rodney (2010a), "Swedish monetary standards in a historical perspective", in Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström (eds.), *Historical Monetary and Financial Statistics for Sweden*, vol. 1, Stockholm: Sveriges Riksbank.

Edvinsson, Rodney (2010b), "The multiple currencies of Sweden-Finland 1534–1803", in Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström (eds.), *Historical Monetary and Financial Statistics for Sweden*, vol. 1, Stockholm: Sveriges Riksbank.

Edvinsson, Rodney and Johan Söderberg (2010), "The evolution of Swedish consumer prices 1290–2008" in Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström (eds.), *Historical Monetary and Financial Statistics for Sweden*, vol. 1, Stockholm: Sveriges Riksbank.

Edvinsson, Rodney (2014), "The Gross Domestic Product of Sweden within present borders 1620–2012" in Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström (eds.), *Historical Monetary and Financial Statistics for Sweden*, vol. 2, Stockholm: Sveriges Riksbank.

Edvinsson, Rodney, and Anders Ögren (2014), "Swedish money supply, 1620–2012" in Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström (eds.), *Historical Monetary and Financial Statistics for Sweden*, vol. 2, Stockholm: Sveriges Riksbank.

Finanskommittén (1860a), *Underdånigt betänkande angående bankväsendet i riket*. 1858 års Finanskommitté, with *Bihang: Utredning angående bank-anstalternas ställning och verksamhet åren 1834–1859*.

Finanskommittén (1860b), *Underdånigt betänkande förändrad organisation af landets hypotheks-inrättningar*, 1858 års Finanskommitté, with *Tabeller till underdånigt betänkande*.

Finanskommittén (1863), *Underdånigt betänkande angående Sveriges ekonomiska och finansiella utveckling under åren 1834–1860*, 1858 års Finanskommitté.

Flux, A. W. (1910), *The Swedish Banking System*, Senate Document No. 586, National Monetary Commission, vol. XVII, Washington DC: Government Printing Office.

Fregert, Klas (2014), *"The Riksbank balance sheet 1668–2011",* in Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström(eds.), *House prices, stock returns, national accounts, and the Riksbank balance sheet 1620–2012*, vol. 2, Stockholm: Sveriges Riksbank.

Fregert, Klas (2018), *"Sveriges Riksbank: 350 years in the making"* in Rodney Edvins-

son, Tor Jacobson, and Daniel Waldenström eds., *Sveriges Riksbank and the History of Central Banking,* Cambridge, UK: Cambridge University Press.

Fridlizius, Gunnar (1957), *Swedish corn exports in the free trade era. Patterns in the oats trade 1850–1880.* Lund: CWK Gleerup.

Fritz, Sven (1967), *Studier i svenskt bankväsen 1772–1789*, with a summary in English, Skrifter utgivna av Ekonomisk-historiska institutet i Stockholm.

Gasslander, Olle (1956, 1962), *History of Stockholms Enskilda Bank to 1914*, Stockholm, translation of *Bank och industriellt genombrott. Stockholms Enskilda Bank kring sekelskiftet 1900*, 1956.

Gårdlund, Torsten (1944), "Manufakturdiskontens historia och fabriksindustrins finansiering", in *Studier i ekonomi och historia tillägnade Eli F. Heckscher på 65-årsdagen*, Uppsala: Almqvist & Wiksell.

Gårdlund, Torsten (1947), *Svensk industrifinansiering under genombrottsskedet 1830–1913*, Stockholm: Svenska bankföreningen.

Goldsmith, Raymond W. (1969), *Financial Structure and Development*, New Haven and London: Yale University Press.

Grossman, Richard S. (2010), *Unsettled account. The evolution of banking in the industrialized world since 1800,* Princeton: Princeton University Press.

Hallén, Per (2015a), "Reversen eller banken?" in Hallén et al. (2015).

Hallén, Per (2015b), "Stadsmäklare, den osynliga länken" in Hallén et al. (2015).

Hallén, Per, Lili-Annè Aldman and Martin Fritz (2015), *Krona eller klave, Utvecklingen av kreditmarknaden i Göteborg under 1880-talet,* Göteborg: Universus Academic Press.

Hallén, Per and Lili-Annè Aldman (2015), "Sammanfattande slutsatser", in Hallén et al (2015).

Hildebrand, Karl-Gustaf (1992), *Swedish iron in the seventeenth and eighteen centuries export industry before industrialization*, Stockholm: Jernkontorets bergshistoriska skriftserie 29.

Humphrey, Thomas M. (1989), "Lender of Last Resort: The Concept in History", *FRB Richmond Economic Review* 75: 8–16.

Jordà, Òscar, Moritz Schularick, and Alan M. Taylor (2016), "Macrofinancial History and the New Business Cycle Facts", in Martin Eichenbaum and Jonathan A. Parker. eds., *NBER Macroeconomics Annual* 31, Chicago: University of Chicago Press.

Kärrlander, Tom (2008), *Malmö diskont – en krisanatomi,* Lic. dissertation*,* Kungliga Tekniska Högskolan.

Kärrlander, Tom (2011), *Malmö diskont – en institutionell analys av en bankkris,* PhD thesis, Centrum för bank och finans, Kungliga Tekniska Högskolan.

Kärrlander, Tom (2013), "Malmö diskont 1817: an institutional analysis of a banking crisis", *Financial History Review* 20: 163–182.

Kock, Karin (1931a), *Skånska Privatbanken. Minnesskrift*. Stockholm: Norstedt & Söner.

Kock, Karin (1931b), ”G.H. Aulin och Skånska Privatbanken”, *Statsvetenskaplig Tidskrift* 34: 178–181.

Kock, Karin (1937), *Smålands Bank 1837–1937*, Stockholm: Ivar Häggströms tryckeri.

Lantmäteriet (no date), *Det svenska inskrivningsväsendet förr och nu*, Lantmateriet.se.

Lilja, Kristina (2004), *Marknad och hushåll. Sparande och krediter i Falun 1820–1910 utifrån ett livscykelperspektiv*, Acta Universitatis Upsaliensis, Uppsala Studies in Economic History 71.

Lilja, Kristina (2010), ”The deposit market revolution in Sweden”, in Ögren Anders ed. (2010), *The Swedish Financial Revolution*: 41–63.

Lindgren, Håkan (2002), “The Modernization of Swedish Credit Markets 1840–1905: Evidence from Probate Records”, *The Journal of Economic History* 62: 810–832.

Lindgren, Håkan (2017), “Parish banking in informal credit markets: The business of private lending in early nineteenth-century Sweden”, *Financial History Review* 24: 83–102.

Lobell, Håkan (2010), ”Market integration 1830–1890”, in Ögren ed. (2010), *The Swedish Financial Revolution*.

Lindgren, Torgny (1968), *Riksbankens sedelhistoria 1668–1968*, Stockholm: Rabén & Sjögren.

Montgomery, Arthur (1934), “ Riksdagen och *Riksbank*en efter 1809”, in *Sveriges Riksdag. Historisk och statsvetenskaplig framställning*, vol. 13.

Nilsson, Göran B. (1981), *Banker i brytningstid. AO Wallenberg i svensk bankpolitik 1850–1856,* summary in English, Stockholm: Institutet för Ekonomisk Historisk Forskning vid Stockholms Handelshögskola,

Nyberg, Klas (2010), ”The early modern financial system and the informal credit market”, in Öberg, Anders ed. (2010), *The Swedish Financial Revolution*. London: Palgrave Macmillan.

Nygren, Ingemar (1967), *Svensk sparbanksutlåning 1820–1913. En analys av de större sparbankernas kreditgivning.* Meddelanden från Ekonomisk-historiska institutionen vid Göteborgs universitet 9.

Nygren, Ingemar (1970), *Västsvenska sparbankers medelplacering 1820–1913*, summary in English, Meddelanden från Ekonomisk-historiska institutionen vid Göteborgs universitet 18,.

Nygren, Ingemar (1981), *Svensk kreditmarknad 1820–1875*, Meddelanden från Ekonomisk-historiska institutionen vid Göteborgs universitet.

Nygren, Ingemar (1982), ”Kreditinstituten i Göteborg 1820–1875”, *Göteborg förr och nu* XVIII, Göteborg: Göteborgs hembygdsförbund.

Nygren, Ingemar (1983), ”The transformation of bank structures in the industrial period. The case of Sweden 1820–1913”, *Journal of European Economic History* 12: 29–68.

Nygren, Ingemar (1985), *Från Stockholms Banco till Citibank*, Stockholm: Liber.

Nygren, Ingemar (1987), *Göteborgs kreditmarknad*, Rapport 5–6, Ekonomisk-historis-ka institutionen, Göteborgs universitet.

Ögren, Anders (2003), *Empirical Studies in Money, Credit and Banking. The Swedish Credit Market in Transition under the Silver and the Gold Standards, 1834–1913*, Studies in Economic History No 2. Dissertation for the Degree of Doctor of Philosophy, Stockholm School of Economics.

Ögren, Anders (2006), "Free or central banking? Liquidity and financial deepening in Sweden, 1834–1913." *Explorations in Economic History* 43: 64–93.

Ögren, Anders (2010), "The Swedish Financial Revolution: An In-Depth Study", in *The Swedish Financial Revolution*, London: Palgrave Macmillan.

Ögren, Anders, ed. (2010), *The Swedish Financial Revolution*, London: Palgrave Macmillan.

Ögren, Anders (2013), "The financial revolution in Sweden 1650–1900", in Caprio, Gerard Jr. ed., *Handbook of Key Global Financial Markets, Institutions, and Infrastructure*, London: Elsevier.

Ögren, Anders (2019), "The political economy of banking regulation: interest groups and rational choice in the formation of the Swedish banking system 1822–1921", *Business History*: 1–21, DOI: 10.1080/00076791.2018.1564281.

Olivecrona, Knut (1862), "Bidrag till den svenska concurslagstiftningens historia" in *Uppsala universitets årsbok* 1862.

Perlinge, Anders (2005), *Sockenbankirerna. Kreditrelationer och tidig bankverksamhet i Vånga socken i Skåne 1840–1900*, summary in English, Stockholm: Nordiska museets förlag.

Perlinge, Anders (2020), "Private Wealth Accumulation in Eighteenth Century Scania", *Scandia* 86: 35–54.

Platbārzdis, A. (1963), *Sveriges sedlar I. Stockholms Banco, Sveriges Riksbank*, summary in English. Lund: Sven Flodbergs förlag.

Platbārzdis, A. (1964), *Sveriges sedlar II. Statliga och enskilda institutioners och företags sedlar 1620–1934*, summary in English, Lund: Sven Flodbergs förlag.

Platbārzdis, A. (1965), *Sveriges sedlar III. De enskilda bankernas sedlar 1831–1902*, summary in English, Lund: Sven Flodbergs förlag.

*Riksbank*en (1931), "Statistiska tabeller 1668–1924", in *Sveriges Riksbank, 1668–1924. Bankens tillkomst och rörelse,*. vol. V. Stockholm: P. A. Norstedt & Söner

Rosenberg, Carl M. (1878), *Handbok i bankväsendet. En beskrifvande framställning af företrädesvis svenska bankförhållanden*, Stockholm: Bonniers bokförlag.

Samuelsson, Kurt (1951), *De stora köpmanshusen i Stockholm 1730–181. En studie i den svenska handelskapitalismen*, Stockholm: Ekonomisk-historiska institutet.

Sandberg, Lars G. (1978), "Banking and Economic Growth in Sweden before World War I," *The Journal of Economic History* 38, 650–680.

Söderberg, Johan (2010), "Long-term trends in real wages of labourers", in Edvinsson, R. et al (eds.), *Historical Monetary and Financial Statistics for Sweden*, vol. 1, Sveriges Riksbank.

Söderlund, Ernst (1951), *Svensk trävaruexport under 100 år*, Uppsala: Almqvist & Wiksell.

Söderlund, Ernst (1964), *Skandinaviska banken i det svenska bankväsendets historia 1864–1914*, Stockholm: Skandinaviska banken.

Söderlund, Ernst (1977), *Örebro Enskilda Bank 1837–1918,* Örebro: Almqvist & Wiksell.

Sommarin, Emil (1936), *Skånska hypoteksföreningen: Minneskrift*, Lund: C.W.K. Gleerup.

Sommarin, Emil (1940), *Grundläggningen av vårt sparbanksväsen*, Lund: C.W.K. Gleerup.

Sommarin, Emil (1942), *Vårt sparbanksväsen 1834–1892*, Lund: C.W.K. Gleerup.

Statistics Sweden (1866–1870), *Sammandrag af Enskilda bankernas qvartals-uppgifter*, available at scb.se.

Statistics Sweden (1955), *Historisk statistik för Sverige I. Befolkning,* Stockholm: Statistiska centralbyrån, available at scb.se.

Statistics Sweden (1960), *Historisk statistik för Sverige. Statistiska översiktstabeller utöver de i del I och II publicerade,* Stockholm: Statistiska centralbyrån, available at scb.se.

Sveriges Allmänna Hypoteksbank (1911), *Sveriges Allmänna Hypoteksbank 1860–1911*, Stockholm: K. L. Beckmans tryckeri.

Statistisk Tidskrift (1866–1873), Sveriges officiella statistik, available at scb.se.

Thornton, Henry (1802/1939), *Enquiry into the nature and effects of the paper credit in Great Britain,* The library of economics, London: Allen & Unwin.

Wendschlag, Mikael (2012), *Theoretical and empirical accounts of Swedish financial supervision in the twentieth century*, Linköping studies in arts and sciences 555.

Appendix tables A

Table A2.1. *Lending older diskonter 1772–1790 in rdr sp (= 1.5 SEK).*

	General-assistanskontoret	General-diskontkontoret	Diskont-kontoret	Göteborgs diskontkontor
1772	24 711			
1773	50 790		833 333	
1774	76 868		865 382	
1775	102 947		897 431	
1776	129 025		929 480	
1777	155 104		961 529	
1778	181 182		993 577	
1779	207 261		1 025 626	
1780	232 666		1 057 675	
1781	258 071		1 110 670	
1782	283 476		1 110 667	
1783	308 881		1 110 667	238 458
1784	383 421		1 110 667	279 370
1785	329 771		1 110 667	252 816
1786	319 548		1 110 667	258 803
1787	309 325		996 427	299 105
1788	309 325	86 465	588 653	258 571
1789		472 500		265 221
1790		1 072 655		

Source: See figure 2.6.

Table A2.2. *End-of-year assignations and deposits younger diskonter 1803–1818:in rdr bco (= 1.5 SEK).*

	Göta kanal diskont		Göteborgs diskont		Malmö diskont	
	Assignations	Deposits	Assignations	Deposits	Assignations	Deposits
1804			29 000	61 000	92 000	246 000
1805			285 000	235 000	110 000	453 000
1806			331 000	455 000	214 000	624 000
1807			314 000	514 000	223 000	646 000
1808			554 000	765 000	276 000	650 000
1809			570 000	790 000	536 000	837 000
1810	935 000	2 343 000	814 000	842 000	741 000	1 443 000
1811	925 000	2 755 000	628 000	724 000	697 000	1 257 000
1812	564 000	3 518 000	612 000	960 000	646 000	1 490 000
1813	851 000	4 930 000	552 000	922 000	496 000	1 897 000
1814	989 000	5 429 000	457 000	1 101 000	432 000	2 127 000
1815	733 000	5 433 000	601 000	846 000	718 000	1 365 000
1816	856 000	4 192 000	377 000	648 000	820 000	1 644 000
1817	844 000	3 472 000	296 000	500 000	106 000	1 197 000
1818	491 000	645 000	141 000	477 000	106 000	116 000

Source: Bankoutskottets akter, 1823, del III, p. 1639, Riksarkivet. Reproduced in Brisman (1924), p.244.

Table A2.3. *Yearly accumulated assignations, deposits and loans younger diskonter 1803–1818 in rdr bco (= 1,5 SEK).*

	Göta kanal diskont			Göteborgs diskont			Malmö diskont		
	Assignations	Deposits	Loans	Assignations	Deposits	Loans	Assignations	Deposits	Loans
1804				314 399		896 289	492 212	424 843	641 783
1805				866 220		1 703 671	1 331 184	1 378 326	1 145 728
1806				1 287 088		2 592 344	1 750 719	1 010 511	1 642 347
1807				1 117 346		3 252 954	1 966 207	767 195	2 046 272
1808				2 328 710		3 051 875	1 911 972	1 193 587	1 592 812
1809				328 043		3 592 055	2 231 241	1 318 283	1 623 465
1810	2 582 103	1 935 000	2 807 890	4 406 262	2 305 302	5 534 995	3 324 593	2 274 607	2 395 394
1811	2 516 108	7 631 090	7 861 633	2 950 752	2 063 765	4 808 398	3 564 880	2 379 267	3 052 275
1812	685 015	14 262 485	7 535 120	3 458 259	2 592 825	4 683 007	3 191 046	2 782 296	3 824 717
1813	1 670 509	19 694 065	8 783 187	3 934 200	2 555 205	4 557 616	3 277 686	3 902 750	4 093 813
1814	1 910 891	20 452 926	9 986 783	2 969 087	2 483 257	4 432 225	3 801 542	4 646 861	4 450 148
1815	1 431 797	18 510 287	8 656 800	3 577 428	3 051 764	4 438 938	5 477 668	4 238 413	5 517 738
1816	1 377 745	18 013 348	8 586 354	3 027 560	2 778 873	4 296 461	5 007 518	3 213 698	2 927 047
1817	881 700	9 827 150	6 539 120	2 191 600	1 722 036	3 818 918	3 724 738	2 256 050	1 647 220

Sources: Göta kanal diskont and Göteborgs diskont: Andersson (1983), Malmö: Andersson (1985).
Note: Loans Göteborgs diskont interpolated 1813, 1814.

Table A2.4. *Deposits and equity 1834–1870 sparbanker in rdr rmt (= SEK).*

	Deposits	Equity	Total liabilities
1834			2 333 536
1835			
1836			
1837			
1838			
1839			
1840			5 212 240
1841			
1842			
1843			
1844			
1845			7 722 825
1846			
1847			
1848			
1849			
1850			12 934 180
1851			
1852			
1853			
1854			
1855			22 095 552
1856			
1857			
1858			
1859			
1860	27 291 937	2 096 061	29 387 998
1861	29 772 670	2 309 290	32 081 960
1862	31 261 338	2 542 241	33 803 579
1863	32 494 403	2 807 222	35 301 625
1864	33 376 991	3 038 356	36 415 347
1865	35 983 636	3 132 644	39 116 280
1866	37 758 599	3 375 996	41 134 595
1867	40 069 366	3 570 403	43 639 769
1868	42 723 407	3 813 158	46 536 565
1869	47 128 320	3 980 327	51 108 647
1870	57 376 611	4 263 110	61 639 721

Sources: 1834–1860: Underdånigt betänkande angående Sveriges ekonomiska och finansiella utveckling under åren 1834–1860, tabell XXII.
1860–1865: Statistisk tidskrift 1865, andra bandet, Tabell nr 3, sid 335.
1866–1870: Sveriges officiella statistik, Sammandrag, 1870, 1872.

Table A2.5. *Long lending building societies 1834–1858 in rdr rmt (= SEK).*

	Hypoteksföreningarna			Bruksägarnas hypotekskassa		Total
Source table:	Tabell IV	Tabell IV	Calculated*	Tabell VI	Tabell VI	
	Amortization loans: original values	Amortization	Amortization loans: outstanding	Amortization loans: originial values	Amortization loans: outstanding	
1834				36 000	35 773	35 773
1835				126 000	124 605	124 605
1836	132 150	27 750	132 150	3 355 500	3 347 793	3 479 943
1837	569 850	33 005	536 845	4 773 750	4 738 382	5 275 227
1838	996 750	35 561	928 184	5 862 750	5 767 188	6 695 372
1839	1 349 000	33 569	1 246 865	6 890 250	6 733 518	7 980 383
1840	1 550 850	41 027	1 407 688	8 523 000	8 289 544	9 697 232
1841	1 821 900	70 657	1 608 081	9 762 000	9 434 829	11 042 910
1842	2 546 763	44 757	2 288 187	11 245 500	10 808 009	13 096 196
1843	3 650 063	48 375	3 343 112	12 345 000	11 778 465	15 121 577
1844	3 997 523	50 250	3 640 322	12 508 789	11 768 109	15 408 431
1845	4 391 105	54 517	3 979 387	12 594 586	11 622 806	15 602 193
1846	6 930 332	161 848	6 356 766	12 594 586	11 428 319	17 785 085
1847	8 496 878	157 538	7 765 774	12 562 048	11 230 081	18 995 855
1848	10 771 308	135 948	9 904 256	12 320 628	10 799 905	20 704 161
1849	12 678 571	176 055	11 635 464	12 105 676	10 378 578	22 014 042
1850	16 768 681	181 419	15 544 155	12 008 020	10 081 532	25 625 687
1851	23 144 927	231 342	21 689 059	12 020 548	9 850 442	31 539 501
1852	34 111 401	344 049	32 311 484	12 302 026	9 921 707	42 233 191
1853	41 746 758	434 497	39 512 344	12 602 104	9 970 686	49 483 030
1854	46 639 238	538 447	43 866 377	12 597 564	9 747 828	53 614 205
1855	54 439 081	588 946	51 077 274	12 629 110	9 549 438	60 626 712
1856	57 479 194	688 333	53 429 054	12 911 110	9 588 207	63 017 261
1857	62 263 835	1 056 691	57 157 004	12 969 978	9 384 972	66 541 976
1858	67 702 008	933 735	61 661 442	13 030 926	9 175 082	70 836 524

Sources: Finanskommittén (1860b).

* = previous year + change in original value – amortization.

Table A2.6. *Total lending building societies 1834–1870 in rdr rmt (= SEK).*

Source table	Tabell XXVII	From Table A2.5	
	Short lending	Long lending	Total lending
1834		35 773	35 773
1835		124 605	124 605
1836	1 104 050	3 479 943	4 583 993
1837	1 509 740	5 275 227	6 784 967
1838	962 732	6 695 372	7 658 104
1839	1 327 750	7 980 383	9 308 133
1840	2 756 247	9 697 232	12 453 479
1841	4 149 313	11 042 910	15 192 223
1842	3 570 937	13 096 196	16 667 133
1843	2 303 326	15 121 577	17 424 903
1844	2 111 043	15 408 431	17 519 474
1845	2 041 422	15 602 193	17 643 615
1846	2 725 116	17 785 085	20 510 201
1847	4 242 414	18 995 855	23 238 269
1848	3 555 774	20 704 161	24 259 935
1849	4 758 653	22 014 042	26 772 695
1850	6 508 421	25 625 687	32 134 108
1851	8 874 057	31 539 501	40 413 558
1852	8 284 763	42 233 191	50 517 954
1853	8 393 045	49 483 030	57 876 075
1854	5 924 890	53 614 205	59 539 095
1855	6 497 843	60 626 712	67 124 555
1856	9 861 227	63 017 261	72 878 488
1857	5 660 365	66 541 976	72 202 341
1858	4 436 655	70 836 524	75 273 179
1859			
1860			
1861			
1862			
1863			
1864			
1865			
1866			
1867			
1868			
1869			
1870			158 849 000

Sources: 1835–1858: Finanskommittén (1860b).
1870: Statistics Sweden (1960, Tabell 82).

Table A2.7. *Debt building societies 1834–1870 in rdr rmt (= SEK).*

	Hypoteksföreningar			Sveriges Allmänna Hypotkeskassa		Total
Source table:	Tabell XXII	Tabell XX	Tabell XIX			
	Foreign bond debt	Domestic re-deemable bonds	Domestic long bonds	Domestic bonds SAHB	Foreign bonds SAHB	
1834						
1835	2 670 000	61 333				2 731 333
1836	3 935 333	562 850				4 498 183
1837	5 827 333	1 240 833				7 068 166
1838	5 759 333	1 945 850				7 705 183
1839	7 588 666	2 162 692				9 751 358
1840	11 548 666	2 273 509				13 822 175
1841	12 972 000	3 214 700				16 186 700
1842	13 457 333	3 580 367				17 037 700
1843	13 292 000	4 239 350				17 531 350
1844	13 541 333	4 174 891				17 716 224
1845	13 362 666	4 978 733				18 341 399
1846	14 474 049	6 516 417				20 990 466
1847	18 181 999	5 916 858				24 098 857
1848	17 703 333	6 969 041				24 672 374
1849	19 403 999	9 228 584				28 632 583
1850	25 261 998	9 976 327				35 238 325
1851	33 832 131	11 651 209				45 483 340
1852	46 333 264	13 740 167				60 073 431
1853	50 702 330	14 296 800	9 600			65 008 730
1854	50 340 430	13 908 808	2 914 800			67 164 038
1855	51 594 197	14 423 217	8 679 100			74 696 514
1856	50 954 696	15 024 100	11 982 100			77 960 896
1857	53 058 031	11 326 658	12 087 100			76 471 789
1858	59 538 711	9 860 225	12 824 900			82 223 836
1859						
1860						
1861					18 000 000	
1862					40 000 000	
1863					43 000 000	
1864				1 000 000	49 000 000	
1865				2 000 000	51 000 000	
1866				4 000 000	55 000 000	
1867				9 000 000	58 000 000	
1868				16 000 000	60 000 000	
1869				29 000 000	60 000 000	
1870				40 000 000	60 000 000	177 322 000

Sources:
1835–1858: Finanskommittén (1860b).
1861–1870: Sveriges Allmänna Hypoteksbank (1911), figure last page.
1870: Statistics Sweden (1960, Tabell 82).

Table A2.8. *Assets enskilda banker 1834–1870 in rdr rmt (SEK).*

	Grundfond-hypotek	Loans	Bills	Cash credit	Bonds and stocks	Reserves	Other assets	Total
1834	552 400	1 880 875		304 920	45 000	366 393	6 259	3 155 847
1835	552 400	2 053 720		248 053	52 500	483 631	37 382	3 427 686
1836	1 209 700	2 592 231		307 869	132 000	836 694	156 687	5 235 181
1837	3 040 810	3 617 897		682 446	12 000	1 718 925	718 562	9 790 641
1838	3 576 679	5 587 384		1 534 579	56 400	3 045 685	775 073	14 575 800
1839	3 857 854	6 041 500		2 036 857	274 980	3 771 894	589 895	16 572 980
1840	4 051 720	7 044 809		2 254 890	255 000	3 851 423	520 906	17 978 748
1841	5 267 853	7 295 415		2 515 620	371 516	4 362 506	888 797	20 701 707
1842	5 449 653	6 987 606		2 784 727	298 495	3 737 594	834 573	20 092 648
1843	5 880 920	6 045 300		2 773 999	156 813	4 296 878	806 769	19 960 679
1844	5 880 920	6 726 486		2 550 817	614 943	3 901 510	907 087	20 581 763
1845	5 880 920	7 051 787		2 304 501	506 850	6 384 526	830 857	22 959 441
1846	5 880 920	7 256 959		2 285 044	1 197 880	7 375 026	791 833	24 787 662
1847	9 148 122	8 169 850		4 133 580	1 351 457	7 128 875	1 089 910	31 021 795
1848	11 325 420	9 987 541		5 168 754	1 473 764	5 663 690	600 981	34 220 150
1849	11 201 195	10 286 193		6 325 140	1 175 743	4 869 881	658 120	34 516 272
1850	11 201 195	9 310 290		5 804 794	912 266	5 013 303	986 212	33 228 060
1851	11 201 195	11 236 743		5 284 868	640 076	5 413 524	921 343	34 697 749
1852	11 201 195	11 460 428		5 367 318	915 058	5 890 050	796 468	35 630 517
1853	11 201 195	12 843 183		5 302 074	1 334 608	8 597 269	1 043 599	40 321 928
1854	11 201 195	14 194 629		5 507 560	2 785 468	11 236 021	1 040 511	45 965 384
1855	11 201 195	15 554 694	42 990	6 841 200	3 219 041	15 878 104	774 782	53 512 006
1856	11 801 195	14 111 499	666 066	9 755 008	1 552 163	10 186 557	1 041 524	49 114 012
1857	16 437 420	16 559 314	1 249 593	11 105 011	1 271 785	7 596 719	1 425 359	55 645 202
1858	18 300 325	26 457 366	3 032 879	9 340 459	2 320 924	10 536 040	1 696 797	71 684 790
1859	18 307 985	20 376 795	4 560 527	11 424 908	2 705 240	9 318 536	1 622 175	68 316 166
1860	18 322 332	24 993 694	7 656 844	8 521 694	2 129 094	14 396 611	1 216 148	77 236 417
1861	18 329 082	29 009 000	10 111 930	9 062 236	1 623 734	14 308 454	1 714 542	84 158 978
1862	18 341 702	29 065 731	10 241 807	9 842 723	2 889 775	12 914 428	1 931 809	85 227 975
1863	18 353 890	26 498 384	10 943 481	11 937 112	2 936 660	13 048 577	1 578 255	85 296 359
1864	18 320 790	20 356 889	12 987 514	15 881 232	4 474 322	9 311 372	3 292 015	84 624 134
1865	26 505 050	26 631 093	19 733 974	17 265 462	4 525 263	12 048 982	5 083 984	111 793 808
1866	28 895 673	23 992 609	19 275 870	20 209 000	5 014 671	12 925 421	5 579 557	115 892 802
1867	29 936 179	31 258 534	24 707 903	20 780 319	7 255 456	14 901 845	7 585 566	136 425 802
1868	29 497 656	30 091 638	24 366 349	21 831 782	5 728 411	14 856 144	8 675 023	135 047 003
1869	30 386 967	35 558 016	27 843 758	22 647 253	7 647 214	14 294 096	10 287 425	148 664 729
1870	31 165 937	38 626 938	33 375 361	23 277 912	8 507 851	17 852 155	10 151 628	162 957 782

Sources:
1834–1859: Finanskommittén (1860a), Bihang, Tabell IV.
1860–1865: Bankbyrån (1860–1865).
1866–1870: Statistics Sweden (1866–1870).

Table A2.9. *Liabilities and equity enskilda banker 1834-1870 i rdr rmt (= SEK)*

	Notes	Sight deposits	Time deposits	Equity	Other liabililtes	Total
1834	1 333 063	111 334	3 380	1 708 070	–	3 155 847
1835	1 512 783	99 150	750	1 783 448	31 557	3 427 688
1836	2 526 686	76 642	12 000	2 533 281	86 572	5 235 181
1837	4 085 812	174 492	24 380	5 395 798	110 158	9 790 641
1838	7 343 436	594 860	131 590	6 397 599	108 317	14 575 802
1839	9 073 782	584 515	46 460	6 861 934	6 291	16 572 982
1840	10 039 045	733 461	49 540	6 835 821	20 883	17 678 750
1841	10 762 294	813 342	61 910	8 626 162	438 000	20 701 708
1842	9 672 397	751 732	26 770	8 903 751	738 000	20 092 650
1843	9 449 819	713 187	28 370	9 469 304	300 000	19 960 680
1844	9 787 857	1 036 120	26 700	9 622 039	109 046	20 581 762
1845	11 959 038	966 715	386 960	9 601 729	45 000	22 959 442
1846	13 398 577	1 043 845	498 350	9 846 893	–	24 787 665
1847	16 253 444	1 451 640	203 000	13 113 714	–	31 021 799
1848	15 781 959	1 736 325	66 780	16 191 493	443 595	34 220 152
1849	15 399 805	1 505 277	233 240	16 255 608	1 122 345	34 516 275
1850	15 043 507	1 251 814	208 695	16 199 796	524 250	33 228 062
1851	16 455 456	1 589 961	48 135	16 334 199	270 000	34 697 751
1852	16 649 013	2 081 029	543 600	16 356 876	–	35 630 518
1853	20 545 657	2 806 421	366 165	16 373 767	229 920	40 321 930
1854	25 371 429	3 161 326	722 835	16 500 545	209 251	45 965 386
1855	31 608 183	3 505 418	1 153 275	16 522 095	672 138	53 461 109
1856	26 573 270	2 183 114	1 508 035	17 764 411	1 085 185	49 114 015
1857	21 405 736	3 540 338	3 557 930	23 286 361	3 854 839	55 645 205
1858	25 260 018	8 659 931	7 747 375	25 687 761	4 329 709	71 684 794
1859	26 138 348	5 817 242	7 802 750	26 120 353	2 437 036	68 315 729
1860	28 867 540	5 908 168	11 621 780	26 879 877	3 959 077	77 236 442
1861	30 947 646	5 728 043	13 603 700	27 537 444	6 342 148	84 158 981
1862	31 625 580	5 751 066	16 122 420	28 129 115	3 604 794	85 232 975
1863	28 747 474	5 647 480	15 912 495	28 523 898	6 459 013	85 290 360
1864	28 132 328	5 250 265	15 797 070	27 983 762	7 160 699	84 324 124
1865	34 195 578	7 312 577	20 564 172	40 532 045	9 189 437	111 793 809
1866	32 676 821	7 578 842	24 223 986	44 879 850	6 532 898	115 892 398
1867	35 852 915	9 740 712	29 387 670	47 752 135	13 692 370	136 425 802
1868	31 806 810	9 776 967	33 614 133	45 073 325	14 775 763	135 046 998
1869	36 574 350	11 272 357	41 514 955	47 508 418	11 795 392	148 665 472
1870	42 247 530	12 737 977	48 311 378	48 447 234	11 213 647	162 957 766

Sources:
1834–1859: Finanskommittén (1860a), Bihang, Tabell IV.
1860–1865: Bankbyrån (1860–1865).
1866–1870: Statistics Sweden (1866–1870).

Table A2.10. *Assets Stockholms Enskilda Bank 1856–1870 in rdr rmt (= SEK)*

	Grundfonds-hypoteker	Loans	Cash credit	Bills	Bonds	Reserves	Other	Total
1856	600 000	100 750	–	607 879	50 900	463 709	406 684	2 229 922
1857	600 000	1 778 350	881 200	754 092	33 050	939 603	63 903	5 050 198
1858	600 500	7 135 200	812 200	2 395 778	556 442	2 205 909	24 698	13 730 727
1859	600 060	2 943 265	1 119 400	3 021 454	1 416 160	1 850 088	4 110	10 954 537
1860	600 720	4 641 226	1 303 300	4 764 587	745 520	1 792 650	140 649	13 988 652
1861	601 070	4 582 440	1 726 500	5 307 199	470 440	1 830 076	286 500	14 804 225
1862	600 370	3 057 700	2 096 200	5 128 204	1 285 658	1 811 583	763 974	14 743 689
1863	611 390	2 458 300	2 656 700	4 167 787	1 398 810	2 032 370	494 610	13 819 967
1864	610 990	2 351 750	3 057 500	2 660 471	2 829 132	1 479 157	496 721	13 485 721
1865	612 410	4 373 860	2 221 100	3 549 441	2 816 844	1 565 261	479 780	15 618 696
1866	612 400	3 387 765	2 756 800	2 195 493	2 765 589	1 961 160	1 332 532	15 011 739
1867	612 220	4 730 564	2 787 300	2 265 612	4 908 620	1 453 273	327 201	17 084 790
1868	650 100	3 208 748	2 676 400	2 762 631	4 795 098	2 324 248	829 704	17 246 929
1869	637 180	5 103 083	2 504 200	2 466 196	5 526 644	1 260 397	468 790	17 966 490
1870	635 960	4 745 190	2 213 500	2 653 575	6 225 354	1 522 444	496 190	18 492 213

Sources:

1834–1859: Finanskommittén (1860a), Bihang, Tabell IV.

1860–1865: Bankbyrån (1860–1865).

1866–1870: Statistics Sweden (1866–1870).

Table A2.11. *Liabilities and equity Stockholms Enskilda Bank 1856–1870 in rdr rmt (= SEK).*

Liabilities and equity							
	Notes	Sight deposits	Time deposits	Deposits by banks	Equity	Other	Total
1856	243 340	224 084	538 600	223 898	1 000 000		2 229 922
1857	930 000	623 141	2 415 700	73 038	1 008 319		5 050 198
1858	1 148 100	4 477 448	5 857 200	1 061 000	1 186 979		13 730 727
1859	1 394 090	2 661 633	5 387 300	146 210	1 365 304		10 954 537
1860	1 689 702	2 454 160	6 826 300	1 337 280	1 636 711	44 502	13 988 655
1861	1 664 887	2 014 401	6 796 100	1 492 714	1 875 285	960 787	14 804 174
1862	1 873 810	2 446 228	7 436 200	–	1 675 285	1 312 166	14 743 689
1863	1 811 564	1 857 722	7 269 800	734 849	2 086 756	59 273	13 819 964
1864	1 907 722	1 641 943	6 794 400	1 186 345	1 886 756	68 555	13 485 721
1865	1 667 946	2 094 272	7 439 800	1 964 642	1 966 179	485 867	15 618 706
1866	1 382 138	2 201 474	7 535 700	1 780 299	2 090 680	21 450	15 011 741
1867	1 206 992	2 494 633	7 717 700	2 655 039	2 005 116	1 005 311	17 084 791
1868	1 245 905	2 823 405	8 169 600	2 919 910	2 067 562	20 550	17 246 932
1869	1 203 874	2 109 763	9 659 300	2 607 456	2 101 215	284 882	17 966 490
1870	1 244 599	2 296 925	8 752 300	3 755 667	2 156 071	287 350	18 492 912

Sources:

1834–1859: Finanskommittén (1860a), Bihang, Tabell IV.

1860–1865: Bankbyrån (1860–1865).

1866–1870: Statistics Sweden (1866–1870).

Table A2.12. *Assets Filialbanker 1852–1870 in rdr rmt (= SEK).*

	Grundfond-hypotek	Loans	Cash credit	Bills	Bonds	Reserves	Other assets*	Total
1852	750 000	140 770	365 250	23 255		41 706	257 136	1 578 117
1853	1 931 650	1 218 428	1 034 520	47 198		320 324	286 593	4 838 713
1854	2 249 887	1 975 721	1 121 430	127 181	359 957	498 647	138 380	6 471 203
1855	2 354 425	2 473 707	1 725 715	336 829	857 125	491 448	2 172 295	10 411 544
1856	2 630 000	2 480 385	2 380 875	640 387	42 236	437 995	2 142 953	10 754 831
1857	2 630 000	2 074 155	2 486 533	529 893	22 025	640 764	1 884 852	10 268 222
1858	5 137 500	4 869 359	2 046 539	772 192	120 750	768 366	3 241 657	16 956 363
1859	8 209 051	7 626 914	3 003 483	1 483 340	292 183	1 196 914	2 146 251	23 958 136
1860	9 196 375	8 075 008	2 832 976	3 581 026	562 174	1 095 051	1 085 787	26 428 397
1861	9 521 704	9 845 117	2 816 159	4 799 034	554 706	1 534 689	1 169 654	30 241 063
1862	9 188 505	11 103 507	2 773 026	5 584 086	490 894	1 822 636	1 059 005	32 021 659
1863	9 985 784	10 381 852	4 035 681	6 394 145	450 113	1 781 002	1 513 320	34 541 897
1864	9 837 895	10 415 891	3 951 052	7 531 640	424 920	1 631 001	1 677 060	35 469 459
1865	8 933 491	10 271 406	3 738 256	6 105 043		1 680 974	2 378 729	33 107 899
1866	8 475 623	9 496 971	3 894 273	6 101 163		1 473 360	1 339 035	30 780 425
1867	7 518 688	8 409 378	3 292 195	5 118 513		861 446	2 485 707	27 685 927
1868	5 947 779	6 636 379	2 810 322	5 044 048		878 422	2 170 662	23 487 612
1869	4 477 268	4 836 168	2 269 173	3 882 690		730 413	2 564 583	18 760 295
1870	4 153 442	4 740 763	2 948 789	3 810 956		722 490	1 245 349	17 621 789

Sources:

1852–1859: Finanskommittén (1860a), Bihang, Tab V.litt. B.

1860–1864: Bankbyrån (1860–1865).

1865–1870: Statististisk Tidskrift (1865–1873).

* Other assets are missing 1852–1859 (= Sum of liabilities and equity minus recorded assets).

Table A2.13. *Liabilities and equity filialbanker 1852–1870 in rdr rmt (= SEK).*

| | Liabilties and equity | | | | | | | |
	Assignations	Loans from Riksbank	Sight deposits	Time deposits	Equity	Other liabilities	Loans to banks	Total
1852	131 700	280 350	–	119 311	1 046 756		–	1 578 117
1853	284 400	1 379 100	64 500	400 677	2 710 036		–	4 838 713
1854	378 150	1 794 750	125 220	992 084	3 180 999		–	6 471 203
1855	501 159	2 139 300	282 500	1 382 823	5 176 111		929 651	10 411 544
1856	798 000	2 562 600	379 894	954 107	5 643 230		417 000	10 754 831
1857	664 500	2 759 250	389 385	529 148	5 808 939		117 000	10 268 222
1858	1 038 500	4 173 450	894 508	1 086 906	9 412 999		350 000	16 956 363
1859	1 217 600	5 695 750	1 780 790	1 455 278	13 538 690		270 028	23 958 136
1860		7 832 163	1 588 137	2 378 751	13 518 484	696 517	414 288	26 428 340
1861		8 711 302	1 734 539	3 881 222	14 249 139	739 868	925 000	30 241 070
1862		8 930 331	2 167 023	4 979 639	13 815 531	1 024 068	1 105 069	32 021 661
1863		8 795 168	1 808 767	5 833 863	15 760 158	1 371 914	972 329	34 542 199
1864		9 312 882	1 828 165	6 035 897	16 416 744	1 034 361	830 838	35 458 887
1865		7 199 290	1 531 357	5 582 905	16 115 896	2 678 451		33 107 899
1866		7 289 026	1 050 042	5 068 496	15 228 414	2 144 447		30 780 425
1867		6 751 783	927 771	4 529 256	13 282 060	2 195 057		27 685 927
1868		4 792 706	1 191 362	4 449 929	10 962 730	2 090 885		23 487 612
1869		3 239 038	866 775	4 076 414	8 869 777	1 708 291		18 760 295
1870		3 285 420	725 989	3 858 916	8 425 027	1 326 438		17 621 790

Sources:

1852–1859: Finanskommittén (1860a), Bihang, Tab V.litt. B.

1860–1864: Bankbyrån (1860–1865).

1865–1870: Statistisk Tidskrift (1866–1873).

Table A2.14. *Number of banks.*

	Sparbanker	Filialbanker	Enskilda banker	Enskilda banker branch offices	Hypoteks-föreningar	Bank offices per 100,000 adults	Population >15 years
1820	2					0,11	1 749 397
1821	3					0,17	1 756 666
1822	6					0,34	1 773 198
1823	6					0,33	1 797 004
1824	12					0,66	1 815 939
1825	13					0,71	1 841 403
1826	16					0,86	1 856 165
1827	20					1,08	1 860 047
1828	22					1,18	1 860 205
1829	23					1,24	1 857 637
1830	25					1,34	1 863 676
1831	28		1			1,54	1 884 147
1832	30		2			1,68	1 904 617
1833	32		2	2		1,87	1 925 088
1834	31		2	2	1	1,80	1 945 559
1835	39		2	2	1	2,19	1 966 030
1836	48		3	2	2	2,67	1 986 500
1837	49		6	5	2	2,99	2 006 971
1838	50		6	6	2	3,06	2 027 442
1839	59		6	7	2	3,52	2 047 912
1840	60		6	7	2	3,53	2 068 383
1841	64		6	7	2	3,68	2 093 057
1842	64		6	7	2	3,64	2 117 730
1843	66		6	8	2	3,73	2 142 404
1844	67		6	8	2	3,74	2 167 078
1845	67		6	8	2	3,70	2 191 752
1846	67		6	8	3	3,65	2 216 425
1847	71		7	11	3	3,97	2 241 099
1848	79		8	12	4	4,37	2 265 773
1849	81		8	12	4	4,41	2 290 446
1850	86		8	12	4	4,58	2 315 120
1851	91		8	12	5	4,75	2 336 650
1852	99	1	8	12	6	5,09	2 358 180
1853	109	4	8	12	7	5,59	2 379 710
1854	118	4	8	12	7	5,91	2 401 240
1855	122	6	8	12	7	6,11	2 422 770
1856	129	7	8	12	7	6,38	2 444 299
1857	133	7	11	14	7	6,69	2 465 829
1858	135	10	11	15	7	6,87	2 487 359
1859	143	17	11	15	7	7,41	2 508 889

	Sparbanker	Filialbanker	Enskilda banker	Enskilda banker branch offices	Hypoteks-föreningar	Bank offices per 100,000 adults	Population >15 years
1860	151	22	11		7	7,27	2 530 419
1861	156	22	11		10	7,41	2 551 784
1862	167	22	11		10	7,77	2 573 150
1863	175	22	11		10	8,02	2 594 515
1864	179	21	11		10	8,07	2 615 881
1865	186	20	20		10	8,57	2 637 246
1866	195	20	23		10	8,95	2 658 611
1867	202	17	25		10	9,10	2 679 977
1868	215	14	24		10	9,37	2 701 342
1869	221	10	27		10	9,48	2 722 708
1870	234	9	27		10	9,84	2 744 073

Sources:

Sparbanker: Statistics Sweden (1961), Tab. 83.

Enskilda banker: Brisman (1924, p. 245), Brisman (1934, p.219).

Filialbanker: 1852–1859: Finanskommittén (1860a), 1860–1865: Söderlund (1964, p. 103), 1866–1870: Statistisk tidskrift (1866–1873).

Hypoteksföreningar: Nordisk familjebok, andra upplagan, 1910.

Population: Statistics Sweden, (1955).

Table A2.15. *Bank accounts per inhabitant.*

		Sparbanker	Enskilda banker		Total
	Population >15 years		Sight depoists	Time deposits	Depositors/ 1,000 adults
1820	1 749 397				
1821	1 756 666				
1822	1 773 198				
1823	1 797 004				
1824	1 815 939				
1825	1 841 403				
1826	1 856 165				
1827	1 860 047				
1828	1 860 205				
1829	1 857 637				
1830	1 863 676				
1831	1 884 147				
1832	1 904 617				
1833	1 925 088				
1834	1 945 559	22 964			12
1835	1 966 030				
1836	1 986 500				
1837	2 006 971				
1838	2 027 442				
1839	2 047 912				
1840	2 068 383	48 445			23
1841	2 093 057				
1842	2 117 730				
1843	2 142 404				
1844	2 167 078				
1845	2 191 752	64 170			29
1846	2 216 425				
1847	2 241 099				
1848	2 265 773				
1849	2 290 446				
1850	2 315 120	100 194			43
1851	2 336 650				
1852	2 358 180				
1853	2 379 710				
1854	2 401 240				
1855	2 422 770	154 229			64
1856	2 444 299				
1857	2 465 829				
1858	2 487 359				

		Sparbanker	Enskilda banker		Total
	Population >15 years		Sight depoists	Time deposits	Depositors/ 1,000 adults
1860	2 530 419	187 675			74
1861	2 551 784	198 559			78
1862	2 573 150	208 343	2 140	9 832	86
1863	2 594 515	218 335	2 099	10 684	89
1864	2 615 881	228 249	2 216	10 739	92
1865	2 637 246	244 726	3 394	13 880	99
1866	2 658 611	259 707	4 131	16 922	106
1867	2 679 977	275 083	4 957	19 893	112
1868	2 701 342	289 557	5 159	22 219	117
1869	2 722 708	309 526	5 373	24 115	125
1870	2 744 073	354 357	6 266	29 446	142

Sources
See figure 2.29.

Table A2.16. *Total bank lending 1772–1870 in SEK.*

	Bank lending	GDP	Lending/GDP, %
1772	37 067	57 051 210	0,1
1773	1 326 185	56 100 997	2,4
1774	1 413 376	52 720 785	2,7
1775	1 500 567	58 217 366	2,6
1776	1 587 758	59 550 362	2,7
1777	1 674 949	62 944 795	2,7
1778	1 762 140	65 529 234	2,7
1779	1 849 331	66 553 451	2,8
1780	1 935 512	65 193 472	3,0
1781	2 053 112	63 897 850	3,2
1782	2 091 214	66 795 331	3,1
1783	2 487 008	67 745 707	3,7
1784	2 660 186	65 374 697	4,1
1785	2 539 880	68 996 329	3,7
1786	2 533 526	69 807 385	3,6
1787	2 407 285	71 686 689	3,4
1788	1 864 522	74 847 863	2,5
1789	1 106 582	76 596 237	1,4
1790	1 608 983	80 199 551	2,0
1791		79 259 569	
1792		82 607 724	
1793		88 461 544	
1794		101 168 280	
1795		110 193 758	
1796		113 730 491	
1797	203 145	115 161 762	0,2
1798	310 166	117 893 826	0,3
1799	237 588	136 188 633	0,2
1800	244 801	159 075 077	0,2
1801	266 574	166 313 858	0,2
1802	295 444	164 140 985	0,2
1803	246 993	162 743 549	0,2
1804	1 153 554	164 529 931	0,7
1805	2 137 049	166 872 922	1,3
1806	3 176 018	186 306 349	1,7
1807	3 974 420	192 679 486	2,1
1808	3 483 515	223 096 879	1,6
1809	3 911 640	241 938 513	1,6
1810	5 947 792	259 219 957	2,3
1811	11 791 730	284 213 149	4,1
1812	8 519 878	331 364 293	2,6

	Bank lending	GDP	Lending/GDP, %
1813	9 657 750	354 404 049	2,7
1814	14 151 867	353 605 413	4,0
1815	13 960 107	344 212 919	4,1
1816	11 857 397	368 889 751	3,2
1817	9 003 944	370 585 042	2,4
1818		375 883 440	
1819		391 386 797	
1820		387 025 083	
1821		357 310 461	
1822		344 771 699	
1823		351 749 437	
1824		368 958 249	
1825		375 110 736	
1826		400 068 648	
1827		403 747 691	
1828		387 267 082	
1829		397 014 044	
1830		404 736 996	
1831		436 940 463	
1832		456 197 062	
1833		442 168 023	
1834	4 513 818	424 108 914	1,1
1835	2 379 585	442 416 003	0,5
1836	7 429 934	454 501 309	1,6
1837	11 565 661	451 735 731	2,6
1838	15 302 895	498 441 948	3,1
1839	17 748 513	511 448 571	3,5
1840	27 383 129	512 634 258	5,3
1841	25 646 090	508 279 660	5,0
1842	27 094 289	526 584 905	5,1
1843	26 819 168	517 837 342	5,2
1844	27 389 403	487 288 585	5,6
1845	35 243 447	512 894 818	6,9
1846	30 655 925	538 302 015	5,7
1847	36 197 736	577 904 429	6,3
1848	39 458 752	583 012 851	6,8
1849	43 427 802	573 759 192	7,6
1850	60 273 202	599 352 307	10,1
1851	56 935 354	608 872 048	9,4
1852	67 956 241	640 884 134	10,6
1853	78 309 127	685 367 057	11,4
1854	82 447 738	738 524 907	11,2
1855	116 150 640	863 569 780	13,5

	Bank lending	GDP	Lending/GDP, %
1856	102 096 930	959 357 447	10,6
1857	102 739 793	944 324 124	10,9
1858	110 444 786	845 516 384	13,1
1859	123 149 664	831 221 035	14,8
1860	172 515 398	902 674 191	19,1
1861	192 028 407	955 528 551	20,1
1862	203 009 791	977 938 846	20,8
1863	214 197 150	999 914 777	21,4
1864	223 666 410	982 312 009	22,8
1865	245 070 545	970 141 325	25,3
1866	252 912 291	1 005 603 184	25,2
1867	272 519 540	1 030 139 438	26,5
1868	279 359 160	1 018 107 172	27,4
1869	315 647 640	1 042 153 551	30,3
1870	342 422 454	1 108 502 144	30,9

Sources: See figure 2.26.
Note: Missing values 1791–1796 due to missing data for Riksgäldsdiskonter. Missing values 1820–1833 due to missing data for Sparbanker.

Swedish Banks and Credit Institutions since 1870

Lars Ahnland

Introduction

This chapter contains data on, and describes the evolution of, Swedish bank and credit institutions since 1870. Though banks may have had different characteristics in different countries during different periods of time, they have some features in common regardless of time and space. Banks play a critical role in the economic development of a country due to their role as intermediaries of funds as well as their function as payment system providers (Kock 1930, p. 34; Nygren 1985, p. 12). Without banks it is hard for entrepreneurs, governments and home owners to get access to external funding, and harder for investors to match return and risk preferences. During the heavy industrialization of the late 19th century in Sweden, funding via banks was of fundamental importance for everything from the development of saw mills and the expansion of railway networks to housing construction during urbanization and growth of Stockholm and other large cities. Banks also played a central role for the rapid growth of the chemical and electrical industries from the 1890s up until World War One and were often direct or indirect owners of the companies they provided finance for.

While Swedish banks have developed side-by-side with industry during periods of growth and expansion, they have also played a lead role in the governance and restructuring of Swedish enterprise during periods of less new corporate establishment. Particularly, the deep deflation crisis during the 1920s forced banks to become the main owners of much of Swedish industry. This bank-based ownership structure of Swedish enterprise largely continued after the 1920s crisis. The large banks, such as *Stockholms Enskilda Bank*, *Handelsbanken* and *Skandinaviska Banken*, acted as house banks for companies belonging to their own power spheres as well as for industrial dynasties and other companies not directly controlled by the banks. Besides commercial banks, *sparbanker* have also been an important force on the Swedish credit market since the 19th century. During the 20th century they increasingly competed with commercial banks, as did agricultural cooperative banks (*jord-*

brukskasor/föreningsbanker), and legislation was successively altered to level the playing field.

In addition to banks, there have been other important credit providers during the modern economic history of Sweden as well, particularly mortgage institutions for farming and housing. For instance, during the 19th Century, *Sveriges Allmänna Hypoteksbank* played a key role in investment in agriculture, while *Stadshypotekskassan* from 1909 and bank-owned housing mortgage institutes like *Spintab*, *Sigab* and *Svensk fastighetskredit* from the 1950s, were important for funding in the housing market during the 20th century. There were also mortgage institutions for municipalities, shipping and other industries. Additionally, insurance companies extended considerable amounts of credit up to at least the early 1990s, while so called *finansbolag*, a diverse group of credit companies within corporate and consumer finance, grew in importance during the 1970s and 1980s.

Though banks and other credit institutions without doubt have been crucial for long-run economic development of Sweden, they have also been involved in credit expansion during asset market bubbles which after bursting have contributed to deep economic recessions. Credit provided by banks and other creditors to the general public has been an identified as a significant factor during such crises (Jordà et al. 2013). This is also valid in the case of Sweden (Ahnland 2015). In line with the recommendations of The European Systemic Risk Board, ESRB, the Riksbank has emphasized the need to address the problem of rising household debt. However, a historical perspective shows that not only household debt, but also corporate debt, may pose a macroeconomic problem. For instance, financial turmoil tied to industrial companies in the 1920s and real estate companies in the 1990s caused credit losses among Swedish banks during these decades. Drawing from the history of Swedish banking since the 1870s, a tentative conclusion may be that banks have been a force of both creation and destruction during the period of investigation – or perhaps a force of "creative destruction", echoing the famous wording of Joseph Schumpeter (1994[1942], pp. 82–83).

This chapter presents annual data on commercial banks (*enskilda banker* and *aktiebanker*), *sparbanker*, *folkbanker*, *jordbrukskasor/föreningsbanker*, as well as insurance companies, credit companies, mortgage institutions and *finansbolag* in Sweden. Additionally, the chapter contains monthly data on commercial bank credit to and deposits from the general non-bank public in total (Swedish and foreign) currency values (Ahnland [Forthcoming]). Monthly data is not available for any other bank type or credit institute for the period as a whole. The dataset presented in this chapter also contains annual data on return-on-equity (ROE), credit losses, capital-asset ratios, market concentration and other key figures and financial ratios for commercial banks during the period of investigation. Reclassification of banks and changes in the reporting of types of credit by Statistics Sweden and other sources have complicated the reconstruction of the data and necessitated adjustments of the time series. Furthermore, some missing observations have been estimated due to lack of

data. Overall, however, missing data have been a minor problem, especially for commercial banks, the largest creditor group in the material.

Earlier studies of Swedish banks and credit institutions

Earlier studies of Swedish banking since 1870 includesd Brisman (1934) and Nilsson (1988), both providing accounts of the development of the Swedish banking system during the second half of the 19th century, Kock (1930), Olson (1939) and Sjögren (1989) on Swedish banking in the interwar years. Hortlund (2005) explores a number of aspects of Swedish banking in the 1870–2001 period, such as the long-run relationship between capital and earnings in banking and the impact of inflation and taxation on bank leverage. Larsson and Sjögren (1995) investigates the transformation of the Swedish banking market between 1969 and 1994.

Some literature studies banking as part of a particular branch of finance. In this category we find Gårdlund (1947), a study of Swedish 19th century industrial finance until World War One, and Cramér and Fredricsson (1942), an investigation of real estate finance up to 1941. There are also studies of varying scope of the Swedish capital market in general, such as Thunholm (1966), an account of the prevailing state in the mid-1960s, Hagström (1968), where the Swedish credit market in 1919 to 1964 is explored empirically, and Nygren (1985) a very long-run account of the Swedish credit market from the 17th century up to 1985. Ögren (2003) contains empirical studies of the Swedish credit market in the 19th century and up to 1913, including thorough accounts of Swedish banking regarding, for instance, credit losses. A recent addition is also Ögren (Ed.) (2010), a comprehensive study of the radical modernization of the Swedish financial system in the late 19th century. The Swedish financial system in the late 20th century, 1945 to 1990, is well covered in Werin (1993), with an emphasis on the policy of the Riksbank. The disposition is thematic rather than chronological, with chapters on both segments and functions of the credit market as well as chapters on policy areas. Another angle on banking history is that of financial crises, in which banks generally tend to play an important role. Boksjö and Lönnborg-Andersson (1994) is such a study, discussing Swedish financial crises during the 19th and 20th centuries, but also containing an investigation of the Swedish credit market in general and the banking market in particular before, during and after the crises. Larsson and Söderberg (2017) focus on the changing institutional framework for banks and financial markets in general from 1900 to 2015.

In addition to the general and aggregated research there are of course also a number of bank monographies, of which several are on *Stockholms Enskilda Bank* (such as Frölander 1906; Gasslander 1956 and 1959; Lindorm 1956; and Lindgren 1986). Another rich source on the history of *Stockholms Enskilda Bank* is Gårdlund (1976) a biography of Marcus Wallenberg, son of the founder André O. Wallenberg. *Stockholms Enskilda Bank* and its successor *Skandinaviska Enskilda Banken* is also depicted in Olsson (1997). Other noteworthy monographies are that of Söderlund (1964 and

1978) on *Skandinaviska Banken*, Hildebrand (1971), on *Handelsbanken*, and that of Eliasson and Larsson (1992) on *Nordbanken* and its predecessors.

On the purely statistical side, Adams et al. (2009) presents credit data for the period from 1830 to 1998 using data on commercial bank balance sheets. A more up to date database is that of Jordà et al. (2017) which contains historical international macroeconomic data from numerous sources, including unpublished data on Swedish commercial bank credit from 1871 to 2016 from the Riksbank. Another relevant statistical source is that of Waldenström (2016, 2017), which contains data on household assets and liabilities in banks as well as in other forms from 1810 to 2016. The most recent data on the Swedish credit market, which is also regularly updated, can be found in the international quarterly database on credit to the non-financial sector from Bank for International Settlements (2020), which contains data on Sweden since 1961.

Hagström (1968) contains an extensive sectoral composition of lenders and borrowers from 1919 to 1964, including both regular bank credit/deposits and the bond market. Werin (1993, p. 54), presents sectoral data on deposits from 1945 to 1990 based on financial accounts after 1970 and a reassessment by Olsson (1993) for previous years. The early figures are here based on estimates and extrapolations, and are therefore of poorer quality. Werin (1993, pp. 67–95) also contains data on loans and other assets, plus liabilities, of insurance companies, other financial institutions, the foreign sector and non-financial company sectors between 1945 and 1990. Boksjö and Lönnborg-Andersson (1994) present statistical data on commercial banks before and after the crises accounted for. Specifically, the study contains data from the Riksbank and the bank summaries of Statistics Sweden on the change in lending from commercial banks based around the time of the financial crises, along with data on credit losses and some other key figures. Ahnland (2015) focus on the formation of private credit in general in Sweden between 1900 and 2013, and is until now perhaps the most comprehensive compilation of this sort. It includes data on lending from commercial banks, *sparbanker*, *jordbrukskasor/föreningsbanker*, credit companies, mortgage institutions and *finansbolag*. Ahnland (Forthcoming) presents the monthly commercial bank data since 1875 occurring in the present study.

Sources for Swedish bank and credit institution statistics

Statistics Sweden and the reporting supervisory authorities have provided a rich source of data for Swedish bank statistics historically. Particularly this applies to bank balance sheets, including credit to and deposits from the general public. The general public is here defined as non-financial corporations, households, and the public sector, in accordance with the classifications of Statistics Sweden. Since the Riksbank was heavily involved in the credit market during the 19th century, it is also included in the statistics on annual credit. For annual deposits however, there is no distinction in the sources between deposits from the general public and banks. In

order to create coherent series, annual deposits by the Riksbank are therefore left out of the study. In addition to banks, insurance companies, mortgage institutions and *finansbolag* are also included in the series on annual credit, but not deposits, since the credit side of the balance sheet is composed differently for these relative to banks. Particularly, as banks are defined as deposit taking institutions, insurance companies, mortgage institutions and *finansbolag* do not qualify as banks, even when the word "bank" appears in the name (as is the case with for instance *Sveriges Allmänna Hypoteksbank* and *Sveriges Investeringsbank*).

Credit to and deposits from the general public are not of equal amount in the balance sheets even within each category, as there are several items not reported in this chapter, such as securities and credit to and deposits from other banks (in order to eliminate double counting). There are also significant differences between individual banks in this regard. For instance, some banks with a more international orientation, such as *Stockholms Enskilda Bank*, have traditionally had more lending to and borrowing from foreign banks than most other banks. Moreover, under some periods, certain forms of funding have been more prevalent than others. For instance, capital notes (a bond-like security) have been a popular way of relieving banks under stress during some crises historically (Kock 1930, pp. 64–65), while the floating of shares has been a more common way of strengthening bank equity during other times. Reserve requirements have also altered over time.

The reporting often changes over time, so that new types of credit and deposits, or creditors and debtors, appear, disappear, are split, merged and/or change name. Accounting has also changed as a consequence of the evolution of the credit market in particular and the macroeconomy in general. When required, breaks in earlier observations have been adjusted to newer ones by applying the relative difference in the break-date between the two series, in Table A3.1a. These differences are however minor (see below), and the raw data are reported in a supplementary table, Table A3.1b, with breaks occurring when the new data appears. Moreover, for some creditor categories, most notably insurance companies, *folkbanker*, and to some extent also for *sparbanker*, it has been necessary to fill in missing observations with the aid of interpolation (see below), in Tables A3.1a (for credit) and A3.2a (for deposits), but not in Tables A3.1b (for credit) and A3.2b (for desposits), where only the raw data are presented. Annual credit and deposits are measured in both nominal values and as a ratio to GDP (not present in the dataset, only in the chapter) in the study, with data on GDP (from the user side) from Edvinsson (2005, and 2016) in the 1870-1950 period and from Statistics Sweden (2022b) after that (the earlier series adjusted to the newer one). For 2020 the annual figure is equal to the sum of the four quarters (2022c).

In addition to the annual data, the dataset also includes monthly data for commercial banks, as well as key statistics from the annual income statements for commercial banks. The dataset also contain data on the number of commercial, savings and agricultural cooperative banks.

Commercial banks

Late 19th century bank palaces on Kungsträdgårdsgatan *in downtown Stockholm. SEB and Svenska Handelsbanken, two of the three largest commercial banks in Sweden today, still have their headquarters located here.*

https://commons.wikimedia.org/wiki/File:Stockholm_Kungstr%C3%A4dg%C3%A5rdsgatan_(1890-1900).jpg

Much like banks in other countries, early Swedish commercial banks specialized in attracting short-term deposits from the public for funding of short-term operations in industry and trade (Kock 1930, p. 34). Over time however, the scope of operation of commercial banks in Sweden increased, and from early on they are better described as universal banks that provide a wide range of financial services – both commercial bank services including deposit taking and loan extension, as well as investment bank services in corporate finance. Swedish commercial banks have traditionally also been central to the national payment system, through deposits in checking and giro accounts, as well as for foreign payments and for securities trade in secondary markets (Thunholm 1966, pp. 42–43).

In the second half of the 19th century there were two main groups of commercial banks – *enskilda banker* with the shared ownership liability right to issue their own

bank notes as legal tender, and *aktiebanker*, with limited liability but without rights to issue notes. The distinction regarding note issuance disappeared as a result of the Riksbank monopoly in 1904, but the legal difference concerning liability and some other aspects continued and reporting in the bank summaries is categorized accordingly until 1935.

From June 1974, *Postbanken* is included in the commercial bank summaries due to the merger with *Kreditbanken*. This creates a break in the series, where the new values for June are 22 per cent higher compared to the value without *Postbanken*. This break remains unadjusted for, and *Postbanken* data appears in a separate category before 1974 (see below).

Data on credit and deposits are based on the official summaries for the commercial banks from 1870 to 1997, from Statistics Sweden (2012, [1866–1911]), and the Bank inspection board (Kungl. Bank- och fondinspektionen 1912–1953, 1954–1967; Kungl. Bankinspektionen 1968–1983; Bankinspektionen 1985–1994; Finansinspektionen 1995–1996; the Riksbank 1996–1997). From 1998, the data are from Statistics Sweden (2022f).

When it comes to credit from and deposits to commercial banks, data is however only available on a monthly basis from 1875. Credit and deposits separately for the Swedish and the foreign public, as well as the total, is available monthly from March 1990. For banks in total, including *sparbanker* and *kreditkassor/föreningsbanker*, separate data on credit to and deposits from the foreign and Swedish non-financial sectors have been available annually since 1975, from Statistics Sweden (2022d). In order to calculate credit to and deposits of the general Swedish public for non-commercial banks, the annual data for all banks is subtracted from the annual data for commercial banks. The assumption that foreign bank affairs pertain to commercial banks and not to *sparbanker* and *kreditkassor/föreningsbanker* is realistic considering the local character of the latter two types of banks. The adjustment arguable produces a much more realistic dataset, presented in Table A3.1a, particularly since the amount of foreign credit and deposits was very small (0.7 per cent of Swedish general public bank credit and 0.2 per cent of Swedish general public bank deposits) in 1975 but grew substantially up until 1990 (to 14.6 per cent of Swedish general public bank credit and 17.7 per cent of Swedish general public bank deposits). Table A3.1b contains the unadjusted, total, data. From December 1993, the data includes foreign banks and large savings banks. From January 1998 to and until November 2001, due to lack of disaggregation in the sources, data on lending to non-EU non-financial sector foreign recipients is calculated as 64 per cent of the total non-EU recipients, which is the average (and stable share) for the 2002–2020 period.

Only the sum total value is reported in the dataset, but the reported items change considerably over time. Between 1870 and 1968, included outstanding loans for *enskilda banker* and *aktiebanker* consists of domestic and foreign bills of exchange, current credit accounts, outstanding loans, as well as letters of credit – short-term loans for funding payments in travel and current expenses, and construction work.

Credit due to different types of collateral is reported in the bank summaries on outstanding loans from 1875 to 1911, and from 1912 to 1968 on outstanding loans, granted current accounts and letters of credit. There are separate entries for *aktiebanker* for so called amortization loans in 1875 to 1903, and for terminable loans for *aktiebanker* from 1888 to 1903. The small item of documentary credit, a type of fixed payments contracts guaranteed by a bank and often used in foreign trade, appears in the data from 1947 to 1979. From 1969 to 1979, loans to the public includes domestic and foreign commercial bills of exchange, regular loans, advances on documentary credit, and credit in accounts (including advances on current accounts, cheque and giro accounts, letters of construction credit, and revolving current accounts secured by bills, notes and other assets). This chapter contains a series with the disaggregated data on different types of credit for every ten years from 1870 to 1970, plus 1979, on display in Figure 3.8. The main items are bills of exchange, which are agreements where one party is bound to pay a sum of money to another party on demand or on a predetermined date, regular loans against different kinds of collateral (labeled "long-term loans"), and credit in accounts/letters of credit used to pay for bills associated with for instance construction costs during the construction of a house (labeled "short-term loans"). After 1979 the commercial bank summaries no longer contain this level of disaggregation. Between 1980 and 1986 however, some new items appear in the statistics – loans to the general public now includes short term loans, housing credits (with some variation in the reporting), plus "other" loans in Swedish and foreign currency. From 1987 there is no longer any disaggregation of types of credit in the summaries.

Deposits by the general public in *enskilda banker* and *aktiebanker* include several types of accounts with different liquidity, accessibility and amount restrictions (see Kock 1930, pp. 66–80 for further details) – giro- and checking accounts, savings accounts, revaluation and depreciation reserve accounts, depository accounts and capital accounts. For *enskilda banker* savings accounts are only reported from 1897, and deposits through giro- and checking accounts are reported only from 1914 to 1934, and from 1935 only checking accounts. From 1912 to 1926 the statistics for *enskilda banker* and *aktiebanker* are merged, containing deposits via revaluation and depreciation reserve accounts, current accounts (a vista and terminable)*,* savings accounts and depository accounts and capital accounts. From 1927 the current accounts a vista item no longer appears in the data. Of particular interest is the entry of accounts for payments in salaries and wages as well as foreign currency accounts, which both appear in the summaries from December 1968, as these two new types of accounts reflect structural changes in the Swedish payments system at the time. Sometimes the number of entries decline, either due to the merger of certain entries, or the disappearance of certain forms of deposits. For instance, in January 1980 ten entries are merged into five, but after that a number of new accounts are reported for, such as lottery and tax savings accounts. From January 1987 however, all accounts are merged into one category only.

The chapter also contains annual data on a range of other key performance indicators for Swedish commercial banks, such as equity, untaxed reserves, net interest revenues, taxes paid, costs, profits (net income), capital, return-on-equity, capital-asset ratios and credit losses. The data are from an unpublished dataset by Hortlund (n.d.) up to 2005, originally from the consolidated statement of income is from Statistic Sweden's summaries for the commercial banks, and from Statistics Sweden (2022a; and 2022g) up to 2020. Return-on-equity (ROE), a measure of profitability, is calculated with the conventional formula "ROE = profits / average equity", where profits is equal to gross income minus use of capital, operating costs and depreciation, and the average equity is the average of the current and the past year. The data on key performance indicators for commercial banks are presented in Figures 3.5, 3.6 and 3.7.

Data on the number of commercial banks are from the summaries for the commercial banks until 1992 (Statistics Sweden 2012 [1866–1911]; Kungl. Bank- och fondinspektionen 1912–1953, 1954–1967; Kungl. Bankinspektionen 1968–1983; Bankinspektionen 1985–1994) and after 1992 the data comes from the corporate registry of the Financial Supervisory Authority (Finansinspektionen 2022).

Other banks and credit institutions

For a long part of the period, only commercial banks operated commercially, while the interest of the members was the primary objective for *sparbanker*, *folkbanker* and *jordbrukskassor/föreningsbanker*. Members of these non-commercial banks were both owners and customers, and these banks had to cater to this double stakeholder role of members. During the course of the 20th century however, *sparbanker* and *jordbrukskassor/föreningsbanker* increasingly began to compete with commercial banks, and in the bank act of 1969 this was also acknowledged legally, creating a level playing field for all banks. *Folkbanker*, a small group of banks with unlimited liability but without the right to issue banknotes and with the main purpose of providing working and investment capital for their shareholders, disappeared as a result of the banking reform of 1903 (enforced in 1904). From 1977, there is no longer a distinction between different banks in the national financial accounts, and they are summed up accordingly from this year in the present study too.

During the 19th century, the Riksbank was an important credit provider to everything from construction of churches and channels to small-scale farmers, civil servants and merchants (Nygren 1985, p. 41), and also provided loans to the private *filialbanker*, which extended loans commercially. After 1870 however, this function waned. *Filialbanker* ceased to operate during the 1870s, and commercial lending by the Riksbank was totally abandoned in 1897, although its lending continued as a supportive feature mostly for the banking system.

In addition to banks, other actors on the Swedish credit market during the late 19th century included trading houses, insurance companies, rich industrialists and other individuals engaged in formal or informal lending activities. Later on, other

creditors joined in on the credit market, such as site-leasehold right funds, government funds, investment companies, and *finansbolag*. Of these creditors, there are data available for insurance companies and *finansbolag*.

Sparbanker

Early data on the annual credit and deposits of *sparbanker* is from Statistic Sweden's summaries from 1870 to 1907. Observations for the 1870 to 1892 period are computed based on annual data of the funds of the banks, adjusted according to statements on credit-to-funds ratios, which are available on five-year interval basis in 1876 to 1892. In the primary dataset, observations are only given for years for which there is a ratio, while missing observations of the credit-to-funds ratios are inter- and extrapolated in the secondary dataset. Since the share of *sparbanker* out of total private credit was fairly large – between 10 and 15 per cent – this brings potential uncertainty to the dataset. However, a robustness check is used as well, where the ratio is calculated with a fixed credit-to-funds ratio based on the average of the obser-

Interior from the savings bank in the town of Gävle.
Source: https://digitaltmuseum.se/021016737220/gefle-stads-sparbank-startades-1824-for-att-forvalta-mindre-bemedlade-arbetares

vations. The difference between the two methods is only 2.3 per cent. Since the first method (with interpolation) is considered superior, the primary dataset is preferred and reported in Table A3.1a, and the raw data without estimated values are reported in Table A3.1b. From 1893, annual credit is based on loans to municipalities and municipal associations as well as on collateralized loans to individuals. After 1907 and until 1992, data are collected from the yearbooks of Statistics Sweden (1914–1994) including loans to municipalities, municipal associations and individuals (from 1927 described as "municipality loans" and "loans due to collateral", from 1959 only described as "loans" or "lending"), and data on the funds of depositors at year end. Data from 1993 to 1995 is acquired from the Financial Supervisory Authority (Finansinspektionen 1995–1996) and the Riksbank (1996–1997), but only for the largest *sparbanker*. Data since 1996 is acquired from Statistics Sweden annual summaries for financial companies (2022a). Data on the number of *sparbanker* are from Statistics Sweden's yearbooks until 1992 (1914–1994), and from the corporate registry of the Financial Supervisory Authority (Finansinspektionen 2022) after 1992.

Jordbrukskassor/föreningsbanker

After a parliamentary decision in 1915, agricultural cooperative banks (*jordbrukskassor*, renamed *föreningsbanker* in 1974) were formed to provide farmers with enhanced funding opportunities for agriculture. From the beginning these loans were mostly for current operations rather than for agricultural real estate, although it is hard to draw a line between the two (Kock 1930, p. 184). From the 1930s, real estate loans became more common. Both credit and deposits have been arranged primarily via district credit associations, on which the data are collected. Data on annual credit (exchange loans, real estate loans and other loans) from *jordbrukskassor/föreningsbanker* comes from the yearbooks of Statistic Sweden (1923–1994), until 1992 when they merged into *Föreningsbanken AB*. Until 1973, the available entry in the sources is that of lending to members, while lending to the general public is used from 1974. The deposits of the *jordbrukskassor* is recorded as deposits from members and from other individuals until 1974, and from the general public after that. Data on the number of *jordbrukskassor/föreningsbanker* are from Statistics Sweden's yearbooks (1914–1994).

Folkbanker

Annual data for *folkbanker* are included in the summaries for *sparbanker* from Statistic Sweden (Statistics Sweden (2008 [1895–1903], 1914). A few missing annual observations (1894, 1906, and 1907) are filled in using linear interpolation. Bills of exchange, "claims" and unpayed interest are included in both credit and deposits and "other debt", are included in deposits. Both credit and deposits for *folkbanker* were very small – only a few per cent of the equivalent for *sparbanker*.

Exhibition in a savings bank in Örebro in 1941, advising people to save 5 percent of their income.
Source: https://digitaltmuseum.se/0210111674911/orebro-sparbanken-staller-ut-1941

Postsparbanken/Postbanken

For the government-owned *Postsparbanken* – renamed *Postbanken* in 1960, data are reported separately from that of other *sparbanker*. There have been annual data on depositor funds in the yearbooks of Statistics Sweden (1914–1973) since the agency's inauguration in 1884 and until 1973. In 1974 the bank, renamed *Postbanken* in 1960, was merged with *Sveriges Kreditbank* and formed a new and government-owned commercial bank – PK-banken, for which data are reported in the commercial bank statistics. Corresponding data have been reported separately for *Postgirot*, a cash-less payment service provider and a subsidiary of *Postsparbanken* since its establishment in 1925. Regarding the years 1888 to 1922, there are data on loans to municipalities and real estate loans in the summaries of *Postsparbanken* (2008 [1890–1893], 2008 [1895–1912], 1912–1923). From 1923 data have been collected from the postal authority (Kungl. Generalpoststyrelsen 1924–1940), of which *Postsparbanken* became a part in that year. This source also contains data on municipality and mortgage loans from *Postgirot*. The statistical yearbooks of the Riksbank (1909–1978, 1979–2001), contain ready and accessible tables for credit extended by *Postsparbanken/Postbanken* and *Postgirot* from 1939 and until the merger with *Sveriges Kreditbank* in 1974, which are used in this study. In 1960, the reporting on *Postban-*

ken and *Postgirot* was merged. With this reporting merger there is an unexplained break in the series, where the newer series is 15 per cent lower than the older one. The break is unadjusted for. The sum total of *Postsparbanken/Postbanken* and *Postgirot* credit and deposits is reported in the final dataset.

The punching of punched cards in 1960, for the calculation of interest payments.
Source: Postmuseum, https://digitaltmuseum.se/021018543370/stansning-av-halkort-som-skall-anvandas-vid-ranteutrakning-dora-johansson

The Riksbank and filialbanker

Data on credit from the Riksbank is reported in the same way as for commercial banks until 1975, in the official summaries of Statistics Sweden (2019 [1870–1913]), the yearbooks of Statistics Sweden (1914–2014) and from 1995 the financial accounts by sector in the online database of Statistic Sweden (2022e). Data on foreign bills are included up to 1969. From 1975, the data on credit to the general public have been reported in aggregate form. For the *filialbanker*, which were dismantled by parliamentary decision from 1864 to 1875, there are data on credit and deposits up to 1874 in the official summaries of Statistics Sweden (2019 [1875]).

Insurance companies

The earliest data on credit extended by insurance companies is from Nygren (1985, p. 140) from 1875 to 1910, where data occurs every five years. In the secondary series, missing observations are inter- and extrapolated. From 1912, data are from the summaries for insurance companies from the Insurance Company Inspection Board until 1989 (Kongl. Försäkringsinspektionen 1913–1916; Försäkrings-inspektionen 1917–1984, 1985–1991) and from the Financial Supervisory Authority (Finans-inspektionen 1992–1996) after that. Credit is here defined as mortgage loans, municipality loans, and loans against collateral in insurance agreements and securities. Included insurance companies in 1912 to 1931, when there are no aggregated values, are mutual and incorporated life-, fire-, and capital and interest rate-insurance companies, which together account for 96.5 per cent of all credit from insurance companies registered in 1931 and subsequent summaries. The older data is adjusted to the newer data in Table A3.1a, whereas the newer data are counted from the subsequent year in Table A3.1b. From 1995, the data are from the online database of Statistics Sweden (2022e).

Finansbolag

When it comes to credit given by *finansbolag* – a diverse group of creditors with credit primarily for financing of consumer purchases as an explicit business concept – the earliest data available is in the national financial accounts from 1977, but the companies existed before that. This type of lending emerged on a small scale in the 1950s as a response to the growth in sales of consumer durables in the consumption boom after World War Two, and the sector organization *Finansbolagen* was founded in 1960. In the 1970s, *finansbolag* became major actors in the credit market as competitive alternatives to banks, which were limited by extensive credit regulations. Although *finansbolag* did participate on the credit market prior to 1977, data availability only permits them to be included from that year. Data on credit to the general public from 1977 to 1995 have been retrieved from the national financial accounts while data since 1996 come from the annual summaries of financial companies in the Statistics Sweden online database (2022a) (labeled as "other credit market companies").

Housing mortgage institutions

From 1909, city mortgage societies had their funding organized by *Stadshypotekskassan*, and both new and old bonds were placed on its balance sheet. Since there are no data on credit extended by mortgage institutions, neither from *Stadshypotekskassan* nor *Bostadskreditkassan,* in general before 1941, the deposits of such institutions by issuance of bonds, appearing in the statistical yearbooks of Statistics Sweden (1914–1941) are used as a proxy. From 1941, data on credit are from the statistical year-

books of the Riksbank (1942–1978), from the statistical yearbooks of Statistics Sweden (1979–1996) and the financial accounts by sector in the online database of Statistic Sweden (2022e). A comparison between the amounts lent and borrowed in 1941, appearing in the statistical yearbooks of the Riksbank (1942) shows that the discrepancy is rather small – credit from *Stadshypotekskassan* to city mortgage societies was 6.7 per cent smaller than the amount of outstanding bonds from *Stadshypotekskassan*, while credit from *Bostadskreditkassan,* a new institute formed in 1929 and with data recorded from 1930, to residential credit societies was 6.3 per cent smaller than the amount of outstanding bonds from *Bostadskreditkassan*.

From 1962 to 1970 there are separate data on credit from housing credit companies in the statistical yearbooks of the Riksbank *(*1909–1978 and 1979–2001). Data prior to that are obtained from Hagström (1968), with observations in 1919, 1924, 1929, 1934, 1939, 1944, 1949, 1952, 1954, 1956, 1959 and 1961. Missing observations are interpolated linearly, in Table A3.1a. During these years, the average share of credit of housing credit companies out of the total housing mortgage credit amounts to 13 per cent according to these estimations. The raw data are provided in Table A3.1b.

From 1975, there are data on credit to the Swedish general public, excluding in particular the domestic financial sector and the foreign sector. In 1975, the older series is 10.3 per cent lower. In Table A3.1a, the older data are adjusted to the newer, and in Table A3.1b, the raw data is presented. From 1996, the data are from the annual summaries of Statistics Sweden (2022a).

Other mortgage institutions

For agricultural mortgage, the main mortgage segment during the late 19th Century in Sweden, there are data on *hypoteksföreningar*, mortgage societies, from 1870, but with a five year interval up to 1910, from which there are annual data from Statistics Sweden (1960). Missing data are interpolated linearly in the main series, in Table A3.1a, while raw data are provided in Table A3.1b. From 1941 there are annual data on lending from *Sveriges Allmänna Hypoteksbank* from the statistical yearbooks of *The Riksbank* (1942–1978) which supplied the *hypoteksföreningar* with credit. This causes a minor and unadjusted break in the series, where lending from *Sveriges Allmänna Hypoteksbank* is 6 per cent larger than that of mortgage societies the same year, possibly due to a time lapse between borrowing to and lending from *hypoteksföreningar*.

For *Skeppshypotekskassan*, the main mortgage institution for the shipping industry, the amount of loans granted was on the other hand 9.4 per cent less than the amount of outstanding bonds of *Skeppshypotekskassan*. In absolute numbers however, *Sveriges Allmänna Hypoteksbank* was a much larger institution than *Skeppshypotekskassan*. Credit data on *Skeppshypotekskassan* are from the statistical yearbooks of Statistics Sweden from 1913 to 1940 (1914–1940)*,* and from 1941 and until 1988 from the statistical yearbooks of the Riksbank (1942–1978, and 1979–1989).

From 1962 to 1970, there are separate data on credit from industrial credit com-

panies in the statistical yearbooks of the Riksbank (1963–1978, and 1979–1980). Earlier data is obtained from Hagström (1968), with observations in 1939, 1944, 1945, 1949, 1952, 1954, 1956, 1959 and 1961. Missing observations are interpolated linearly. Based in these estimations, the average share of credit of industrial credit companies out of the total mortgage credit other than to housing amounts to 3.0 per cent. The raw data are provided in a separate series.

The yearbooks of the Riksbank *(*1963–1978, and 1979–1989) also contain data on credit from *Sveriges Investeringsbank*, a government mortgage issuing institution for industrial funding formed in 1967, from 1970 to 1979, after which it is included in business mortgage institutions. The yearbooks also contain data on credit from municipal mortgage institutions and credit companies from 1962 to 1988. From 1989, data on non-housing mortgage institutions and credit companies appear in aggregate form in the yearbooks of the Riksbank (1990–1989) and in the financial accounts in the online database of Statistic Sweden (2022e).

Excluded creditors

Difficulties in obtaining data have led to the exclusion of credit extended by trading companies, private bankers, wholesale merchants, site-leasehold right funds, *Järnkontoret* (an association of the Swedish steel industry, which both accepted deposits and extended loans to its members), government funds (particularly *Allmänna Pensionsfonden*), investment companies, and other non-financial companies and individuals. In particular, there is a lack of data on credit extended by government funds, investment companies and foreign lenders prior to 1977, when it appears in the financial accounts for the first time. Available data on credit from *Allmänna Pensionsfonden*, although limited, suggests that it was insignificant (Ahnland 2015).

The evolution of banking and credit institutions in Sweden since 1870

1870–1905: Financial modernization

The foundation for a private banking market in Sweden was laid by the parliamentary decision in 1824 allowing for private banks with note-issuing rights. The banks accepted deposits from the public, but the law prohibiting usury by limiting interest rates made deposits relatively unattractive. In the mid-19th century the main source of funding for Swedish commercial banks was instead the issuance of bank notes (Lilja 2010, p. 47), which generated seigniorage, foregone interest payments by the note holders. The bank notes were redeemable in the Riksbank notes until 1874, and then in gold, and the maximum note issue was regulated in relation to equity, reserves and credit lines.

During most of the 19th century banks only supplied a minor share of companies' external capital. The credit market was dominated by *hypoteksföreningar*, bond-emitting farming and building societies, which were centralized in *Sveriges Allmänna Hypoteksbank* in 1861 (for further discussion see Chapter 2 in this volume). From the 1870s, however, there was a boom in bank funding for industry, especially in the cities (Gårdlund 1947, p. 129). With the Bank Act of 1864, the cap on interest rates was removed, and together with an increase in household incomes, this led to a rapid increase in deposits (Jonung 2007 [1988]) which provided easier access to funding. Companies could acquire larger loans, with collateral in shares, real estate mortgage or simply security based on name. Bills of exchange, functioning both as means of payment and as credit notes, also gained wide spread use (Gårdlund 1947, pp. 130–136). The growth in deposits led to a corresponding decrease in the issuance of private bank notes (Brisman 1931, p. 204).

The Bank Act of 1864 also standardized bank charters and made prolongation of these charters a formality, as well as made it possible to establish banks as stock companies with limited liability. Additionally, in 1864 it became possible to issue a portion of shares with limited liability even for *enskilda banker*, and reserve requirements were further reformed. The new laws led to a boom in new bank establishments, but many of them were merged (Wallerstedt 1995, p. 29). Some of the most important Swedish banks founded during this period were the *Stockholms Enskilda Bank* in 1856 by André O. Wallenberg, and the banking stock companies *Skandinaviska Kreditaktiebolaget* in 1864 (renamed *Skandinaviska Banken* in 1938), and *Stockholms Handelsbank* in 1871. The Bank Act of 1864 also dismantled the *filialbanker*, though gradually.

The 19th century also saw the formation of the Swedish local *sparbanker* for the promotion of savings as a security for times of economic hardship, and as such had an important role in introducing banking in the everyday life of Swedes. Although *sparbanker* formed as early as in the 1820s, it was not until 1875 that their activities were regulated by law (Statistics Sweden 1893–1903). Although not of primary importance to industrial finance, their credit to corporations was not negligible. Some companies received loans of considerable size from *sparbanker* (Gårdlund 1947, p. 139). During the 1890s, the focus of *sparbanker* shifted increasingly towards financing real estate (Nygren 1985, pp. 42–65). From the 1870s *folkbanker* provided local alternatives for partners in need of investment funds. Compared to other banks however, *folkbanker* were very small. Insurance companies such as *Skandia* and *Thule* also engaged in lending activities in order to generate returns on insurance funds.

The reform of 1864 was timely. As the export industry of ore and wooden products grew in importance at the expense of agriculture, the demand for external funding increased. Commercial banks, with an orientation towards industry, surpassed the mostly rural mortgage institutions as the greatest source of credit. They also replaced wealthy individuals and trading companies as fundraisers for industry. As

industrial companies started to concentrate their financial activities to just one bank, an intimate relationship built on trust often evolved between industrialists and bankers (Gårdlund 1947, p. 136–138).

The latter half of the 19th century, especially from the 1870s, saw a rapid increase in the money supply (Edvinsson and Ögren 2014, p. 318) and a simultaneous growth in the scale and scope of financial services. This financial development provided the means necessary for the industrial investment of entrepreneurs, as well as for infrastructure and urbanization, and was an important prerequisite for the acceleration of Sweden's industrial development occurring at this time (Ögren 2010, pp. 1–10). The expansion of the financial sector also made the economy more vulnerable. The international financial crisis which began in 1873 did not start to affect Sweden until 1878, and though it hit the banks hard, it made the commercial banks stronger in the long run. Many trading companies engaged in credit finance were allowed to go bankrupt, while banks in trouble were saved by the government, mainly through the establishment of a lender of last resort facility (*Jernvägshypoteksfonden*) for high-risk railway bonds. This meant an enhanced market share for the latter (Schön 2000, p. 190).

The system with *enskilda banker* issuing their own bank notes appeared unsustainable in the wake of the financial crisis of 1878, and in a new banking law in 1897, the banks lost this right to the the Riksbank monopoly (though with a transition period until 1904, when it was fully enforced). The reform also imposed higher capital requirements. In return, the commercial banks were given the right to rediscount bank-papers at the Riksbank, which officially became a lender of last resort, and the Riksbank ceased to operate commercially on the credit market. For one thing, the structure of the banking market changed – *folkbanker* could no longer sustain their operations as banks, and enskilda banker and the banking corporations were set on equal footing (and are hence from here on jointly termed as commercial banks). Overall, the private banking sector had already, gradually, replaced the Riksbank as the primary banking institution of the country – by the turn of the century credit originating from the Riksbank was less than a tenth of that coming from private banks – and the new law established the modern division of labor between the central bank and commercial banks in Sweden.

Meanwhile, big savings surpluses and newly established contacts with foreign credit markets made Swedish commercial banks ready to finance the new innovation-based startups that came to be the backbone of Swedish industry in the 20th century (Nygren 1985, pp. 54–57). The banking industry experienced a rapid expansion, with the number of commercial banks almost doubling between the mid-1890s and the peak in 1908/1909. The boom was also apparent in the stock market. In 1901 the Stockholm stock exchange went through an important reorganization which facilitated bidding and opened up for an increased use of bank loans with stocks as collateral. Large loans were also issued with industrial real estate as security (Nygren 1985, p. 60). The heavy firm commitment of banks to new industrial com-

panies often took the form of consortia or stock emission companies (*emissionsbolag*), which were formally owned by bank board members or individuals closely affiliated with the banks. In 1899 *Providentia*, a company affiliated to *Stockholms Enskilda Bank*, was formed with the purpose of providing corporate finance, and in 1907 the *emissionsbolag Svenska Emissions AB* was formed by the management of *Stockholms Handelsbank*. Later these corporate finance entities became known as investment companies, which still to this day comprise a central ownership group within Swedish enterprise.

1905–1939: Booms and busts

Soon the boom turned into excess, and from the early 1900s a surge of speculation inflated the stock market. The ratio of private debt to GDP grew sharply, mainly due to credit from the commercial banks. Conditions were similar in the US and when another bank panic hit New York in October 1907, the shockwaves soon reached Sweden. Several banks had become dependent on foreign loans, especially from London. The distrust in the US financial system translated into higher international interest rates, which exposed weak spots in the Swedish banking sector. All in all, seven commercial banks experienced what can be described as bank crashes. Credit losses were however not as widespread as during later financial crises, and the banks were soon on track to expand once again. A notable bank deal at this time was the merger of the two largest credit institutions – *Skånes Enskilda Bank* and *Skandinaviska Kreditaktiebolaget* in 1910. In the same year, cooperation among the commercial banks in relation to the government and to the general public was strengthened with the formation of the banking sector organization *Svenska bankföreningen* (Thunholm 1966, p. 56).

   Social concerns further developed the credit market. The high interest rate emanating from the international financial crisis of 1907 combined with urban immigration and a shortage of housing in the cities, led to centralization of urban mortgage societies and the establishment of *Stadshypotekskassan* in 1909. The new central organ had political backing from a government-guaranteed fund.

   A new bank law in 1911, which with some amendments was in force until 1955 (Wallerstedt 1995, p. 39), allowed the banks to, to a limited extent, own stocks themselves. Together with expanded liquidity due the savings rates before World War One, this paved the way for banks to become heavily involved in business life during the war. Simultaneously new *emissionsbolag* were formed, among them Investor, founded by the Wallenberg family in 1916. The dynamic financial environment was also exemplified by the establishment of new banks as well as in a wave of mergers and acquisitions in the Swedish banking market. An important deal was the acquisition of *Norrlandsbanken* by *Stockholms Handelbank* in 1917, giving the latter access to a wide network of bank offices in the north of the county. Another large deal was the merger between *Skandinaviska Kreditaktiebolaget* and *Sveriges Privata*

Centralbank, a central bank for the larger regional banks, in 1918. In nominal terms, credit from banks surged as the public once again used bank loans to speculate in the stock market. However taking the war-led inflation into account, the outstanding debt to the public actually contracted in real terms.

When the Swedish parliament decided to aim for price stability and a return to the gold standard after the war, in 1920, the extremely tight monetary policy provoked a severe economic contraction and a wave of bank failures stemming from unprecedented credit losses. The 1920s deflation crisis hit industry hard, and in order to save their investments, banks bought much of the plummeting industrial stocks via their emission companies. The task to save industry was not easy for the banks, however, and, like in the late 1870s, the government had to step in. It formed *Kreditkassan*, which, acting as a bail-out fund, bought *Göteborgs Handelbank* and *Jordbrukarbanken*. Moreover, the crisis meant a further increase in banking concentration, and the control of big commercial banks over Swedish industry tightened in the attempt to save failing companies that they were committed to. In retrospect, the 1920s constitutes a watershed in the ownership structure of Swedish industry, with its heavy involvement of bank ownership. Particularly, the Wallenberg-owned *Stockholms Enskilda Bank* emerged as a power house.

At the same time however, commercial bank credit declined both relative to GDP and relative to other credit providers. Instead, *sparbanker* (including *Postsparbanken*) and insurance companies increased their market share. Moreover, *jordbrukskassor* emerged as a new but small category of banks after the parliament allowed for their establishment in 1916. In 1930 *Svenska Jordbrukskreditkassan* was founded as their sector organization. The same year *Bostadskreditkassan* was created to further facilitate credit for housing purposes, and the year before *Svenska Skeppshypotekskassan* was founded as a provider of credit to the shipping industry. A few years later, in 1934, *AB Industrikredit* was formed for the same purpose but for the industrial sector. Thus, the increased concentration among commercial banks was to some extent countered by slightly more diversification on the credit market in general.

As the recession in the early 1920s was an international phenomenon, the same was true for the recovery. It paved the way for the next crisis. The Wall Street crash in 1929 transformed into a European bank panic which hit Austria, Germany and the UK hard, and led to a collapse in the recently revived gold standard. In Sweden on the other hand, the hardships were relatively mild, at least partly due to an early abandonment of the gold standard and the kind of "hard currency policy" which had catapulted the county into depression in the previous decade. Even so, lending from banks to the public had increased notably through the 1920s, and the Swedish economy was not unscathed by the unfolding events. In 1932, the apparent suicide in Paris of Ivar Krueger, the notorious industrialist who had expanded his operations fast in the 1920s with the help of first domestic and then international credit, caused the downfall of the stock-holders and creditors of his empire. *Skandinaviska Kreditaktiebolaget*, one of the largest banks in the country and with strong connection to the

Kreuger empire, had to be bailed out by the government with long-term loans. The ratio of private debt to GDP dropped, and in real terms, private credit continued to drop until 1939 and the outbreak of the Second World War. While the crash of 1929, the breakdown of the Gold standard, and the ensuing Great Depression led to a gradual macroeconomic policy shift towards general government intervention in economies worldwide during the 1930s (Forsyth and Notermans 1996, pp. 1–17), the new economic ideas only affected fiscal policy in Sweden. John Maynard Keynes' thoughts on the flaws of capitalism and the boons of government intervention had a Swedish equivalent in the Stockholm school of economic thought (Barber 2008, p. xi.). Financial regulation however, extensively enforced in the United States, Germany and elsewhere in the 1930s, was relatively absent in Sweden – with a few exceptions: The ability of banks to trade in stocks and to use them as collateral was carefully restricted, but the measure was largely bypassed through the formation of ownership through foundations. The rules for accounting and revision were also upgraded (Wendschlag 2018). Also in 1935, remaining *enskilda banker* were required to reform into *aktiebanker*, in reality a mere formality (Kock 1930, p. 36; Olsson 1939, pp. 39–40).

1939–1980: Government control

Sweden is however no exception to the rule of extensive financial regulation in the post-World War Two era, and a foretaste of the interventionism came during the war. During most of 1940 the market ceased to function altogether (Nygren 1985, p. 94). However, the government took a firm grip on the economy, and introduced a currency regulation in 1939, ordered a stop on prices, interest rates, wages and dividends in 1942 and engaged in heavy spending. The stimulus seems to have worked: Private credit returned to positive numbers, mainly due to increased activity in commercial banking from the end of the war. Even so, the shrinking market during the war thinned out the ranks of the banking industry, and consolidated the market yet again. *Handelsbanken* and *Skandinaviska banken* replaced several large regional banks in the 1940s. In 1942 *Sparbankernas Bank*, a central bank for *sparbanker*, was founded in order to strengthen cooperation and sustainability among *sparbanker*.

After the war, the Keynesian paradigm reached true dominance, internationally embodied in the Bretton Woods treaty of 1944, and Sweden joined the new monetary system in 1951 after a major devaluation relative to the dollar. This, and the need to rebuild Europe after the war paved way for the high growth rate in the following decades. In spite of the consensus spirit of *Saltsjöbaden* the agenda of containment of finance gained ground in post-war Sweden too. As in many other countries, the war time capital controls were maintained, and the use of credit controls and of market regulation in general was extensive. Immediately after the war it was justified by the fear of a post-war recession (Magnusson 1999, pp. 410–413), but soon became

a tool for social engineering and economic planning. There was a consensus in keeping the interest rate low to promote housing construction, but in order for the cheap money to go where intended, more control was enforced. This fostered a shift in the Swedish financial regulatory regime (Larsson and Söderberg 2017, p. 11).

In 1951 the parliament legislated to control bond emissions, which from now on had to gain approval of the Riksbank, and from 1952 onwards the government could direct the credit supply of commercial banks to treasuries and housing mortgage bonds through liquidity quotas. Measures were also taken to hinder the expansion of car- and other consumption credit in the wake of the inflationary trade boom after the Korea war (Nygren (1985), pp. 96–97). As a consequence, credit from banks decreased in relation to national output during the remainder of the decade, and out of commercial bank credit, the share of short-term construction credit as well as the use of real estate as collateral, increased. For industrial companies, the traditional client group for commercial banks, the priority of funding for housing meant a shrinking share of the credit market, and the corporate sector had to rely more on retained earnings when seeking funds for investment (Ibid. 101). The ambition to use credit for political planning became more straight-forward in 1962 with the introduction of a duty for all investors to place a portion of their assets in treasuries and housing bonds. In time, a range of control mechanisms would emerge, such as credit ceilings, penal interest rates, cash ratios, regulation for deposits in the central bank, and agreements to obstruct lending to non-prioritized areas (Nygren (1985), pp. 84–85). But whereas credit from, and deposits to, banks stagnated, housing mortgage credit boomed from about 1960, and particularly so from 1965 following the launch of the massive *Miljonprogrammet* housing construction program by the social democratic government, with the goal of building one million new homes over the next decade. Much of the funding, as a buyer of housing bonds, came from the public pension fund *Allmänna Pensionsfonden*, launched in 1960 (Ahnland 2020).

Policy was not completely guided by a containment and regulation agenda. It had become increasingly obvious that commercial banks, *sparbanker*, and *jordbrukskassor* were more or less operating on the same market. This led to a harmonization of bank regulation in 1955, and in 1969 all banks were granted the same rights in the credit market. The reform facilitated competition further, but also made it easier for the government to impose new rules on all banks (Nygren, p. 98). Also in 1969, the banks regained the right to buy stocks.

The policy to stimulate housing credit also made the banks interested in housing mortgage. *Handelsbanken* formed *Sigab*, while other commercial banks formed *Svensk fastighetskredit*. The savings banks converted their old mortgage company into *Spintab* to better accommodate the growing market (Nygren 1985, p. 126).

Meanwhile, the concentration of banks continued. *Skandinaviska Banken* bought several banks in western Sweden, and *Handelsbanken* took over banks in Stockholm, Norrland and Gotland. *Jordbrukets Bank* was established as a central bank for the *jordbrukskassor* in 1958, though the structure with larger district credit associations

facilitating local farming societies was maintained. The wave of mergers and acquisitions halted briefly in 1950 when the government stopped a merger between two banks controlled by the Wallenberg family, but particularly in the 1970s, the banking industry went through another period of consolidation. In 1971, *Götabanken* was formed through the fusion of *Göteborgs Bank* and *Smålandsbanken*, and the following year, a very large merger took place between *Stockholms Enskilda Bank* and *Skandinaviska Banken*. The new bank was named *Skandinaviska Enskilda Banken*, *S-E-Banken*. The government had an active role in the bank market as well. The market share of *Postbanken* was rising and in 1951 the government-owned bank *Jordbrukarbanken* took over parts of *Göteborgs Handelsbank* and was renamed *Sveriges Kreditbank*. Two decades later, in 1974, *Postbanken* and *Sveriges Kreditbank* merged into the biggest commercial bank in the country – *PK-Banken*. The concentration of the banking industry was considered problematic, and the new bank was meant to be an alternative to the big private banks (Nygren 1985, pp.110–111).

Outside the banking control mechanisms, other credit companies entered the scene. Most of these activities were forbidden for banks and their subsidiaries (Werin 1993, p. 75.) These types of companies emerged as part of the consumption boom from the 1950s, and established the trade association *Finansbolagen* in 1960. Most of these companies were formed by car manufacturers or retail companies, but corporate credit services, such as factoring and leasing have also been among the services provided by *finansbolag*. The market broadened further during the 1960s with the formation of a number of business, agriculture and municipality mortgage institutions, such as *AB Företagskredit*, *Lantbruksnäringarnas Primärkredit AB*, *Kommunkredit AB* (associated with the *sparbanker*) and *Kommunlåneinstitutet AB* (owned jointly by the commercial banks) (Thunholm 1966 pp. 173–186). In 1962 the commercial banks and the Swedish government jointly formed *Svensk Exportkredit* to finance long-term export investment, and in 1967 the government formed *Sveriges Investeringsbank* as part of its industrial policy commitments. Insurance companies on the other hand decreased their market share of direct credit to the public.

Though loopholes became increasingly evident, bank regulation and suppression of bankers were not a hinder to economic growth, which flourished during the 1950s and 1960s. But in the 1970s the success story came to an end. The Bretton Woods system has often been depicted as a symbol for the high growth and stability of the post-World War Two-era, and its breakdown in the early 1970s coincided with a deep economic downturn. The problems of high inflation and/or large budget- and current account deficits in the United States, Great Britain, France and Italy were largely absent in Sweden in the 1960s. However, the unwillingness to follow the restrictive monetary policy of the German Bundesbank combined with expansive fiscal policy and high wage increases created similar problems in Sweden in the 1970s and led to successive devaluations and high inflation expectations (Wihlborg 1993, pp. 212–244).

1980–2020: Deregulation and internationalization

As the economic crisis provoked a macroeconomic policy and financial regulatory regime shift in several leading economies around 1980 – much like the Great Depression and the crisis for the Gold standard provoked a policy shift in the early 1930s – the transition took longer time in Sweden (Forsyth and Notermans 1997, pp. 1–17). In hindsight however, the shift away from Keynesianism, full employment, and financial regulation towards monetarism, price stability and financial deregulation is as clear in Sweden as it is elsewhere (Larsson and Söderberg 2017, pp. 99–111). After a final large devaluation in 1982 Sweden committed to a hard currency policy line in order to break the cycle of devaluations and inflation – a policy that utterly failed in the years to come. Simultaneously, the government started deregulating the financial markets. Englund (1990) lists 18 deregulations from the mid-1970s to the late 1980s, including a deposit interest rate deregulation in 1978, a permission for foreign banks to start branches in Sweden from 1985, the abolition of the currency regulation from 1986 to 1989, and the abolishment of liquidity quotas favoring credit for housing construction and public expenditures in 1989. Besides the abolition of credit controls, one of the most important reforms was the lifting of credit limits for banks in 1985.

Heavy regulation and the comparatively low growth rates had an impact on Swedish banks, and credit remained stagnant relative to GDP during the 1970s. In the meantime, financial companies expanded their market share of credit to the public rapidly. As inflation rose, interest rates lagged behind. The result was greatly reduced real interest rates and thus lower deposit costs. The unregulated market thrived as the regular market struggled under the burden of regulation and stagnation. This financed both consumer and corporate credit (Nygren 1885, pp. 106–107; and Werin 1993, p. 333). At the same time, the big corporations could increasingly bypass both Swedish regulation and bank dependence through access to international capital markets (Larsson and Sjögren 1995, p. 203). Indeed, the 1970s saw an internationalization of Swedish banking not seen before. After experiencing a current account deficit in 1974, the Swedish government opened up the foreign credit market for Swedish firms and banks. Coupled with the growth of the Eurodollar market, this led to an increase in foreign refinancing of Swedish commercial banks, and an increase in foreign branches (Nygren 1985, pp. 104–105).

The inefficiency of the credit regulation had been obvious for some time when the credit ceiling for banks was removed in 1985. Simultaneously there was a new generation of economists within the government with a more favorable stance towards the price mechanism of a self-regulating market (Jonung 1993, p. 334). Policy makers expected the effect of the deregulation to be modest, but seriously misjudged the situation (Wohlin 1998, p. 30). All categories of credit providers expanded their lending massively due to the credit deregulation. *Sparbanker* and *föreningsbanker* were determined to challenge the position of the commercial banks and engaged heavily in corporate finance. The largest banks lost in terms of market

power, and for the financial companies in particular, the 1980s were their heyday when it comes to market share. Their aggressive presence on the market influenced banks as well, and the new competitive environment fostered a strong sales culture in the whole financial sector. The nature of credit also changed. The traditional and rigorous risk assessment, a legacy of the Kreuger-crash, was scrapped in favor of high risk and high yield contracts (Larsson and Sjögren 1995, pp. 1984–1987). The rate of return on bank equity reached record heights. The main effect of the credit expansion was the emergence of a real estate bubble towards the end of the decade. Although foreign banks had been allowed to operate in Sweden in 1985, their share of direct credit to the Swedish public was very small. Their indirect lending grew substantially on the other hand. While deposits in Swedish commercial banks only increased from SEK 262 billion to SEK 442 billion between 1985 and 1990, or about 60 per cent, their net lending from foreign banks increased from SEK 63 billion to SEK 315 billion during the same period, equal to 400 per cent (Statistics Sweden 1992).

The fixed exchange rate made monetary policy ineffective, and fiscal policy proved insufficient to cool down the overheating. Without wage restraint, inflation soared and the competitiveness of Swedish industry suffered. During the autumn of 1989, there were signs that the commercial real estate market had reached its peak and stock prices began to fall. The bubble started to burst in 1990 as the global economy went into recession. Several policy failures contributed to the sharpness of the decline. The tax reform of 1990/1991 reduced the right to deduct interest payments radically, leading to higher interest costs and a further reduction in property values. A number of real estate companies failed, and bank credit losses mounted – starting at *Nordbanken* and *Första Sparbanken* in August 1990. Furthermore, the complete removal of capital controls in 1989 opened up for massive currency outflows in the early 1990s, and the bank crisis soon turned into a currency crisis for the Swedish krona. The commitment to the "hard currency line" and a reorientation of policy goals to price stability caused the Riksbank to raise the marginal interest rate to a staggering 500 per cent in order to keep the krona exchange rate intact, only to fail and having to let the krona float in November 1992. The shock to the Swedish economy was severe. Unemployment went from about 2 per cent in 1990 to over 10 per cent two years later.

The recession meant a huge deleveraging of outstanding bank credit, and relative to GDP, it continued to decline until 1996, when it hit its lowest mark for the whole period. As in the 1920s the crisis led to a consolidation within the banking industry. In 1990, *Wermlandsbanken* and *Skaraborgsbanken* merged with *Gotabanken*, and formed *Gota Bank*. *Nordbanken*, the result of a merger between *Uplandsbanken* and *Sundsvallsbanke*n in 1986, was bought by *PK-banken* in 1990 with the new bank being named *Nordbanken*. *Nordbanken* in turn acquired *Gota Bank* in 1993. In addition, in 1991, *Jordbrukets Bank* merged with *Sveriges Föreningsbank*, and *Skånska Banken* merged with *Svenska Handelsbanken*.

It was mainly foreign banks that were liquidated, even though the Swedish bank *Sveabanken*, formed in 1984, also succumbed (Wallerstedt 1995, p. 48). Eventually, the government had to come to the rescue – through the massive bail-out funds of the Swedish bank support authority *Bankstödsnämnden*, which had had the same role as *Kreditkassan* had during the 1920s, and worsening the already ballooning budget deficit further. Most of the bail-out money went to *Nordbanken*, where illiquid assets were placed in *Securum*, owned by the Swedish government. In a similar deal, the illiquid assets of *Gota Bank* were also taken over by the government, making way for the acquisition of *Gota Bank* by *Nordbanken*. *Securum* had liquidated most of its assets by 1994 and was shut down in 1997 (Bergström et al. 2002, pp. 1–8). *Första Sparbanken*, the largest of the *sparbanker*, also ran into problems during the banking crisis of the early 1990s. To save the bank, the ten largest regional *sparbanker* merged into a new commercial bank, *Sparbanken Sverige*. In 1992 12 regional *förenings-banker* merged into *Föreningsbanken*. The concentration also comprised the mortgage institutions. In 1992, *Stadshypotekskassan* and the local city mortgage societies merged into *Stadshypotek* – in turn acquired by *Handelsbanken* in 1997.

The business cycle picked up in the mid-1990s and would turn into excess towards the end of the decade with the formation of the Swedish version of the dot. com bubble. This time, the money did not come primarily from Swedish banks: credit from banks only experienced a moderate increase during the second half of 1990s. Instead, the country gained the attention of big US investment banks and associated funds. Swedish IT-companies were the favorites of international finance, and foreign ownership quickly rose on the Stockholm Stock Exchange. The dot.com stock market crash in 2000 did not lead to a deep recession in the way previous asset market busts had in Sweden. The level of private debt was considerably lower compared to ten years earlier, and the free-floating krona devalued sharply. International interest rate cuts also helped the economy.

The wave of consolidation of the Swedish banking industry regained momentum in the latter half of the 1990s, and paved the way for the international expansion of Swedish commercial banks. Particularly during the international credit boom leading up to the Global Financial Crisis in 2008, Swedish banks expanded considerably overseas. In 1997 and in 1998 *Nordbanken* merged with the Finish bank *Merita*, and the new bank was soon renamed *Nordea*. *Sparbanken Sverige* and *Föreningsbanken* merged into *Föreningssparbanken* in 1997 and now had the muscles to expand operations into the Baltic States, and a decade later into Ukraine, under the new label of Swedbank. One of the largest acquisitions was that of the Estonian bank *Hansabank*, completed in 2005. SEB, having changed its name from *S-E-Banken* in 1998, joined the race to the east as well, and by 2000 had completed the purchase of three Baltic banks. The same year, *SEB* expanded into Germany as well, with a complete acquisition of *BfG Bank*. Plans to merge with *Föreningssparbanken* in 2001 were stopped due to difficulties in obtaining EU-approval for the deal.

To a lesser extent, internationalization also meant an expansion of foreign bank-

ing in Sweden. When *Danske Bank* bought the small commercial bank *Östgöta Enskilda Bank* in 1996 it became the first foreign bank to have a network of bank offices in the country. The bank offers a range of retail banking services to both households and companies. Most other foreign banks focus on either corporate finance, such as *DNB*, *HSBC*, *Citibank*, *Deutsche Bank*, *BNP Paribas*, and *Bank of China*, or consumer loans (often unsecured), such as *Santander* and *Bigbank*. Additionally, there are a number of foreign investment banks without traditional credit services, of many of which opened offices in Stockholm during the dot.com bubble in the late 1990s, such as *Morgan Stanley* and *Goldman Sachs*.

Competition on the Swedish banking market also increased with the advent of Swedish niche banks around this time, particularly in the consumer credit market. In many cases, new banking operations were established by finance, insurance and retail companies with a large consumer base. *Skandiabanken* and *Länsförsäkringar Bank* are two examples of banks originating from insurance industry, both established in the mid-1990s. The government-owned *SBAB Bank*, formerly a housing mortgage institute, became a bank in 2010. In the retail segment, *Ikano Bank* is one of the earlier examples, founded by *IKEA* in 1995. *ICA Bank* and *MedMera Bank* are examples of banks founded by large supermarket chains in the 2000s. Other consumer credit banks were transformed *finansbolag*, such as *Volvo Finans Bank*, emanating from the car purchase finance company *Volvo Finans* from 1959. Noteworthy is also *Resurs Bank*, which through its collaboration with many retail companies has become a large consumer credit provider since its establishment in 2001.

As the global credit market expanded during the first half of the 2000s, the ROE for Swedish commercial banks once again reached extreme levels, especially in 2004 and 2006. However, when the bursting of the U.S. sub-prime housing bubble evolved into a full-blown global banking panic during the fall of 2008, Swedish banks were hit severely. Like elsewhere in the world, household debt tied to housing price hikes had increased rapidly in Sweden in the preceding years. As a ratio to GDP, outstanding bank credit reached an even higher level than it had done during the 1980s. The main source of distress for Swedish banks was however neither the high levels of Swedish household debt, nor exposure to the asset-backed securities of the U.S. market for housing finance, but instead their overseas offices across the Baltic Sea. In 2008 and 2009, Swedbank and SEB in particular saw their prospects deteriorate rapidly due to their market dominance in the Baltic countries. At the same time, Swedish banks were highly reliant on wholesale funding and therefore vulnerable to the rapidly deteriorating conditions in international financial markets at the time. The distress in the banking sector spilled over to worsening credit conditions for firms, of which many reported deteriorating access to external finance (Konjunkturinstitutet 2009). In combination with the breakdown in international trade during the crisis and the high dependence of foreign exports for Swedish enterprise, this caused an increased rate of bankruptcies which further impacted the Swedish credit market (Amberg et al. 2021). The rate of ROE dropped to alarmingly low

levels for Swedish banks. Yet, thanks to rescue operations issued by the Riksbank, such as extended lending facilities and relieved lending standards (resulting in SEK 450 billion in loans from the Riksbank to the commercial banks during the second half of 2008 alone) (Molin 2010), as well as the massive international fiscal and monetary expansion, stability was restored. These factors, along with the absence of a large and durable drop in housing prices in Sweden, may also help explain the relatively low credit losses among Swedish banks during the crisis.

In the aftermath of the Global Financial Crisis and the ensuing Euro-crisis, Sweden experienced relative financial tranquility. Still however, concerns over inflated housing prices and rising household debt levels made economists at government agencies and in academia debate whether Sweden yet again was experiencing a housing bubble, and measures such as amortization requirements and tougher demands for credit granting were taken to reduce the risks in the banking system.

In 2020, the ratio of private credit to GDP reached its highest level ever since 1870. Both bank loans and housing mortgage contributed to this, but while housing credit had largely gone to the construction of dwellings during the 1960s, it did not fund residential investment to a corresponding degree during the 2000s and 2010s (Ahnland 2020). To a larger extent, housing loans fueled price increases in the existing stock of dwellings (Dermani et al 2016; Asal 2018). Other segments of the credit market had grown since the 1990s as well. In particular, although a lot smaller than housing or corporate credit markets, consumer credit has grown considerably. Not least since the imposition of a cap on housing loans of a maximum of 85 per cent of the purchase in 2010 – a measure to curb rising housing prices – the demand for unsecured loans has risen dramatically, providing a growing market for a wide range of credit providers (Finansinspektionen 2019). Meanwhile, the concentration of the Swedish banking market had decreased somewhat due to the increased presence of foreign bank branches and the establishment of niche banks. Even so, *Nordea* (In 2018, *Nordea* moved its headquarters to Finland, but its Swedish branch was still the fourth largest bank in Sweden), *Handelsbanken*, *SEB* and *Swedbank* (from 2006 the new name of *Föreningsbanken*) still accounted for over 80 per cent of the aggregated bank balance sheet – an extreme level in historical comparison. Internationalization was also present in ownership of Swedish bank stocks, with fund managers such as *Vanguard* and *Blackrock* being among the largest shareholders in *SEB*, *Swedbank* and *Handelsbanken* towards the end of the period. Meanwhile, while returns on equity on banking were lower than during the peaks in 2004 and 2006, they were still considerably higher than their historical average.

Main trends in Swedish bank and credit institution activities, 1870 to 2020

This section contains a quantitative account of some of the main trends in Swedish banking activities during the period of study, including trends in credit not only from banks, but also from other creditor categories. A division of different types of banks as debtor groups, vis á vis the Swedish public, is also described. This section also contain data on, and an analysis of, the number of banks – commercial banks, *sparbanker* and *jordbrukskassor/föreningsbanker*.

Credit and deposits of Swedish banks and credit institutions

Figure 3.1: Credit/GDP of Swedish banks and credit institutions to the Swedish general public , 1870–2020
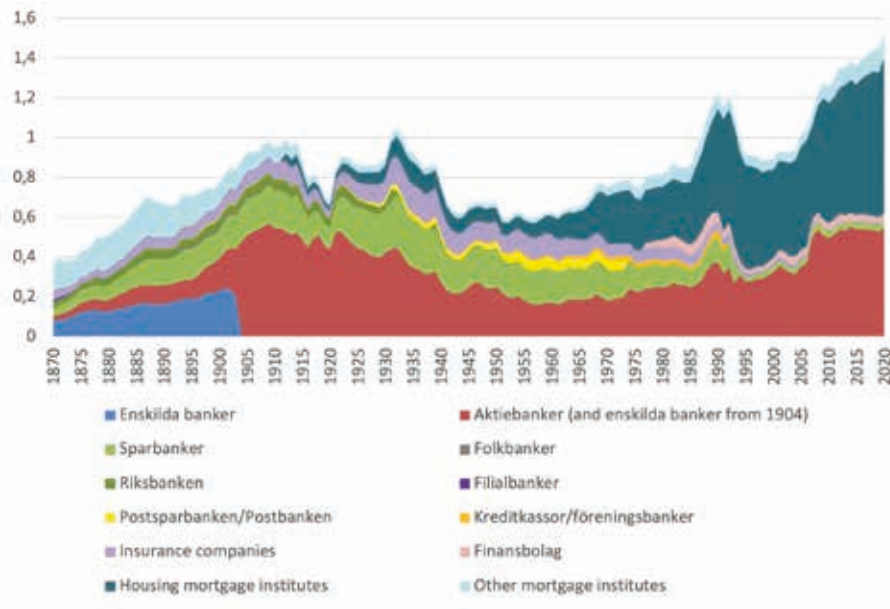
In Figure 3.1 the development of the credit-to-GDP ratio for all creditors in the study is displayed. One of the most salient features of Figure 3.1 is the fast growth of credit from commercial banks from 1870 to the outbreak of World War One, and the succeeding rapid decline after the financial crisis of the early 1930s. Together with the increase in credit from especially *sparbanker,* the growth in commercial bank lending led to a massive and steady expansion of bank credit to the Swedish general public, relative to GDP, until World War One. The initial and rapid increase in the overall credit-to-GDP ratio continued until the late 1880s, when it declined

due to the relative decrease in agricultural mortgage credit from *hypoteksföreningar* and *Sveriges Allmänna Hypoteksbank*. Agricultural mortgage credit became less important as the economy went through a structural change from agriculture to industry throughout the rest of the period of study.

After a marked drop during World War One the credit-to-GDP ratio rose again during the 1920s and early 1930s – with the largest increases in credit during the two depressions and associated drops in GDP in the beginning of each of those decades. From the peak in 1932, overall credit from Swedish credit institutions declined relative to GDP until the 1950s. Credit from commercial banks in particular fell during this period. While credit from private *sparbanker* went in to a secular decline after the 1930s, *Postsparbanken/Postbanken* increased its market share until it merged with *Kreditbanken* in 1974. Commercial banks increased their market share somewhat during the subsequent two decades, but remained at a rather low level. The most salient development during the late 1950s and onwards, however, was the increase in housing mortgage credit, depicting the government's policy priority for funding housing construction. Even when this policy came to an end in the 1970s, the ratio of housing mortgage relative to GDP was still substantial, and increased both during the housing bubble during the late 1980s as well as during the house price boom during the 2000s and 2010s. The credit from insurance companies to the public in Sweden, which had been relatively steady in relation to GDP since at least the 1920s diminished quickly during the 1980s and was practically non-existent during the 1990s, 2000s and 2010s. *Finanbolag* credit increased during the 1970s and 1980s, and decreased after that. Overall, these companies remained a relatively small creditor category.

The credit expansion in the late 1980s, and the succeeding credit contraction in the 1990s, is clear and present in the data both when it comes to commercial bank credit and housing mortgage credit. The 1980s also display a marked growth in credit from *finansbolag*. Credit from insurance companies on the other hand, dropped from the mid-1980s. After the decline in overall credit in the mid-1990s, the stock of private credit to the public started to increase, and rapidly so between 2003 and 2008, when it reached a plateau. The last year of the period of study, 2020, saw the highest level of aggregated credit from credit institutions to the Swedish public.

Overall, Figure 3.1 shows that banks in general accounted for between three quarters and 90 per cent of all credit to the Swedish public during the period of study. Banks saw an increasing market share from 1870 until a peak in 1920, and the outbreak of the deflation crisis in the early 1920s. After that, the role of banks decreased somewhat as insurance companies, in search of returns on their assets saw their market share rise. The sharp decline in credit from insurance companies during the 1980s was to some extent replaced by credit from *finansbolag*.

Figure 3.2: Deposits/GDP of banks 1870–2020
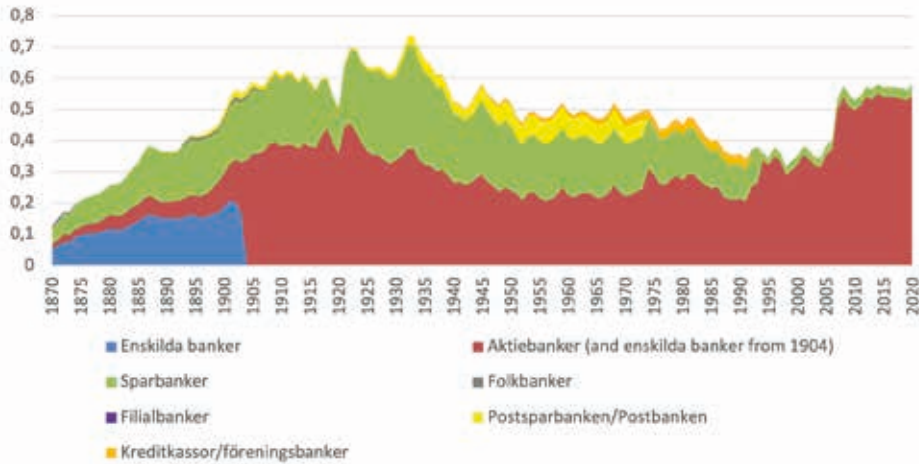
A few differences are apparent in Figure 3.2, depicting deposits of Swedish banks (except for the Riksbank and its affiliated *filialbanker*) from the general public. These deposits were higher in the 1920s than they were during the decade preceding World War One, in contrast to the situation for credit in the same period. This cannot be explained by the credit of non-bank creditors (i.e. insurance companies). Another difference is what happened in the early 1980s, when there was a marked decline in bank deposits from the public in Sweden. Yet again, deposits increased dramatically in the 2000s and 2010s, whereas the level of credit was relatively stable during the 2010s.

The number of banks

To a large extent, the story of the Swedish banking market is a story about capital concentration, where banks have merged or where larger banks have bought smaller ones in order to achieve economies of scale and/or larger market share. On the other hand, the establishment of new banks has contributed to an opposite movement. At least from the mid-20th century, concentration was the most dominant trend among both commercial banks (*enskilda banker* and *aktiebanker*), *sparbanker* and *kreditkassor/föreningsbanker*. Legal and organizational differences between these different segments meant that the Swedish banking sectors was divergent for a long time, but towards the end of the period of study there was operational and legal convergence. This homogenization is also reflected in the number of banks in Sweden, grouped in these three main categories of banks during the investigated period, as displayed in Figure 3.3.

Figure 3.3: Number of commercial banks
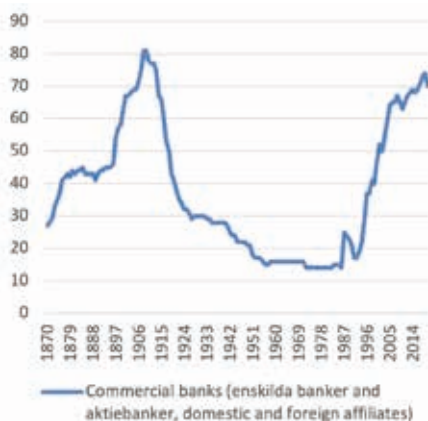
Figure 3.4: Number of sparbanker and jordbrukskassor/föreningsbanker
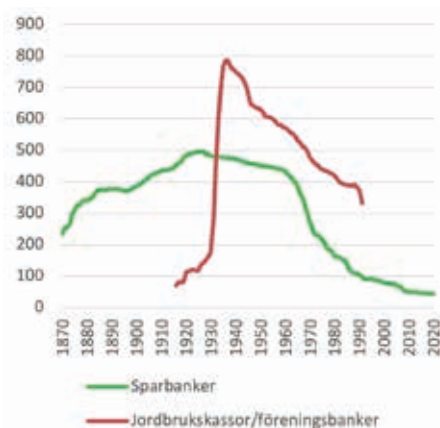
As the Swedish banking market grew until the beginning of the 20th century, so did the number of commercial banks, as depicted in Figure 3.3. Though mergers occurred, the expanding market created more opportunities for all. The 1870s and the period from the mid-1890s to about 1910 were periods in which many new commercial banks emerged. This does not necessarily mean a market characterized by competition, as the market was highly regionalized with many towns and regions having their own commercial banks. Correspondingly, savings banks were even more local. During the 1910s a wave of mergers and acquisitions swept through the Swedish commercial banking market, lasting to the mid-1920s. To some extent, the formation of *sparbanker* shows a similar development in Figure 3.4 up to about 1910, with a rapid increase during the 1870s and 1900s. During World War One, consolidation within Swedish commercial banking was mostly due to expansion, while it was the need to save banks that drove concentration during the deflation crisis of the early 1920s (Kock 1930, p. 37). A similar development occurred during the crisis of the early 1930s. *Sparbanker* continued to increase in number up to the mid-1920s. when consolidation also reached the market for *sparbanker*. The consolidation movement increased in intensity for commercial banks and carried on until the mid-1950s. In the 1970s there was additional concentration, with two big mergers in particular – between *Stockholms Enskilda Bank* and *Skandinaviska Banken* forming *S-E-banken* on the one hand and between the government owned banks *Postbanken* and *Kreditbanken* forming *PK-banken* on the other hand. There was also a slow decline in the number of *sparbanker* until about 1960, when a sudden drop indicates strong consolidation.

Legal reform allowing foreign banks to establish branches in Sweden as well as the credit deregulation created opportunities for new banks to enter the market in the

second half of the 1980s. The 1990s crisis on the other hand saw a consolidation of the market. However, from the mid-1990s, the establishment of both foreign banks as well as niche banks increased the number of banks once again. The number of *sparbanker* continued to decrease for the remainder of the period of study. Also displayed in Figure 3.4, from a relatively quiet establishment period after 1915, up until the end of the 1920s, the number of *föreningsbanker* increased rapidly during the 1930s, and then decreased at a steady pace until the merger resulting in *Föreningsbanken AB* in 1992.

In-depth account of commercial banks

This section is an in-depth account of the main trends for commercial banks in particular, based mainly on income statements. Only a selection of items of the dataset is presented in graphical form, and commented on. Data on nominal values of assets, equity, untaxed reserves, net interest revenues, revenues, taxes, costs, profits, capital, and credit losses, are found in Table 3.8 in the dataset.

Return-on-equity for commercial banks

Return-on-equity (ROE) is a measure of profitability and is traditionally measured as the ratio of profits to the average of the equity value of the current and the previous year. This key value for Swedish commercial banks between 1870 and 2020 is presented in Figure 3.5.

Figure 3.5: Return-on-equity for commercial banks, 1871–2020
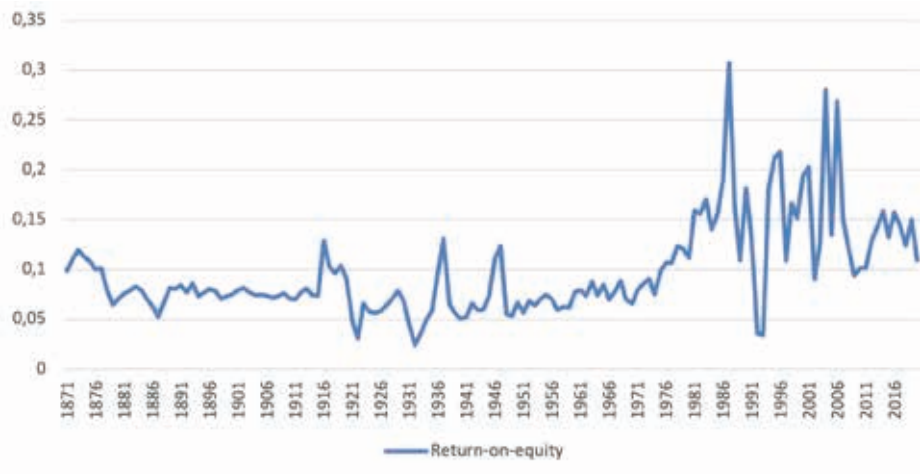
Figure 3.6 shows that ROE was more or less steady until the mid-1970s. After that, the average level increased considerably, though with a higher volatility. The peak was reached in 1987 during the 1980s real estate bubble. Hardly surprising, the ROE for Swedish commercial banks was low during financial crises, most notably 1922, 1932, and 1992–1993.

Credit losses for commercial banks

Losses due to loans not being paid is a measure of the risk of banking activity. The credit loss to asset ratio is another such measure, and it is shown for Swedish commercial banks between 1870 and 2020 in Figure 3.6.

Figure 3.6: Credit losses for commercial banks, 1870–2020
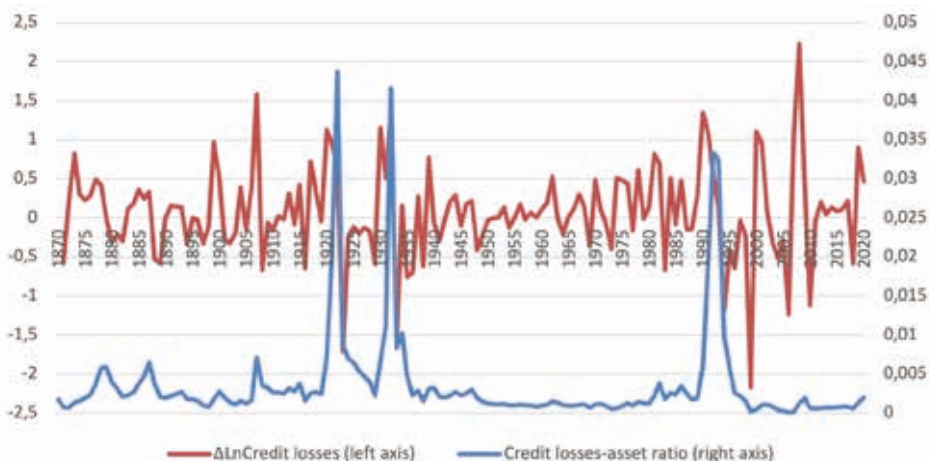
As is displayed in Figure 3.6, the worst credit losses relative to assets among commercial banks occurred during the financial crises in 1921–1922, 1931–1932 and in 1991–1993, which are the same as the lowest values for banks' return-on-equity. These crises stand out relative to other peaks in the measure, and other crises – such as the 1879 or 1907 crises, but also the Global Financial Crisis in 2008–2009 appears as very mild in comparison. Measured in first differences of the natural logarithm however, both in 1907 and 2008 credit loss increases exceeded one per cent, as they did in 1920, 1930, 1932, 1990, 1991, and also during the dot.com crisis in 2000. Measured in this way the financial crisis in 2008 actually appear to be the most severe crisis during the period of study. However, the fairly large credit losses in 2008 should be related to the large bank assets that year, which indicates a high level of financial stability in the Swedish banking system during this crisis.

Capital-Asset Ratios for commercial banks

Though the issue of what is bank capital is a complex one, subject to different definitions and regulations that change over time, it approximately equals equity plus untaxed reserves. The capital-asset ratio shows the level of resources banks have had in order to cover credit losses and to stay solvent. Legally, a bank's capital is a margin to which creditors are covered if the assets of a bank are liquidated. Figure 3.7 displays the development of the aggregate capital-asset ratio for Swedish commercial banks between 1870 and 2020.

Figure 3.7: Capital-Asset Ratios for commercial banks, 1870–2020
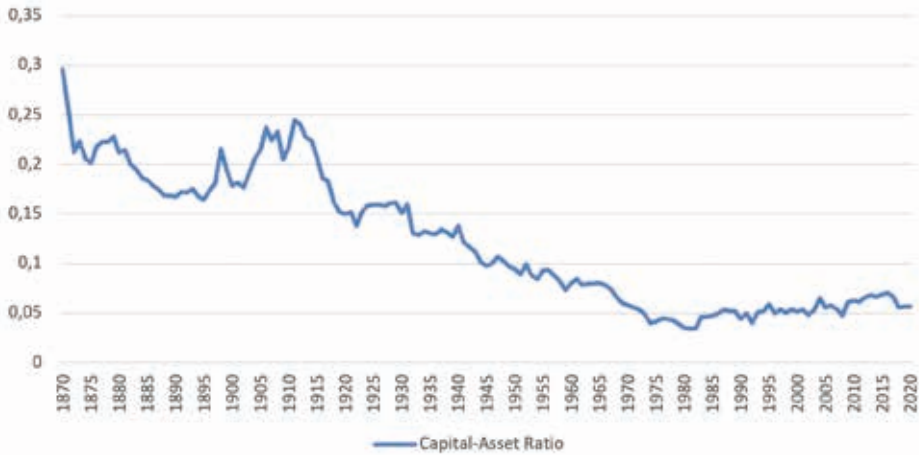
The data in Figure 3.7 show that the capital-asset ratio declined considerably from 1870 to about 1980, from between 15 and 30 per cent during the first 40 years of the period, to about 5 per cent in the 1980 to 2020 period, with a somewhat increasing trend towards the end. According to this measure, commercial banks in Sweden seems to have been less ready to tackle solvency issues due to credit losses. A possible explanation may be the lender of last resort function of the central bank and/or any special governmental bodies designed for this purpose.

Credit of commercial banks, disaggregated

The most extensive part of the dataset presented in this chapter is that of monthly data on credit from and deposits to commercial banks, published in Ahnland (Forthcoming). Presented graphically, these data obviously look very much the same as the annual data and there are no monthly data on GDP to compare with. Hence these data are not depicted in figures in the chapter. The dataset also contain data on the composition of different types of commercial bank credit, but these are only avail-

able up to 1979. These data are presented in Figure 3.8 and show not only that the amount of credit has changed over time, but also that the structure of credit has undergone change.

Figure 3.8: Composition of types of commercial bank credit, 1870–1979
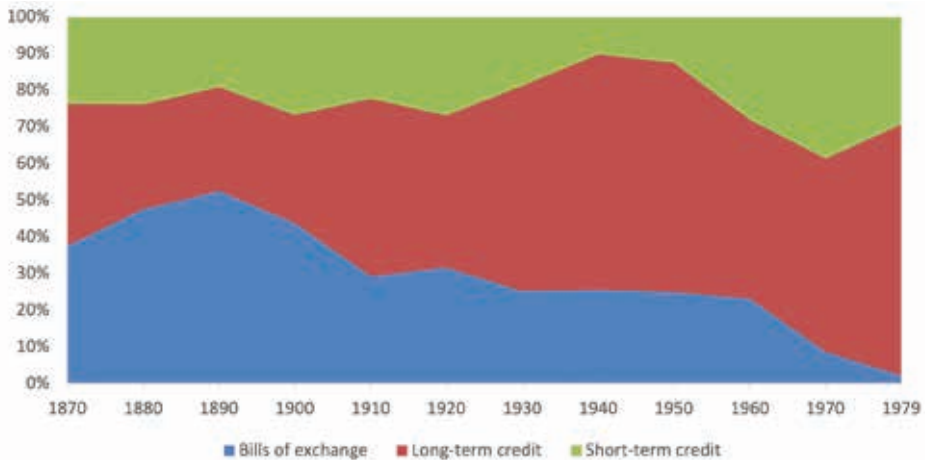
Out of the total loan portfolio of commercial banks, Figure 3.8 shows that bills of exchange were the largest group in the beginning of the period, but decreased relatively from around 1890. Long-term loans, with collateral in mainly shares, bonds, mortgages but also against the name of the debtor, grew in importance on the other hand, and had their largest share around 1940. After that, short-term loans increased as a share of the total until 1970, reflecting an increased use of short-run credit due in particular to the construction of dwellings during this period. Bills of exchange declined considerably towards the end of the recorded period, and had almost disappeared by 1979.

Concluding remarks

Both the structure and the scope of the Swedish banking market has changed considerably during the almost 150 years covered by this study. The institutional setting is perhaps the most obvious source of change. In particular, legal reforms have changed the game rules for the Swedish banking sector significantly. The Bank Act of 1864, occurring just before the start of the period of investigation, may be considered a starting point for modern banking in Sweden. In particular, its abolishment of usury law which made it possible for banks to attract deposits and finance industrialization and urbanization, was an important development. The reform enforced in 1904 imposing a modern division of labor between commercial banks and the Riksbank

was also of considerable importance. Another notable game changer occurred with the regulatory fervor starting in the 1950s, when a range of new regulations increased the role of government credit allocation and put commercial banks under pressure. The 1980s constitutes another structural break, with a reversal of financial regulation. Perhaps most importantly, the deregulation of the credit market in the late 1980s spurred intense competition for market share, a rapid expansion of private debt and a dramatic real estate bubble. The removal of capital controls during the latter half of the 1980s was also important.

When it comes to the rigidness of financial regulations in general, it is possible to talk about a wave-like movement, with a more liberal legal framework in place until World War Two, a heavily regulated credit market up to the 1980s, and again a more liberal legislation from the 1980s. This wave-like movement is in accordance with changes in the ruling macroeconomic policy regime, where government interference in the overall economy has been more or less present. Liberal financial regulations have prevailed during periods when price stability has had priority over full employment in macroeconomic policy. Conversely, more rigid financial regulations have been in place during periods in which full employment has had priority over price stability. The Swedish development in this regard is very much in line with the international development.

Relative to GDP, deposits into the Swedish banking system have also experienced a wave-like movement, resembling that of the changes in the financial regulatory regime but with a somewhat different chronology. The deposit-to-GDP ratio increased until the early 1930s and decreased until the early 1950s, after which it remained on a relatively stable level until about 1980. During the 1980s the ratio decreased again until the early 1990s crisis, when there was a brief hike. After the 1990s crisis, bank deposits grew relative to GDP throughout the rest of the period.

The credit-to-GDP ratio had a somewhat different development due to the inclusion of credit from particularly mortgage institutions. After rapid growth during the 1870s and 1880s, the ratio was rather volatile over the next fifty years, particularly during World War One, though the trend was fairly constant. The credit-to-GDP ratio went into a steep decline with World War Two and remained at a lower level until about 1960, when it started to rise again due to mortgage institution funding of the massive residential housing construction projects of the social democratic government. Looking solely at the credit-to-GDP ratio of the banking sector however, its development is quite similar to that of the deposit-to-GDP ratio, as well as the wave-like movement experienced by the financial regulatory regime and the international macroeconomic policy regime. The rise of the overall credit-to-GDP ratio from the 1960s was thus due to a political priority of funding housing construction rather than an endogenous mechanism inherent to the private credit market as such, and can be explained by the very regulatory changes that the new regime entailed. The impact of the financial deregulations of the 1980s, especially the credit deregu-

lation of 1985, is also visible in the data, as a sharp increase in the credit-to-GDP ratio.

The divergent trends of bank credit and housing mortgage credit turned into convergence from this point onwards. The 1990s saw a fast decline in all creditor categories, but both bank and housing mortgage credit increased again up to the Global Financial crisis in 2007. The growth in the credit-to-GDP ratio after that was almost totally due to the increase in housing mortgage credit.

To a considerable degree the amount of credit from, and deposits to, banks coincides with the degree of financial regulation, or repression. Liberal regulation has been associated with a high level of private debt emanating mainly from banks, relative to GDP, while extensive regulation correspondingly has been associated with a lower level of credit from bank, relative to GDP. Furthermore, spikes in credit losses, however measured also occurred during the more liberal eras of financial regulation.

For housing mortgage, the picture is different. During the regulated period from the 1950s until the 1980s growth in housing mortgage credit coexisted with relative financial stability, but the corresponding growth during the deregulated era, during the 1980s boom and since the mid-1990s, was arguably not associated with such financial stability. Another difference between the regulated and the deregulated eras is that the relative growth of housing mortgage credit during the former era was associated with a massive increase in housing construction, whereas the latter was not. Rather, housing mortgages was largely used to finance price increases in an already existing stock of residential houses during the 2000s and 2010s.

It is possible to discern other more or less continuous long-run, secular, trends in the development of Swedish bank and credit institutions as well. From a market with increasing competition until the early 1900s, concentration increased gradually until the early 1980s, when the establishment of foreign and Swedish niche banks started to intensify competition. Financial crises have often forced the banking industry to consolidate and provoked concentration, particularly during and after the crises of the 1920s, 1930s and 1990s. Even so, mergers and acquisitions have also occurred during the dynamic environment of financial booms and even during periods of relative economic stability. Some of the most notable mergers during the period of study are those between *Stockholms Enskilda Bank* and *Skandinaviska Banken* to form *Skandinaviska Enskilda Banken* in 1972, two government-owned banks leading to the foundation of *PK-banken* in 1974, and *Sparbanken Sverige* and *Föreningsbanken* forming *Föreningssparbanken* in 1997.

A related trend is the convergence of the Swedish banking market. The division between *enskilda banker* with the right to emit their own notes on the one hand, and *aktiebanker* on the other hand, ceased to exist in practice after the Bank Act of 1903. Furthermore, the disappearance of *filialbanker* and *folkbanker* underscores the remarkable success of *aktiebanker* as an organizational form. Succeeding legal harmonization was enforced in 1955 and 1969 so that *sparbanker*, *föreningsbanker* and commercial banks could compete on equal terms on the credit market, and in 1985

it became possible also for foreign banks to establish bank offices in Sweden on similar terms to those of Swedish banks. Mergers and acquisitions have blurred the line between different forms of banks even more and exacerbated the trend of convergence. Most of the former *sparbanken* movement as well as the *föreningsbanker* are today part of the commercial bank *Swedbank*, one of the "big four" Swedish banks in recent decades.

Another trend is internationalization. Even though the Swedish credit market has a long tradition of close ties to foreign credit markets, particularly from the mid-19th century and the first two decades of the 20th century, the 1970s saw an unprecedented internationalization. The financial deregulations of the 1980s gave additional force to this trend, as seen in the increase in funding of Swedish bank credit by foreign banks after 1985. The complete removal of capital controls in 1989 was an even more decisive move towards internationalization. In the late 1990s and early 2000s, the internationalization of Swedish banks gained momentum again with expansion mainly into the Baltic States. Simultaneously, foreign banks increased their presence in Sweden as niche banks, though their market shares have stayed on a very low level. Competition has however increased somewhat from nice banks started by Swedish retail companies as well.

References

Adams, M., J. Andersson, L. F. Andersson, and M. Lindmark (2009). "Commercial banking, insurance and economic growth in Sweden between 1830 and 1998". *Accounting History Review 19*(1); 21–38.

Ahnland, L. (2015). "Private debt in Sweden 1900–2013, and the risk of financial crisis". *Scandinavian Economic History Review 63*(3); 302–323.

Ahnland, L. (2020). "The wage share and government job creation in Sweden, 1900–2016". *Labor History 61*(3-4); 228–246.

Ahnland, A. (Forthcoming). "Monthly credit from and deposits in Swedish commercial banks, 1875–2020". *Financial History Review*.

Amberg, N., T. Jacobson and E. von Schedvin (2021). "Trade credit and product pricing: The role of implicit interest rates". *Journal of the European Economic Association 19*(2); 1–32.

Asal, M. (2018). "Long-run drivers and short-termdynamics of Swedish real house prices". *International Journal of Housing Markets and Analysis 11*(1); 45–72.

Barber, J. W. (2008). *Gunnar Myrdal: An Intellectual Biography*, Basingstoke: Palgrave Macmillan.

Bank for International Settlements (2020). "Credit to the non-financial sector". Updated 30 April 2020 - Advanced preliminary release for Q4 2019. https://www.bis.org/statistics/totcredit.htm (Accessed 10 March 2020).

Bankinspektionen (1985–1994). "Affärsbankerna : samtliga bankaktiebolag / Bankinspektionen = Commercial banks / Bank inspection board ". Stockholm.

Bergström, C., P. Englund and P. Thorell (2002), "Securum och vägen ut ur bankkrisen: Slutsatser och sammanfattning". SNS Förlag. https://snsse.cdn.triggerfish.cloud/uploads/2020/02/securum_sos_securum.pdf (accessed 15 November 2020).

Boksjö, A., and M. Lönnborg-Andersson (1994). "Svenska finanskriser: Orsaker, förlopp, åtgärder och konsekvenser". Uppsala Papers in Economic History, Research Report No 2. Uppsala: Department of Economic History, Uppsala University.

Brisman, S. (1931). "Den Stora Reformperioden 1860–1904 [The Great Reform Period 1860–1904]". In The Riksbank. *Riksbanken 1668–1924: Bankens Tillkomst och Verksamhet, Vol. 4.* P.A. Norstedt & Söner: Stockholm.

Cramér, C., and K. Å. Fredricsson (1942). *Svensk Fastighetskredit*. Stockholm: Natur och kultur.

Dermani, E., J. Lindé and K. Walentin (2016). "Is there an evident housing bubble in Sweden?". *The Riksbank Economic Review* (2); 7– 55.

Edvinsson, R. (2005). *Growth, Accumulation, Crisis: With New Macroeconomic Data for Sweden 1800–2000.* (Dissertation) Department of Economic History, Stockholm University. Stockholm: Almqvist & Wiksell International.

Edvinsson, R., and A. Ögren (2014). "7. Swedish money supply, 1620–2012". In Edvinsson, R., T. Jacobson, and D. Waldenström (Eds.). *Historical Monetary and Financial Statistics for Sweden, Volume II*. Stockholm: Ekerlid.

Edvinsson, R. (2016). ”BNP och olika aggregerade variabler till löpande pris i Sverige 1800–2000”. http://www.historia.se/ (accessed 19 June 2019).

Eliasson, G., and M. Larsson (1992). ”Från Post- och Kreditbank till Nordbanken”. In Anell, B (1992). *Staten som ägare - Erfarenheter från ASSI, Celsius, Nordbanken, Procordia och SSAB*. Stockholm: SNS.

Englund, P. (1990). “Financial deregulation in Sweden”. *European Economic Review* *34*(2-3); 385–393.

Finansinspektionen (1992–1996). ”Enskilda försäkringsföretag”. Sveriges officiella statistik. Stockholm.

Finansinspektionen (1995–1996). ”Bankernas tillgångar och skulder. Serie K 21”. Stockholm.

Finansinspektionen (2019, June). “Svenska konsumtionslån”.

Finansinspektionen (2022). ”Företagsregistret”. https://www.fi.se/sv/vara-register/foretagsregistret/ (accessed 1 April 2022).

Finocchiaro D., M. Jonsson, C. Nilsson, and I. Strid (2016). “Macroeconomic effects of reducing household debt”. *The Riksbank Economic Review*, 2016:2.

Forsyth D., and T. Notermans (1997). “Introduction”. In Forsyth D., and T. Notermans (Eds.). *Regime Changes: Macroeconomic Policy and Financial Regulation in Europe from the 1930s to the 1990s*. Providence and Oxford: Berghahn Books.

Frölander, T. (1906). Stockholms Enskilda Bank 1856–1906, Stockholm.

Försäkringsinspektionen (1917–1984). ”Enskilda försäkringsanstalter”. Sveriges officiella statistik. Stockholm.

Försäkringsinspektionen (1985–1991). ”Enskilda försäkringsföretag”. Sveriges officiella statistik. Stockholm.

Gasslander, O. (1956). *Bank och industriellt genombrott: Stockholms Enskilda Bank kring sekelskiftet 1900, del I*. Stockholm: Esselte.

Gasslander, O. (1959). *Bank och industriellt genombrott: Stockholms Enskilda Bank kring sekelskiftet 1900, del 2*. Stockholm: Esselte.

Gårdlund, T. (1947). *Svensk industrifinansiering 1830–1913*. Stockholm: Svenska Bankföreningen.

Gårdlund, T. (1976). *Marcus Wallenberg 1864–1943: hans liv och gärning*. Stockholm: Norstedt.

Hagström, T. (1968). ”Kreditmarknadens struktur och funktionssätt”. Koncentrationsutredningen 2, SOU 1968:3, Stockholm: Fritzes.

Hortlund, P. (n.a.). Excel file ”Bank Lending and Borrowing 1870–2006”.

Hortlund, P. (2005). *Studies on Swedish Banking 1870–2001*. (Dissertation) The Economic Research Institute, Stockholm School of Economics. Stockholm: Stockholm School of Economics.

Jonung, L. (1993). ”Del VI: Riksbankens politik 1945–1990”. In Werin, L. (Ed.). *Från räntereglering till inflationsnorm. Det finansiella systemet och Riksbankens politik 1945–1990*. Stockholm: SNS

Jonung, L. (2007 [1988]). ”The economics of private money: private bank notes in

Sweden 1831–1902". Fourth version. Researsch report, Stockholm School of Economics.

Jordà, O., M. Schularick, and A. Taylor (2013). "When credit bites back: Leverage, business cycles and crises". *Journal of Money, Credit and Banking 45*(2); 3–28.

Jordà, O., M. Schularick, and A. Taylor (2017). "Macrofinancial History and the New Business Cycle Facts." In Eichenbaum, M. and J. A. Parker (Eds.). *NBER Macroeconomics Annual 2016, volume 31*. Chicago: University of Chicago Press.

Kock, K. (1930). *Svenskt bankväsende i våra dagar*. Stockholm: Kooperativa förbundets bokförlag.

Kungl. Bank- och fondinspektionen (1912–1953). "Statistiska meddelanden. Ser. E, Uppgifter om bankerna". Stockholm.

Kungl. Bank- och fondinspektionen (1954–1967). "Uppgifter om bankerna". Stockholm.

Kungl. Bankinspektionen (1968–1983). "Bankerna ". Stockholm.

Kongl. Försäkringsinspektionen (1913–1916). "Enskilda försäkringsanstalter". Sveriges officiella statistik. Stockholm.

Kungl. Generalpoststyrelsen. (1924–1939) . "Postverket". Sveriges officiella statistik, Stockholm.

Konjunkturinstitutet (2009). "Konjunkturbarometern, Företag och hushåll, Juli 2009", Technical report, Konjunkturinstitutet/National Institute of Economic Research.

Larsson, M., (1991). *En svensk ekonomisk historia 1850–1985*. Stockholm: SNS.

Larsson, M., and H. Sjögren (1995). *Vägen till och från bankkrisen: Svenska banksystemets förändring 1969–94*, Stockholm: Carlssons.

Larsson, M., and G. Söderberg (2017). *Finance and the Welfare State: Banking Development and Regulatory Principles in Sweden, 1900–2015*. Cham, Switzerland: Palgrave Macmillan.

Lilja, K. (2010). "The deposit market revolution in Sweden". In Ögren, A. (Ed.), *The Swedish Financial Revolution*. Basingstoke: Palgrave Macmillan.

Lindgren, H., (1986). *Bank, investmentbolag, bankirfirma: Stockholms Enskilda Bank 1924–1945*. Skandinaviska Enskilda Banken in cooperation with Institutet för Ekonomisk-Historisk Forskning vid Handelshögskolan (EHF). Stockholm: Norstedt.

Lindorm, P. E. (1956). Stockholms Enskilda Bank 1856–1956. Stockholm.

Nygren, I. (1985). *Från Stockholm Banco till Citibank: Svensk kreditmarknad under 325 år*. Malmö: Liber.

Magnusson, L. (1999). *Sveriges Ekonomiska Historia*. 2nd ed. Stockholm: Prisma.

Molin, J. (2010). "Hur har Riksbanken hanterat den finansiella krisen?", *Penning och valutapolitik* (1); pp. 121 – 150.

Nilsson, G. B. (1988). "Kreditens jättekraft. Svenskt bankväsende i brytningstid och genombrottstid vid 1800-talets mitt". Uppsala papers in financial and business history, Research Report No 18. Uppsala: Department of Economic History, Uppsala University.

Nygren, I. (1985). *Från Stockholms Banco till Citibank: Svensk kreditmarknad under 325 år*. Stockholm: Liber.

Olson, G. (1939). *Svenskt bankväsen efter 1932*. Stockholm: Kooperativa förbundets bokförlag.

Olsson, A. (1993). "Finansiella tillgångar och skulder i Sverige, 1945–1990". Mimeo, Stockholm University.

Olsson, U. (1997). *I utvecklingens centrum : Skandinaviska enskilda banken och dess föregångare 1856–1996*. Stockholm: Skandinaviska enskilda banken.

Postsparbanken (1890–1894). "Berättelse för Postsparbankens förvaltning". Stockholm.

Postsparbanken (1894–1911). "Styrelsen för Postsparbanken underdåniga berättelse"". Sveriges officiella statistik, Stockholm.

Postsparbanken (1912–1923). "Postsparbanken". Sveriges officiella statistik, Stockholm.

The Riksbank (1909–1978). "Årsbok / Riksbanken".

The Riksbank (1979–2001). "Statistisk årsbok / Riksbanken = Statistical yearbook".

The Riksbank (1996–1997). "Bankernas tillgångar och skulder: bankaktiebolag, filialer och större sparbanker". Avdelningen för finansiell statistik. Stockholm: The Riksbank.

Schumpeter, J. (1994[1942]). *Capitalism, Socialism and Democracy*. London: Routledge.

Schön (2000). *En modern svensk ekonomisk historia: Tillväxt och omvandling under två sekel*. Stockholm: SNS.

Sjögren, H. (1989). "Kreditförbindelser under Mellankrigstiden: Krediter i svenska affärsbanker 1924–1944 fördelade på ekonomiska sektorer och regioner". Research Report no 21, Uppsala papers in economic history. Uppsala: Department of Economic History, Uppsala University.

Statistics Sweden (1960). "Historical Statistics of Sweden, Statistical survey, Tables not published in volumes I and II", Stockholm.

Statistics Sweden (2012 [1866–1911]). "Sammandrag af de solidariska bankernas samt aktiebankernas och kreditaktiebolagens uppgifter".

Statistics Sweden (2008 [1895–1903]). "BISOS. Y. Sparbanksstatistik. I. Sparbanker och folkbanker". Stockholm.

Statistics Sweden (2012 [1904–1910]). Statistics Sweden (1904–1910). "BISOS Y 1893–1910, BISOS Y Sparbanksstatistik Sparbanker och penninginrättningar 1904–1910". Stockholm.

Statistics Sweden (1914–2014). "Statistisk årsbok för Sverige = [Statistical yearbook of Sweden] / SCB - Statistiska centralbyrån / [Statistics Sweden]". Stockholm.

Statistics Sweden (1962–1988). "Finansräkenskaperna"

Statistics Sweden (1980). "Statistiska meddelanden, N 1980: 17".

Statistics Sweden (1981)."Statistiska meddelanden, N 1981: 15".

Statistics Sweden (1983)."Statistiska meddelanden, N 1983: 11".

Statistics Sweden (1985)."Statistiska meddelanden, K11 SM 8501".

Statistics Sweden (1993).”Statistiska meddelanden, K11 SM 9301”.

Statistics Sweden (1997). ”Statistiska meddelanden, K11 SM 9701”.

Statistics Sweden (2008). ” Riksbankens finansmarknadsstatistik 1980–1985: Beskrivning av statistiken, FM5001”.

Statistics Sweden (2019 [1870–1913]). ”Sveriges officiella statistik i sammandrag 1870–1913”.

Statistics Sweden (2022a). ”Balansräkning för finansiella företag efter typ av finansinstitut och kontopost. År 1996 - 2020”. https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__FM__FM0402/FinBalAr/ (accessed 10 April 2022).

Statistics Sweden (2022b). ”BNP från användningssidan, försörjningsbalans efter användning, aggregerad. År 1950 - 2019”. https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__NR__NR0103__NR0103E/NR0103T01BNAr/ (accessed 10 April 2022).

Statistics Sweden (2022c). ”BNP kvartal 1993–2021:4 (publ. 2022-02-28)”, excel file ”BNP från användningssidan (ENS 2010), försörjningsbalans (xlsx)” https://www.scb.se/hitta-statistik/statistik-efter-amne/nationalrakenskaper/nationalrakenskaper/nationalrakenskaper-kvartals-och-arsberakningar/pong/tabell-och-diagram/tabeller/bnp-kvartal/ (accessed 10 April 2022).

Statistics Sweden (2022d). Excel file “Finansmarknadsstatistik februari 2022 (Korrigerad 2022-04-01”. https://www.scb.se/hitta-statistik/statistik-efter-amne/finansmarknad/finansmarknadsstatistik/finansmarknadsstatistik/ (accessed 10 April 2022).

Statistics Sweden (2022e). ”Finansräkenskaper efter sektor, kontopost och motsektor (ENS2010). År 1995 - 2021”. http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__FM__FM0103__FM0103A/FirENS2010ofAr/?rxid=8525c50d-c7b3-43df-941a-f71bd42463b0# (accessed 10 April 2022).

Statistics Sweden (2022f). ”Monetära finansinstitutens tillgångar och skulder efter institut, kontopost och valuta. Månad 1998M01 - 2022M02”. http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__FM__FM0401/MFIM1/ (accessed 10 April 2022).

Statistics Sweden (2022g). Resultaträkning för finansiella företag efter typ av finansinstitut och kontopost. År 1996 - 2020. https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__FM__FM0402/FinResAr/ (accessed 10 April 2020).

Söderlund, E. (1964). *Skandinaviska Banken i det svenska bankväsendets historia 1864–1913.* Uppsala: Almqvist & Wicksell.

Söderlund, E. (1978). *Skandinaviska Banken i det svenska bankväsendets historia 1914–1939.* Uppsala: Almqvist & Wicksell.

Thunholm, L. (1966). *Svenskt Kreditväsen* (8th Ed.). Stockholm: Rabén & Sjögren.

Waldenström, D. (2016). The National Wealth of Sweden, 1810–2014, *Scandinavian Economic History Review 64*(1); 36–54.

Waldenström, D. (2017). Wealth-Income Ratios in a Small, Developing Economy: Sweden, 1810–2014. Journal of Economic History 77(1); 285–31.

Wallerstedt, E. (1995). *Finansiärers fusioner: De svenska affärsbankernas rötter 1830–1993*. Uppsala: Acta Universitatis Uppsaliensis.

Wendschlag, M. (2018). ”Finanstillsynens utveckling i Sverige från mitten av 1800-talet till 1990-talskrisen”. In Lönnborg M, and P. Hedberg (Eds.) (2018). *Ett liv som handledare. Mats Larsson 65 år*. Uppsala universitet, Uppsala papers in financial and business history, Research Report no 23. Uppsala: Department of Economic History, Uppsala University.

Werin, L. (1993). ”Del I: Det finansiella systemet i omvandling”. In L. Werin (Ed.). *Från räntereglering till inflationsnorm. Det finansiella systemet och Riksbankens politik 1945–1990*. Stockholm: SNS.

Wihlborg, C. (1993). “Del III: Valutapolitiek”. In L. Werin (Ed.). *Från räntereglering till inflationsnorm. Det finansiella systemet och Riksbankens politik 1945–1990*. Stockholm: SNS.

Wohlin, L. (1998). ”Bankkrisens upprinnelse”. *Ekonomisk Debatt* 26(1); 21–30.

Ögren, A. (2003). *Empirical Studies in Money, Credit and Banking : The Swedish Credit Market in Transition under the Silver and Gold Standards, 1834 – 1913.* (Dissertation) Institute for Economic History Research, Stockholm School of Economics. Stockholm: Stockholm School of Economics

Ögren, A. (2010). “The Swedish financial revolution: An in-depth study”. In Ögren, A (Ed). *The Swedish financial revolution*. Basingstoke: Palgrave Macmillan.

Appendix A

Table A3.1a. *Swedish credit by creditor category, 1870–2020, Million SEK*

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing mortgage institutes	Other mortgage institutes	Banks and credit institutions in total
1870	92	19	44				155	33	11	53			159	409
1871	99	27	54				180	34	10	54			167	445
1872	116	40	66				222	39	7	55			174	497
1873	148	44	80				272	43	6	56			182	559
1874	180	55	94				329	46	4	57			190	625
1875	191	74	101				366	44		58			198	666
1876	210	80	109				399	49		59			210	717
1877	214	86	112				411	58		60			222	751
1878	201	81	109				391	65		61			234	750
1879	185	79	107				372	50		62			246	730
1880	195	87	116				398	63		63			258	782
1881	220	98	129				447	66		69			266	847
1882	228	115	140				483	68		74			273	898
1883	246	129	156				531	66		79			281	956
1884	257	140	169				566	73		84			288	1011
1885	265	140	183				588	73		90			296	1046
1886	263	135	177				575	81		92			294	1042
1887	249	133	200				582	80		94			293	1049
1888	261	141	211		1		613	78		96			292	1079
1889	274	152	223		2		651	84		98			291	1124
1890	288	157	229		2		676	89		100			289	1154
1891	308	167	237		3		715	86		102			287	1191
1892	331	168	245		3		746	81		102			285	1214
1893	338	172	276	13	3		802	85		107			282	1276
1894	349	171	283	16	4		823	77		111			280	1291
1895	366	182	293	17	6		864	78		121			278	1341
1896	390	220	305	17	8		940	87		130			276	1434
1897	450	278	328	17	10		1084	101		140			275	1599
1898	519	323	349	19	15		1224	113		149			273	1759
1899	550	398	364	20	16		1347	131		158			272	1907
1900	613	414	382	21	16		1448	129		167			270	2014
1901	634	468	408	21	16		1547	115		178			271	2111
1902	612	538	435	20	16		1620	118		189			271	2199
1903	562	664	464	20	15		1726	121		200			272	2318
1904		1355	501	20	15		1891	141		211			273	2515

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing mortgage institutes	Other mortgage institutes	Banks and credit institutions in total
1905		1482	535	19	14		2050	152		222			273	2697
1906		1723	578	16	14		2331	176		240			276	3023
1907		1925	618	13	14		2569	239		258			279	3345
1908		1982	666	9	12		2669	209		276			282	3436
1909		2028	691	10	12		2741	198		293			285	3517
1910		2085	728	12	12		2836	191		311			288	3627
1911		2118	758	11	11		2898	190		354			291	3733
1912		2197	801	12	12		3022	246		396		162	293	4118
1913		2328	850		11		3188	250		417		181	291	4328
1914		2392	873		11		3276	264		441		196	291	4467
1915		2545	897		10		3451	232		458		215	289	4646
1916		2965	955		10		3930	299		468		223	287	5208
1917		3831	1047		10		4887	419		478		238	285	6308
1918		5245	1214		10		6469	533		506		240	292	8040
1919		5825	1423		12	2	7262	623		514		303	295	8998
1920		6249	1571		13	4	7837	590		540		308	304	9578
1921		5743	1649		17	6	7414	640		554		320	307	9236
1922		5006	1708		24	8	6745	525		592		376	312	8549
1923		4497	1790		43	8	6338	500		630		413	319	8200
1924		4372	1857		50	8	6287	507		687		444	325	8252
1925		4249	1926		61	9	6246	421		745		479	337	8228
1926		4269	2034		76	9	6389	333		807		531	343	8402
1927		4098	2121		106	11	6336	348		862		570	355	8471
1928		4120	2192		125	13	6450	436		944		620	367	8816
1929		4250	2300		166	14	6730	379		1088		675	373	9245
1930		4558	2372		215	15	7160	321		1096		765	387	9729
1931		4458	2475		244	18	7194	558		1304		821	399	10277
1932		4270	2502		285	24	7081	205		1363		912	412	9973
1933		3969	2542		271	36	6818	57		1430		997	419	9721
1934		3867	2588		267	43	6765	44		1514		1107	420	9850
1935		3913	2702		267	57	6938	42		1645		1264	434	10323
1936		4069	2798		292	73	7232	38		1734		1273	440	10716
1937		4166	2924		331	89	7510	39		1887		1282	448	11166
1938		4397	3069		362	108	7935	95		2034		1315	454	11833
1939		5004	3217		433	120	8774	457		2164		1399	489	13283
1940		4468	3172		426	115	8181	303		2190		1492	491	12658
1941		4303	3197		465	114	8079	147		2235		1478	521	12460
1942		4387	3297		507	120	8311	190		2252		1555	523	12830
1943		4716	3480		515	132	8843	138		2292		1635	536	13444
1944		5152	3758		512	153	9575	107		2314		1724	540	14260

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing mortgage institutes	Other mortgage institutes	Banks and credit institutions in total
1945		5843	4131		518	184	10676	82		2358		1879	572	15567
1946		7296	4648		521	231	12696	225		2454		1968	598	17941
1947		8021	5375		557	271	14224	186		2818		2166	669	20063
1948		7895	5916		848	305	14964	217		3110		2377	749	21416
1949		8097	6441		959	349	15846	200		3309		2486	792	22633
1950		9240	6949		1152	404	17745	272		3363		2581	833	24794
1951		10175	7293		1408	434	19310	309		3768		2807	912	27106
1952		9848	7890		2144	484	20366	381		4365		2977	1003	29092
1953		9932	8515		2442	570	21459	415		5210		3195	1099	31378
1954		11092	9182		2703	653	23630	154		5703		3410	1189	34086
1955		10530	9697		3103	709	24039	78		6084		3933	1272	35406
1956		10638	10327		3182	744	24891	74		6716		4434	1305	37420
1957		10826	11113		3338	819	26096	142		7034		5176	1340	39789
1958		11692	11993		3485	901	28071	148		7792		5855	1413	43279
1959		13125	12973		3865	983	30946	297		8399		6552	1478	47672
1960		14091	13698		4322	1080	33191	65		8874		7903	1588	51621
1961		14541	14641		3661	1224	34067	63		9193		9255	1711	54289
1962		16196	15703		4879	1401	38179	95		9367		11502	1965	61108
1963		19348	16956		4712	1639	42655	307		9508		12900	2237	67607
1964		21334	18134		5317	1934	46719	182		9951		15583	2676	75111
1965		24008	19569		5921	2317	51815	459		10539		18346	3153	84312
1966		25835	21142		6558	2661	56196	130		11121		22374	3958	93779
1967		29019	23361		7347	2963	62690	1345		11642		26645	5066	107388
1968		34000	25817		7884	3366	71067	1023		11955		31615	6057	121717
1969		34171	27763		8284	3728	73946	1731		12445		39222	7014	134358
1970		34860	29166		8861	4115	77002	1268		13282		45721	8506	145779
1971		38676	30628		9594	4705	83603	156		14211		52793	10213	160976
1972		44748	31995		10590	5392	92725	157		15155		59705	11900	179642
1973		51280	34514		11812	6125	103731	183		16499		67693	13382	201488
1974		70171	37712			7152	115035	3202		18364		77683	15405	229689
1975		77890	41338			8562	127790	319		20252		89258	18793	256412
1976		86983	45782			9622	142387	400		22664		99838	22121	287410
1977		101028	49460			10733	161221	26		25718	10861	111158	26291	335275
1978		113207	53949			12086	179242	440		28984	12426	125730	29754	376576
1979		130717	59786			13185	203688	619		33067	15355	141006	33087	426822
1980		147005	63627			14278	224910	646		41373	21868	157570	36624	482991
1981		165472	66076			15389	246937	441		42817	29703	182607	41831	544336
1982		190408	71858			17112	279378	327		45512	35787	202705	51779	615488
1983		207052	77709			17986	302747	626		51476	38276	229589	60451	683165
1984		232306	79646			18670	330622	817		51848	41408	266762	69325	760782

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing mortgage institutes	Other mortgage institutes	Banks and credit institutions in total
1985		242873	83060			19773	345706	764		56191	48144	307006	77434	835245
1986		278056	94783			20825	393664	641		62330	62113	392866	88164	999778
1987		325653	109503			26397	461553	340		62051	82695	452147	88568	1147354
1988		422054	137058			32433	591545	141		62006	87726	541753	97379	1380550
1989		514781	168737			40055	723573	39		55710	88861	647967	120500	1636650
1990		572236	195558			59628	827422	2		60565	79323	791497	117706	1876515
1991		525695	171380			60019	757094	1		66659	51136	926963	93061	1894914
1992		569661	214149				783810	0		79311	77597	938468	103345	1982531
1993		447720	171601				619321	0		67976	73651	984415	104040	1849403
1994		543027	33407				576434	0		41796	47864	972259	101328	1739681
1995		534608	34481				569089	140	38648	44981	988738	99188	1740784	4050517
1996		547052	43734				590786	141	27565	42928	1017293	106058	1784771	4160187
1997		594715	49050				643765	2613	31800	46967	1009753	115238	1850136	4341424
1998		622273	63423				685696	280	17664	55475	1017916	123219	1900250	4485916
1999		691219	67032				758251	181	21709	65481	1050479	118663	2014764	4787598
2000		777816	66392				844208	187	33724	73124	1070244	122074	2143561	5131143
2001		884088	70203				954291	209	52820	83278	1123672	123301	2337571	5629224
2002		889972	75163				965135	583	48247	91975	1184746	129138	2419824	5804200
2003		866731	74896				941627	245	46608	105539	1264546	137263	2495828	5933038
2004		890496	82054				972550	252	45993	124736	1367738	139996	2651265	6274828
2005		1036362	88753				1125115	258	42412	106322	1527870	159903	2961880	7048617
2006		1162518	98531				1261049	265	42015	116276	1662634	184421	3266660	7794104
2007		1667313	110777				1778090	272	43116	117919	1579977	207650	3727024	9231866
2008		1839862	127125				1966987	283	39895	128720	1821020	223739	4180644	10327992
2009		1695350	133394				1828744	290	8560	131577	2028392	252885	4250448	10329350
2010		1779035	113202				1892237	278	9279	135566	2165015	278535	4480910	10853779
2011		1912427	116091				2028518	278	15727	152824	2293080	337223	4827650	11683540
2012		2020757	120570				2141327	313	23703	145197	2379865	380603	5071008	12283030
2013		2032871	127957				2160828	333	23336	149843	2499122	339267	5172729	12505953
2014		2203739	121531				2325270	318	22501	143025	2659884	377674	5528672	13382296
2015		2297995	131726				2429721	296	18679	149107	2804968	402112	5804883	14039191
2016		2386294	146410				2532704	250	17009	171085	3015122	432065	6168235	14868924
2017		2486155	154039				2640194	196	19632	162573	3270992	459213	6552800	15745598
2018		2586900	161894				2748794	167	24888	162799	3494298	525673	6956619	16661865
2019		2671639	166726				2838365	145	26636	167106	3676139	581292	7289683	17417586
2020		2706901	178494				2885395	128	24906	177732	3886527	624234	7598922	18083111

Table A3.1b. *Swedish credit by creditor category, 1870–2020, unadjusted/unestimated, Million SEK*

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing credit companies	Housing mortgage institutes (plus housing credit companies from 1971)	Other credit companies	Other mortgage institutes (and from 1971 other credit companies)	Banks and credit institutions in total
1870	92	19					111	33	11	50					159	363
1871	99	27					126	34	10	51						221
1872	116	40					156	39	7	52						254
1873	148	44					192	43	6	53						294
1874	180	55					235	46	4	54						338
1875	191	74					265	44		55					198	562
1876	210	80	109				399	49								448
1877	214	86					299	58								358
1878	201	81					282	65								347
1879	185	79					264	50								314
1880	195	87	116				398	63		60					258	778
1881	197	98					296	66								362
1882	228	115					343	68								411
1883	246	129					375	66								441
1884	257	140					397	73								469
1885	265	140	183				588	73		85					296	1041
1886	263	135					398	81								478
1887	249	133					382	80								462
1888	261	141			1		402	78								481
1889	274	152			2		428	84								512
1890	288	157	229		2		676	89		95					289	1149
1891	308	167			3		477	86								564
1892	331	168	245		3		746	81								827
1893	338	172	276	13	3		802	85								887
1894	349	171	283	16	4		823	77								900
1895	366	182	293	17	6		864	78		115					278	1335
1896	390	220	305	17	8		940	87								1028
1897	450	278	328	17	10		1084	101								1185
1898	519	323	349	19	15		1224	113								1337
1899	550	398	364	20	16		1347	131								1478
1900	613	414	382	21	16		1448	129		158					270	2005
1901	634	468	408	21	16		1547	115								1662
1902	612	538	435	20	16		1620	118								1739
1903	562	664	464	20	15		1726	121								1847
1904		1355	501	20	15		1891	141								2032
1905		1482	535	19	14		2050	152		210					273	2686
1906		1723	578	16	14		2331	176								2507

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing credit companies	Housing mortgage institutes (plus housing credit companies from 1971)	Other credit companies	Other mortgage institutes (and from 1971 other credit companies)	Banks and credit institutions in total
1907		1925	618	13	14		2569	239								2808
1908		1982	666	9	12		2669	209								2878
1909		2028	691	10	12		2741	198								2939
1910		2085	728	12	12		2836	191		295					288	3610
1911		2118	758	11	11		2898	190		335					291	3714
1912		2197	801	12	12		3022	246		375			162		293	4097
1913		2328	850		11		3188	250		395			181		291	4306
1914		2392	873		11		3276	264		418			196		291	4444
1915		2545	897		10		3451	232		434			215		289	4622
1916		2965	955		10		3930	299		443			223		287	5183
1917		3831	1047		10		4887	419		453			238		285	6282
1918		5245	1214		10		6469	533		479			240		292	8013
1919		5825	1423		12	2	7262	623		487		61	242		295	8910
1920		6249	1571		13	4	7837	590		512			243		304	9485
1921		5743	1649		17	6	7414	640		525			252		307	9139
1922		5006	1708		24	8	6745	525		561			305		312	8448
1923		4497	1790		43	8	6338	500		597			339		319	8093
1924		4372	1857		50	8	6287	507		651		77	367		325	8138
1925		4249	1926		61	9	6246	421		706			399		337	8109
1926		4269	2034		76	9	6389	333		764			449		343	8278
1927		4098	2121		106	11	6336	348		816			485		355	8341
1928		4120	2192		125	13	6450	436		894			533		367	8679
1929		4250	2300		166	14	6730	379		1030		90	585		373	9097
1930		4558	2372		215	15	7160	321		1039			675		387	9581
1931		4458	2475		244	18	7194	558		1235			731		399	10119
1932		4270	2502		285	24	7081	205		1291			821		412	9810
1933		3969	2542		271	36	6818	57		1355			906		419	9555
1934		3867	2588		267	43	6765	44		1435		91	1016		420	9679
1935		3913	2702		267	57	6938	42		1559			1168		434	10140
1936		4069	2798		292	73	7232	38		1642			1172		440	10524
1937		4166	2924		331	89	7510	39		1788			1176		448	10961
1938		4397	3069		362	108	7935	95		1926			1204		454	11615
1939		5004	3217		433	120	8774	457		2050		117	1282	7	489	13052
1940		4468	3172		426	115	8181	303		2075			1352		491	12402
1941		4303	3197		465	114	8079	147		2117			1315		512	12170
1942		4387	3297		507	120	8311	190		2133			1368		514	12516
1943		4716	3480		515	132	8843	138		2172			1425		526	13103
1944		5152	3758		512	153	9575	107		2192		233	1491	11	529	13894
1945		5843	4131		518	184	10676	82		2234			1624		556	15172
1946		7296	4648		521	231	12696	225		2324			1691		577	17513

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing credit companies	Housing mortgage institutes (plus housing credit companies from 1971)	Other credit companies	Other mortgage institutes (and from 1971 other credit companies)	Banks and credit institutions in total
1947		8021	5375		557	271	14224	186		2669			1866		643	19589
1948		7895	5916		848	305	14964	217		2946			2055		718	20899
1949		8097	6441		959	349	15846	200		3135		344	2142	36	756	22078
1950		9240	6949		1152	404	17745	272		3186			2232		794	24229
1951		10175	7293		1408	434	19310	309		3569			2454		870	26512
1952		9848	7890		2144	484	20366	381		4134		358	2619	46	957	28458
1953		9932	8515		2442	570	21459	415		4935			2842		1021	30672
1954		11092	9182		2703	653	23630	154		5402		349	3061	109	1080	33327
1955		10530	9697		3103	709	24039	78		5763			3498		1149	34528
1956		10638	10327		3182	744	24891	74		6362		520	3914	136	1169	36409
1957		10826	11113		3338	819	26096	142		6663			4643		1188	38732
1958		11692	11993		3485	901	28071	148		7381			5309		1246	42155
1959		13125	12973		3865	983	30946	297		7956		559	5993	183	1295	46487
1960		14091	13698		4322	1080	33191	65		8406			6747		1372	49781
1961		14541	14641		3661	1224	34067	63		8708		1752	7503	248	1463	51804
1962		16196	15703		4879	1401	38179	95		8873		2592	8910	337	1628	57685
1963		19348	16956		4712	1639	42655	307		9006		3293	9607	465	1772	63347
1964		21334	18134		5317	1934	46719	182		9426		4547	11036	601	2075	69438
1965		24008	19569		5921	2317	51815	459		9983		6048	12298	855	2298	76853
1966		25835	21142		6558	2661	56196	130		10534		8065	14309	1194	2764	83933
1967		29019	23361		7347	2963	62690	1345		11028		10387	16258	1596	3470	94791
1968		34000	25817		7884	3366	71067	1023		11324		12789	18826	2032	4025	106265
1969		34171	27763		8284	3728	73946	1731		11788		16648	22574	2524	4490	114529
1970		34860	29166		8861	4115	77002	1268		12581		19656	26065	3258	5248	122164
1971		38676	30628		9594	4705	83603	156		13461			52793		10213	160226
1972		44748	31995		10590	5392	92725	157		14355			59705		11900	178842
1973		51280	34514		11812	6125	103731	183		15629			67693		13382	200618
1974		70171	37712			7152	115035	3202		17395			77683		15405	228720
1975		78712	41338			8562	128612	319		19184			80028		18793	246936
1976		88576	45782			9622	143980	400		21468			94687		22121	282656
1977		102955	49460			10733	163148	26		24361	10861		108396		26291	333083
1978		115552	53949			12086	181587	440		27455	12426		122648		29754	374310
1979		133920	59786			13185	206891	619		31322	15355		137901		33087	425175
1980		150847	63627			14278	228752	646		39190	21868		153708		36624	480788
1981		171743	66076			15389	253208	441		40558	29703		179624		41831	545365
1982		201425	71858			17112	290395	327		43111	35787		201026		51779	622425
1983		221073	77709			17986	316768	626		48760	38276		227947		60451	692828
1984		248917	79646			18670	347233	817		49113	41408		265424		69325	773320
1985		257574	83060			19773	360407	764		53226	48144		305793		77434	845768
1986		292781	94783			20825	408389	641		59042	62113		391106		88164	1009455

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Sparbanker	Folkbanker	Postsparbanken/Postbanken	Kreditkassor/föreningsbanker	Private banks in total	Riksbanken	Filialbanker	Insurance companies	Finansbolag	Housing credit companies	Housing mortgage institutes (plus housing credit companies from 1971)	Other credit companies	Other mortgage institutes (and from 1971 other credit companies)	Banks and credit institutions in total
1987		344023	109503		26397		479923	340		58777	82695		451321		88568	1161624
1988		461047	137058		32433		630538	141		58735	87726		540727		97379	1415246
1989		587721	168737		40055		796513	39		52771	88861		646865		120500	1705549
1990		572236	195558		59628		827422	2		57370	79323		790490		117706	1872313
1991		525695	171380		60019		757094	1		63142	51136		923206		93061	1887640
1992		569661	214149				783810	0		75127	77597		938077		103345	1977956
1993		447720	171601				619321	0		64390	73651		989524		104040	1850926
1994		543027	33407				576434	0		39591	47864		979796		101328	1745013
1995		534608	34481				569089	140		38648	44981		996698		99188	1748744
1996		547052	43734				590786	141		27565	42928		1005942		106058	1773420
1997		594715	49050				643765	152		31800	46967		1009753		115238	1847675
1998		622273	63423				685696	160		17664	55475		1017916		123219	1900130
1999		691219	67032				758251	168		21709	65481		1050479		118663	2014751
2000		777816	66392				844208	174		33724	73124		1070244		122074	2143548
2001		884088	70203				954291	188		52820	83278		1123672		123301	2337550
2002		889972	75163				965135	200		48247	91975		1184746		129138	2419441
2003		866731	74896				941627	245		46608	105539		1264546		137263	2495828
2004		890496	82054				972550	252		45993	124736		1367738		139996	2651265
2005		1036362	88753				1125115	258		42412	106322		1527870		159903	2961880
2006		1162518	98531				1261049	265		42015	116276		1662634		184421	3266660
2007		1667313	110777				1778090	272		43116	117919		1579977		207650	3727024
2008		1839862	127125				1966987	283		39895	128720		1821020		223739	4180644
2009		1695350	133394				1828744	290		8560	131577		2028392		252885	4250448
2010		1779035	113202				1892237	278		9279	135566		2165015		278535	4480910
2011		1912427	116091				2028518	278		15727	152824		2293080		337223	4827650
2012		2020757	120570				2141327	313		23703	145197		2379865		380603	5071008
2013		2032871	127957				2160828	333		23336	149843		2499122		339267	5172729
2014		2203739	121531				2325270	318		22501	143025		2659884		377674	5528672
2015		2297995	131726				2429721	296		18679	149107		2804968		402112	5804883
2016		2386294	146410				2532704	250		17009	171085		3015122		432065	6168235
2017		2486155	154039				2640194	196		19632	162573		3270992		459213	6552800
2018		2586900	161894				2748794	167		24888	162799		3494298		525673	6956619
2019		2671639	166726				2838365	145		26636	167106		3676139		581292	7289683
2020		2706901	178494				2885395	128		24906	177732		3886527		624234	7598922

Table A3.2a. *Swedish bank deposits by bank category, 1870–2020, Million SEK*

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1870	61	13	57		5			136
1871	73	21	71		5			171
1872	96	35	87		4			222
1873	115	30	106		3			253
1874	146	38	124		2			309
1875	152	41	133					325
1876	169	47	143					359
1877	166	50	145					361
1878	159	48	139					346
1879	163	57	135					355
1880	179	67	146					393
1881	186	69	160					415
1882	186	69	173					428
1883	208	82	190					481
1884	221	90	204					515
1885	231	87	219					537
1886	240	88	231					559
1887	244	88	240					572
1888	249	84	253			1		587
1889	254	83	268			1		607
1890	262	90	275			2		629
1891	276	96	284			3		659
1892	277	103	291			5		675
1893	285	105	308	14		8		720
1894	296	111	324	16		13		761
1895	306	121	339	17		16		800
1896	310	135	360	17		20		841
1897	341	161	384	17		23		927
1898	393	188	403	19		30		1033
1899	439	250	415	20		38		1163
1900	498	274	437	22		50		1281
1901	537	301	467	23		58		1386
1902	522	352	496	25		64		1460
1903	473	442	531	25		60		1531
1904		957	568	22		56		1604
1905		1042	602	18		54		1716
1906		1174	645	15		54		1888
1907		1314	682	12		54		2062
1908		1395	714	9		55		2173
1909		1414	760	10		55		2240

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1910		1465	809	12		54		2340
1911		1516	857	12		51		2436
1912		1602	904	13		46		2566
1913		1692	953			45		2690
1914		1794	987			46		2827
1915		1998	1065			47		3111
1916		2497	1207			48		3752
1917		3221	1382			48		4651
1918		4502	1624			45		6171
1919		5018	1871			48	2	6938
1920		5095	2024			54	2	7175
1921		4854	2130			64	3	7051
1922		4325	2243			75	3	6646
1923		3869	2359			83	3	6314
1924		3675	2399			84	3	6162
1925		3494	2489			100	4	6087
1926		3453	2621			119	4	6197
1927		3484	2706			135	5	6330
1928		3431	2793			149	6	6379
1929		3481	2884			172	7	6544
1930		3631	2961			206	7	6805
1931		3554	3051			231	8	6844
1932		3556	3142			256	9	6964
1933		3630	3206			324	12	7172
1934		3553	3312			393	18	7276
1935		3632	3351			439	23	7445
1936		3833	3402			527	32	7794
1937		3999	3523			486	48	8056
1938		4260	3685			509	61	8516
1939		4401	3679			603	69	8751
1940		4321	3596			561	77	8554
1941		4879	3807			700	98	9484
1942		5157	4137			623	113	10030
1943		5762	4611			840	134	11347
1944		6378	5106			966	163	12613
1945		6847	5606			1091	193	13737
1946		7113	6034			1329	235	14711
1947		7506	6357			1614	274	15752
1948		7640	6751			1830	306	16527
1949		8399	7231			2093	361	18084
1950		8930	7619			2381	404	19334

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1951		10513	8060			2714	456	21743
1952		10358	8703			2998	556	22615
1953		11839	9343			3269	617	25068
1954		12727	9978			3408	710	26823
1955		12609	10696			3748	797	27850
1956		13090	11509			4289	868	29756
1957		14263	12459			4611	948	32281
1958		15987	13442			4932	1010	35371
1959		18950	14337			5176	1096	39559
1960		18524	15403			5462	1236	40625
1961		19415	16391			5920	1376	43102
1962		22080	17699			6311	1575	47665
1963		24410	18957			6616	1797	51780
1964		26649	20531			6898	2162	56240
1965		27731	22263			7866	2551	60411
1966		30303	24511			8237	2921	65972
1967		35017	27000			8770	3350	74137
1968		41235	29476			9377	3733	83821
1969		41050	31283			10096	4263	86692
1970		43098	32712			10858	4747	91415
1971		47493	35629			11849	5525	100496
1972		54426	38781			12666	6217	112090
1973		63419	42680			13594	7318	127011
1974		89878	46907				8815	145600
1975		98224	52224				10421	160869
1976		99984	56554				11871	168409
1977		108458	61857				13496	183811
1978		129658	69751				15405	214814
1979		150194	78453				17824	246471
1980		161895	86508				19859	268262
1981		190657	95707				22519	308883
1982		207118	103059				24695	334872
1983		215414	108500				26565	350479
1984		229761	113709				28813	372283
1985		240385	116956				30262	387603
1986		267627	127979				33897	429503
1987		258470	135113				36480	430063
1988		266381	145601				41028	453010
1989		295311	155530				45690	496531
1990		328606	170544				54774	553924
1991		340101	164255				58682	563038

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1992		417024	194446					611470
1993		437827	191128					628955
1994		597675	41658					639333
1995		614557	41512					656069
1996		684569	59576					744145
1997		683950	56336					740286
1998		622273	63423					685696
1999		691219	67032					758251
2000		777816	66392					844208
2001		884088	70203					954291
2002		889972	75163					965135
2003		866731	74896					941627
2004		890496	82054					972550
2005		1036362	88753					1125115
2006		1162518	98531					1261049
2007		1667313	110777					1778090
2008		1839862	127125					1966987
2009		1695350	133394					1828744
2010		1779035	113202					1892237
2011		1912427	116091					2028518
2012		2020757	120570					2141327
2013		2032871	127957					2160828
2014		2203739	121531					2325270
2015		2297995	131726					2429721
2016		2386294	146410					2532704
2017		2486155	154039					2640194
2018		2586900	161894					2748794
2019		2671639	166726					2838365
2020		2706901	178494					2885395

Table A3.2b. *Swedish bank deposits by bank category, 1870–2020, unadjusted/ unestimated, Million SEK*

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1870	61	13	57		5			136
1871	73	21	71		5			171
1872	96	35	87		4			222
1873	115	30	106		3			253
1874	146	38	124		2			309
1875	152	41	133					325
1876	169	47	143					359
1877	166	50	145					361
1878	159	48	139					346
1879	163	57	135					355
1880	179	67	146					393
1881	186	69	160					415
1882	186	69	173					428
1883	208	82	190					481
1884	221	90	204					515
1885	231	87	219					537
1886	240	88	231					559
1887	244	88	240					572
1888	249	84	253				1	587
1889	254	83	268				1	607
1890	262	90	275				2	629
1891	276	96	284				3	659
1892	277	103	291				5	675
1893	285	105	308	14			8	720
1894	296	111	324	16			13	761
1895	306	121	339	17			16	800
1896	310	135	360	17			20	841
1897	341	161	384	17			23	927
1898	393	188	403	19			30	1033
1899	439	250	415	20			38	1163
1900	498	274	437	22			50	1281
1901	537	301	467	23			58	1386
1902	522	352	496	25			64	1460
1903	473	442	531	25			60	1531
1904		957	568	22			56	1604
1905		1042	602	18			54	1716
1906		1174	645	15			54	1888

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1907		1314	682	12		54		2062
1908		1395	714	9		55		2173
1909		1414	760	10		55		2240
1910		1465	809	12		54		2340
1911		1516	857	12		51		2436
1912		1602	904	13		46		2566
1913		1692	953			45		2690
1914		1794	987			46		2827
1915		1998	1065			47		3111
1916		2497	1207			48		3752
1917		3221	1382			48		4651
1918		4502	1624			45		6171
1919		5018	1871			48	2	6938
1920		5095	2024			54	2	7175
1921		4854	2130			64	3	7051
1922		4325	2243			75	3	6646
1923		3869	2359			83	3	6314
1924		3675	2399			84	3	6162
1925		3494	2489			100	4	6087
1926		3453	2621			119	4	6197
1927		3484	2706			135	5	6330
1928		3431	2793			149	6	6379
1929		3481	2884			172	7	6544
1930		3631	2961			206	7	6805
1931		3554	3051			231	8	6844
1932		3556	3142			256	9	6964
1933		3630	3206			324	12	7172
1934		3553	3312			393	18	7276
1935		3632	3351			439	23	7445
1936		3833	3402			527	32	7794
1937		3999	3523			486	48	8056
1938		4260	3685			509	61	8516
1939		4401	3679			603	69	8751
1940		4321	3596			561	77	8554
1941		4879	3807			700	98	9484
1942		5157	4137			623	113	10030
1943		5762	4611			840	134	11347
1944		6378	5106			966	163	12613
1945		6847	5606			1091	193	13737
1946		7113	6034			1329	235	14711
1947		7506	6357			1614	274	15752

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1948		7640	6751			1830	306	16527
1949		8399	7231			2093	361	18084
1950		8930	7619			2381	404	19334
1951		10513	8060			2714	456	21743
1952		10358	8703			2998	556	22615
1953		11839	9343			3269	617	25068
1954		12727	9978			3408	710	26823
1955		12609	10696			3748	797	27850
1956		13090	11509			4289	868	29756
1957		14263	12459			4611	948	32281
1958		15987	13442			4932	1010	35371
1959		18950	14337			5176	1096	39559
1960		18524	15403			5462	1236	40625
1961		19415	16391			5920	1376	43102
1962		22080	17699			6311	1575	47665
1963		24410	18957			6616	1797	51780
1964		26649	20531			6898	2162	56240
1965		27731	22263			7866	2551	60411
1966		30303	24511			8237	2921	65972
1967		35017	27000			8770	3350	74137
1968		41235	29476			9377	3733	83821
1969		41050	31283			10096	4263	86692
1970		43098	32712			10858	4747	91415
1971		47493	35629			11849	5525	100496
1972		54426	38781			12666	6217	112090
1973		63419	42680			13594	7318	127011
1974		89878	46907			15327	8815	160927
1975		98573	52224			16045	10421	177263
1976		100653	56554			17793	11871	186871
1977		109235	61857			20378	13496	204966
1978		130286	69751				15405	215442
1979		151640	78453				17824	247917
1980		164523	86508				19859	270890
1981		195618	95707				22519	313844
1982		212155	103059				24695	339909
1983		225214	108500				26565	360279
1984		250364	113709				28813	392886
1985		257804	116956				30262	405022
1986		291882	127979				33897	453758
1987		291708	135113				36480	463301
1988		317215	145601				41028	503844

Year	Enskilda banker	Aktiebanker (plus enskilda banker from 1904 and sparbanker from 1993)	Spar-banker	Folk-banker	Filial-banker	Postsparbanken/ Postbanken	Kreditkassor/ föreningsbanker	Banks in total
1989		362986	155530				45690	564206
1990		328606	170544				54774	553924
1991		340101	164255				58682	563038
1992		417024	194446					611470
1993		437827	191128					628955
1994		597675	41658					639333
1995		614557	41512					656069
1996		684569	59576					744145
1997		683950	56336					740286
1998		679192	70852					750044
1999		729545	67253					796798
2000		772142	57317					829459
2001		839646	65191					904837
2002		879611	71328					950939
2003		896340	74092					970432
2004		922784	77761					1000545
2005		1026164	85989					1112153
2006		1167698	96320					1264018
2007		1324775	111531					1436306
2008		1476041	122381					1598422
2009		1536916	134489					1671405
2010		1642558	119788					1762346
2011		1753976	128212					1882188
2012		1884624	139339					2023963
2013		1976210	145143					2121353
2014		2149066	134979					2284045
2015		2333702	147816					2481518
2016		2527046	162013					2689059
2017		2735464	174449					2909913
2018		2904311	185822					3090133
2019		3117097	191542					3308639
2020		3678136	215228					3893364

Table A3.3. *Number of commercial banks, sparbanker and jordbrukskassor/föreningsbanker, 1870–2020*

Year	Commercial banks (enskilda banker and aktiebanker)	Sparbanker	Jordbrukskassor/ föreningsbanker
1870	27	234	
1871	28	254	
1872	29	258	
1873	33	263	
1874	35	296	
1875	37	315	
1876	41	325	
1877	42	327	
1878	43	338	
1879	42	343	
1880	44	340	
1881	43	347	
1882	44	351	
1883	44	358	
1884	45	374	
1885	43	373	
1886	43	376	
1887	43	375	
1888	43	374	
1889	41	377	
1890	43	378	
1891	44	376	
1892	44	378	
1893	45	377	
1894	45	374	
1895	45	372	
1896	46	371	
1897	54	375	
1898	57	376	
1899	58	384	
1900	63	388	
1901	67	390	
1902	67	394	
1903	68	404	
1904	69	409	
1905	69	415	
1906	71	422	
1907	75	426	
1908	81	428	
1909	81	431	
1910	78	436	

Year	Commercial banks (enskilda banker and aktiebanker)	Sparbanker	Jordbrukskassor/ föreningsbanker
1911	77	438	
1912	77	438	
1913	75	440	
1914	67	443	
1915	66	444	
1916	59	455	71
1917	53	461	84
1918	50	464	80
1919	43	477	83
1920	41	485	113
1921	38	487	117
1922	35	491	120
1923	34	492	121
1924	32	494	119
1925	32	496	118
1926	31	497	139
1927	29	496	144
1928	30	488	153
1929	30	488	164
1930	30	482	177
1931	30	481	280
1932	30	480	456
1933	29	481	604
1934	29	479	699
1935	28	478	768
1936	28	476	786
1937	28	476	785
1938	28	476	765
1939	28	476	758
1940	28	472	751
1941	27	471	744
1942	25	468	736
1943	24	463	727
1944	24	463	707
1945	22	459	685
1946	22	458	647
1947	22	458	644
1948	22	456	636
1949	21	453	634
1950	21	451	631
1951	18	451	621
1952	17	450	609
1953	17	449	606
1954	17	448	605

Year	Commercial banks (enskilda banker and aktiebanker)	Sparbanker	Jordbrukskassor/ föreningsbanker
1955	16	447	600
1956	15	444	593
1957	15	442	583
1958	16	440	581
1959	16	440	575
1960	16	434	572
1961	16	425	566
1962	16	419	558
1963	16	408	554
1964	16	398	545
1965	16	386	531
1966	16	362	525
1967	16	351	513
1968	16	326	508
1969	16	296	494
1970	16	273	477
1971	16	249	468
1972	14	233	458
1973	14	231	453
1974	14	226	444
1975	14	216	440
1976	14	206	437
1977	14	188	434
1978	14	185	428
1979	14	175	426
1980	14	164	420
1981	14	162	409
1982	14	160	399
1983	15	155	395
1984	15	149	391
1985	15	139	389
1986	14	119	389
1987	25	115	388
1988	24	110	391
1989	23	109	383
1990	21	104	373
1991	17	101	332
1992	17	91	
1993	19	90	
1994	22	90	
1995	29	90	
1996	37	88	
1997	37	87	
1998	41	85	

Year	Commercial banks (enskilda banker and aktiebanker)	Sparbanker	Jordbrukskassor/ föreningsbanker
1999	40	85	
2000	47	79	
2001	52	77	
2002	50	77	
2003	54	76	
2004	59	76	
2005	64	71	
2006	65	68	
2007	65	65	
2008	67	53	
2009	65	53	
2010	63	50	
2011	65	49	
2012	67	49	
2013	68	49	
2014	69	48	
2015	68	47	
2016	69	47	
2017	71	47	
2018	73	47	
2019	74	45	
2020	70	45	

Table A3.4. *Income Statement items of the Swedish commercial banks 1870–2020, Million SEK.*

Year	Assets	Equity	Untaxed Reserves	Net Interest Revenues	Revenues	Taxes	Costs	Profits	Capital	Return-on-Equity	Capital-Asset Ratio	Credit Losses	Credit Losses-Asset Ratio
1870	162,96	48,17			6,14		1,70	4,16	48,17		0,296	0,29	0,0018
1871	219,31	55,62			7,22		2,00	5,13	55,62	0,099	0,254	0,16	0,0007
1872	284,34	60,44			8,85		2,31	6,42	60,44	0,111	0,213	0,20	0,0007
1873	346,50	77,40			11,42		2,70	8,25	77,40	0,120	0,223	0,46	0,0013
1874	401,27	82,72			13,03		3,23	9,04	82,72	0,113	0,206	0,62	0,0015
1875	410,87	97,72			14,45		3,62	9,78	82,72	0,108	0,201	0,78	0,0019
1876	448,81	101,49			14,89		3,96	9,95	97,72	0,100	0,218	1,04	0,0023
1877	456,16	98,99			15,50		5,59	10,12	101,49	0,101	0,222	1,70	0,0037
1878	444,13	99,29			15,13		4,21	7,94	98,99	0,080	0,223	2,57	0,0058
1879	435,27	99,68			13,20		4,13	6,43	99,29	0,065	0,228	2,56	0,0059
1880	476,50	101,08			13,39		4,16	7,07	101,08	0,070	0,212	1,88	0,0039
1881	488,47	104,82			13,55		4,06	7,79	104,82	0,076	0,215	1,52	0,0031
1882	530,88	106,39			14,01		4,38	8,30	106,39	0,079	0,200	1,13	0,0021
1883	553,05	108,04			14,79		4,52	8,89	108,04	0,083	0,195	1,27	0,0023
1884	579,62	108,14			15,06		4,74	8,55	108,14	0,079	0,187	1,52	0,0026
1885	586,73	108,05			14,91		4,81	7,61	108,05	0,070	0,184	2,18	0,0037
1886	595,95	106,56			14,46		4,83	6,78	106,56	0,063	0,179	2,79	0,0047
1887	604,90	105,60			13,37		4,74	5,57	105,60	0,053	0,175	3,91	0,0065
1888	614,40	103,51			14,26		4,80	6,97	103,51	0,067	0,168	2,28	0,0037
1889	628,90	105,83			15,11		5,09	8,52	105,83	0,081	0,168	1,27	0,0020
1890	650,80	108,93			15,42		5,28	8,65	108,93	0,081	0,167	1,26	0,0019
1891	678,70	116,95			16,83		5,60	9,55	116,95	0,085	0,172	1,48	0,0022
1892	700,20	120,07			16,75		5,71	9,10	120,07	0,077	0,171	1,71	0,0024
1893	726,00	127,35			18,97		6,02	10,64	127,35	0,086	0,175	1,96	0,0027
1894	774,50	129,83			17,61		6,53	9,43	129,83	0,073	0,168	1,40	0,0018
1895	798,40	131,65			18,50		6,78	9,98	131,65	0,076	0,165	1,40	0,0017
1896	872,80	151,77			20,37		7,32	11,45	151,77	0,081	0,174	1,36	0,0016
1897	1013,03	183,30			22,55		8,14	13,11	183,30	0,078	0,181	0,98	0,0010
1898	1141,50	245,90			25,19		8,88	15,14	245,90	0,071	0,215	0,87	0,0008
1899	1284,30	249,70			31,33		10,11	18,17	249,70	0,073	0,194	2,29	0,0018
1900	1370,00	244,90			34,53		10,93	18,54	244,90	0,075	0,179	3,79	0,0028
1901	1455,40	265,00			35,08		11,02	20,19	265,00	0,079	0,182	2,90	0,0020
1902	1498,20	265,20			36,43		11,95	21,68	265,20	0,082	0,177	2,09	0,0014
1903	1576,90	301,42			37,83		12,93	21,77	301,42	0,077	0,191	1,73	0,0011
1904	1643,50	337,62			41,36		13,46	23,68	337,62	0,074	0,205	2,56	0,0016
1905	1780,74	383,40			45,21		14,42	26,96	383,40	0,075	0,215	2,20	0,0012
1906	2012,10	478,90			53,48		17,02	31,72	478,90	0,074	0,238	3,26	0,0016
1907	2248,70	504,70			66,30		19,33	35,07	504,70	0,071	0,224	15,84	0,0070

Year	Assets	Equity	Untaxed Reserves	Net Interest Revenues	Revenues	Taxes	Costs	Profits	Capital	Return-on-Equity	Capital-Asset Ratio	Credit Losses	Credit Losses-Asset Ratio
1908	2307,60	538,10			70,15		20,05	38,12	538,10	0,073	0,233	8,12	0,0035
1909	2372,60	486,50			71,04		22,39	38,97	486,50	0,076	0,205	7,63	0,0032
1910	2443,80	530,00			67,50		23,15	36,01	530,00	0,071	0,217	6,49	0,0027
1911	2508,80	609,94			74,00		24,00	40,00	614,45	0,070	0,245	6,63	0,0026
1912	2651,75	632,69			81,40		25,85	47,90	638,07	0,077	0,241	6,50	0,0025
1913	2781,50	627,45			89,53		27,91	51,18	632,90	0,081	0,228	8,88	0,0032
1914	2979,50	662,08			86,67		29,34	47,74	667,84	0,074	0,224	8,16	0,0027
1915	3316,20	678,11			96,46		32,57	49,31	685,52	0,074	0,207	12,39	0,0037
1916	4064,20	749,43			145,35	10,26	31,20	91,83	756,05	0,129	0,186	6,50	0,0016
1917	5315,10	959,93			181,40	23,54	43,89	87,82	974,04	0,103	0,183	13,32	0,0025
1918	6930,30	1105,20			219,24	36,82	69,69	99,34	1120,09	0,096	0,162	18,85	0,0027
1919	7555,00	1124,54			275,31	46,06	89,51	115,61	1151,74	0,104	0,152	18,01	0,0024
1920	7662,20	1122,04			307,84	43,92	103,92	101,97	1150,36	0,091	0,150	55,40	0,0072
1921	7234,40	1059,89			272,63	24,86	92,41	52,88	1097,28	0,048	0,152	144,43	0,0200
1922	6373,00	848,36			215,59	9,18	77,97	29,52	879,37	0,031	0,138	278,30	0,0437
1923	5756,00	852,38			185,36	8,52	70,52	56,07	877,63	0,066	0,152	50,29	0,0087
1924	5595,00	853,80			165,44	7,56	68,37	49,20	888,05	0,058	0,159	39,39	0,0070
1925	5400,00	822,34			150,84	8,01	63,75	46,90	858,93	0,056	0,159	35,04	0,0065
1926	5382,00	818,39			148,86	6,95	63,70	47,89	858,37	0,058	0,159	28,70	0,0053
1927	5355,00	818,06			147,76	6,67	62,49	52,45	846,04	0,064	0,158	25,30	0,0047
1928	5317,00	825,73			150,96	7,19	63,51	58,11	855,90	0,071	0,161	21,26	0,0040
1929	5383,00	834,50			160,42	9,32	65,11	65,02	870,40	0,078	0,162	11,84	0,0022
1930	5707,00	821,43			156,40	8,80	68,70	57,26	862,51	0,069	0,151	37,31	0,0065
1931	5491,00	833,28			169,91	7,47	68,12	36,07	877,45	0,044	0,160	61,65	0,0112
1932	5689,00	711,71			162,19	4,19	66,27	18,73	743,43	0,024	0,131	236,34	0,0415
1933	5654,00	700,77			135,69	4,50	66,12	25,49	727,94	0,036	0,129	47,11	0,0083
1934	5387,00	684,91			136,10	4,12	65,37	34,39	713,63	0,050	0,132	55,10	0,0102
1935	5431,00	684,78			135,32	3,61	68,33	40,11	709,41	0,059	0,131	25,73	0,0047
1936	5632,00	700,51			159,48	6,80	71,68	66,97	729,27	0,097	0,129	12,79	0,0023
1937	5825,00	751,50			159,40	10,25	75,70	94,88	780,90	0,131	0,134	16,84	0,0029
1938	6031,00	759,67			150,07	13,47	77,15	49,46	792,52	0,065	0,131	9,08	0,0015
1939	6363,00	771,13			161,58	19,69	78,59	43,06	806,04	0,056	0,127	19,68	0,0031
1940	5858,00	772,66			169,97	27,07	84,89	39,02	807,43	0,051	0,138	18,81	0,0032
1941	6560,00	762,55			167,40	26,23	86,88	40,38	795,44	0,053	0,121	13,88	0,0021
1942	6917,00	772,40			184,72	27,56	92,66	50,69	803,94	0,066	0,116	13,70	0,0020
1943	7583,00	818,52			192,41	31,63	96,78	46,81	849,74	0,059	0,112	16,91	0,0022
1944	8269,00	806,81			199,16	28,91	98,97	48,55	840,12	0,060	0,102	22,55	0,0027
1945	9033,00	847,37			213,85	30,22	102,67	60,48	882,02	0,073	0,098	20,30	0,0022
1946	9625,00	929,31			295,26	25,38	146,10	98,60	963,65	0,111	0,100	24,22	0,0025
1947	10047,00	1020,19			340.99	49,55	140,26	120,69	1073,28	0,124	0,107	30,12	0,0030
1948	10126,00	992,65		203,00	286,32	46,78	139,23	55,47	1036,56	0,055	0,102	19,85	0,0020

Year	Assets	Equity	Untaxed Reserves	Net Interest Revenues	Revenues	Taxes	Costs	Profits	Capital	Return-on-Equity	Capital-Asset Ratio	Credit Losses	Credit Losses-Asset Ratio
1949	10917,00	1010,31		200,00	288,57	45,26	144,93	53,28	1057,38	0,053	0,097	15,78	0,0014
1950	11951,00	1023,70	49,17	207,40	377,62	59,09	161,64	67,72	1129,60	0,067	0,095	15,28	0,0013
1951	14044,00	1113,11	79,40	200,00	373,90	56,07	196,88	60,71	1251,00	0,057	0,089	15,27	0,0011
1952	13537,00	1153,20	118,82	262,00	423,24	78,39	197,53	77,90	1341,03	0,069	0,099	15,27	0,0011
1953	15027,00	1154,30	139,76	270,00	398,62	69,28	204,56	73,84	1322,47	0,064	0,088	17,39	0,0012
1954	15824,00	1125,50	175,69	292,70	430,80	75,70	208,60	80,50	1336,98	0,071	0,084	15,35	0,0010
1955	15584,00	1203,10	209,00	320,50	492,80	97,50	235,00	87,00	1453,80	0,075	0,093	15,35	0,0010
1956	16293,00	1269,90	241,63	314,90	509,90	90,00	260,50	86,80	1527,84	0,070	0,094	18,31	0,0011
1957	17788,00	1282,70	276,05	346,10	524,80	109,40	265,00	76,00	1554,53	0,060	0,087	17,95	0,0010
1958	19802,00	1315,80	314,34	403,50	585,10	124,10	296,10	81,60	1621,34	0,063	0,082	19,23	0,0010
1959	23380,00	1365,30	401,79	437,60	637,70	105,00	327,60	82,60	1714,85	0,062	0,073	19,27	0,0008
1960	23346,00	1443,40	512,76	507,30	741,70	106,50	359,20	109,00	1876,73	0,078	0,080	21,36	0,0009
1961	24537,00	1553,50	609,76	535,60	781,90	107,60	422,80	118,50	2070,73	0,079	0,084	25,73	0,0010
1962	28246,00	1576,80	756,98	574,00	885,90	111,50	469,60	115,70	2212,08	0,074	0,078	43,67	0,0015
1963	31747,00	1784,80	897,47	641,80	989,30	147,80	518,60	147,30	2534,73	0,088	0,080	43,46	0,0014
1964	35065,00	1927,00	1047,73	672,70	1045,70	117,20	598,60	138,00	2788,81	0,074	0,080	35,21	0,0010
1965	37473,00	2069,00	1221,64	760,60	1210,20	135,30	686,40	169,70	3029,15	0,085	0,081	35,62	0,0010
1966	42829,00	2234,00	1433,31	850,10	1338,00	122,30	799,70	150,40	3349,32	0,070	0,078	39,65	0,0009
1967	50159,00	2448,80	1661,97	937,50	1540,00	165,50	902,30	181,40	3718,58	0,077	0,074	53,30	0,0011
1968	55329,00	2596,40	1518,00	1059,60	1716,30	187,20	979,30	223,30	3659,00	0,089	0,066	61,28	0,0011
1969	59452,00	2723,70	1219,00	1049,20	1741,60	138,20	1093,80	186,10	3577,00	0,070	0,060	42,59	0,0007
1970	63315,00	2745,30	1334,00	1126,40	1828,30	144,20	1235,30	180,00	3679,10	0,066	0,058	69,46	0,0011
1971	68495,00	2693,00	1618,00	1421,70	2221,90	218,70	1333,70	216,20	3825,60	0,080	0,056	77,99	0,0011
1972	78303,00	2770,20	2063,00	1589,40	2434,10	194,60	1451,40	232,70	4214,30	0,085	0,054	72,06	0,0009
1973	93273,00	2848,20	2432,00	1785,30	2804,40	221,50	1637,60	254,90	4550,60	0,091	0,049	48,37	0,0005
1974	129826,00	3226,10	2782,00	2280,30	3459,00	189,90	1957,00	228,30	5173,50	0,075	0,040	80,83	0,0006
1975	147334,00	3840,80	3250,00	3198,50	4346,40	358,30	2512,70	347,20	6115,80	0,098	0,042	130,59	0,0009
1976	156643,00	4161,80	3990,00	3943,30	5270,60	435,60	3005,30	428,80	6954,80	0,107	0,044	201,89	0,0013
1977	180937,00	4430,70	5119,00	4199,10	5782,00	300,40	3416,60	457,00	8014,00	0,106	0,044	171,99	0,0010
1978	213127,00	4619,90	6447,00	5302,10	7023,50	475,30	3827,20	560,50	9132,80	0,124	0,043	316,78	0,0015
1979	248561,00	4767,40	7017,00	6036,10	7891,90	312,50	4359,10	567,70	9679,30	0,121	0,039	313,67	0,0013
1980	297107,00	4854,90	7953,00	5731,10	8003,60	246,10	4873,00	537,60	10422,00	0,112	0,035	357,54	0,0012
1981	367196,00	5363,80	10381,00	7148,60	9983,90	549,40	5452,40	812,40	12630,50	0,159	0,034	810,57	0,0022
1982	421581,00	5793,60	12585,00	7887,80	11465,10	541,00	6962,70	867,00	14603,10	0,155	0,035	1620,21	0,0038
1983	476783,00	6748,20	21895,00	10547,90	14728,00	953,00	8258,00	1067,10	22074,70	0,170	0,046	828,07	0,0017
1984	527734,00	7950,50	23280,00	11244,30	16209,50	737,40	10025,40	1030,40	24246,50	0,140	0,046	1371,57	0,0026
1985	540249,00	8209,30	24789,00	10950,20	16546,20	636,20	10412,90	1259,00	25561,60	0,156	0,047	1262,03	0,0023
1986	594707,00	8667,00	29778,00	15111,70	23344,40	3796,90	12672,60	1605,10	29511,60	0,190	0,050	2031,30	0,0034
1987	691686,00	11779,00	35734,50	16590,80	23152,90	1639,30	14338,80	3139,60	36793,15	0,307	0,053	1748,49	0,0025
1988	862495,00	14737,00	43146,10	19541,90	27444,90	2515,90	15437,60	2198,00	44939,27	0,166	0,052	1509,94	0,0018
1989	1052868,00	19776,00	50216,00	25292,50	30209,90	832,60	17573,30	1885,60	54927,20	0,109	0,052	1988,83	0,0019

Year	Assets	Equity	Untaxed Reserves	Net Interest Revenues	Revenues	Taxes	Costs	Profits	Capital	Return-on-Equity	Capital-Asset Ratio	Credit Losses	Credit Losses-Asset Ratio
1990	1289618,00	21376,00	50766,80	21549,20	34313,30	646,60	26162,90	3735,80	56912,76	0,182	0,044	7639,97	0,0059
1991	1228541,00	49803,00	16111,00	26453,70	36909,20	10576,30	43219,90	4636,00	61080,70	0,130	0,050	22953,76	0,0187
1992	1185543,00	33191,00	20370,00	26515,00	38911,00	552,00	66037,00	1487,00	47450,00	0,036	0,040	39489,00	0,0333
1993	1382830,00	59365,00	15546,00	37896,00	58497,00	1517,00	75704,00	1580,00	70247,20	0,034	0,051	44907,00	0,0325
1994	1382277,00	67752,00	6135,00	35765,00	56433,00	2139,00	45744,00	11496,00	72046,50	0,181	0,052	13693,00	0,0099
1995	1584983,00	85011,00	12322,00	43593,00	63214,00	5545,00	44670,00	16229,00	93636,40	0,212	0,059	9070,00	0,0057
1996	1861635,00	80654,00	17115,00	37896,00	67135,00	5450,00	38034,00	18046,00	92633,80	0,218	0,050	4791,00	0,0026
1997	2145194,00	101679,00	20488,00	34514,00	67114,00	4133,00	42936,00	9915,00	116020,60	0,109	0,054	4631,00	0,0022
1998	2410481,00	105065,00	23707,00	32279,00	76764,00	3808,00	46552,00	17234,00	120579,90	0,167	0,050	3696,00	0,0015
1999	2466718,00	112213,00	29036,00	32086,00	70502,00	4797,00	48475,00	16422,00	132505,20	0,151	0,054	421,00	0,0002
2000	2883511,00	124215,00	35051,00	32304,00	79379,00	7154,00	51383,00	22925,00	148749,70	0,194	0,052	1265,00	0,0004
2001	3145393,00	140369,00	38478,00	37152,00	86784,00	6278,00	52630,00	26833,00	167304,60	0,203	0,053	3257,00	0,0010
2002	3288175,00	131289,00	40247,00	40340,00	73494,00	5007,00	52448,00	12248,00	159461,90	0,090	0,048	3603,00	0,0011
2003	3290634,00	141440,00	44882,00	41949,00	78490,00	6465,00	50807,00	17378,00	172857,40	0,127	0,053	2641,00	0,0008
2004	3879110,00	236272,00	25113,00	37858,00	95639,00	13833,00	55641,00	52911,00	253851,10	0,280	0,065	1565,00	0,0004
2005	4539904,00	238803,00	19056,00	35245,00	90155,00	9290,00	58800,00	32020,00	252142,20	0,135	0,056	1178,00	0,0003
2006	5088692,00	282911,00	18785,00	36356,00	138702,00	8530,00	64342,00	70062,00	296060,50	0,269	0,058	341,00	0,0001
2007	6026259,00	306512,00	27808,00	41920,00	123011,00	8033,00	72322,00	44194,00	325977,60	0,150	0,054	984,00	0,0002
2008	7384504,00	325165,00	34476,00	50200,00	135434,00	4571,00	78958,00	38139,00	349298,20	0,121	0,047	9139,00	0,0012
2009	6917109,00	402880,00	29694,00	60369,00	138312,00	10565,00	79736,00	34299,00	423665,80	0,094	0,061	13227,00	0,0019
2010	6919480,00	410251,00	31156,00	51509,00	143650,00	10091,00	85637,00	41267,00	432060,20	0,102	0,062	4329,00	0,0006
2011	7542690,00	438179,00	34343,00	58962,00	151884,00	10931,00	88337,00	43109,00	462219,10	0,102	0,061	4192,00	0,0006
2012	7793499,00	483101,00	45453,00	64701,00	185254,00	10967,00	93501,00	59243,00	514918,10	0,129	0,066	5149,00	0,0007
2013	8077508,00	525947,00	37059,00	66757,00	185473,00	14979,00	98376,00	71596,00	551888,30	0,142	0,068	5391,00	0,0007
2014	9182063,00	581843,00	39201,00	69994,00	220383,00	15186,00	108429,00	87938,00	609283,70	0,159	0,066	6159,00	0,0007
2015	8881097,00	582455,00	39919,00	67619,00	209832,00	15271,00	110217,00	77190,00	610398,30	0,133	0,069	6690,00	0,0008
2016	9267555,00	625365,00	39053,00	66135,00	231117,00	13512,00	112697,00	94993,00	652702,10	0,157	0,070	7449,00	0,0008
2017	11622648,00	741590,00	39462,00	85190,00	273698,00	21174,00	140690,00	98216,00	769213,40	0,144	0,066	9227,00	0,0008
2018	8917949,00	470194,00	39580,00	70071,00	208209,00	18058,00	109264,00	75063,00	497900,00	0,124	0,056	5125,00	0,0006
2019	9245143,00	497209,00	39381,00	74954,00	229756,00	16694,00	128626,00	72445,00	524775,70	0,150	0,057	12633,00	0,0014
2020	10036905,00	540517,00	37896,00	81847,00	227564,00	17274,00	135752,00	56648,00	567044,20	0,109	0,056	20063,00	0,0020

Table A3.5. *Credit from commercial banks, 1875–2020, Million SEK*

Panel A. Monthly observations, 1875:01–1990:02

Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit
1875:01	260	1879:08	257	1884:03	390	1888:10	401
1875:02	260	1879:09	261	1884:04	391	1888:11	402
1875:03	255	1879:10	265	1884:05	388	1888:12	402
1875:04	267	1879:11	264	1884:06	389	1889:01	398
1875:05	265	1879:12	264	1884:07	375	1889:02	403
1875:06	266	1880:01	267	1884:08	387	1889:03	410
1875:07	264	1880:02	269	1884:09	393	1889:04	408
1875:08	267	1880:03	275	1884:10	394	1889:05	413
1875:09	269	1880:04	278	1884:11	397	1889:06	418
1875:10	273	1880:05	277	1884:12	397	1889:07	419
1875:11	269	1880:06	278	1885:01	395	1889:08	419
1875:12	265	1880:07	278	1885:02	402	1889:09	423
1876:01	268	1880:08	281	1885:03	409	1889:10	422
1876:02	275	1880:09	286	1885:04	409	1889:11	426
1876:03	280	1880:10	287	1885:05	406	1889:12	426
1876:04	281	1880:11	283	1885:06	408	1890:01	425
1876:05	281	1880:12	282	1885:07	405	1890:02	432
1876:06	263	1881:01	284	1885:08	405	1890:03	438
1876:07	277	1881:02	290	1885:09	414	1890:04	440
1876:08	278	1881:03	299	1885:10	414	1890:05	436
1876:09	286	1881:04	300	1885:11	403	1890:06	440
1876:10	290	1881:05	303	1885:12	405	1890:07	437
1876:11	290	1881:06	305	1886:01	383	1890:08	441
1876:12	290	1881:07	305	1886:02	407	1890:09	447
1877:01	297	1881:08	307	1886:03	409	1890:10	448
1877:02	306	1881:09	312	1886:04	409	1890:11	445
1877:03	313	1881:10	316	1886:05	403	1890:12	445
1877:04	311	1881:11	318	1886:06	372	1891:01	446
1877:05	310	1881:12	318	1886:07	396	1891:02	453
1877:06	320	1882:01	321	1886:08	396	1891:03	458
1877:07	310	1882:02	330	1886:09	404	1891:04	459
1877:08	307	1882:03	340	1886:10	402	1891:05	460
1877:09	310	1882:04	341	1886:11	399	1891:06	461
1877:10	312	1882:05	339	1886:12	398	1891:07	464
1877:11	305	1882:06	342	1887:01	398	1891:08	464
1877:12	299	1882:07	338	1887:02	397	1891:09	468
1878:01	294	1882:08	340	1887:03	398	1891:10	470
1878:02	292	1882:09	346	1887:04	398	1891:11	472
1878:03	294	1882:10	345	1887:05	394	1891:12	475
1878:04	292	1882:11	342	1887:06	394	1892:01	483
1878:05	292	1882:12	343	1887:07	390	1892:02	490
1878:06	289	1883:01	346	1887:08	404	1892:03	498
1878:07	284	1883:02	355	1887:09	392	1892:04	501
1878:08	289	1883:03	362	1887:10	388	1892:05	501
1878:09	295	1883:04	363	1887:11	384	1892:06	500
1878:10	294	1883:05	364	1887:12	382	1892:07	496
1878:11	290	1883:06	368	1888:01	386	1892:08	495
1878:12	282	1883:07	364	1888:02	392	1892:09	499
1879:01	276	1883:08	367	1888:03	396	1892:10	500
1879:02	276	1883:09	373	1888:04	397	1892:11	499
1879:03	264	1883:10	374	1888:05	398	1892:12	499
1879:04	260	1883:11	373	1888:06	401	1893:01	498
1879:05	265	1883:12	375	1888:07	396	1893:02	503
1879:06	263	1884:01	377	1888:08	401	1893:03	506
1879:07	259	1884:02	382	1888:09	403	1893:04	507

Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit
1893:05	508	1898:05	783	1903:05	1208	1908:05	1957
1893:06	507	1898:06	788	1903:06	1208	1908:06	1967
1893:07	504	1898:07	789	1903:07	1207	1908:07	1966
1893:08	504	1898:08	791	1903:08	1207	1908:08	1966
1893:09	509	1898:09	812	1903:09	1208	1908:09	1979
1893:10	506	1898:10	821	1903:10	1215	1908:10	1981
1893:11	503	1898:11	831	1903:11	1220	1908:11	1992
1893:12	510	1898:12	841	1903:12	1226	1908:12	1982
1894:01	512	1899:01	849	1904:01	1254	1909:01	2014
1894:02	514	1899:02	874	1904:02	1268	1909:02	2025
1894:03	522	1899:03	849	1904:03	1280	1909:03	2024
1894:04	526	1899:04	874	1904:04	1295	1909:04	2019
1894:05	526	1899:05	903	1904:05	1300	1909:05	2019
1894:06	524	1899:06	907	1904:06	1304	1909:06	2019
1894:07	516	1899:07	908	1904:07	1314	1909:07	2017
1894:08	514	1899:08	947	1904:08	1325	1909:08	2014
1894:09	517	1899:09	924	1904:09	1333	1909:09	2015
1894:10	516	1899:10	936	1904:10	1341	1909:10	2009
1894:11	519	1899:11	938	1904:11	1356	1909:11	2032
1894:12	520	1899:12	948	1904:12	1355	1909:12	2028
1895:01	525	1900:01	951	1905:01	1376	1910:01	2067
1895:02	533	1900:02	966	1905:02	1401	1910:02	2075
1895:03	544	1900:03	978	1905:03	1412	1910:03	2069
1895:04	549	1900:04	986	1905:04	1422	1910:04	2047
1895:05	550	1900:05	984	1905:05	1432	1910:05	2045
1895:06	548	1900:06	997	1905:06	1433	1910:06	2062
1895:07	544	1900:07	952	1905:07	1435	1910:07	2064
1895:08	541	1900:08	1001	1905:08	1438	1910:08	2053
1895:09	544	1900:09	1014	1905:09	1454	1910:09	2061
1895:10	544	1900:10	1012	1905:10	1465	1910:10	2067
1895:11	542	1900:11	1020	1905:11	1478	1910:11	2081
1895:12	548	1900:12	1028	1905:12	1482	1910:12	2085
1896:01	544	1901:01	1037	1906:01	1528	1911:01	2110
1896:02	539	1901:02	1060	1906:02	1560	1911:02	2093
1896:03	561	1901:03	1065	1906:03	1588	1911:03	2144
1896:04	566	1901:04	1072	1906:04	1622	1911:04	2131
1896:05	569	1901:05	1074	1906:05	1627	1911:05	2116
1896:06	573	1901:06	1078	1906:06	1664	1911:06	2112
1896:07	572	1901:07	1080	1906:07	1677	1911:07	2109
1896:08	575	1901:08	1083	1906:08	1688	1911:08	2105
1896:09	575	1901:09	1090	1906:09	1693	1911:09	2103
1896:10	590	1901:10	1090	1906:10	1709	1911:10	2008
1896:11	597	1901:11	1100	1906:11	1729	1911:11	2112
1896:12	611	1901:12	1102	1906:12	1723	1911:12	2118
1897:01	617	1902:01	1111	1907:01	1762	1912:01	2133
1897:02	631	1902:02	1120	1907:02	1793	1912:02	2159
1897:03	653	1902:03	1126	1907:03	1813	1912:03	2158
1897:04	663	1902:04	1130	1907:04	1849	1912:04	2162
1897:05	666	1902:05	1134	1907:05	1873	1912:05	2161
1897:06	617	1902:06	1149	1907:06	1874	1912:06	2166
1897:07	680	1902:07	1136	1907:07	1901	1912:07	2178
1897:08	679	1902:08	1136	1907:08	1926	1912:08	2177
1897:09	692	1902:09	1139	1907:09	1930	1912:09	2181
1897:10	703	1902:10	1139	1907:10	1943	1912:10	2186
1897:11	714	1902:11	1147	1907:11	1944	1912:11	2211
1897:12	728	1902:12	1149	1907:12	1925	1912:12	2197
1898:01	732	1903:01	1185	1908:01	1939	1913:01	2251
1898:02	750	1903:02	1198	1908:02	1957	1913:02	2269
1898:03	745	1903:03	1204	1908:03	1950	1913:03	2255
1898:04	773	1903:04	1210	1908:04	1953	1913:04	2249

Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit
1913:05	2261	1918:05	4378	1923:05	4759	1928:05	4126
1913:06	2266	1918:06	4529	1923:06	4756	1928:06	4140
1913:07	2283	1918:07	4725	1923:07	4773	1928:07	4187
1913:08	2288	1918:08	4858	1923:08	4783	1928:08	4184
1913:09	2292	1918:09	4962	1923:09	4761	1928:09	4204
1913:10	2317	1918:10	5073	1923:10	4705	1928:10	4155
1913:11	2340	1918:11	5150	1923:11	4637	1928:11	4209
1913:12	2328	1918:12	5245	1923:12	4497	1928:12	4120
1914:01	2364	1919:01	5383	1924:01	4565	1929:01	4176
1914:02	2384	1919:02	5443	1924:02	4593	1929:02	4189
1914:03	2371	1919:03	5515	1924:03	4583	1929:03	4180
1914:04	2385	1919:04	5579	1924:04	4546	1929:04	4173
1914:05	2375	1919:05	5648	1924:05	4495	1929:05	4172
1914:06	2383	1919:06	5725	1924:06	4495	1929:06	4193
1914:07	2392	1919:07	5769	1924:07	4565	1929:07	4249
1914:08	2354	1919:08	5824	1924:08	4550	1929:08	4273
1914:09	2384	1919:09	5805	1924:09	4540	1929:09	4288
1914:10	2411	1919:10	5825	1924:10	4523	1929:10	4337
1914:11	2410	1919:11	5944	1924:11	4466	1929:11	4332
1914:12	2392	1919:12	5825	1924:12	4372	1929:12	4250
1915:01	2448	1920:01	5928	1925:01	4397	1930:01	4346
1915:02	2468	1920:02	5991	1925:02	4416	1930:02	4384
1915:03	2476	1920:03	5940	1925:03	4398	1930:03	4401
1915:04	2506	1920:04	6028	1925:04	4390	1930:04	4402
1915:05	2520	1920:05	6051	1925:05	4411	1930:05	4426
1915:06	2520	1920:06	6110	1925:06	4390	1930:06	4470
1915:07	2513	1920:07	6061	1925:07	4456	1930:07	4509
1915:08	2516	1920:08	6037	1925:08	4474	1930:08	4580
1915:09	2521	1920:09	6101	1925:09	4441	1930:09	4602
1915:10	2517	1920:10	6113	1925:10	4408	1930:10	4598
1915:11	2550	1920:11	6156	1925:11	4392	1930:11	4606
1915:12	2545	1920:12	6249	1925:12	4249	1930:12	4558
1916:01	2584	1921:01	6216	1926:01	4333	1931:01	4596
1916:02	2615	1921:02	6163	1926:02	4356	1931:02	4572
1916:03	2674	1921:03	6134	1926:03	4338	1931:03	4592
1916:04	2691	1921:04	6122	1926:04	4362	1931:04	4637
1916:05	2736	1921:05	6047	1926:05	4357	1931:05	4648
1916:06	2778	1921:06	6003	1926:06	4303	1931:06	4605
1916:07	2824	1921:07	5978	1926:07	4354	1931:07	4606
1916:08	2848	1921:08	5996	1926:08	4376	1931:08	4592
1916:09	2884	1921:09	5957	1926:09	4383	1931:09	4507
1916:10	2908	1921:10	5914	1926:10	4433	1931:10	4515
1916:11	2921	1921:11	5809	1926:11	4378	1931:11	4474
1916:12	2965	1921:12	5743	1926:12	4269	1931:12	4458
1917:01	3009	1922:01	5734	1927:01	4298	1932:01	4460
1917:02	3104	1922:02	5641	1927:02	4300	1932:02	4475
1917:03	3151	1922:03	5542	1927:03	4274	1932:03	4402
1917:04	3219	1922:04	5484	1927:04	4256	1932:04	4567
1917:05	3266	1922:05	5422	1927:05	4205	1932:05	4331
1917:06	3377	1922:06	5413	1927:06	4189	1932:06	4293
1917:07	3379	1922:07	5289	1927:07	4211	1932:07	4337
1917:08	3440	1922:08	5246	1927:08	4195	1932:08	4351
1917:09	3525	1922:09	5209	1927:09	4188	1932:09	4381
1917:10	3634	1922:10	5175	1927:10	4187	1932:10	4364
1917:11	3762	1922:11	5118	1927:11	4161	1932:11	4318
1917:12	3831	1922:12	5006	1927:12	4098	1932:12	4270
1918:01	3940	1923:01	4910	1928:01	4147	1933:01	4158
1918:02	4076	1923:02	4922	1928:02	4155	1933:02	4191
1918:03	4198	1923:03	4851	1928:03	4155	1933:03	4197
1918:04	4337	1923:04	4768	1928:04	4132	1933:04	4175

Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit
1933:05	4097	1938:05	4265	1943:05	4574	1948:05	8140
1933:06	4079	1938:06	4274	1943:06	4560	1948:06	8072
1933:07	4054	1938:07	4261	1943:07	4504	1948:07	8079
1933:08	4058	1938:08	4298	1943:08	4526	1948:08	7978
1933:09	4029	1938:09	4362	1943:09	4539	1948:09	8073
1933:10	3979	1938:10	4342	1943:10	4552	1948:10	7994
1933:11	3958	1938:11	4387	1943:11	4689	1948:11	7991
1933:12	3969	1938:12	4397	1943:12	4714	1948:12	7874
1934:01	3901	1939:01	4308	1944:01	4676	1949:01	7885
1934:02	3870	1939:02	4357	1944:02	4728	1949:02	7842
1934:03	3887	1939:03	4419	1944:03	4850	1949:03	7898
1934:04	3886	1939:04	4469	1944:04	4877	1949:04	7891
1934:05	3896	1939:05	4501	1944:05	4896	1949:05	7929
1934:06	3884	1939:06	4535	1944:06	4882	1949:06	7868
1934:07	3860	1939:07	4519	1944:07	4862	1949:07	7894
1934:08	3872	1939:08	4618	1944:08	4910	1949:08	7818
1934:09	3884	1939:09	4817	1944:09	5014	1949:09	8075
1934:10	3841	1939:10	4873	1944:10	5064	1949:10	8062
1934:11	3856	1939:11	4933	1944:11	5079	1949:11	8079
1934:12	3867	1939:12	4956	1944:12	5141	1949:12	8097
1935:01	3907	1940:01	4910	1945:01	5160	1950:01	8147
1935:02	3931	1940:02	4984	1945:02	5211	1950:02	8148
1935:03	3979	1940:03	4966	1945:03	5224	1950:03	8352
1935:04	3988	1940:04	4949	1945:04	5323	1950:04	8374
1935:05	3994	1940:05	4885	1945:05	5360	1950:05	8453
1935:06	3984	1940:06	4788	1945:06	5380	1950:06	8560
1935:07	3959	1940:07	4694	1945:07	5364	1950:07	8665
1935:08	3952	1940:08	4629	1945:08	5460	1950:08	8704
1935:09	3958	1940:09	4535	1945:09	5476	1950:09	9038
1935:10	3944	1940:10	4480	1945:10	5508	1950:10	9042
1935:11	3960	1940:11	4475	1945:11	5649	1950:11	9138
1935:12	3913	1940:12	4465	1945:12	5785	1950:12	9240
1936:01	3886	1941:01	4402	1946:01	6001	1951:01	9380
1936:02	3914	1941:02	4434	1946:02	6142	1951:02	9401
1936:03	3946	1941:03	4409	1946:03	6282	1951:03	9723
1936:04	3987	1941:04	4405	1946:04	6403	1951:04	9812
1936:05	3974	1941:05	4411	1946:05	6516	1951:05	9871
1936:06	4069	1941:06	4368	1946:06	6586	1951:06	9896
1936:07	3958	1941:07	4308	1946:07	6617	1951:07	9879
1936:08	3964	1941:08	4288	1946:08	6678	1951:08	9816
1936:09	3996	1941:09	4278	1946:09	6772	1951:09	10052
1936:10	4008	1941:10	4216	1946:10	6877	1951:10	10140
1936:11	4051	1941:11	4264	1946:11	7069	1951:11	10235
1936:12	4069	1941:12	4294	1946:12	7271	1951:12	10175
1937:01	4040	1942:01	4254	1947:01	7336	1952:01	10263
1937:02	4096	1942:02	4249	1947:02	7317	1952:02	10180
1937:03	4127	1942:03	4258	1947:03	7551	1952:03	10334
1937:04	4139	1942:04	4226	1947:04	7613	1952:04	10331
1937:05	4131	1942:05	4221	1947:05	7722	1952:05	10236
1937:06	4137	1942:06	4211	1947:06	7776	1952:06	9987
1937:07	4097	1942:07	4145	1947:07	7865	1952:07	9972
1937:08	4109	1942:08	4148	1947:08	7934	1952:08	9799
1937:09	4144	1942:09	4290	1947:09	8125	1952:09	9901
1937:10	4164	1942:10	4277	1947:10	8015	1952:10	9898
1937:11	4183	1942:11	4325	1947:11	7989	1952:11	9916
1937:12	4166	1942:12	4383	1947:12	7989	1952:12	9848
1938:01	4107	1943:01	4355	1948:01	7990	1953:01	9906
1938:02	4145	1943:02	4422	1948:02	7977	1953:02	9773
1938:03	4198	1943:03	4448	1948:03	8161	1953:03	9897
1938:04	4231	1943:04	4519	1948:04	8154	1953:04	9934

Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit
1953:05	9946	1958:05	11478	1963:05	18274	1968:05	31441
1953:06	9821	1958:06	11569	1963:06	18382	1968:06	31489
1953:07	9791	1958:07	11638	1963:07	18823	1968:07	32057
1953:08	9774	1958:08	11560	1963:08	18964	1968:08	32053
1953:09	9929	1958:09	11687	1963:09	19037	1968:09	33076
1953:10	9882	1958:10	11527	1963:10	19041	1968:10	32704
1953:11	9900	1958:11	11649	1963:11	19471	1968:11	33725
1953:12	9932	1958:12	11692	1963:12	19348	1968:12	34000
1954:01	9971	1959:01	11788	1964:01	19676	1969:01	34553
1954:02	10133	1959:02	11798	1964:02	19796	1969:02	34870
1954:03	10463	1959:03	12032	1964:03	20296	1969:03	34316
1954:04	10509	1959:04	12156	1964:04	20218	1969:04	34809
1954:05	10652	1959:05	12443	1964:05	20639	1969:05	35939
1954:06	10742	1959:06	12613	1964:06	20498	1969:06	36612
1954:07	10770	1959:07	12723	1964:07	20791	1969:07	36160
1954:08	10731	1959:08	12780	1964:08	20759	1969:08	35648
1954:09	10940	1959:09	13029	1964:09	21247	1969:09	35841
1954:10	11007	1959:10	12849	1964:10	20998	1969:10	35047
1954:11	11159	1959:11	12998	1964:11	21462	1969:11	34729
1954:12	11092	1959:12	13125	1964:12	21334	1969:12	34171
1955:01	11164	1960:01	13053	1965:01	21653	1970:01	35060
1955:02	11227	1960:02	13009	1965:02	21741	1970:02	35205
1955:03	11387	1960:03	13471	1965:03	22326	1970:03	35357
1955:04	11474	1960:04	13632	1965:04	22466	1970:04	35181
1955:05	11469	1960:05	13879	1965:05	23155	1970:05	34886
1955:06	11070	1960:06	13950	1965:06	23318	1970:06	34274
1955:07	10865	1960:07	14240	1965:07	23397	1970:07	34420
1955:08	10889	1960:08	14147	1965:08	23071	1970:08	34336
1955:09	10951	1960:09	14312	1965:09	23460	1970:09	34293
1955:10	10592	1960:10	14169	1965:10	23416	1970:10	34281
1955:11	10634	1960:11	14357	1965:11	23929	1970:11	34518
1955:12	10530	1960:12	14091	1965:12	24008	1970:12	34860
1956:01	10503	1961:01	14241	1966:01	24585	1971:01	34818
1956:02	10496	1961:02	14306	1966:02	24807	1971:02	34800
1956:03	10643	1961:03	14646	1966:03	25441	1971:03	35168
1956:04	10726	1961:04	14681	1966:04	25352	1971:04	35036
1956:05	10972	1961:05	14981	1966:05	26162	1971:05	36180
1956:06	10861	1961:06	14690	1966:06	26029	1971:06	36529
1956:07	10847	1961:07	14708	1966:07	26266	1971:07	36591
1956:08	10563	1961:08	14619	1966:08	26007	1971:08	36726
1956:09	10825	1961:09	14952	1966:09	26243	1971:09	37384
1956:10	10635	1961:10	14722	1966:10	25760	1971:10	37387
1956:11	10742	1961:11	14795	1966:11	26091	1971:11	38038
1956:12	10638	1961:12	14541	1966:12	25835	1971:12	38676
1957:01	10669	1962:01	14638	1967:01	25880	1972:01	39903
1957:02	10678	1962:02	14753	1967:02	25643	1972:02	40171
1957:03	10909	1962:03	14926	1967:03	26332	1972:03	40908
1957:04	10869	1962:04	15006	1967:04	26362	1972:04	41532
1957:05	11193	1962:05	15397	1967:05	27115	1972:05	41944
1957:06	11137	1962:06	15366	1967:06	27198	1972:06	42621
1957:07	11053	1962:07	15623	1967:07	27836	1972:07	43130
1957:08	10810	1962:08	15552	1967:08	27461	1972:08	43258
1957:09	10939	1962:09	16034	1967:09	28366	1972:09	44071
1957:10	10779	1962:10	15832	1967:10	27993	1972:10	44125
1957:11	10874	1962:11	16325	1967:11	28694	1972:11	44581
1957:12	10826	1962:12	16196	1967:12	29019	1972:12	44748
1958:01	10713	1963:01	16449	1968:01	29204	1973:01	45321
1958:02	10768	1963:02	16686	1968:02	28985	1973:02	46183
1958:03	11127	1963:03	17550	1968:03	30157	1973:03	46648
1958:04	11202	1963:04	17622	1968:04	30359	1973:04	47318

Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit	Year: Month	Total credit
1973:05	47405	1978:05	107355	1983:05	208004	1988:05	396634
1973:06	48030	1978:06	109041	1983:06	211461	1988:06	412974
1973:07	48429	1978:07	108469	1983:07	209447	1988:07	420562
1973:08	49088	1978:08	109669	1983:08	210131	1988:08	432250
1973:09	50204	1978:09	111267	1983:09	211978	1988:09	448470
1973:10	50272	1978:10	112447	1983:10	213751	1988:10	455909
1973:11	50829	1978:11	113433	1983:11	216030	1988:11	468230
1973:12	51280	1978:12	115552	1983:12	221073	1988:12	461047
1974:01	52584	1979:01	116554	1984:01	221959	1989:01	459777
1974:02	53087	1979:02	118517	1984:02	221992	1989:02	469487
1974:03	54428	1979:03	121680	1984:03	224421	1989:03	468998
1974:04	55512	1979:04	123138	1984:04	226478	1989:04	479298
1974:05	56106	1979:05	124566	1984:05	224331	1989:05	501165
1974:06	69531	1979:06	126485	1984:06	228538	1989:06	523208
1974:07	69085	1979:07	125395	1984:07	227999	1989:07	514729
1974:08	69504	1979:08	127163	1984:08	232849	1989:08	534995
1974:09	69620	1979:09	130518	1984:09	242190	1989:09	550087
1974:10	70329	1979:10	130625	1984:10	240112	1989:10	563330
1974:11	70329	1979:11	131019	1984:11	240420	1989:11	577099
1974:12	70171	1979:12	133920	1984:12	248917	1989:12	587721
1975:01	71270	1980:01	133235	1985:01	244140	1990:01	598254
1975:02	72299	1980:02	137087	1985:02	251372	1990:02	620151
1975:03	72694	1980:03	141474	1985:03	248655		
1975:04	73938	1980:04	143143	1985:04	247883		
1975:05	73679	1980:05	143757	1985:05	249573		
1975:06	74791	1980:06	145175	1985:06	248570		
1975:07	74505	1980:07	143332	1985:07	245850		
1975:08	74891	1980:08	145240	1985:08	244569		
1975:09	75643	1980:09	148019	1985:09	245132		
1975:10	76085	1980:10	148171	1985:10	247849		
1975:11	77843	1980:11	149447	1985:11	252801		
1975:12	78712	1980:12	150847	1985:12	257574		
1976:01	78922	1981:01	149643	1986:01	250402		
1976:02	79170	1981:02	152558	1986:02	257659		
1976:03	79494	1981:03	151977	1986:03	258153		
1976:04	82465	1981:04	155012	1986:04	263578		
1976:05	84401	1981:05	157166	1986:05	265629		
1976:06	86823	1981:06	161478	1986:06	274488		
1976:07	86607	1981:07	159340	1986:07	274245		
1976:08	88934	1981:08	161082	1986:08	276581		
1976:09	90253	1981:09	171766	1986:09	279124		
1976:10	90980	1981:10	168715	1986:10	283691		
1976:11	90603	1981:11	168423	1986:11	281845		
1976:12	88576	1981:12	171743	1986:12	292781		
1977:01	89943	1982:01	169789	1987:01	286896		
1977:02	91310	1982:02	173110	1987:02	296389		
1977:03	91224	1982:03	179647	1987:03	298578		
1977:04	93702	1982:04	174631	1987:04	301963		
1977:05	95466	1982:05	178879	1987:05	303422		
1977:06	97956	1982:06	182576	1987:06	312621		
1977:07	97349	1982:07	182579	1987:07	303772		
1977:08	99519	1982:08	187242	1987:08	313554		
1977:09	99852	1982:09	190905	1987:09	326050		
1977:10	101527	1982:10	200281	1987:10	335655		
1977:11	102237	1982:11	200123	1987:11	348217		
1977:12	102955	1982:12	201425	1987:12	344023		
1978:01	104258	1983:01	205456	1988:01	351205		
1978:02	106495	1983:02	207740	1988:02	358995		
1978:03	106314	1983:03	209359	1988:03	366392		
1978:04	107339	1983:04	206867	1988:04	374767		

Panel B. Yearly observations, 1975–1989

Year	Total credit	Credit to the Swedish public	Credit to the foreign public
1975	78712	77890	822
1976	88576	86983	1593
1977	102955	101028	1927
1978	115552	113207	2345
1979	133920	130717	3203
1980	150847	147005	3842
1981	171743	165472	6271
1982	201425	190408	11017
1983	221073	207052	14021
1984	248917	232306	16611
1985	257574	242873	14701
1986	292781	278056	14725
1987	344023	325653	18370
1988	461047	422054	38993
1989	587721	514781	72940

Panel C. Monthly observations, 1990:03–2020:12

Year: Month	Total credit	Credit to the Swedish public	Credit to the foreign public
1990:03	625292	534320	90972
1990:04	642133	545023	97110
1990:05	665172	561994	103178
1990:06	684385	573680	110705
1990:07	676881	564834	112047
1990:08	678555	566538	112017
1990:09	692168	576408	115760
1990:10	705833	588737	117096
1990:11	707034	586783	120251
1990:12	678285	572236	106049
1991:01	691233	571184	120049
1991:02	704718	578927	125791
1991:03	714014	578841	135173
1991:04	703919	572393	131526
1991:05	707616	577865	129751
1991:06	718991	589796	129195
1991:07	700520	573526	126994
1991:08	695638	563669	131969
1991:09	694111	559795	134316
1991:10	684520	549539	134981
1991:11	681501	548857	132644
1991:12	654393	525695	128698
1992:01	642592	509350	133242
1992:02	641221	507237	133984
1992:03	642885	507910	134975
1992:04	641086	507491	133595
1992:05	643033	509709	133324
1992:06	644519	512802	131717
1992:07	637477	506691	130786
1992:08	662845	536893	125952
1992:09	669765	541726	128039
1992:10	666028	535791	130237
1992:11	698562	553009	145553
1992:12	699220	569661	129559
1993:01	691956	546070	145886
1993:02	700118	551619	148499
1993:03	679337	534171	145166
1993:04	663487	524012	139475
1993:05	645432	513429	132003
1993:06	638923	510528	128395
1993:07	634637	503060	131577
1993:08	631417	498986	132431
1993:09	613093	487737	125356
1993:10	609547	483397	126150
1993:11	607834	478300	129534
1993:12	566060	447720	118340
1994:01	685154	548707	136447
1994:02	684942	554607	130335
1994:03	667615	544311	123304
1994:04	669627	544263	125364
1994:05	670642	544788	125854
1994:06	660935	541084	119851

Year: Month	Total credit	Credit to the Swedish public	Credit to the foreign public
1994:07	662127	541088	121039
1994:08	663564	547221	116343
1994:09	649516	540639	108877
1994:10	650571	541918	108653
1994:11	665974	543344	122630
1994:12	658389	543027	115362
1995:01	675934	552686	123248
1995:02	678248	546227	132021
1995:03	671788	547524	124264
1995:04	680444	547621	132823
1995:05	673844	544952	128892
1995:06	685382	554903	130479
1995:07	673945	543467	130478
1995:08	676031	541768	134263
1995:09	669824	537286	132538
1995:10	664009	540816	123193
1995:11	659074	532012	127062
1995:12	650869	534608	116261
1996:01	666717	537386	129331
1996:02	675300	542573	132727
1996:03	665184	536959	128225
1996:04	667033	536327	130706
1996:05	665830	532778	133052
1996:06	665982	530816	135166
1996:07	650961	525273	125688
1996:08	644592	528159	116433
1996:09	658812	534772	124040
1996:10	667233	537754	129479
1996:11	665809	530881	134928
1996:12	677878	547052	130826
1997:01	687631	542472	145159
1997:02	696673	542912	153761
1997:03	702133	543350	158783
1997:04	704437	539885	164552
1997:05	714111	543605	170507
1997:06	731132	557981	173151
1997:07	727489	547024	180466
1997:08	748003	563142	184861
1997:09	763409	576254	187156
1997:10	754714	565857	188856
1997:11	773723	578608	195115
1997:12	785161	594715	190446
1998:01	863456	627097	236359
1998:02	862623	626887	235736
1998:03	872070	641986	230084
1998:04	889705	649843	239862
1998:05	915796	669223	246573
1998:06	918817	685138	233679
1998:07	920720	677084	243636
1998:08	923765	670235	253530
1998:09	904871	686116	218755
1998:10	913473	696395	217078
1998:11	941673	716917	224756
1998:12	906010	685696	220314

Year: Month	Total credit	Credit to the Swedish public	Credit to the foreign public
1999:01	950941	705526	245415
1999:02	965834	726165	239669
1999:03	945730	729236	216494
1999:04	968560	736653	231907
1999:05	998112	750961	247151
1999:06	962343	745359	216984
1999:07	968270	734309	233961
1999:08	992708	749566	243142
1999:09	976033	751353	224680
1999:10	1010593	755776	254817
1999:11	1012673	754318	258355
1999:12	994152	758251	235901
2000:01	1060789	784326	276463
2000:02	1060939	782967	277972
2000:03	1049143	786641	262502
2000:04	1081674	792824	288850
2000:05	1079612	796460	283152
2000:06	1074360	808017	266343
2000:07	1109164	814004	295160
2000:08	1142100	835028	307072
2000:09	1133740	833223	300517
2000:10	1179243	843363	335880
2000:11	1181407	850605	330802
2000:12	1177711	844208	333503
2001:01	1202574	861069	341505
2001:02	1235218	885119	350099
2001:03	1250602	900225	350377
2001:04	1295283	920215	375068
2001:05	1294242	923152	371090
2001:06	1266404	924530	341874
2001:07	1270701	925020	345681
2001:08	1250485	933246	317239
2001:09	1304543	956033	348510
2001:10	1303079	962061	341018
2001:11	1315195	960169	355026
2001:12	1304869	954290	350579
2002:01	1326982	957668	369314
2002:02	1324224	958925	365299
2002:03	1354967	973613	381354
2002:04	1353712	961585	392127
2002:05	1325746	943590	382156
2002:06	1320525	955692	364833
2002:07	1326539	951797	374742
2002:08	1328594	956422	372172
2002:09	1321360	962843	358517
2002:10	1333947	962775	371172
2002:11	1349482	978677	370805
2002:12	1320061	965134	354927
2003:01	1292409	944832	347577
2003:02	1303360	951321	352039
2003:03	1302927	946723	356204
2003:04	1318163	948237	369926
2003:05	1307851	950409	357442
2003:06	1312511	948914	363597

Year: Month	Total credit	Credit to the Swedish public	Credit to the foreign public
2003:07	1312127	938594	373533
2003:08	1309269	945739	363530
2003:09	1277309	935696	341613
2003:10	1303135	943558	359577
2003:11	1291292	935905	355387
2003:12	1275227	941625	333602
2004:01	1261581	926382	335199
2004:02	1280400	944203	336197
2004:03	1305951	952624	353327
2004:04	1317034	947982	369052
2004:05	1316712	943307	373405
2004:06	1314331	950919	363412
2004:07	1324779	944021	380758
2004:08	1343647	950576	393071
2004:09	1359857	950888	408969
2004:10	1367355	953504	413851
2004:11	1368221	962699	405522
2004:12	1370615	972549	398066
2005:01	1387534	972928	414606
2005:02	1388662	981519	407143
2005:03	1440088	1010517	429571
2005:04	1483119	1027581	455538
2005:05	1498215	1037374	460841
2005:06	1514928	1055283	459645
2005:07	1542742	1056600	486142
2005:08	1536628	1055102	481526
2005:09	1593680	1092835	500845
2005:10	1627579	1090763	536816
2005:11	1637653	1095813	541840
2005:12	1657923	1125114	532809
2006:01	1679509	1120240	559269
2006:02	1725914	1149908	576006
2006:03	1761472	1165329	596143
2006:04	1772090	1190080	582010
2006:05	1826496	1221139	605357
2006:06	1837082	1227524	609558
2006:07	1881633	1237715	643918
2006:08	1902320	1239833	662487
2006:09	1868853	1243259	625594
2006:10	1907787	1256128	651659
2006:11	1920811	1267702	653109
2006:12	1926178	1261048	665130
2007:01	2003500	1303038	700462
2007:02	2028636	1306130	722506
2007:03	2085744	1328363	757381
2007:04	2077078	1346498	730580
2007:05	2137869	1390181	747688
2007:06	2110155	1391257	718898
2007:07	2152591	1413476	739115
2007:08	2152833	1431622	721211
2007:09	2173763	1457252	716511
2007:10	2451332	1717562	733770
2007:11	2494908	1735697	759211
2007:12	2578636	1778087	800549

Year: Month	Total credit	Credit to the Swedish public	Credit to the foreign public
2008:01	2617032	1813913	803119
2008:02	2627721	1817271	810450
2008:03	2645005	1854645	790360
2008:04	2716803	1891069	825734
2008:05	2749345	1893157	856188
2008:06	2805253	1931468	873785
2008:07	2810534	1928228	882306
2008:08	2770994	1913544	857450
2008:09	2869046	1997350	871696
2008:10	2923424	1986778	936646
2008:11	2955044	1998211	956833
2008:12	2912778	1966989	945789
2009:01	2944448	1970237	974211
2009:02	3056231	2010916	1045315
2009:03	3003246	1993459	1009787
2009:04	2975336	1967027	1008309
2009:05	2948913	1947351	1001562
2009:06	2925697	1933747	991950
2009:07	2858581	1909738	948843
2009:08	2827703	1906383	921320
2009:09	2820233	1892387	927846
2009:10	2818306	1886930	931376
2009:11	2781298	1877408	903890
2009:12	2732037	1828742	903295
2010:01	2772613	1854996	917617
2010:02	2752164	1854913	897251
2010:03	2758819	1860093	898726
2010:04	2753795	1853858	899937
2010:05	2787061	1863863	923198
2010:06	2773877	1862288	911589
2010:07	2761051	1876436	884615
2010:08	2760889	1876689	884200
2010:09	2733525	1893168	840357
2010:10	2785800	1920360	865440
2010:11	2842700	1962605	880095
2010:12	2750898	1892237	858661
2011:01	2802410	1931422	870988
2011:02	2789100	1937271	851829
2011:03	2817009	1967758	849251
2011:04	2831779	1965919	865860
2011:05	2851041	2004043	846998
2011:06	2853107	2013044	840063
2011:07	2891924	2019594	872330
2011:08	2878664	2022658	856006
2011:09	2910955	2042576	868379
2011:10	2922256	2039188	883068
2011:11	2960995	2054331	906664
2011:12	2912943	2028517	884426
2012:01	2991640	2076402	915238
2012:02	2999791	2074864	924927
2012:03	3035792	2093218	942574
2012:04	3102476	2112900	989576
2012:05	3156661	2130319	1026342
2012:06	3092530	2121494	971036

Year: Month	Total credit	Credit to the Swedish public	Credit to the foreign public
2012:07	3089657	2116564	973093
2012:08	3094200	2125104	969096
2012:09	3094076	2138597	955479
2012:10	3088111	2122664	965447
2012:11	3174423	2187328	987095
2012:12	3112054	2141328	970726
2013:01	3148788	2174208	974580
2013:02	3130455	2166633	963822
2013:03	3160596	2202002	958594
2013:04	3211300	2201690	1009610
2013:05	3218535	2200670	1017865
2013:06	3213294	2199103	1014191
2013:07	3196116	2197560	998556
2013:08	3205762	2203467	1002295
2013:09	3200579	2212241	988338
2013:10	3219067	2212462	1006605
2013:11	3247641	2213556	1034085
2013:12	3199008	2160828	1038180
2014:01	3252748	2199923	1052825
2014:02	3269467	2212533	1056934
2014:03	3288802	2216595	1072207
2014:04	3412028	2237846	1174182
2014:05	3473832	2266234	1207598
2014:06	3452458	2263506	1188952
2014:07	3459265	2263027	1196238
2014:08	3483789	2276541	1207248
2014:09	3480754	2271829	1208925
2014:10	3503415	2285980	1217435
2014:11	3521911	2326644	1195267
2014:12	3544536	2325270	1219266
2015:01	3617966	2329760	1288206
2015:02	3641446	2345288	1296158
2015:03	3664686	2357744	1306942
2015:04	3712925	2375257	1337668
2015:05	3724927	2385943	1338984
2015:06	3701806	2397179	1304627
2015:07	3737646	2407105	1330541
2015:08	3736299	2415756	1320543
2015:09	3720582	2422413	1298169
2015:10	3712381	2440494	1271887
2015:11	3737210	2452702	1284508
2015:12	3685952	2429720	1256232
2016:01	3714772	2429469	1285303
2016:02	3752061	2460014	1292047
2016:03	3790821	2492969	1297852
2016:04	3825079	2505148	1319931
2016:05	3828215	2480734	1347481
2016:06	3837470	2513316	1324154
2016:07	3840212	2520626	1319586
2016:08	3841294	2527866	1313428
2016:09	3891748	2552175	1339573
2016:10	3925165	2551046	1374119
2016:11	3936997	2543924	1393073
2016:12	3876736	2532703	1344033

Year: Month	Total credit	Credit to the Swedish public	Credit to the foreign public
2017:01	5168859	2561439	2607420
2017:02	5253114	2581232	2671882
2017:03	5193061	2595202	2597859
2017:04	5140995	2625431	2515564
2017:05	5172642	2638212	2534430
2017:06	5130347	2650935	2479412
2017:07	5080598	2669132	2411466
2017:08	5034160	2644353	2389807
2017:09	5109077	2658367	2450710
2017:10	5104940	2673344	2431596
2017:11	5035573	2635845	2399728
2017:12	4967442	2640194	2327248
2018:01	5061975	2654769	2407206
2018:02	5200664	2667387	2533277
2018:03	5310646	2694056	2616590
2018:04	5292693	2682454	2610239
2018:05	5379535	2706946	2672589
2018:06	5489243	2725097	2764146
2018:07	5445393	2718736	2726657
2018:08	5555640	2734950	2820690
2018:09	5552918	2754220	2798698
2018:10	4294482	2758667	1535815
2018:11	4307972	2767304	1540668
2018:12	4035183	2748792	1286391
2019:01	4075208	2756704	1318504
2019:02	4134893	2788963	1345930
2019:03	4166100	2799570	1366530
2019:04	4228008	2810690	1417318
2019:05	4283116	2835399	1447717
2019:06	4292761	2844112	1448649
2019:07	4273843	2829419	1444424
2019:08	4324208	2841071	1483137
2019:09	4312393	2824371	1488022
2019:10	4316851	2840418	1476433
2019:11	4328609	2848652	1479957
2019:12	4315908	2838366	1477542
2020:01	4353782	2859011	1494771
2020:02	4359050	2878056	1480994
2020:03	4422313	2924621	1497692
2020:04	4414550	2939215	1475335
2020:05	4431043	2955113	1475930
2020:06	4396466	2933200	1463266
2020:07	4322783	2940894	1381889
2020:08	4309872	2930780	1379092
2020:09	4260230	2893931	1366299
2020:10	4182452	2885715	1296737
2020:11	4215367	2910843	1304524
2020:12	4128709	2885394	1243315

Table A3.6. *Commercial bank deposits, 1875-2020, Million SEK*

Panel A. Monthly observations, 1875:01–1990:02

Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits
1875:01	193	1879:08	212	1884:03	305	1888:10	339
1875:02	192	1879:09	210	1884:04	311	1888:11	337
1875:03	189	1879:10	217	1884:05	311	1888:12	333
1875:04	194	1879:11	218	1884:06	317	1889:01	341
1875:05	194	1879:12	220	1884:07	315	1889:02	343
1875:06	195	1880:01	211	1884:08	315	1889:03	338
1875:07	193	1880:02	233	1884:09	311	1889:04	338
1875:08	193	1880:03	232	1884:10	312	1889:05	342
1875:09	188	1880:04	235	1884:11	314	1889:06	346
1875:10	191	1880:05	240	1884:12	311	1889:07	348
1875:11	192	1880:06	244	1885:01	313	1889:08	345
1875:12	193	1880:07	254	1885:02	319	1889:09	341
1876:01	218	1880:08	256	1885:03	321	1889:10	338
1876:02	220	1880:09	250	1885:04	321	1889:11	337
1876:03	220	1880:10	249	1885:05	322	1889:12	337
1876:04	219	1880:11	251	1885:06	323	1890:01	341
1876:05	220	1880:12	247	1885:07	329	1890:02	346
1876:06	219	1881:01	250	1885:08	331	1890:03	346
1876:07	216	1881:02	252	1885:09	328	1890:04	344
1876:08	220	1881:03	250	1885:10	330	1890:05	345
1876:09	219	1881:04	248	1885:11	321	1890:06	342
1876:10	220	1881:05	249	1885:12	318	1890:07	344
1876:11	219	1881:06	252	1886:01	319	1890:08	347
1876:12	216	1881:07	260	1886:02	323	1890:09	347
1877:01	222	1881:08	261	1886:03	322	1890:10	348
1877:02	224	1881:09	259	1886:04	325	1890:11	351
1877:03	228	1881:10	256	1886:05	323	1890:12	352
1877:04	229	1881:11	255	1886:06	327	1891:01	363
1877:05	230	1881:12	255	1886:07	330	1891:02	366
1877:06	229	1882:01	250	1886:08	332	1891:03	368
1877:07	234	1882:02	252	1886:09	328	1891:04	370
1877:08	234	1882:03	250	1886:10	328	1891:05	372
1877:09	234	1882:04	248	1886:11	329	1891:06	372
1877:10	229	1882:05	249	1886:12	328	1891:07	375
1877:11	221	1882:06	252	1887:01	334	1891:08	373
1877:12	217	1882:07	260	1887:02	336	1891:09	368
1878:01	214	1882:08	261	1887:03	335	1891:10	368
1878:02	217	1882:09	259	1887:04	333	1891:11	369
1878:03	214	1882:10	256	1887:05	331	1891:12	372
1878:04	213	1882:11	255	1887:06	331	1892:01	357
1878:05	212	1882:12	255	1887:07	336	1892:02	361
1878:06	212	1883:01	283	1887:08	337	1892:03	363
1878:07	216	1883:02	286	1887:09	332	1892:04	366
1878:08	218	1883:03	285	1887:10	330	1892:05	373
1878:09	214	1883:04	287	1887:11	332	1892:06	375
1878:10	216	1883:05	289	1887:12	332	1892:07	380
1878:11	214	1883:06	292	1888:01	340	1892:08	380
1878:12	208	1883:07	294	1888:02	342	1892:09	380
1879:01	205	1883:08	294	1888:03	336	1892:10	382
1879:02	210	1883:09	290	1888:04	334	1892:11	384
1879:03	208	1883:10	290	1888:05	332	1892:12	380
1879:04	207	1883:11	291	1888:06	328	1893:01	390
1879:05	210	1883:12	290	1888:07	335	1893:02	392
1879:06	211	1884:01	299	1888:08	340	1893:03	389
1879:07	212	1884:02	303	1888:09	341	1893:04	391

Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits
1893:05	397	1898:05	534	1903:05	899	1908:05	1356
1893:06	396	1898:06	538	1903:06	898	1908:06	1360
1893:07	401	1898:07	548	1903:07	898	1908:07	1373
1893:08	397	1898:08	555	1903:08	915	1908:08	1371
1893:09	396	1898:09	559	1903:09	909	1908:09	1377
1893:10	397	1898:10	572	1903:10	922	1908:10	1391
1893:11	396	1898:11	577	1903:11	915	1908:11	1393
1893:12	390	1898:12	581	1903:12	915	1908:12	1395
1894:01	399	1899:01	611	1904:01	931	1909:01	1430
1894:02	398	1899:02	608	1904:02	923	1909:02	1423
1894:03	398	1899:03	611	1904:03	928	1909:03	1409
1894:04	398	1899:04	627	1904:04	938	1909:04	1415
1894:05	398	1899:05	638	1904:05	917	1909:05	1425
1894:06	402	1899:06	642	1904:06	944	1909:06	1422
1894:07	400	1899:07	664	1904:07	955	1909:07	1431
1894:08	406	1899:08	670	1904:08	955	1909:08	1421
1894:09	406	1899:09	673	1904:09	955	1909:09	1410
1894:10	404	1899:10	688	1904:10	961	1909:10	1413
1894:11	408	1899:11	684	1904:11	958	1909:11	1415
1894:12	407	1899:12	688	1904:12	957	1909:12	1414
1895:01	411	1900:01	705	1905:01	968	1910:01	1444
1895:02	411	1900:02	702	1905:02	984	1910:02	1445
1895:03	408	1900:03	709	1905:03	991	1910:03	1442
1895:04	408	1900:04	722	1905:04	1008	1910:04	1440
1895:05	411	1900:05	723	1905:05	1013	1910:05	1435
1895:06	411	1900:06	733	1905:06	1026	1910:06	1445
1895:07	420	1900:07	748	1905:07	1030	1910:07	1469
1895:08	405	1900:08	754	1905:08	1025	1910:08	1470
1895:09	423	1900:09	758	1905:09	1028	1910:09	1476
1895:10	426	1900:10	766	1905:10	1033	1910:10	1474
1895:11	428	1900:11	770	1905:11	1039	1910:11	1480
1895:12	427	1900:12	772	1905:12	1042	1910:12	1465
1896:01	433	1901:01	795	1906:01	1075	1911:01	1497
1896:02	430	1901:02	792	1906:02	1078	1911:02	1496
1896:03	428	1901:03	798	1906:03	1088	1911:03	1483
1896:04	434	1901:04	816	1906:04	1101	1911:04	1498
1896:05	436	1901:05	823	1906:05	1111	1911:05	1492
1896:06	436	1901:06	831	1906:06	1122	1911:06	1494
1896:07	440	1901:07	846	1906:07	1184	1911:07	1511
1896:08	442	1901:08	843	1906:08	1132	1911:08	1511
1896:09	442	1901:09	842	1906:09	1138	1911:09	1521
1896:10	446	1901:10	846	1906:10	1163	1911:10	1526
1896:11	448	1901:11	841	1906:11	1165	1911:11	1524
1896:12	445	1901:12	838	1906:12	1174	1911:12	1516
1897:01	453	1902:01	852	1907:01	1206	1912:01	1545
1897:02	452	1902:02	842	1907:02	1206	1912:02	1557
1897:03	453	1902:03	847	1907:03	1225	1912:03	1552
1897:04	458	1902:04	852	1907:04	1249	1912:04	1561
1897:05	462	1902:05	854	1907:05	1261	1912:05	1561
1897:06	465	1902:06	861	1907:06	1270	1912:06	1581
1897:07	476	1902:07	874	1907:07	1290	1912:07	1600
1897:08	479	1902:08	868	1907:08	1264	1912:08	1598
1897:09	488	1902:09	870	1907:09	1298	1912:09	1599
1897:10	500	1902:10	875	1907:10	1319	1912:10	1606
1897:11	505	1902:11	878	1907:11	1309	1912:11	1602
1897:12	502	1902:12	874	1907:12	1314	1912:12	1602
1898:01	513	1903:01	904	1908:01	1332	1913:01	1650
1898:02	513	1903:02	897	1908:02	1329	1913:02	1648
1898:03	517	1903:03	896	1908:03	1342	1913:03	1668
1898:04	529	1903:04	900	1908:04	1354	1913:04	1646

Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits
1913:05	1655	1918:05	3881	1923:05	4163	1928:05	3492
1913:06	1668	1918:06	4007	1923:06	4130	1928:06	3487
1913:07	1681	1918:07	4110	1923:07	4141	1928:07	3567
1913:08	1687	1918:08	4196	1923:08	4123	1928:08	3547
1913:09	1687	1918:09	4244	1923:09	4084	1928:09	3562
1913:10	1694	1918:10	4348	1923:10	4024	1928:10	3574
1913:11	1710	1918:11	4406	1923:11	3953	1928:11	3511
1913:12	1692	1918:12	4502	1923:12	3869	1928:12	3431
1914:01	1740	1919:01	4653	1924:01	3959	1929:01	3530
1914:02	1744	1919:02	4690	1924:02	3952	1929:02	3527
1914:03	1746	1919:03	4732	1924:03	3919	1929:03	3540
1914:04	1758	1919:04	4797	1924:04	3903	1929:04	3524
1914:05	1762	1919:05	4830	1924:05	3844	1929:05	3469
1914:06	1767	1919:06	4855	1924:06	3807	1929:06	3462
1914:07	1779	1919:07	4887	1924:07	3881	1929:07	3530
1914:08	1765	1919:08	4931	1924:08	3860	1929:08	3530
1914:09	1775	1919:09	4940	1924:09	3840	1929:09	3563
1914:10	1795	1919:10	4980	1924:10	3799	1929:10	3530
1914:11	1808	1919:11	4990	1924:11	3756	1929:11	3521
1914:12	1794	1919:12	5018	1924:12	3675	1929:12	3481
1915:01	1867	1920:01	5112	1925:01	3762	1930:01	3600
1915:02	1895	1920:02	5137	1925:02	3742	1930:02	3621
1915:03	1905	1920:03	5086	1925:03	3708	1930:03	3656
1915:04	1925	1920:04	5133	1925:04	3674	1930:04	3692
1915:05	1940	1920:05	5148	1925:05	3644	1930:05	3661
1915:06	1948	1920:06	5137	1925:06	3762	1930:06	3649
1915:07	1958	1920:07	5158	1925:07	3667	1930:07	3722
1915:08	1971	1920:08	5157	1925:08	3677	1930:08	3709
1915:09	1979	1920:09	5140	1925:09	3657	1930:09	3737
1915:10	2001	1920:10	5157	1925:10	3632	1930:10	3739
1915:11	2021	1920:11	5161	1925:11	3582	1930:11	3660
1915:12	1998	1920:12	5095	1925:12	3494	1930:12	3631
1916:01	2065	1921:01	5264	1926:01	3603	1931:01	3731
1916:02	2117	1921:02	5267	1926:02	3598	1931:02	3707
1916:03	2148	1921:03	5255	1926:03	3583	1931:03	3702
1916:04	2196	1921:04	5256	1926:04	3679	1931:04	3662
1916:05	2228	1921:05	5205	1926:05	3539	1931:05	3641
1916:06	2285	1921:06	5192	1926:06	3507	1931:06	3631
1916:07	2338	1921:07	5179	1926:07	3579	1931:07	3683
1916:08	2384	1921:08	5198	1926:08	3574	1931:08	3656
1916:09	2409	1921:09	5133	1926:09	3569	1931:09	3670
1916:10	2455	1921:10	5084	1926:10	3556	1931:10	3670
1916:11	2499	1921:11	4926	1926:11	3505	1931:11	3609
1916:12	2497	1921:12	4854	1926:12	3453	1931:12	3554
1917:01	2619	1922:01	4971	1927:01	3535	1932:01	3675
1917:02	2664	1922:02	4970	1927:02	3549	1932:02	3662
1917:03	2707	1922:03	4884	1927:03	3554	1932:03	3631
1917:04	2741	1922:04	4849	1927:04	3538	1932:04	3581
1917:05	2786	1922:05	4802	1927:05	3506	1932:05	3549
1917:06	2859	1922:06	4712	1927:06	3515	1932:06	3532
1917:07	2874	1922:07	4646	1927:07	3553	1932:07	3616
1917:08	2902	1922:08	4634	1927:08	3557	1932:08	3608
1917:09	3003	1922:09	4587	1927:09	3561	1932:09	3624
1917:10	3098	1922:10	4557	1927:10	3575	1932:10	3636
1917:11	3174	1922:11	4470	1927:11	3553	1932:11	3551
1917:12	3221	1922:12	4325	1927:12	3484	1932:12	3556
1918:01	3436	1923:01	4359	1928:01	3541	1933:01	3615
1918:02	3522	1923:02	4352	1928:02	3565	1933:02	3635
1918:03	3640	1923:03	4281	1928:03	3518	1933:03	3621
1918:04	3802	1923:04	4206	1928:04	3509	1933:04	3611

Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits
1933:05	3538	1938:05	4040	1943:05	5333	1948:05	7590
1933:06	3526	1938:06	4046	1943:06	5403	1948:06	7488
1933:07	3641	1938:07	4141	1943:07	5539	1948:07	7289
1933:08	3640	1938:08	4210	1943:08	5652	1948:08	7598
1933:09	3666	1938:09	4289	1943:09	5771	1948:09	7422
1933:10	3670	1938:10	4332	1943:10	5859	1948:10	7567
1933:11	3626	1938:11	4237	1943:11	5664	1948:11	7616
1933:12	3630	1938:12	4260	1943:12	5762	1948:12	7640
1934:01	3664	1939:01	4369	1944:01	5847	1949:01	7508
1934:02	3659	1939:02	4380	1944:02	5805	1949:02	7810
1934:03	3659	1939:03	4475	1944:03	5845	1949:03	7668
1934:04	3627	1939:04	4464	1944:04	5854	1949:04	7793
1934:05	3554	1939:05	4443	1944:05	5874	1949:05	7830
1934:06	3559	1939:06	4481	1944:06	5939	1949:06	7839
1934:07	3629	1939:07	4612	1944:07	6067	1949:07	7694
1934:08	3627	1939:08	4717	1944:08	6236	1949:08	8100
1934:09	3649	1939:09	4766	1944:09	6357	1949:09	7950
1934:10	3665	1939:10	4683	1944:10	6441	1949:10	8191
1934:11	3561	1939:11	4517	1944:11	6279	1949:11	8299
1934:12	3553	1939:12	4401	1944:12	6378	1949:12	8399
1935:01	3618	1940:01	4476	1945:01	6564	1950:01	8323
1935:02	3619	1940:02	4374	1945:02	6466	1950:02	8711
1935:03	3663	1940:03	4391	1945:03	6531	1950:03	8592
1935:04	3738	1940:04	4252	1945:04	6601	1950:04	8681
1935:05	3585	1940:05	4138	1945:05	6543	1950:05	8670
1935:06	3606	1940:06	4128	1945:06	6630	1950:06	8671
1935:07	3692	1940:07	4261	1945:07	6776	1950:07	8594
1935:08	3672	1940:08	4323	1945:08	6876	1950:08	8977
1935:09	3718	1940:09	4349	1945:09	7000	1950:09	8707
1935:10	3738	1940:10	4369	1945:10	7054	1950:10	8954
1935:11	3633	1940:11	4219	1945:11	6859	1950:11	8979
1935:12	3632	1940:12	4321	1945:12	6847	1950:12	8930
1936:01	3737	1941:01	4417	1946:01	6985	1951:01	9037
1936:02	3723	1941:02	4366	1946:02	6884	1951:02	9415
1936:03	3764	1941:03	4403	1946:03	6938	1951:03	9212
1936:04	3748	1941:04	4375	1946:04	7070	1951:04	9382
1936:05	3682	1941:05	4337	1946:05	7037	1951:05	9417
1936:06	3715	1941:06	4385	1946:06	7022	1951:06	9708
1936:07	3772	1941:07	4575	1946:07	7160	1951:07	9809
1936:08	3801	1941:08	4659	1946:08	7199	1951:08	10289
1936:09	3873	1941:09	4772	1946:09	7222	1951:09	10109
1936:10	3864	1941:10	4923	1946:10	7317	1951:10	10643
1936:11	3790	1941:11	4903	1946:11	7065	1951:11	10640
1936:12	3833	1941:12	4879	1946:12	7113	1951:12	10513
1937:01	3935	1942:01	4915	1947:01	7236	1952:01	10511
1937:02	3988	1942:02	4832	1947:02	7418	1952:02	10901
1937:03	4063	1942:03	4931	1947:03	7327	1952:03	10497
1937:04	4036	1942:04	4941	1947:04	7359	1952:04	10211
1937:05	4057	1942:05	4856	1947:05	7395	1952:05	9938
1937:06	4059	1942:06	4944	1947:06	7333	1952:06	9937
1937:07	4118	1942:07	5080	1947:07	7187	1952:07	9789
1937:08	4147	1942:08	5152	1947:08	7461	1952:08	10275
1937:09	4144	1942:09	5231	1947:09	7367	1952:09	9942
1937:10	4213	1942:10	5262	1947:10	7454	1952:10	10175
1937:11	4066	1942:11	5140	1947:11	7476	1952:11	10165
1937:12	3999	1942:12	5157	1947:12	7506	1952:12	10358
1938:01	4038	1943:01	5329	1948:01	7400	1953:01	10301
1938:02	4024	1943:02	5226	1948:02	7632	1953:02	10855
1938:03	4072	1943:03	5309	1948:03	7493	1953:03	10562
1938:04	4050	1943:04	5287	1948:04	7560	1953:04	10461

Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits
1953:05	10585	1958:05	14143	1963:05	22282	1968:05	36457
1953:06	10677	1958:06	14338	1963:06	22475	1968:06	36936
1953:07	11076	1958:07	14821	1963:07	22974	1968:07	37717
1953:08	11430	1958:08	15057	1963:08	23075	1968:08	38272
1953:09	11458	1958:09	15301	1963:09	22891	1968:09	38741
1953:10	11788	1958:10	15478	1963:10	23394	1968:10	39481
1953:11	11817	1958:11	15412	1963:11	23148	1968:11	39031
1953:12	11839	1958:12	15987	1963:12	24410	1968:12	41235
1954:01	12086	1959:01	16494	1964:01	25112	1969:01	41160
1954:02	12180	1959:02	16815	1964:02	25157	1969:02	41325
1954:03	12268	1959:03	16828	1964:03	24905	1969:03	41538
1954:04	12258	1959:04	16769	1964:04	24955	1969:04	41507
1954:05	12123	1959:05	16590	1964:05	24072	1969:05	40978
1954:06	12266	1959:06	16915	1964:06	24259	1969:06	40601
1954:07	12614	1959:07	17610	1964:07	24691	1969:07	41521
1954:08	12808	1959:08	17833	1964:08	24768	1969:08	41030
1954:09	12985	1959:09	18105	1964:09	24720	1969:09	41078
1954:10	13116	1959:10	18397	1964:10	25120	1969:10	40805
1954:11	12852	1959:11	18413	1964:11	25216	1969:11	40279
1954:12	12727	1959:12	18950	1964:12	26649	1969:12	41050
1955:01	13029	1960:01	19596	1965:01	26906	1970:01	42868
1955:02	13162	1960:02	19724	1965:02	27169	1970:02	42604
1955:03	12845	1960:03	19253	1965:03	26859	1970:03	42429
1955:04	12646	1960:04	18908	1965:04	27057	1970:04	41673
1955:05	12323	1960:05	18599	1965:05	25960	1970:05	40350
1955:06	12326	1960:06	18469	1965:06	26425	1970:06	40514
1955:07	12562	1960:07	18312	1965:07	26431	1970:07	40869
1955:08	12715	1960:08	18282	1965:08	26686	1970:08	40968
1955:09	12571	1960:09	18067	1965:09	26350	1970:09	40901
1955:10	12723	1960:10	18392	1965:10	26645	1970:10	41235
1955:11	12531	1960:11	17834	1965:11	26418	1970:11	41479
1955:12	12609	1960:12	18524	1965:12	27731	1970:12	43098
1956:01	12830	1961:01	18673	1966:01	27943	1971:01	45169
1956:02	12874	1961:02	18939	1966:02	28349	1971:02	44667
1956:03	12795	1961:03	18605	1966:03	28205	1971:03	45244
1956:04	12499	1961:04	18537	1966:04	28555	1971:04	44545
1956:05	12241	1961:05	17974	1966:05	27799	1971:05	44399
1956:06	12322	1961:06	17962	1966:06	28409	1971:06	43866
1956:07	12726	1961:07	18254	1966:07	28378	1971:07	45096
1956:08	12824	1961:08	18463	1966:08	28541	1971:08	44903
1956:09	12737	1961:09	18050	1966:09	28217	1971:09	45483
1956:10	13184	1961:10	18503	1966:10	29139	1971:10	45465
1956:11	13038	1961:11	18317	1966:11	28749	1971:11	46307
1956:12	13090	1961:12	19415	1966:12	30303	1971:12	47493
1957:01	13356	1962:01	19626	1967:01	30677	1972:01	49624
1957:02	13502	1962:02	19805	1967:02	31225	1972:02	49607
1957:03	13406	1962:03	19553	1967:03	31083	1972:03	50915
1957:04	13302	1962:04	20248	1967:04	31547	1972:04	50959
1957:05	12819	1962:05	19611	1967:05	31419	1972:05	50850
1957:06	13003	1962:06	19759	1967:06	31436	1972:06	50241
1957:07	13843	1962:07	20449	1967:07	32020	1972:07	51806
1957:08	13847	1962:08	20860	1967:08	32762	1972:08	51594
1957:09	13937	1962:09	20528	1967:09	32714	1972:09	52104
1957:10	14231	1962:10	21210	1967:10	33945	1972:10	52849
1957:11	14094	1962:11	21116	1967:11	33465	1972:11	53141
1957:12	14263	1962:12	22080	1967:12	35017	1972:12	54426
1958:01	14700	1963:01	22472	1968:01	35678	1973:01	57647
1958:02	14798	1963:02	22796	1968:02	36171	1973:02	56993
1958:03	14834	1963:03	22491	1968:03	36196	1973:03	58228
1958:04	14510	1963:04	22663	1968:04	36989	1973:04	57536

Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits	Year: Month	Total deposits
1973:05	58554	1978:05	119275	1983:05	212282	1988:05	296249
1973:06	57967	1978:06	116411	1983:06	215332	1988:06	301432
1973:07	60428	1978:07	123651	1983:07	213567	1988:07	307702
1973:08	59974	1978:08	119984	1983:08	210530	1988:08	306967
1973:09	60924	1978:09	123066	1983:09	212670	1988:09	307370
1973:10	61102	1978:10	120685	1983:10	212946	1988:10	304727
1973:11	62426	1978:11	128631	1983:11	213838	1988:11	311645
1973:12	63419	1978:12	130286	1983:12	225214	1988:12	317215
1974:01	66921	1979:01	139642	1984:01	227823	1989:01	328545
1974:02	66421	1979:02	135861	1984:02	225617	1989:02	344853
1974:03	68182	1979:03	141945	1984:03	234302	1989:03	322746
1974:04	67227	1979:04	139310	1984:04	232826	1989:04	323029
1974:05	67682	1979:05	138610	1984:05	222767	1989:05	323246
1974:06	82014	1979:06	134310	1984:06	220261	1989:06	334288
1974:07	86865	1979:07	138632	1984:07	218291	1989:07	335633
1974:08	86091	1979:08	135174	1984:08	216506	1989:08	339451
1974:09	88266	1979:09	141365	1984:09	216568	1989:09	352857
1974:10	86009	1979:10	139333	1984:10	218551	1989:10	344312
1974:11	87988	1979:11	143720	1984:11	229781	1989:11	353939
1974:12	89878	1979:12	151640	1984:12	250364	1989:12	362986
1975:01	92611	1980:01	158230	1985:01	240090	1990:01	377653
1975:02	90965	1980:02	153615	1985:02	240392	1990:02	402889
1975:03	94471	1980:03	160173	1985:03	230493		
1975:04	94141	1980:04	153658	1985:04	231867		
1975:05	92980	1980:05	150682	1985:05	220315		
1975:06	93593	1980:06	146184	1985:06	224275		
1975:07	94206	1980:07	151416	1985:07	217487		
1975:08	93120	1980:08	144546	1985:08	211383		
1975:09	95501	1980:09	150382	1985:09	216401		
1975:10	94464	1980:10	148511	1985:10	222757		
1975:11	96773	1980:11	152941	1985:11	229917		
1975:12	98573	1980:12	164523	1985:12	257804		
1976:01	102991	1981:01	165694	1986:01	248989		
1976:02	100389	1981:02	160763	1986:02	252562		
1976:03	103942	1981:03	166996	1986:03	252856		
1976:04	103573	1981:04	162992	1986:04	246317		
1976:05	101677	1981:05	163393	1986:05	256068		
1976:06	100059	1981:06	159282	1986:06	260611		
1976:07	101598	1981:07	160633	1986:07	256712		
1976:08	99078	1981:08	160557	1986:08	250660		
1976:09	101383	1981:09	172348	1986:09	267347		
1976:10	99315	1981:10	172536	1986:10	264646		
1976:11	101043	1981:11	172794	1986:11	267134		
1976:12	100653	1981:12	195618	1986:12	291882		
1977:01	107296	1982:01	198941	1987:01	292020		
1977:02	106221	1982:02	197211	1987:02	291444		
1977:03	103477	1982:03	196234	1987:03	278944		
1977:04	106221	1982:04	197203	1987:04	286942		
1977:05	103477	1982:05	187488	1987:05	291688		
1977:06	100535	1982:06	194614	1987:06	295954		
1977:07	103833	1982:07	187335	1987:07	268587		
1977:08	99888	1982:08	185834	1987:08	267989		
1977:09	105015	1982:09	184848	1987:09	268961		
1977:10	104868	1982:10	187863	1987:10	267163		
1977:11	109658	1982:11	189582	1987:11	276669		
1977:12	109235	1982:12	212155	1987:12	291708		
1978:01	117393	1983:01	219040	1988:01	294851		
1978:02	113278	1983:02	218873	1988:02	295882		
1978:03	120589	1983:03	218704	1988:03	296410		
1978:04	120408	1983:04	215015	1988:04	290995		

Panel B. Yearly observations, 1975–1989

Year	Total credit	Deposits of the Swedish public	Deposits of the foreign public
1975	98573	98224	349
1976	100653	99984	669
1977	109235	108458	777
1978	130286	129658	628
1979	151640	150194	1446
1980	164523	161895	2628
1981	195618	190657	4961
1982	212155	207118	5037
1983	225214	215414	9800
1984	250364	229761	20603
1985	257804	240385	17419
1986	291882	267627	24255
1987	291708	258470	33238
1988	317215	266381	50834
1989	362986	295311	67675

Panel C. Monthly observations, 1990:03–2020:12

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
1990:03	388785	297652	91133
1990:04	395202	294352	100850
1990:05	389862	291856	98006
1990:06	395249	295190	100059
1990:07	392784	289126	103658
1990:08	392750	288978	103772
1990:09	409972	288977	120995
1990:10	397499	286065	111434
1990:11	407568	299252	108316
1990:12	423760	328606	95154
1991:01	435987	324560	111427
1991:02	449721	332023	117698
1991:03	447842	326140	121702
1991:04	431662	314677	116985
1991:05	447645	325380	122265
1991:06	465867	336230	129637
1991:07	453736	329498	124238
1991:08	434878	320118	114760
1991:09	448798	327091	121707
1991:10	448806	324600	124206
1991:11	452945	333243	119702
1991:12	464314	340101	124213
1992:01	475158	343091	132067
1992:02	458726	333124	125602
1992:03	455973	337572	118401
1992:04	461816	329175	132641
1992:05	464027	332930	131097
1992:06	465481	335564	129917
1992:07	457751	329993	127758

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
1992:08	446095	325833	120262
1992:09	424172	315262	108910
1992:10	414330	313056	101274
1992:11	456594	345544	111050
1992:12	505172	417024	88148
1993:01	514658	422068	92590
1993:02	520151	418838	101313
1993:03	510273	415032	95241
1993:04	503352	403405	99947
1993:05	500824	408578	92246
1993:06	496837	410097	86740
1993:07	515789	416503	99286
1993:08	508991	413243	95748
1993:09	505345	415595	89750
1993:10	515329	422964	92365
1993:11	524327	424413	99914
1993:12	532123	437827	94296
1994:01	690759	591275	99484
1994:02	683581	584340	99241
1994:03	660402	576681	83721
1994:04	665759	573513	92246
1994:05	681940	591732	90208
1994:06	692348	601390	90958
1994:07	688059	596181	91878
1994:08	667962	578264	89698
1994:09	678073	591796	86277
1994:10	669105	582155	86950
1994:11	683947	588095	95852
1994:12	684814	597675	87139
1995:01	713266	592183	121083
1995:02	702619	575903	126716
1995:03	684948	579343	105605
1995:04	683331	576984	106347
1995:05	670862	571215	99647
1995:06	690745	582483	108262
1995:07	684280	577598	106682
1995:08	696687	581034	115653
1995:09	701834	590983	110851
1995:10	701513	592302	109211
1995:11	712599	600545	112054
1995:12	712251	614557	97694
1996:01	737038	620351	116687
1996:02	725289	613521	111768
1996:03	747849	638894	108955
1996:04	753023	640179	112844
1996:05	759090	644893	114197
1996:06	758410	648760	109650
1996:07	762353	650309	112044
1996:08	759583	649315	110268
1996:09	768684	662249	106435
1996:10	758175	652479	105696
1996:11	783235	669429	113806
1996:12	794131	684569	109562
1997:01	802799	666604	136195

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
1997:02	793700	657258	136442
1997:03	804159	672070	132089
1997:04	795498	655738	139760
1997:05	803923	658486	145437
1997:06	824672	669830	154842
1997:07	808175	653543	154631
1997:08	831961	667840	164121
1997:09	836665	666672	169994
1997:10	833761	664421	169340
1997:11	848626	670172	178455
1997:12	851100	683950	167150
1998:01	899011	717522	181489
1998:02	872405	696872	175533
1998:03	875787	702669	173118
1998:04	890917	705931	184986
1998:05	894446	703942	190504
1998:06	909832	725423	184409
1998:07	928495	731792	196703
1998:08	905755	728498	177257
1998:09	916179	748608	167571
1998:10	914705	754655	160050
1998:11	921727	757000	164727
1998:12	919331	750043	169288
1999:01	955929	774295	181634
1999:02	967706	766024	201682
1999:03	930446	776620	153826
1999:04	936253	769977	166276
1999:05	922110	762268	159842
1999:06	932683	769824	162859
1999:07	924169	771113	153056
1999:08	922770	782505	140265
1999:09	927112	789910	137202
1999:10	960110	805683	154427
1999:11	929582	795338	134244
1999:12	938182	796797	141385
2000:01	993105	817901	175204
2000:02	993202	812157	181045
2000:03	1012429	816176	196253
2000:04	1033138	823405	209733
2000:05	1021054	821298	199756
2000:06	1008080	808465	199615
2000:07	1000965	798752	202213
2000:08	1030297	805738	224559
2000:09	1037745	823902	213843
2000:10	1059589	820786	238803
2000:11	1081034	833996	247038
2000:12	1076891	829460	247431
2001:01	1091874	824407	267467
2001:02	1078566	816411	262155
2001:03	1106559	831305	275254
2001:04	1104206	841314	262892
2001:05	1114773	844906	269867
2001:06	1110365	870401	239964
2001:07	1089294	840249	249045

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
2001:08	1102105	852593	249512
2001:09	1112489	866018	246471
2001:10	1125761	877510	248251
2001:11	1149034	891167	257867
2001:12	1163761	904838	258923
2002:01	1150215	895409	254806
2002:02	1148242	883596	264646
2002:03	1176528	889040	287488
2002:04	1181162	902694	278468
2002:05	1175650	882314	293336
2002:06	1177400	906762	270638
2002:07	1181905	895465	286440
2002:08	1184860	901175	283685
2002:09	1186014	919618	266396
2002:10	1179670	914346	265324
2002:11	1208385	932735	275650
2002:12	1227931	950937	276994
2003:01	1216283	948852	267431
2003:02	1221363	937612	283751
2003:03	1199583	920012	279571
2003:04	1206792	923389	283403
2003:05	1209161	928470	280691
2003:06	1201683	939453	262230
2003:07	1176017	913565	262452
2003:08	1206653	936643	270010
2003:09	1204062	944812	259250
2003:10	1229600	957433	272167
2003:11	1226098	963758	262340
2003:12	1261199	970430	290769
2004:01	1253583	968429	285154
2004:02	1233456	974068	259388
2004:03	1291803	982083	309720
2004:04	1291717	983602	308115
2004:05	1294882	986918	307964
2004:06	1311905	969835	342070
2004:07	1319430	974184	345246
2004:08	1336339	980591	355748
2004:09	1339934	998093	341841
2004:10	1341599	999218	342381
2004:11	1344817	1010811	334006
2004:12	1328866	1000545	328321
2005:01	1355608	1000961	354647
2005:02	1370936	1014624	356312
2005:03	1335619	1013153	322466
2005:04	1380212	1027907	352305
2005:05	1409402	1037644	371758
2005:06	1431123	1080264	350859
2005:07	1429197	1068983	360214
2005:08	1412639	1061349	351290
2005:09	1414458	1070040	344418
2005:10	1449832	1097707	352125
2005:11	1483489	1098514	384975
2005:12	1475550	1112152	363398
2006:01	1491647	1121683	369964

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
2006:02	1493127	1127465	365662
2006:03	1566527	1133810	432717
2006:04	1570052	1158180	411872
2006:05	1595565	1165539	430026
2006:06	1576007	1196126	379881
2006:07	1574656	1181482	393174
2006:08	1603248	1203388	399860
2006:09	1602125	1230066	372059
2006:10	1614709	1226911	387798
2006:11	1648171	1247083	401088
2006:12	1672201	1264019	408182
2007:01	1692872	1263496	429376
2007:02	1697712	1269348	428364
2007:03	1690472	1282394	408078
2007:04	1709193	1312064	397129
2007:05	1731052	1313191	417861
2007:06	1760267	1354697	405570
2007:07	1752623	1332925	419698
2007:08	1794172	1360359	433813
2007:09	1783384	1377775	405609
2007:10	1777330	1380575	396755
2007:11	1824168	1406737	417431
2007:12	1841726	1436308	405418
2008:01	1872339	1447595	424744
2008:02	1860927	1430629	430298
2008:03	1826675	1427203	399472
2008:04	1837536	1457620	379916
2008:05	1811781	1449564	362217
2008:06	1872606	1485935	386671
2008:07	1875389	1503588	371801
2008:08	1869016	1495594	373422
2008:09	1877470	1508602	368868
2008:10	1901000	1500870	400130
2008:11	1901484	1520470	381014
2008:12	1963610	1598422	365188
2009:01	1975833	1611383	364450
2009:02	1974338	1577438	396900
2009:03	2009280	1581358	427922
2009:04	1992754	1571179	421575
2009:05	1992683	1571655	421028
2009:06	2034547	1609955	424592
2009:07	2003935	1598731	405204
2009:08	1994388	1595349	399039
2009:09	2066108	1599833	466275
2009:10	2119355	1609408	509947
2009:11	2058717	1623221	435496
2009:12	2133568	1671404	462164
2010:01	2137900	1672469	465431
2010:02	2099218	1659892	439326
2010:03	2111737	1639220	472517
2010:04	2096253	1653511	442742
2010:05	2100630	1640219	460411
2010:06	2142354	1669006	473348
2010:07	2149211	1691330	457881

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
2010:08	2111390	1680519	430871
2010:09	2146166	1706561	439605
2010:10	2190336	1752914	437422
2010:11	2218102	1757614	460488
2010:12	2201481	1762346	439135
2011:01	2229731	1762010	467721
2011:02	2218397	1735290	483107
2011:03	2271678	1770232	501446
2011:04	2278043	1764833	513210
2011:05	2232309	1741129	491180
2011:06	2335975	1782094	553881
2011:07	2291423	1778116	513307
2011:08	2416221	1780822	635399
2011:09	2491410	1818520	672890
2011:10	2477444	1835305	642139
2011:11	2553240	1850460	702780
2011:12	2573376	1882187	691189
2012:01	2591447	1948428	643019
2012:02	2615811	1926191	689620
2012:03	2544657	1921637	623020
2012:04	2541091	1928837	612254
2012:05	2560932	1885827	675105
2012:06	2630254	1939822	690432
2012:07	2693050	1936407	756643
2012:08	2579586	1938943	640643
2012:09	2698638	1988015	710623
2012:10	2671178	1991744	679434
2012:11	2802969	2005306	797663
2012:12	2702286	2023960	678326
2013:01	2829468	2033952	795516
2013:02	2772346	2001138	771208
2013:03	2771524	2014251	757273
2013:04	2839093	2020401	818692
2013:05	2791796	1998810	792986
2013:06	2786224	2050670	735554
2013:07	2867368	2034299	833069
2013:08	2862443	2036599	825844
2013:09	2895972	2058883	837089
2013:10	2930832	2082804	848028
2013:11	2982621	2111361	871260
2013:12	2880846	2121353	759493
2014:01	3066357	2148121	918236
2014:02	3073726	2128701	945025
2014:03	3022687	2121332	901355
2014:04	3203146	2139711	1063435
2014:05	3195671	2133328	1062343
2014:06	3150367	2182046	968321
2014:07	3231124	2158840	1072284
2014:08	3336278	2162722	1173556
2014:09	3274375	2175645	1098730
2014:10	3468566	2193027	1275539
2014:11	3354423	2215857	1138566
2014:12	3133361	2284045	849316
2015:01	3549250	2261300	1287950

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
2015:02	3599654	2252513	1347141
2015:03	3359079	2255799	1103280
2015:04	3626356	2277750	1348606
2015:05	3731433	2309353	1422080
2015:06	3429766	2377547	1052219
2015:07	3724358	2368424	1355934
2015:08	3767309	2374663	1392646
2015:09	3403927	2408659	995268
2015:10	3738328	2427400	1310928
2015:11	3707635	2459519	1248116
2015:12	3270869	2481520	789349
2016:01	3746855	2525377	1221478
2016:02	3784813	2502010	1282803
2016:03	3597748	2562761	1034987
2016:04	3882636	2573276	1309360
2016:05	3818215	2535906	1282309
2016:06	3664205	2593172	1071033
2016:07	3967227	2616655	1350572
2016:08	3940249	2615108	1325141
2016:09	3723974	2629649	1094325
2016:10	3820869	2664596	1156273
2016:11	3822859	2659437	1163422
2016:12	3572668	2689058	883610
2017:01	5093993	2757756	2336237
2017:02	5180941	2751841	2429100
2017:03	5318632	2771688	2546944
2017:04	5287878	2786829	2501049
2017:05	5424084	2777310	2646774
2017:06	5370848	2840902	2529946
2017:07	5401574	2831657	2569917
2017:08	5430675	2826418	2604257
2017:09	5459745	2860311	2599434
2017:10	5440404	2884103	2556301
2017:11	5341725	2896297	2445428
2017:12	5063357	2909912	2153445
2018:01	5318061	2933412	2384649
2018:02	5344935	2928202	2416733
2018:03	5394913	2953472	2441441
2018:04	5535014	2966313	2568701
2018:05	5386376	2955571	2430805
2018:06	5593994	3016792	2577202
2018:07	5485736	2995616	2490120
2018:08	5600913	2996219	2604694
2018:09	5566287	3043288	2522999
2018:10	4266402	3045816	1220586
2018:11	4306792	3084147	1222645
2018:12	3941743	3090134	851609
2019:01	4117695	3134311	983384
2019:02	4189877	3129940	1059937
2019:03	4100529	3148451	952078
2019:04	4174492	3159516	1014976
2019:05	4157079	3168522	988557
2019:06	4175808	3223853	951955
2019:07	4224184	3234610	989574

Year: Month	Total deposits	Deposits of the Swedish public	Deposits of the foreign public
2019:08	4233545	3249578	983967
2019:09	4227491	3287611	939880
2019:10	4302551	3314661	987890
2019:11	4302942	3315354	987588
2019:12	4200745	3308640	892105
2020:01	4386650	3351716	1034934
2020:02	4415306	3338879	1076427
2020:03	4559758	3468372	1091386
2020:04	4696775	3568364	1128411
2020:05	4841780	3624987	1216793
2020:06	4884896	3700827	1184069
2020:07	4897496	3742198	1155298
2020:08	4877293	3721569	1155724
2020:09	4947638	3763215	1184423
2020:10	4961780	3818145	1143635
2020:11	4928051	3835141	1092910
2020:12	4859158	3893365	965793

Table A3.7. *Composition of types of credit from commercial banks, 1870–1979, Million SEK*

Year	Bills of exchange	Long-term credit	Short-term credit
1870	43	44	27
1880	119	71	59
1890	186	100	67
1900	363	244	221
1910	620	1020	471
1920	1981	2591	1671
1930	1150	2559	850
1940	1148	2871	450
1950	2211	5537	1092
1960	3256	6848	3919
1970	2897	17657	12863
1979	3036	91251	38895

The Swedish Bond Market, 1835–2020

Daniel Waldenström

Introduction

Bonds play a major role in government and corporate finance and have done so for several centuries. The bond market consists of two parts. In the primary bond market, states, local governments and private-sector institutions issue bonds to finance their investments and other activities. In the secondary bond market, investors exchange bonds and set market prices that guide the pricing of stocks and bank loans and work as vehicles for facilitating the issuance of new bond loans.

The previous research literature on the history of bond markets has mainly focused on questions related to secondary market developments, compiling long time series on government bond yields or risk premia for investing in financial-sector or corporate bonds. Defaults and repudiations, especially on government debt, have also attracted much attention.[1] By contrast, there are relatively studies of the amounts raised or borrower composition in the primary markets, that is, of new bond issues or bonds in circulation. One possible explanation for this relative disinterest in the primary bond market could be a lack of data. While market prices have been published regularly in media and stock exchange listings and government debt repudiations are political events receiving considerable attention, detailed information about new bond issues or the amounts of bonds in circulation is less accessible.

In this chapter, a new database on the historical evolution of Sweden's primary bond market is presented for the period from its emergence in the 1830s to the present day. The main focus will be on the compilation and presentation of the new database, which consists of time series over aggregate amounts of new bond issues and bonds in circulation. The new data cover the universe of bond borrowing by the Swedish government, municipalities, different kinds of financial institutions, and corporations. The series cover both domestic debt issued to Swedish investors and denominated in Swedish kronor, and external debt issued to foreign markets and denominated in foreign currency.

What is missing in the new database is information about individual bond issues.

---

1 For overviews of this international literature, see Reinhart and Rogoff (2010) and Flandreau and Zumer (2014). For analyses of the Nordic countries, see Klovland (2010) and Waldenström (2014).

Instead, the series build on previously published aggregate market compilations. Constructing a database based on individual bond loan data would require more effort than the present project allowed. However, such a project would not be impossible, since most of the necessary source materials are available, as discussed below.

When looking at the evolution of the Swedish primary bond market, a strong feature is its close association with the activities of the borrowing institutions. Mortgage institutions were the first in Sweden to issue bonds as a structured means to generate financing, mainly for agriculture in the nineteenth and twentieth centuries. The mortgage associations and credit institutions based most of their lending to farmers on bond financing, but in the twentieth century, loans to housing became more important. The state and municipalities started issuing bonds in the middle of the nineteenth century. Government bonds soon became central to the bond market, both in terms of their increasing share of the primary market and because government bond yields in the secondary market evolved into references for risk-free rates of return. The National Debt Office (*Riksgäldskontoret*) was a key organiser of the issue of government bonds and thus the leading actor of the Swedish national debt policy in both domestic and foreign bond markets. In fact, the entire Swedish government debt was in the form of bonds in the late 1850s, a large portion of which financed expansion of the state railway network. The state-controlled Mortgage Bank was another major actor that later became important, especially for financing agriculture alongside private actors.

During the twentieth century, there were a number of important changes that affected the bond market. Due to the rapid growth in the Swedish economy in the 1910s and the turmoil of the First World War, the Swedish government was able to repurchase most of its foreign debt. During this decade, the country in effect went from being capital importer to capital exporter. The Second World War led to a number of capital market regulations that put most of the primary bond market under the direct control of the government and the Riksbank. Most of these regulations were lifted in the 1980s and 1990s, which laid the ground for an increase in private-sector bond issues. This trend continued after the turn of the millennium.

The remainder of the chapter is organised as follows. Section 2 presents the historical sources for the bond data and how the series have been constructed. Section 3 shows the main trends in the issue of new bonds and the amount of bonds in circulation. The outcomes are presented separately for different sectors and places of issuance. The section also discusses the role of bonds in the financing of the private corporate sector. Section 4 concludes and highlights questions for future research.

Data and measurement

A bond is a fixed-interest debt security where the borrowers promise to follow certain repayment forms in relation to the lenders. Its primary function is to serve as a financing instrument for institutions in need of credit, for example, the state, municipalities or industrial firms. The analysis of this chapter focuses on bonds and debentures (*förlagslån*), both of which are debt securities with longer maturities. Money market instruments such as treasury bonds (*statsskuldsväxlar*) or bank certificates have shorter maturities, at most one year, and are not studied here.

Bonds started being issued in Sweden in the 1830s. This was in the early stages of the formal credit market, in which bank lending and other forms of borrowing were still limited. Bonds emerged as a simple loan form for both lenders and borrowers, guaranteeing repayment and often being backed by secured collateral and mortgages. This new format reduced risk premia and gave lower interest rates. As a consequence, the traditional short-term credits of companies could be extended as time passed.

Swedish government bond loan of 1934, 3 percent coupon, issued by the Government Debt Office (Riksgäldskontoret). This was the last government "consol", that is, a loan without a specified maturity date, and it was therefore called "the eternal three" (eviga trean).

The earliest bond loans issued in the 1830s–1850s often came without predetermined maturity dates. Instead, they carried certain expiration terms in the form of dates set in advance for the earliest termination of the loan. The termination date functioned as a guarantee mainly so that the borrower was not forced to repay the loan without due notice. Government and municipal loans were often exempt from these rules and could not be terminated by lenders. In the 1860s, the indeterminate running time of bonds was replaced with predetermined expiration dates, maturities, which were often set to a period between 10 to 40 years after the loan issue. At maturity, the loans were redeemed in the printed nominal value. However, repayment sometimes took place through partial payments in special redemptions, which were drawn from the loan amount. Some government loans remained as "perpetual" loans, or consols, that had no final maturity date. By the middle of the twentieth century, these government consols had finally vanished from the market and were replaced by bonds with fixed maturities.

Sources for bond data

Historical data on the primary bond market in Sweden are available in various market compilations published since the late nineteenth century. The first such compilation is Cervin (1875), produced by the private banker C. G. Cervin who was one of Sweden's most active bond underwriters in the nineteenth century. His compilation listed all bonds in circulation around 1875 that had been issued by the central government, municipalities, mortgage institutions and corporations, the latter being mainly railway companies and manufacturing firms. The listing provided information about each loan, covering variables such as date of issue, amount issued, currency denomination, maturity information (terms of repayment), name of underwriting banks, coupon interest rate and coupon payment schedule. Updated listings were published in Cervin (1884) and Håkansson (1901). Flodström (1912) compiled this evidence into annual time series across borrowers and currency between the first bond loan in 1835 and 1908.

The main modern source for the Swedish primary bond market was the Swedish Banking Association's "bond catalogue", which was published tri-annually from 1911 until 1997. The bond catalogue became the official publication for bond market information, listing the same characteristics about each bond loan as in earlier publications but also compiling the evidence in national and sectoral summaries of issued and outstanding bonds.

The later post-war period also saw Statistics Sweden and the Riksbank publishing summary statistics on the Swedish bond market. This offers valuable complementary aggregate evidence about the market up until the present day. Specifically, Statistics Sweden has different sources for the bond market data. Its Statistical Yearbook published aggregate series up until 2012 (but was discontinued in 2014). The Statistics Sweden website contains a spreadsheet with monthly data for 1997–2013 and monthly evidence from March 2013 as part of its online database.

Bond issue data from the bond catalogue, issued by the Swedish Bankers' Association since 1911. The catalogue reported information about all bonds issued in Sweden. The information concerned the loan size, coupon rate, dates of coupon payments and maturity, underwriting banks and other loan-specific features.

The main sources used to compile the evidence for this study are as follows. For the nineteenth century and early twentieth century, series come primarily from the compilations in Flodström (1912) and with some complementary information in Cervin (1875). The period from 1911 until the 1980s is based on data in the bond catalogues issued by the Swedish Bankers' Association. Finally, from the early 1980s until the present day, series published by Statistics Sweden and the Riksbank comprise the main source.

Measurement

There are several aspects to account for when measuring the value of bonds over historical periods. Two main bond variables will be reported and analysed: the value of new bond issues and the value of bonds in circulation. These two variables comprise the most relevant aspects of the primary bond market. New bond loans show the credit flow to borrowers at each point in time. Bonds in circulation show the current stock of bond loans that exist in the capital structure of borrowing institutions. There are no comprehensive data available on the number of bonds newly issued or in circulation.

Measuring the value of new bond issues is relatively simple for most years in the studied period. Compilations were possible to make since information about new loans was published in media together with documented details of the loan (issue terms, interest rates, underwriting banks, repayment clauses, earliest and final repayment dates and so forth). An exception in data availability is the post-1982 period, when official statistics about the bond market deteriorate, especially concerning foreign loans. As a consequence, the series for newly issued bonds to foreign markets or in foreign currency is not complete in the early 2000s.

Historical data on bonds in circulation are scarcer, available only for certain periods. The reason is that there are few examples of contemporary surveys or reports on the stock of outstanding loans. Before the comprehensive assessment by Flodström (1912) of the stock of bonds in circulation in 1908, there are no estimations of the bonds still in circulation. From 1911, the Bankers' Association estimated the stock of outstanding bonds every three years, and this was done annually from the 1980s onwards.

In order to estimate the stock of bonds in circulation prior to 1908, annual rates of repayment (as a share of accumulated bond issues) are calibrated so as to match the levels of 1908. There is scattered information about actual repayment schemes that could be used to estimate the stock of bonds from the reported bond issues. In some cases, repayment follows a pre-defined schedule. For almost all loans, there is also a final maturity date at which the entire loan will be reimbursed to lenders according to plan. However, it is reasonable to believe that repayment has sometimes been slower or quicker than scheduled, for example, during the 1910s when many Swedish foreign bond loans were repurchased at a very high rate. This eliminated Sweden's external debt balance within a couple of decades. Several loans do not have a pre-defined repayment plan except for the maturity date, which makes it necessary to assume an average repayment rate (more about this below).

Because of risk-related institutional differences, repayment rates, that is, the share of the outstanding loan stock that was amortised annually, varied across borrower categories and also across domestic and foreign debt. The repayment rates are not directly observed but have to be assumed based on the observed levels in 1908 and the flows of loans issued before then. The following repayment rates were estimated using this method: central government loans were repaid at between 1.5–3 percent in the pre-1908 period, municipalities at 1.2–2 percent, railway companies at 1.5–3 percent, industrial corporations at 5.5–6 percent and other private non-financial institutions at 7 percent. It should be noted that the actual annual variation in repayment rates may differ from these assumed rates, which means that the true stock of bonds in circulation deviates from the one presented here. Having said this, the levels in 1908 are credible and the data on new issues before that are also credible.

Domestic and foreign bond issues represent an important dimension when analysing the primary bond market. Sweden industrialised during the latter half of the nineteenth century and a long-standing discussion in the research literature is to

what extent the financing of Swedish investments were based on foreign or domestic funds.[2] In the statistical sources, bonds are often reported separately as being domestically or foreign-issued. The main variable used to make this distinction is the currency denomination of the loan, being Swedish kronor (SEK) for domestic loans and foreign currency (German marks, British pounds, US dollars, euros etc.) for foreign loans.[3] In the nineteenth and early twentieth century, foreign currency-denominated bonds were generally also underwritten by foreign financial intermediaries, mainly in Germany, France and the UK. In the twenty-first century bond market statistics, loans are divided in terms of issued currency between SEK, euros, US dollars and other currencies.

A problematic aspect concerning the measurement of the amount of domestic and foreign bonds in circulation is that we know too little about cross-border flows in the secondary market when it came to single bonds. For example, the repurchases of Swedish foreign-issued government bonds during the 1910s was recorded internally by the National Debt Office (Franzén, 1998) and the numbers are incorporated in the series used here, but this information is not published in any of the publicly available bond market sources. After the capital account liberalisations in the late 1980s and early 1990s, securities have been transferred freely across country borders. As a result, this study's estimation of bonds in circulation either domestically or abroad is based on the loans' original place of issuance rather than the actual location of their bearers.

The sectoral division of borrowing institutions is centred around four main groups: 1) state (central government), 2) municipalities (local government), 3) financial institutions and 4) corporations. These four groups are relatively consistent over time, but they contain a relatively broad range of actors that are not identical in all periods. The state, or the national sovereign, and the municipalities are quite homogenous throughout the studied period, representing the same institutional functions and societal entities. By contrast, the financial institutions have changed in nature during the period. Mortgage associations have been the central actors in this category throughout the period, but they have gone from being separate organisations to being owned by commercial banks since the post-war era. Banks, credit institutions and other financial market actors started issuing bonds in the early twentieth century and they are also included in the broad category of financial institutions.[4] Corporations have been mainly manufacturing firms and railway companies, but this cate-

---

2   See, for example, Gårdlund (1947) and Schön (1989).

3   In the post-1997 series at Statistics Sweden, currency denomination is the only way in which bond issues are separated geographically.

4   In the post-1970 listings, the statistical sources list bonds issued by banks, credit market companies, investment companies, housing finance institutions, housing institutions, municipal and business institutions, pure business institutions, insurance companies and other financial market actors.

gory also includes other private non-financial institutions such as canal companies and various associations and foundations.

Evolution in the Swedish bond market

This section presents the main trends in the Swedish primary bond market, from the first bond issue in 1835 up to 2020. The presentation begins with a description of aggregate values of new bond issues and the stock of bonds in circulation. Thereafter, the analysis shows divisions between domestically and foreign-circulating bonds. Finally, there is a discussion of the role of bonds in corporate finance among Swedish industrial firms and railway companies.

Main trends

Figure 4.1 shows the long-run evolution of Swedish bond issues and bonds in circulation over the entire 185-year period since 1835. The economic importance of bonds appears to have increased over the period, although at a somewhat different pace across different eras. The left panel shows the annual flow of new bond issues as a share of GDP. The flow hovered around 5 percent until the 1970s after which it increased significantly up to 15–20 percent in the 2000s. There are several notable wartime and crisis-related spikes which will be discussed further below. The right panel shows the stock of bonds in circulation as a share of GDP. It exhibits a similar increasing long-run time trend as the bond issues, but with a more distinct periodisation in the trends. Two periods were clearly expansionary for the bond market, the pre-1890 and post-1980 periods, and in between there was a stable, or even slightly stagnant, period.

   Evidence on the creditors to Swedish bond issuers is relatively scarce. Kock's (1961) study of interwar credit market notes that savings banks, insurance companies, funds and other types of financial associations were the largest bond purchasers. The state, industrial companies and mortgage institutions were the most active borrowers in the 1920s.[5]

---

5   Kock (1961): pp. 35 ff.

Figure 4.1: *Bonds issued and in circulation in Sweden, 1835–2020 (% of GDP)*
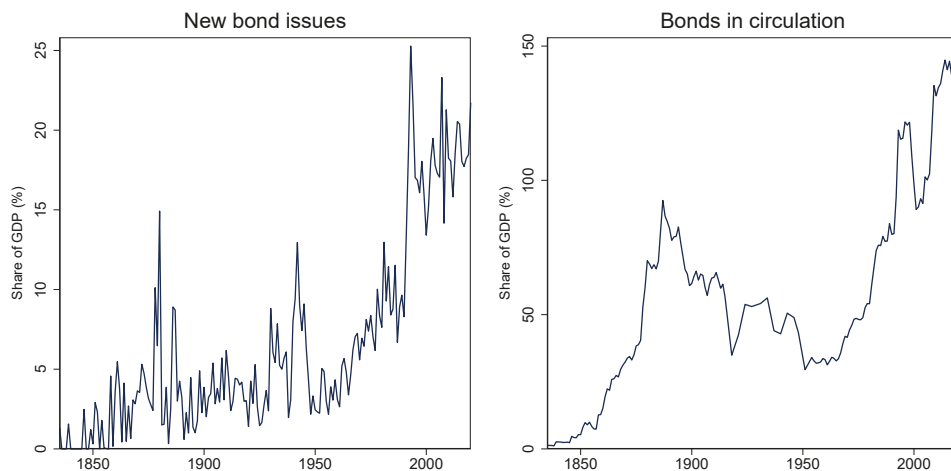
A more detailed picture of the long-run patterns is offered in Figures 4.2 and 4.3, in which the series are disaggregated across borrowing institutions. This disaggregation sheds new light on a number of historical patterns.

Looking first at bond issuances, several notable spikes appear in the data series. The first occurs around 1880 in connection with the rapid expansion of railways in Sweden and a large increase in the issuance of bonds by private railway companies. These were bonds with 10–30 years to maturity, promising regular coupon payments around five percent and marketed by private banks and banking firms to domestic investors. The railway bond expansion of the 1860s and 1870s was an international phenomenon, linked to technological developments in the automation and railway industries across Europe. After an international recession in the early to mid-1870s, several railway companies started getting less traffic and lower revenues, making it difficult for them to keep up their coupon payments to creditors. This, in turn, instigated a financial crisis in the latter half of the decade that affected several banks and financial intermediaries that had kept railway bonds in their own portfolios. As a consequence, some actors went bankrupt and some were salvaged by emergency loans from the Riksbank or by making new bond issues of their own. The series shows that the crisis was succeeded by a few large financial and government bond issues.

In the early 1930s and through the Second World War, government bond issues increased to meet the strongly increased financing need for public investments and defence spending during this turbulent period. Interestingly, there was no equivalent bond financing activities during the First World War, which instead was a period when the Swedish government exported capital to the continent through repurchases of previously foreign-issued bonds.

A poster from 1941 advertising one of the Swedish government's three government bond loans issued during the Second World War with the aim to fund the country's military mobilization. The slogan says "For defence and work. The second defence loan".

After the Second World War, the Swedish bond market contracted and underwent a compositional change. New bond issues decreased for corporate borrowers and to some extent for financial institutions while government bonds continued to be issued. Overall, however, the first post-war decades saw a contraction of the bond market relative to GDP. The amount of bonds in circulation fell to its lowest level since the 1860s. This contraction had several causes, one of the most important being the new credit and capital market regulations that were introduced during the war and retained afterwards. These restrictions implied among other things that all new bond issues had to be approved by a supervisory board at the Riksbank, which effectively channelled resources from private issuers to the government bond issues.

In the 1980s, credit and capital market regulations were gradually phased out. Along with a general economic recovery after the structural crisis of the 1970s, this led to a revival in the bond market. There are two notable spikes in government bond issuance during the post-1980 period. The first was in the early 1980s, and the other was after the major Swedish economic crisis of the early 1990s. After the 1990s, government bond issues started to decrease in relative importance and this is also reflected in the bonds in circulation (see Figures 4.4 and 4.5). One explanation for the reduction in government bond issues is the new fiscal policy framework that came into force in the 1990s, in which smaller budget deficits and public debt ceilings were introduced.

Municipalities have been active borrowers on the Swedish bond market since the

middle of the nineteenth century. Their bonds represented up to ten percent of all bonds in circulation from the late nineteenth century up to the mid-twentieth century. During the post-war period, municipalities almost stopped issuing bonds and most of their bonds went out of circulation. Around 2010, municipalities again started issuing bonds which could be associated with the tightening of legal balance requirements for municipal budgets.

Financial institutions have been the main bond-issuing sector in Sweden since the emergence of the bond market in the 1830s. Figure 4.3 shows that they dominated the bond market in the nineteenth century and after the Second World War. After the market deregulations of the 1980s, there has been strong growth in the issuance of mortgage-backed bonds in particular. There are notable spikes in the mid-1990s and in 2007. While these are temporarily associated with the financial crises, they also reflect the expansion of the Swedish housing market (Lundgren, 2021).

Corporations have long since played a quantitatively small role as borrowers throughout most of Sweden's bond market history. However, starting with the railway bond boom during the 1860s and 1870s and extending over the industrial expansion in the late nineteenth century and early decades of the twentieth century, Sweden had a relatively lively corporate bond market. Around 1900, half of all new bond issues came from the corporate sector. The increased regulatory pressures during the Second World War and the post-war era put an end to Swedish corporate bond activities. New issues almost ceased altogether for several decades and not even the deregulated 1980s and 1990s sparked a revival. Since the 2000s, the Swedish

Figure 4.2: *Bond issues by Swedish borrowing institutions, 1835–2020 (% of GDP)*
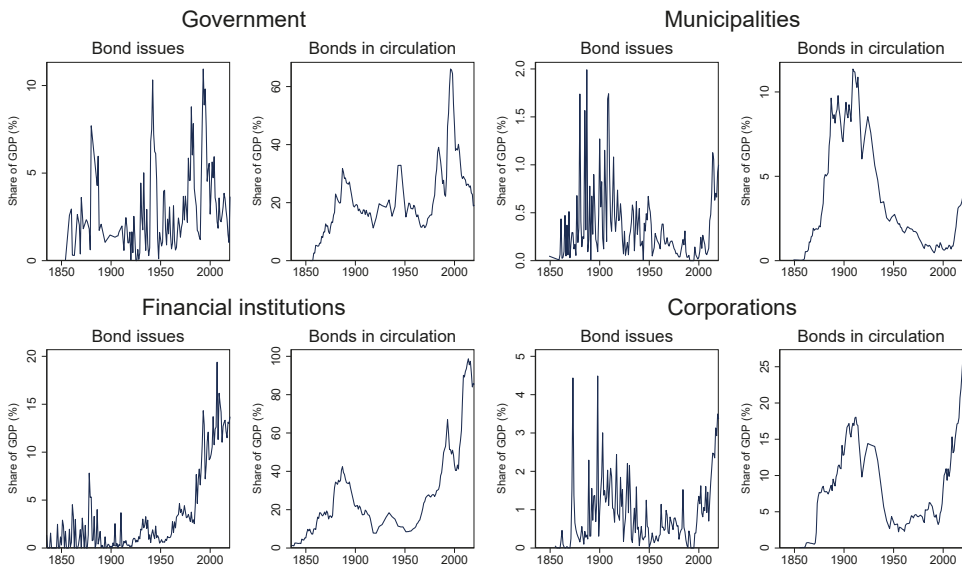
corporate bond market has grown steadily. In the 2010s, corporate bonds repre-
sented 10–15 percent of all new bond issues. Bonthron (2014) shows that the expan-
sion is largely driven by bond issues from the car industry and companies in the real
estate and construction sectors.

Figure 4.3: *Share of issued bonds by borrower category, 1835–2020*
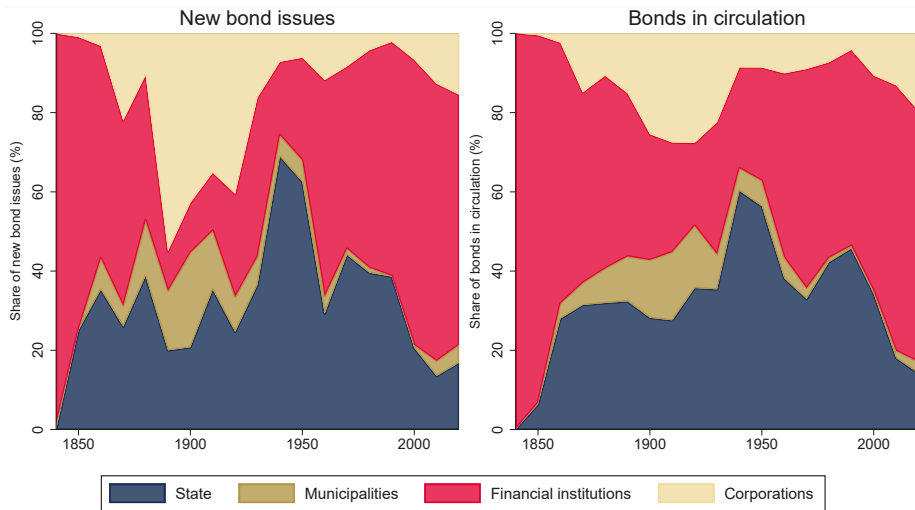
Domestic and external debt

The geographical location and currency denomination of the issued bonds constitute
an important dimension for both debtors and creditors. Governments have in differ-
ent eras been able to deflate away loans by repaying them through money-printing.
Some borrowers may not be internationally renowned enough to float loans abroad.
The home country may not be rich enough to offer sufficient capital for new bond
loans, and borrowers are forced to turn to foreign creditors.

   Swedish economic history shows how the country went from being relatively poor
in the nineteenth century to relatively rich in the twentieth century. This develop-
ment is reflected in the evolution of the country's primary bond market. Figure 4.4
shows the share of foreign, or external, bond loans, which here refer to loans sold to
foreign markets and (or) being denominated in foreign currency, of all newly issued
or circulating Swedish bond loans. The figure shows that Swedish bonds were ini-
tially only issued to foreign markets up until the 1870s. Thereafter, domestic credi-
tors started to purchase bonds between 1870 and 1920, when about half of all bonds
were floated abroad and half was floated domestically. According to the listings in
Cervin (1875), practically all foreign-issued bonds in Sweden up to the 1870s were

placed in Germany, with banking houses Bethmann and Erlanger in Frankfurt am Main, and the North German Bank in Hamburg and the banking firms Salomon Heine and Warburg. Later in the nineteenth century, Swedish bonds started being placed not only in Germany but also in other countries, predominantly Great Britain, France and Denmark. Prominent underwriting banking firms in the listings of Håkansson (1901) include Hambro, Rothschild and Carnegie in London, Rothschild and Credit Lyonnais in Paris, and Den Danske Landmansbank and Hypotek- og Vekselbank in Copenhagen.

In the early twentieth century, domestic creditors became more important. This development was particularly accentuated regarding government debt. Sweden stayed neutral in the First World War, and, as an indirect consequence, the country could accumulate funds to repurchase foreign government bonds and went from being capital importer to capital exporter. Studies by Kock (1961) and Franzén (1998) show that the share of foreign bondholding of the state's total funded debt went from about 90 percent in 1913 to about 21 percent in 1922 (Kock 1961, Franzén 1998).

From the 1920s and up until the 1980s, Swedish bond issuers were only active on the domestic capital market. There are several partial explanations for this develop-

Figure 4.4: *Domestic and foreign shares of bonds in circulation, 1835–2020*
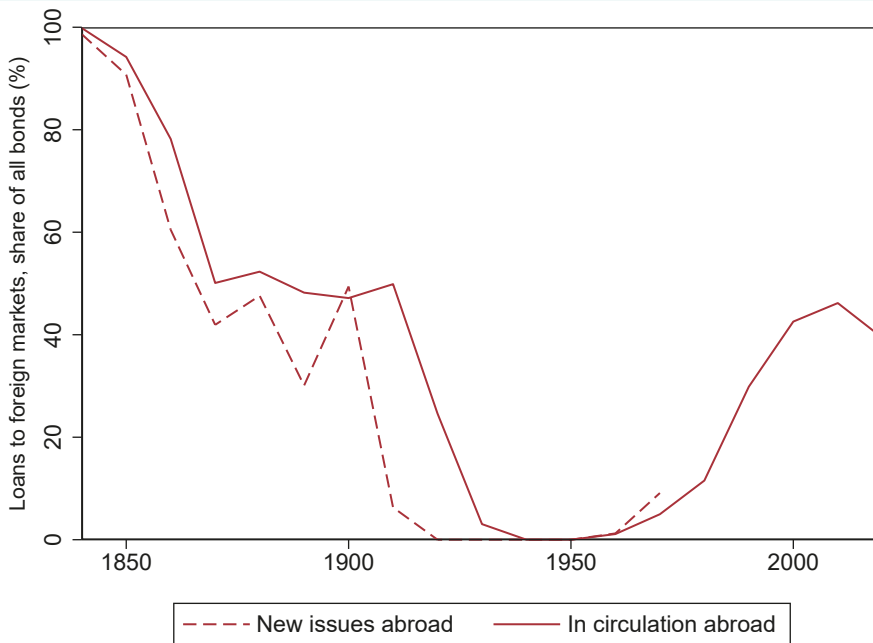
Note: There is a lack of data on foreign-issued bonds for some years in the post-1980 period which explains the missing points for that period.

ment. Sweden was industrialising rapidly and domestic investors were able to accommodate new bond issues during this era. The post-war period brought strict capital account regulations that restricted cross-border capital flows. Furthermore, credit and capital market regulations implied that Swedish financial institutions were required to overtake new bond issues, especially those of the public sector. The 1980s and 1990s came with deregulations of most financial markets, and some institutions started issuing bonds abroad. In the 2010s, the foreign share of bonds in circulation was around 40 percent, which is close to the levels seen a century before.

Figure 4.5 decomposes foreign bond issue activities across borrower categories. The figure shows that in the nineteenth century, mortgage associations and the central government placed almost all of their bond loans in foreign markets. By contrast, bonds issued by municipalities and corporations were mostly issued to the domestic market in the early historical era. The shift to domestic creditors in the twentieth century is clearly noticeable in the figure and all borrower categories were affected by it. It is interesting to note that the post-1980s reversal into more foreign borrowing is the most marked for municipal and corporate bonds.

Figure 4.5: *Share of foreign bonds of all bonds in circulation, by borrower category.*
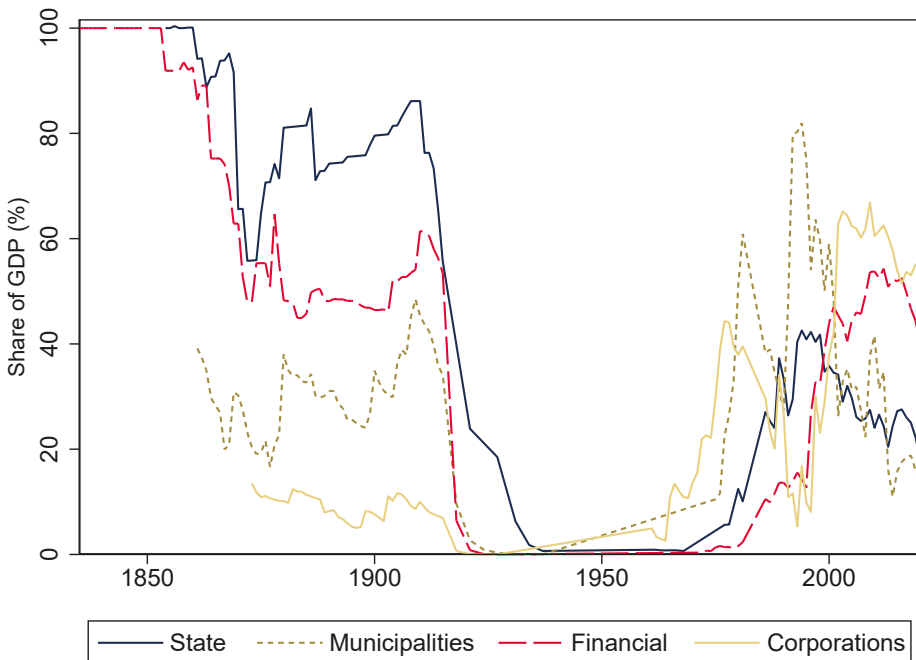
Bonds and corporate finance

What role did bonds play in the financing of Sweden's industrial revolution in the nineteenth and early twentieth centuries? How has its role developed during the twentieth century, and what does it look like now? Questions about how bonds contributed to industrialisation have been studied in the Swedish economic history literature, but it is fair to say that consensus has not yet been reached. For example, Gårdlund (1947) is an important study of industrial finance in Sweden up to the 1910s. This study presented hand-collected balance sheet information of Swedish industrial firms and examined the main sources of external finance, as presented in Table 4.1. The evidence suggests that bond loans went from being quantitatively unimportant in 1870 to being the major source of external finance in 1910.

Table 4.1: *The capital structure in the industrial sector 1870–1910 (%)*

	Promissory note loans	Debenture loans and advances	Bank loans	Bonds	Total
1870	39	25	33	4	100
1890	48	6	33	13	100
1910	21	3	39	37	100

Note: The figures are taken from Gårdlund's study of industrial companies. Source: Gårdlund (1947, p.161).

The bond data presented in this chapter could complement Gårdlund's study. Figures 4.2 and 4.3 showed that corporate bonds grew in importance during the end of the nineteenth century and that they remained relatively sizeable up until the Second World War. To gain further insight, Figure 4.6 presents a decomposition of the corporate bonds by distinguishing between three different kinds: railway companies, industrial manufacturing companies and other companies (mainly canal companies). These were reported as three separate categories in the historical sources up to the 1950s. The analysis shows that railway companies gained importance after the 1860s and 1870s and became the most important corporate bond issuer up until the 1910s when manufacturing firms gradually took over.

Figure 4.6: *Corporate bonds in circulation, by borrower category, 1855–1960.*
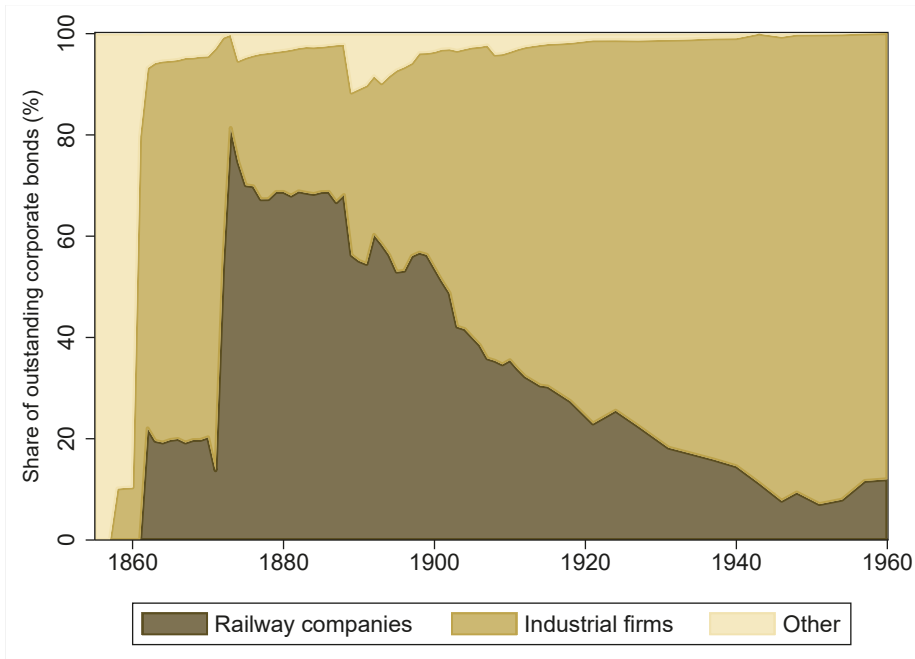
Another way to assess the role of bonds in industrial finance is to compare them with the other two main channels of external corporate finance: bank loans and share issues. Figure 4.7 provides a preliminary picture of this. It shows the relative shares of the flow of funds coming from bank credits, bond loans and new equity issues. Data on bank credit come from Ahnland (2022) and Fregert (2022), and the series is calculated by taking first differences of the stock of outstanding bank credit with mortgage credits removed in the post-war era.[6] Data on new equity issues come from Waldenström (2016) and includes all new corporate capital issued since the Corporate Law of 1848, including bonus issues. Bond issues come from this chapter's new database.

The patterns in Figure 4.7 suggest that bank credit has been the overall most important source of external funding of firms over the past 185 years. In these series, bank loans represent between 40 and 80 percent of all new external funding to Swedish firms. New equity issues and bonus issues have also been important, representing between 20 and 40 percent. Finally, corporate bond issues have represented between 10 and 20 percent. A couple of things to note with these results. First, the picture

---

6   The official statistics on private bank lending to firms is complicated by the fact that during most of the historical period, loans to firms and households are reported under one and the same category ("the public"). Despite this, the present analysis uses changes in the total bank lending up until 1945 when mortgage lending is removed.

may differ when we look at funds in circulation, that is, the outstanding amounts of bank credit, corporate equity and bonds. Second, some bank credits to firms may be funded by bond loans of banks and other financial intermediaries, which would suggest a larger role of bonds in Swedish corporate finance than the figure shows. These findings are largely in line with the evidence presented in Table 4.1 above, which was based on the examination of the corporate capital stock, that bank loans were particularly important for industrial firms throughout the industrialization era but that bonds became more important over time.

Figure 4.7: *External corporate funding: Bank credit, bonds and equity, 1835–2020.*
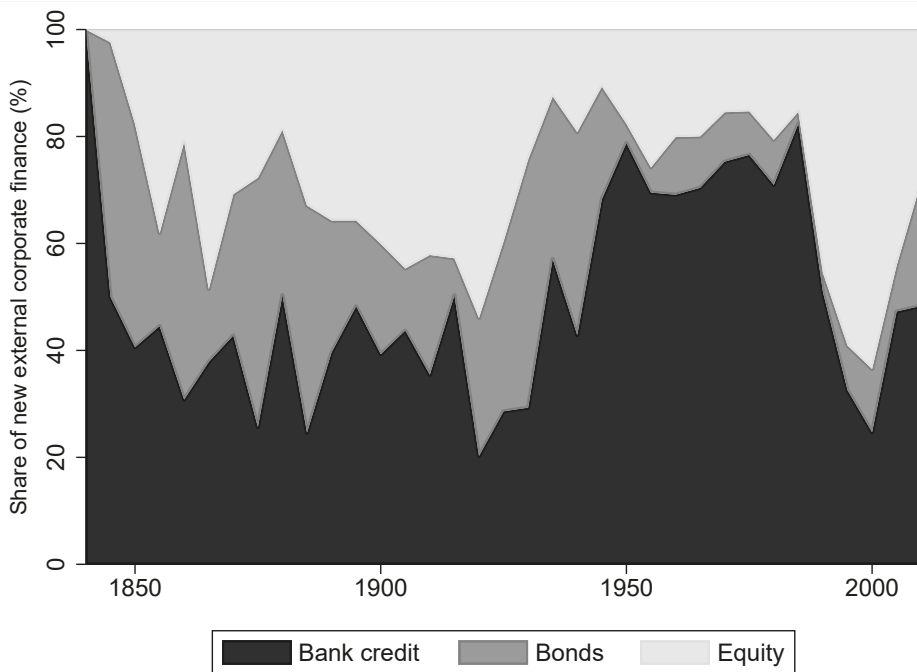
International comparison

The past research literature on historical bond markets is relatively limited, particularly concerning international historical comparisons of primary bond markets. Reinhart and Rogoff (2010) and Flandreau and Zumer (2014) compile data on government debt, including central and local government and domestic and external debt. Using their databases, Table 4.2 compares the share of total government bond loans of GDP in Sweden with five other European countries for which data are available for single years between 1880 and 2020.

The international comparison shows that Sweden is a country that has had a rela-

tively low level of public-sector indebtedness throughout history. The selected years in the table suggest that over the past 140 years, Sweden's consolidated government debt hovered between 20 and 40 percent of GDP (with higher levels in single periods, especially the 1980s and 1990s). Furthermore, the table shows that the other Nordic countries also exhibit relatively low government debt levels today and historically (with the exception of Finland in 2020). By contrast, France has had much higher levels of public debt several times in the past, often in relation to wars. Germany has lower debt levels than France both historically and in 2020.

Table 4.2: *General government debt (% of GDP), 1880–2020.*

	France	Germany	Sweden	Denmark	Norway	Finland
1880	96	37	28	24	16	
1913	66	42	26	16	20	11
1938	161		19	17	26	10
1950	27	18	18	46	32	25
1980	21	30	23	35	47	11
2020	108	65	41	41	41	65

Note and sources: Table shows sum of central and local government debt issued both domestically and abroad. Data come from Reinhart and Rogoff (2010), Flandreau and Zumer (2014), Eurostat, and this chapter. Some years are not exactly as in the table: Finland 1914 not 1913, France 1931 not 1938 and Sweden 1951 not 1950.

Concluding remarks

This chapter has presented a newly collected and compiled database on Sweden's primary bond market over the past 185 years. The main purpose has been to complement the picture of Sweden's economic history. Government and corporate borrowing have helped finance both public-sector investments in infrastructure and other institutions and private-sector investments in agriculture and industrial production.

The new time series cover both issues of new bonds and estimates of the value of outstanding bonds in circulation. A sectorial division was made to study where in the Swedish economy bonds have been used to finance activities. The extent of domestic and foreign borrowing and the relative importance of bonds in total corporate finance are two additional dimensions analysed.

Several interesting historical patterns emerge from the new data. In the nineteenth century, bonds were initially a way for farmers to attract funding through mortgage association bonds issued mainly in Germany. The state soon became a dominant

bond issuer later in that century. First, the purpose was to finance the state-led railway expansion, and later in the twentieth century, bonds have been used fund military armaments, especially during the World Wars, and later to finance the welfare state. Municipalities have used bond financing to fund larger investments as well as welfare-related expenditure. Looking at private-sector bond issues over the past two centuries, financial institutions, mainly banks, have used bonds to fund their lending, in recent decades in the form of mortgages. Corporations used bonds to finance their investments up to the interwar era, then stopped doing so due to the tightening of post-war regulations, but have again started issuing bonds on a larger scale since the 2000s.

The chapter's data are aggregate time series, offering a broad picture of the long-run developments and the overall role of bonds in the Swedish economy. However, a deeper understanding of the role of bonds requires richer data on individual loans across several dimensions. A richer database can indeed be constructed since the sources named in this chapter contain such individual bond loan information back to the 1830s, including details about interest rates, currency denomination, repayment clauses and involved actors. Hopefully, this chapter can inspire others to engage in such a research project that would shed even more light on the role of bonds in the development of the Swedish economy.

References

Bonthron, Fredrik (2014). ”“The development of the Swedish market for corporate bonds”. Economic Commentaries, no. 7. Stockholm: Sveriges Riksbank.

Cervin, Carl Gustaf (1875). *Förteckning å svenska obligationer jemte uppgift om obligationernas valör, utgifnigstid, räntefot, utlottnings-och inlösningsterminer samt stället hvarest förfallna obligationer och räntekuponger infrias*. Stockholm. (KB, 54 L 1884).

Cervin, Carl Gustaf (1884). Förteckning å svenska obligationer jemte uppgift om obligationernas utgifningstid, räntefot etc., Stockholm: C. E. Fritzes bokh. (Finns på KB, 54 L 1884: Fol.)

Flandreau, Marc and Frederic Zumer (2004). *The Making of Global Finance: 1880–1913*. Paris: OECD.

Flodström, Isidor (1912): *Sveriges nationalförmögenhet omkring år 1908 och dess utveckling sedan mitten av 1880-talet*, Stockholm.

Gårdlund, Torsten (1947). *Svensk industrifinansiering 1830–1913*, Stockholm, Svenska Bankföreningen.

Håkansson, John (1901). *Obligationsbok*. Stockholm.

Klovland, Jon Tore (2004). "Bond markets and bond yields in Norway 1820–2003', in Eitrheim, Ø, J T Klovland and J F Qvigstad (eds.), *Historical Monetary Statistics for Norway 1819–2003*, Norges Bank Occasional Papers no. 35, Oslo.

Kock, Karin (1961). *Kreditmarknad och räntepolitik 1924–1958. Första delen*. Sveriges Allmänna Hypoteksbank, Uppsala.

Lundgren, Johan (2021). ”Storbankernas finansieringsstruktur – historiska trender.” FI Analys nr 31.

Nygren, Ingemar (1989). *När lång upplåning blev korta krediter 1840–1905* in: Dahmén, E, Upplåning och utveckling – Riksgäldskontoret 1789–1989, Allmänna förlaget, Stockholm.

Reinhart, C, Rogoff, K. (2009). *This Time is Different. Eight Centuries of Financial Folly*. Princeton University Press: Princeton, N.J.

Schön, Lennart (1989). ”Kapitalimport, kreditmarknad och industrialisering 1850–1910” in: Dahmén, E, *Upplåning och utveckling – Riksgäldskontoret 1789–1989*, Allmänna Förlaget, Stockholm.

Sjögren, Hans (1993). ”Alla tiders obligationsmarknad. Svensk obligationsmarkand under hundrasextio år.” i: Sjögren, H (red): *Obligationsmarknaden*, Stockholm.

Svenska Bankföreningen, *Svensk obligationsbok* [Swedish bond catalogue], Stockholm, various years 1911–1997.

Waldenström, Daniel (2010). "Why Does Sovereign Risk Differ for Domestic and External Debt? Evidence from Scandinavia, 1938–1948", *Journal of International Money and Finance* 29(3), 387–402, 2010.

Waldenström, Daniel (2014). "Swedish Stock and Bond Returns, 1856–2012." in R Edvinsson, T Jacobson, D Waldenström (eds.). *Historical Monetary and Financial Statistics for Sweden, vol. 2*, Stockholm: Sveriges Riksbank and Ekerlids förlag.

Appendix tables

Table A4.1: *New bond issues*

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1835	6			6				
1836	0			0				
1837	0			0				
1838	0			0				
1839	8			8				
1840	0			0				
1841	0			0				
1842	0			0				
1843	0			0				
1844	0			0				
1845	0			0				
1846	13.333			13.333				
1847	0			0				
1848	0			0				
1849	6.942		0.275	6.667				
1850	1.872			1.872				
1851	17.733			17.733				
1852	14.839			14.839				
1853	0			0				
1854	13.188	0.282		12.906				
1855	0.5			0	0.5			0.5
1856	0.25			0	0.25			0.25
1857	0			0	0			
1858	38.631	21.841	0.1	16.62	0.07		0.07	
1859	1.358		0.07	1.288	0			
1860	32.58	26.667	0.58	5.333	0			
1861	52.248	3	4.16	43.188	1.9		1.9	
1862	36.551		0.245	31.806	4.5	1.5	3	
1863	4.35	3	0.35	0	1		1	
1864	40.541	9.891	0.94	29.41	0.3		0.3	
1865	4.575		4.575	0	0			
1866	27.092	26.486	0.5	0	0.106		0.106	
1867	6.72		3.82	2.5	0.4		0.4	
1868	31.319	20.7	0.619	10	0			
1869	29.484	4	5.334	20	0.15		0.15	
1870	40.34	40	0.34	0	0			
1871	41.11		2.038	36.272	2.8		2.8	
1872	69.997	24	3.868	21.741	20.388	14.188	6.2	
1873	73.895		4.565	0	69.33	63.53	5.8	

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1874	62.717		2	38.417	22.3	10	6.3	6
1875	49.896	36.882	2.66	0	10.354	1.434	8.92	
1876	45.461	36.62	0.9	0	7.941	4.5	3.441	
1877	39.436		11.077	22.229	6.13	0.25	5.88	
1878	152.433	27.24	2.866	117.807	4.52	2.2	2.2	0.12
1879	93.759	9	4.93	76.344	3.485	3.25	0.235	
1880	230.105	118.746	26.81	82.108	2.441	0.856	1.575	0.01
1881	23.582		6.485	11.997	5.1	1.8	3.3	
1882	24.87		2.34	13.5	9.03	6.41	2.62	
1883	63.101		4.097	53.894	5.11	2.31	2.8	
1884	5.465		3.815	0	1.65		1.45	0.2
1885	40.127		25	8.197	6.93	4.4	2.35	0.18
1886	133.951	64.546	4.84	60.33	4.235	2.125	2.11	
1887	124.433	85.144	28.439	6	4.85		4.85	
1888	46.303	26.667	1.445	14.561	3.63	3.33	0.2	0.1
1889	69.16		3.595	28.24	37.325	6.25	15.575	15.5
1890	55.129	35.556	13.273	1	5.3		5.3	
1891	10.6		0.06	5	5.54	0.9	4.64	
1892	39.911		11.83	0.756	27.325	23.6	3.7	0.025
1893	17.384		4.794	0	12.59	2.95	5.71	3.93
1894	76.755	18	15.419	20.086	23.25	8.086	15.164	
1895	25.085			0	25.085	5.685	19.25	0.15
1896	19.69		4.32	2	13.37	5.82	7.55	
1897	36.812		3.751	8.421	24.64	18.08	6.41	0.15
1898	110.858		2.125	7.178	101.555	57.345	44.21	
1899	55.716	36	11.742	0.374	7.6	0.5	6.6	0.5
1900	97.455	36.32	32.025	5	24.11	2.7	20.91	0.5
1901	49.085		13.65	0	35.435	7.66	27.775	
1902	78.148		19.915	13	45.233	11.67	32.163	1.4
1903	91.051		6.149	6	78.902	6.59	68.172	4.14
1904	144.623	36	3.3	68.293	37.03	10.18	26.85	
1905	77.99699		31.71	5.097	41.19	6.28	34.91	
1906	116.586	43.2	22.332	14.304	36.75	3.65	32.4	0.7
1907	97.235	46.8	6.63	0	43.805	0	43.805	
1908	190.128	54.48	56.19	11.798	67.66	16.95	38.71	12
1909	101.667		57.424	7.693	36.55	3.7	31.25	1.6
1910	219.434		31.614	130.848	56.972	19.517	37.235	0.22
1911	164.476	72	14.95	2	75.526	10.025	65.501	
1912	92.622		11.858	8.514	72.25	8	64.25	
1913	123.781	24.48	26.401	29.5	43.4	1.5	41.9	
1914	189.612	77.521	46.3	22.451	43.34	0.9	42.44	
1915	215.764	121.177	23.098	38.249	33.24	3.2	30	0.04

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1916	248.139	119.177	18.976	20.361	89.625	10.35	75.35	3.925
1917	298.533	72.629	32.75	19.467	173.687	52.632	121.055	
1918	288.527	98.192	71.099	32.336	86.9		86.9	
1919	352.481	190.112	48.816	16.768	96.785	5	91.425	0.36
1920	185.696	4.793	55.846	29.357	95.7	31	64.7	
1921	410.459	158.693	57.211	16.555	178	1	177	
1922	233.709	37.704	36.899	69.906	89.2	30.5	57.2	1.5
1923	433.776	207.737	16.794	84.245	125	24	101	
1924	222.231	118.248	6	83.183	14.8	11	3.8	
1925	128.812	0.416	27	53.696	47.7	3.4	42.8	1.5
1926	146.65	0.349	5	72.401	68.9	10.2	58.7	
1927	247.772	57.416		58.456	131.9		131.5	0.4
1928	341.462	7.079	17.766	110.815	205.802	11.652	193.55	0.6
1929	232.648	44.092	5.977	92.979	89.6		88.8	0.8
1930	869.673	437.525	25.098	194.285	212.765	27	185.765	
1931	548.001	227.612	27.521	170.202	122.666	3.6	119.066	
1932	464.645	151.111	34.47	259.064	20	20		
1933	669.658	428.081	49.577	179.668	12.332		12.332	
1934	494.656	162.782	48.967	224.91	57.997	9.197	48.8	
1935	506.423	59.505	10.444	331.323	105.151	10.116	95.035	
1936	617.063	317.323	35.037	221.333	43.37	1.17	42.2	
1937	731.3359	115.687	74.163	349.761	191.725	5.45	186.275	
1938	247.846	36.126	34.606	115.264	61.85	8.35	53.5	
1939	431.576	103.293	58.348	193.735	76.2	6.5	69.7	
1940	1181.052	1007.01	80.711	84.335	9	6	3	
1941	1537.431	1224.48	25	236.75	51.2	8.5	42.7	
1942	2332.459	1858.52	29.972	342.767	101.2		101.2	
1943	1763.159	1410.03	39.866	261.665	51.6		51.6	
1944	1501.098	1260.81	0.741	196.877	42.67		42.67	
1945	1918.491	1291.41	82.52	484.054	60.51		60.51	
1946	1526.844	1122.49	75	259.426	69.923	18.942	50.981	
1947	1149.875	338.918	131.148	345.918	333.891	64	269.891	
1948	640.368	31.983	125	316.385	167	0	167	
1949	1011.195	489.912	204.237	156.546	160.5	0	160.5	
1950	908.445	448.653	206.761	245.531	7.5	0	26	
1951	1055.5	380.1	231	397.4	47	0	146.5	
1952	1106.9	528.8	185	294.6	98.5	30	122	
1953	2580.6	2022.6	25	331.5	201.5	30	180.5	
1954	2635.4	2182.5		324.9	128	40	98	
1955	1732	1036	80	535	81	0	41	
1956	1373.6	566.6	179.4	499.6	128	12	116	
1957	2622.5	1599.8		808.7	214	83	131	

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1958	2177.8	1089.2	150	783.6	155	30	125	
1959	3278	2320.3		823.7	134	0	134	
1960	2543.8	1211.3	140	936.5	256	30	192	
1961	2357	600	110	1332	315			
1962	5018	969	290	2658	1101			
1963	5930	3278	400	1687	565			
1964	5615	1354	445	3180	636			
1965	4349	778	290	2691	590			
1966	6477	1050	240	4502	685			
1967	9423	2524	275	5135	1489			
1968	11304	3915	385	5623	1381			
1969	12629	3523	305	8073	728			
1970	10876	2612	295	7239	730			
1971	14612	3995	400	8517	1700			
1972	14830	4977	470	7770	1613			
1973	20832	9427	525	9332	1548			
1974	21450	6745	490	12820	1395			
1975	28492	12545	433	12894	2620			
1976	27155	11513	420	12182	3040			
1977	25871	9168	300	13518	2885			
1978	46713	27311	365	16372	2665			
1979	43678	23897	283	16453	3045			
1980	45302	27268	222	16447	1365			
1981	84124	57005	270	24334	2515			
1982	65929	42864	715	19060	3290			
1983	91111	62323	1270	23498	4020			
1984	75244	36874	1975	22756	13639			
1985	85517	34803	1610	43782	5322			
1986	122818	33203	3302	81783	4530			
1987	77129	20000	1060	53664	2405			
1988	112465	20600	455	90510	900			
1989	134761	19000	500	115161	100			
1990	127544	18500	860	101316	6868			
1991	220063	76535	0	138210	5318			
1992	309151	130818	0	178333	0			
1993	418938	181417	0	237521	0			
1994	384033	157095	0	226938	0			
1995	324586	186956	0	137630	0			
1996	329789	149720	2795	169739	7535			
1997	329015	92820	1261	226888	8046			
1998	388415	112367	820	260403	14825			
1999	360547	125818	390	208574	25765			
2000	322974	64065	860	225557	32492			

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
2001	379392	102733	2506	245255	28898			
2002	468945	146432	6341	274004	42168			
2003	526660	127958	3487	370504	24711			
2004	503348.1	168034	7515	304782	23017			
2005	506542	105659	6245	363639	30999			
2006	532278	102454	5327	394037	30460			
2007	773680	73982	2556	643809	53333			
2008	483383	63198	2145	386453	31587			
2009	710878.7	119659	3165	539392	48663			
2010	652041	83339	4620	538957	25125			
2011	673404	82779	15595	529044	45986			
2012	591989	96640	18028	413302	64019			
2013	708613	117077	27015	485263	79258			
2014	820217	153671	44988	522744	98814			
2015	868286	150404	45069	568058	104755			
2016	796781	127395	27856	537743	103787			
2017	819356	109973	32541	531979	144863			
2018	879721	72237	32017	634041	141426			
2019	932562	52519	46695	656752	176596			
2020	1082617	182221	49839	682946	167611			

Table A4.2: *Bonds in circulation*

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1835	6			6				
1836	5.88			5.88				
1837	5.762			5.762				
1838	5.647			5.647				
1839	13.534			13.534				
1840	13.264			13.264				
1841	12.998			12.998				
1842	12.738			12.738				
1843	12.484			12.484				
1844	12.234			12.234				
1845	11.989			11.989				
1846	25.083			25.083				
1847	24.581			24.581				
1848	24.089			24.089				
1849	30.549		0.275	30.274				
1850	31.811		0.27	31.541				
1851	48.907		0.264	48.643				
1852	62.768		0.259	62.509				
1853	61.513		0.254	61.259				
1854	73.471	0.282	0.249	72.94				
1855	72.501	0.276	0.244	71.481	0.5			0.5
1856	71.275	0.27	0.239	70.051	0.715			0.715
1857	69.814	0.265	0.234	68.65	0.665			0.665
1858	107.014	22.1	0.329	83.897	0.688		0.07	0.618
1859	106.178	21.636	0.393	83.508	0.641		0.066	0.575
1860	136.582	47.849	0.965	87.171	0.597		0.062	0.535
1861	186.022	49.844	5.106	128.616	2.456		1.958	0.497
1862	218.697	48.797	5.248	157.849	6.803	1.5	4.841	0.463
1863	218.392	50.772	5.493	154.692	7.435	1.455	5.55	0.43
1864	254.259	59.598	6.324	181.008	7.329	1.411	5.517	0.4
1865	253.433	58.346	10.772	177.388	6.927	1.369	5.186	0.372
1866	275.159	83.607	11.057	173.84	6.655	1.328	4.981	0.346
1867	276.063	81.851	14.656	172.864	6.692	1.288	5.082	0.322
1868	301.545	100.832	14.981	179.406	6.326	1.249	4.777	0.299
1869	324.679	102.715	20.015	195.818	6.131	1.212	4.641	0.278
1870	358.212	140.558	19.955	191.902	5.797	1.176	4.362	0.259
1871	391.817	137.606	21.594	224.335	8.282	1.14	6.9	0.241
1872	453.541	158.716	25.03	241.59	28.205	15.295	12.686	0.224
1873	517.534	155.383	29.094	236.758	96.299	78.366	17.725	0.208
1874	568.243	152.12	30.513	270.44	115.17	86.015	22.962	6.194
1875	604.532	185.807	32.562	265.031	121.132	84.868	30.504	5.76
1876	635.36	218.525	32.811	259.73	124.294	86.822	32.115	5.357

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1877	659.45	213.936	43.232	276.765	125.517	84.468	36.068	4.982
1878	795.944	236.684	45.233	389.036	124.991	84.134	36.104	4.753
1879	871.024	240.713	49.259	457.599	123.453	84.86	34.173	4.42
1880	1081.031	354.405	75.083	530.555	120.988	83.17	33.697	4.121
1881	1080.253	346.962	80.067	531.941	121.283	82.475	34.975	3.833
1882	1080.755	339.676	80.805	534.802	125.472	86.41	35.497	3.564
1883	1119.439	332.543	83.286	578	125.61	86.128	36.167	3.315
1884	1099.709	325.559	85.436	566.44	122.274	83.544	35.447	3.283
1885	1115.099	318.723	108.727	563.308	124.341	85.438	35.67	3.233
1886	1223.986	376.576	111.392	612.372	123.646	85	35.64	3.007
1887	1321.137	453.811	137.603	606.125	123.598	82.45	38.352	2.796
1888	1338.065	470.948	136.296	608.564	122.257	83.306	36.25	2.7
1889	1377.575	461.058	137.165	624.633	154.719	87.057	49.65	18.011
1890	1400.933	486.931	147.695	613.14	153.167	84.445	51.971	16.751
1891	1379.267	476.706	144.801	605.877	151.883	82.812	53.493	15.578
1892	1387.37	466.695	153.735	594.516	172.424	103.928	53.984	14.513
1893	1372.615	456.894	155.454	582.626	177.641	103.76	56.455	17.427
1894	1417.294	465.3	167.764	591.059	193.171	108.733	68.231	16.207
1895	1408.941	455.528	164.409	579.238	209.766	111.156	83.387	15.222
1896	1394.788	445.962	165.441	569.653	213.732	113.641	85.934	14.157
1897	1397.977	436.597	165.883	566.681	228.816	128.312	87.188	13.316
1898	1475.002	427.429	164.69	562.525	320.358	181.808	126.167	12.384
1899	1493.306	454.453	173.138	551.648	314.067	176.854	125.197	12.017
1900	1553.063	481.229	201.7	545.615	324.519	174.248	138.595	11.676
1901	1562.735	471.123	211.316	534.703	345.593	176.68	158.054	10.858
1902	1600.527	461.23	227.005	537.009	375.283	183.05	180.734	11.498
1903	1649.471	451.544	228.614	532.269	437.044	184.149	238.062	14.833
1904	1748.547	478.061	227.342	589.916	453.228	188.804	250.629	13.795
1905	1778.492	468.022	254.505	583.215	472.75	189.42	270.501	12.829
1906	1845.684	501.394	271.747	585.854	486.689	187.387	286.671	12.631
1907	1891.531	537.664	272.942	574.137	506.788	181.766	313.276	11.747
1908	2040.467	584.079	323.673	579.046	553.669	195.989	334.755	22.925
1909	2096.994	575.318	374.623	579.79	567.263	196.749	347.594	22.92
1910	2269.675	566.688	398.745	703.68	600.562	213.315	365.711	21.536
1911	2384.411	630.188	405.72	697.236	651.267	220.14	411.098	20.028
1912	2423.784	620.735	409.464	697.383	696.202	224.838	452.738	18.626
1913	2492.119	635.904	427.675	718.515	710.025	222.966	469.737	17.322
1914	2624.625	703.887	465.422	732.343	722.973	220.521	486.342	16.11
1915	2782.258	812.609	479.211	761.804	728.634	220.886	492.802	14.946
1916								
1917								
1918	3369.125	1086.197	581.896	755.774	945.258	259.251	668.802	17.206
1919								

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1920								
1921	4090.504	1423.465	712.784	744.853	1209.402	278.198	915.44	15.765
1922								
1923								
1924	4575.986	1669.001	725.679	955.981	1225.325	312.986	896.508	15.831
1925								
1926								
1927	4770.437	1706.851	681.896	1101.611	1280.079	287.87	975.138	17.071
1928								
1929								
1930								
1931	4898.202	1665.174	510.767	1455.873	1266.388	231.011	1019.92	15.46
1932								
1933								
1934	5305.671	1978.015	450.741	1739.767	1137.148	194.148	930.274	12.726
1935								
1936								
1937	5292.172	1840.815	412.616	1965.752	1072.989	170.575	892.383	10.032
1938								
1939								
1940	6347.221	2757.742	517.576	2227.371	844.532	122.983	713.974	7.575
1941								
1942								
1943	9865.398	6401.669	496.11	2232.469	735.15	82.794	652.356	
1944								
1945								
1946	11853.32	7970.58	566.732	2665.886	650.123	50.387	595.781	3.955
1947								
1948	12732.8	7451.223	756.669	3247.208	1277.695	119.9	1155.5	2.29
1949								
1950								
1951	13402.71	6841.4	1248	3853.4	1459.914	103.571	1354.12	
1952								
1953								
1954	18472.34	10781	1220.8	4674.4	1796.137	143.295	1650.66	2.17
1955	19070.1	11366.1	1255.7	5151.2	1297.1			
1956	20165.5	11387	1386.8	5571.8	1819.9			
1957	21578.3	12056.3	1340	6287	1895	221	1674	
1958	23018.2	12685.8	1386	7004	1942.4			
1959	25463.2	14433.4	1330.9	7743.7	1955.2			
1960	27302.6	15165.7	1414.8	8639.1	2083	250	1835	
1961	27912	14402	1465	9986	2059			
1962	31514	14639	1693	12146	3036			

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
1963	35668	16517	1976	13707	3468			
1964	39288	16628	2342	16385	3933			
1965	42020	16339	2542	18806	4333			
1966	46811	16199	2686	23127	4799			
1967	54125	17400	2860	27834	6031			
1968	62932	19552	3026	33199	7155			
1969	73048	21388	3214	40844	7602			
1970	80870	22117	3382	47289	8082			
1971	93093	24778	3646	55218	9451			
1972	105912	29339	3974	61978	10621			
1973	123728	37291	4303	70400	11734			
1974	141185	43336	4609	80600	12640			
1975	164030	52718	4817	91795	14700			
1976	185213	60741	4984	102456	17032			
1977	204778	65914	4983	114849	19032			
1978	245245	89551	5033	130025	20636			
1979	282963	110064	4987	145434	22478			
1980	320971	134090	4839	159680	22362			
1981	397096	187636	4721	181954	22785			
1982	480040	223174	6939	212443	37484			
1983	588296	298384	7516	240612	41784			
1984	679605	350019	8004	274709	46873			
1985	737622	357330	8274	319645	52373			
1986	843474	364597	9715	402377	66785			
1987	891768	356198	9834	454022	71714			
1988	976435	335628	9175	556500	75132			
1989	1172353	387468	8720.5	695722	80442			
1990	1229422	349994	8266	793111	78051			
1991	1318788	365635	7670	873651	71832			
1992	1548253	477842	9884	990395	70132			
1993	1967784	766800	15205	1109728	76051			
1994	2038072	898233	16643	1057070	66126			
1995	2205419	1148273	16002	979002	62142			
1996	2382695	1292540	15242	1004197	70716			
1997	2468302	1345374	21821	1003381	97726			
1998	2618402	1387627	20380	1099356	111039			
1999	2475229	1219693	16981	1099214	139341			
2000	2375010	1119622	15779	1041526	198083			
2001	2232228	951710	15570	1013929	251019			
2002	2340892	1002564	17160	1051650	269518			
2003	2518692	1030961	20831	1171105	295795			
2004	2586853	1135631	19789	1166901	264532			
2005	2969082	1101868	22871	1524110	320233			

	Total	Gov.	Municip.	Financial	Corp.	Railway	Industry	Oth. corp
2006	3126179	1042814	28679	1746186	308500			
2007	3400659	977361	28476	2036811	358011			
2008	4022687	965438	23574	2605304	428371			
2009	4521365	970288	28731	3010207	512139			
2010	4698908	1011258	30816	3187239	469595			
2011	5016389	1037672	44277	3435388	499052			
2012	5092410	969461	61491	3501124	560334			
2013	5389602	1007624	76744	3691048	614186			
2014	5780915	1050944	105131	3941610	683230			
2015	6014888	1078876	132435	4070860	732717			
2016	6373498	1137840	141290	4302042	792326			
2017	6419270	1079899	150193	4230701	958477			
2018	6382252	1103280	160506	4056007	1062459			
2019	6681535	951650	178504	4334130	1217251			
2020	6719305	955912	192585	4253327	1317481			

Table A4.3: *External debt (foreign currency denomination)*

	New bond issues				Bonds in circulation			
	Gov.	*Mun.*	*Fin.*	*Corp.*	*Gov.*	*Mun.*	*Fin.*	*Corp.*
1835			6				6	
1836			0				5.88	
1837			0				5.762	
1838			0				5.647	
1839			8				13.534	
1840			0				13.264	
1841			0				12.998	
1842			0				12.738	
1843			0				12.484	
1844			0				12.234	
1845			0				11.989	
1846			13.333				25.083	
1847			0				24.581	
1848			0				24.089	
1849			6.667				30.274	
1850			1.872				31.541	
1851			17.733				48.643	
1852			14.839				62.509	
1853			0				61.259	
1854	0.282		7		0.282		67.034	
1855			0		0.276		65.693	
1856			0		0.271		64.379	
1857			0		0.265		63.092	
1858	21.841		16.62		22.101		78.45	
1859			0		21.659		76.881	
1860	26.667		5.333		47.893		80.677	
1861		2	31.988		46.935	2	111.051	
1862			31.806		45.996	1.96	140.636	
1863			0		45.076	1.921	137.823	
1864	9.891		1.109		54.066	1.882	136.176	
1865		1.2	0		52.985	3.045	133.453	
1866	26.486		0		78.411	2.984	130.783	
1867			0		76.843	2.924	128.168	
1868	20.7	0.25	0		96.006	3.116	125.604	
1869		3.114	0		94.086	6.167	123.092	
1870			0		92.204	6.044	120.631	
1871			0		90.36	5.923	118.218	
1872			0		88.553	5.804	115.854	
1873		0.25	0	13	86.782	5.938	113.536	13
1874			38.417	1	85.046	5.819	149.683	13.61
1875	36.882	0.6	0	0	120.227	6.303	146.689	13.202

	New bond issues				Bonds in circulation			
	Gov.	Mun.	Fin.	Corp.	Gov.	Mun.	Fin.	Corp.
1876	36.62	0.9	0	1	154.443	7.077	143.755	13.806
1877		0.25	0	0	151.354	7.185	140.88	13.391
1878	27.24	2.35	113.562	0	175.567	9.392	251.625	12.99
1879		2	6.469	0	172.055	11.204	253.062	12.6
1880	118.746	17.6	8.173	0.045	287.361	28.58	256.173	12.267
1881			5	0	281.613	28.008	256.05	11.899
1882			5	4	275.981	27.448	255.929	15.542
1883		1.5	8.912	0	270.461	28.399	259.722	15.046
1884		0.26	0	0	265.052	28.091	254.528	14.566
1885		8	8.197	0	259.751	35.529	257.634	14.103
1886	64.546	3.4	52.33	0	319.102	38.219	304.812	13.655
1887	10	4	6	0	322.72	41.454	304.716	13.222
1888	26.667		8.5	0	342.933	40.625	307.121	12.803
1889		1.5	0	0	336.074	41.313	300.979	12.398
1890	35.556	5.4	0	0.6	361.547	45.886	294.959	12.607
1891			4.997	0.6	354.316	44.969	294.057	12.792
1892			0	0	347.23	44.069	288.176	12.356
1893			0	0	340.285	43.188	282.413	11.937
1894	18	0.673	8	0	351.48	42.997	284.764	11.533
1895			0	0	344.45	42.137	279.069	11.143
1896			0	0	337.561	41.295	273.488	10.768
1897			0	1.634	330.81	40.469	268.018	12.041
1898			1.135	14.689	324.194	39.659	263.793	26.333
1899	36	7.5	0	0	353.71	46.366	258.517	25.509
1900	36.32	25	0	0.02	382.956	70.438	253.346	24.732
1901			0	0.246	375.297	69.029	248.279	24.206
1902		3.01	6.853	0.351	367.791	70.659	250.167	23.794
1903		0.011	0	25.285	360.435	69.257	245.163	48.332
1904	36	0.012	67.206	0.127	389.226	67.884	307.466	46.226
1905		26	1.39	10.973	381.442	92.526	302.707	55.072
1906	43.2	15.018	12.2	3.087	417.013	105.693	308.852	55.376
1907	46.8		0	0.395	455.472	103.579	302.675	53.049
1908	54.48	44.613	10.798	0.078	503.12	146.121	309.841	50.975
1909		38.416	7.693	0.194	495.574	181.614	313.817	49.128
1910		2.912	122.4	13.03	488.14	180.893	432.451	60.217
1911			0	0	480.818	177.275	427.261	58.146
1912			0	0	473.606	173.73	422.134	56.177
1913			0	0	466.502	170.255	417.069	54.303
1914			0	0	459.504	166.85	412.064	52.52
1915			0		452.611	163.513	407.119	50.821
1916					445.822	114.459	194.218	25.411
1917					439.135	80.121	97.109	12.705

	New bond issues				Bonds in circulation			
	Gov.	Mun.	Fin.	Corp.	Gov.	Mun.	Fin.	Corp.
1918					432.548	56.085	48.555	6.353
1919					426.06	39.26	24.277	3.176
1920					417.7	27.482	12.139	1.588
1921					340	19.237	6.069	0.794
1922					310.6	13.466	3.035	0.397
1923					263.2	9.426	1.517	0.199
1924					354	6.598	0.759	0.099
1925					339.1	4.619	0.379	0.05
1926					332.5	3.233	0.19	0.025
1927					316	2.263	0.095	0.012
1928					305	1.584	0.047	0.006
1929					213.5	1.109	0.024	0.003
1930					149.45	0.776	0	0
1931					104.615	0.543		
1932					73.231	0.38		
1933					51.261	0.266		
1934					35.883	0.186		
1935					25.118	0.13		
1936					17.583	0.091		
1937					12.308	0.064		
1938					0	0		
1939								
1940								
1941								
1942								
1943								
1944								
1945								
1946								
1947								
1948								
1949								
1950								
1951								
1952								
1953								
1954								
1955								
1956								
1957								
1958								
1959								

	New bond issues				Bonds in circulation			
	Gov.	*Mun.*	*Fin.*	*Corp.*	*Gov.*	*Mun.*	*Fin.*	*Corp.*
1960								
1961				48	130			102
1962					130			102
1963					130			102
1964					130			102
1965				368	130			470
1966				176	130			646
1967				155	130			724
1968				60	130			779
1969								816
1970				336				1113
1971				421				1463
1972			222	934			222	2328
1973			294	414			513	2659
1974				233			511	2795
1975		505	728	1753		505	1234	4362
1976		86	432	2392		577	1647	6641
1977	3710	561		1961	3710	1124	1610	8439
1978	1399	224	305	876	5091	1335	1854	9095
1979	4918	339	87	61	9992	1642	1669	8872
1980	6738	877	1109	288	16712	2465	2545	8478
1981	2881	503	1957	1017	18941	2875	4254	9014
1982	9013	359	7996					
1983								
1984								
1985								
1986					98597	3715	42377	19785
1987					90198	3834	45022	16714
1988					80628	3175	64500	15132
1989			1000	1300	144468	2720.5	94722	27442
1990			400		116994	2266	108111	21051
1991			2125	300	96635	3670	110651	7832
1992			150		140842	7884	137395	8132
1993			1000	500	309800	12205	172728	4051
1994					382233	13643	151070	11126
1995				150	469273	12002	124002	6142
1996				500	546540	8242	270197	5716
1997		900			543414	13884	328908	29311
1998				300	579412	12165	356778	25628
1999					423754	8508	425359	40306
2000					400898	9306	457496	74943
2001					328728	7516	477006	105285

	New bond issues				Bonds in circulation			
	Gov.	Mun.	Fin.	Corp.	Gov.	Mun.	Fin.	Corp.
2002					342856	4512	477433	169142
2003					299355	6845	513725.3	192793
2004					363831	6975	472614.5	170380
2005					327658	7162	678135	199738
2006					272417	9147	803236.9	191138
2007					247996	7798	930505	215385
2008					249410	5259.94	1283230	264867
2009					266514	10860.4	1614577	342648
2010					243467	12808	1714682	284061
2011					275626	13937	1804223	306896
2012					236648	21334	1901031	350254
2013	47791	0	79282	350	206179	12264	1876111	371009
2014	6516	0	54274	2533	256551	11546	2059695	394395
2015	14708	0	97659	1266	293868	20948	2113031	395176
2016	0	0	18649	395	313594	24810	2259791	408179
2017	0	0	8210	630	281311	27776	2108114	514471
2018	10366	0	46599	3248	276259	30221	1895005	563689
2019	39419	0	48818	1987	212566	28794	1924743	670100
2020	0	0	28465	1756	174556	26555	1721786	725297

Houses, yards and sheds: Real-property prices in Stockholm up to 1600[1]

Bo Franzén and Johan Söderberg

Introduction and questions

Land was the primary material resource in Swedish medieval society. Extensive source material has been preserved providing information about the value of property and how it was distributed in various respects, for example between men and women. Thousands of documents tell us what kind of people bought or sold properties. Despite the wealth of source material, few attempts have been made to describe the urban real-estate market.[2]

In the discipline of economic history, the interest in long time series of prices for real estate has probably never been as strong as now. The background is, of course, concern for new real-estate crises. One question is to what extent the land market was exposed to speculative forces. Large amounts of data have been collected on land prices and land rent in search of what may have been the first real-estate bubble. Such bubbles can occur if the prices of property differ greatly from what this property may have yielded. Increased knowledge of the property market's historical trends may be relevant not just for our view of the pre-industrial economy but also for our understanding of the current situation.

The overall question in this chapter is how the real-estate market developed in the short and long term in Stockholm during the Middle Ages and the 16th century. We highlight four sub-questions, the first two of which directly concern the way the real-estate market functions. The first sub-question is about price fluctuations in the short and long term. Here we investigate whether the long-term price trends of urban properties show similarities with the strong and persistent downturn that characterizes rural land prices in late medieval Europe. When the population fell in the wake of the Black Death from the mid-14th century and subsequent epidemics, land became a less scarce resource. If urban prices fell in the same way as in rural areas, this would

---

1   This chapter is based on Söderberg and Franzén (2018).
2   For various rural areas see Söderberg, (2013) pp. 82–99; Bjarne Larsson (2010).

strengthen the image of the crisis of the late Middle Ages as a general and profound phenomenon. The second sub-question is whether it is possible to assess the short-term impact of known plague epidemics on real-property prices in Stockholm.

The last two sub-questions deal with the allocation of resources. First, tentative results are reported concerning the possibility of using the spread in urban property prices as an indicator of economic inequality. We then examine whether women's activities as buyers and sellers in the property market changed in the transition from medieval to early modern times. These two issues are not so much directed at price formation as at prices as an indicator of how material resources have been distributed between groups and individuals.

The chapter is arranged as follows. First, we describe previous research, source material and methods. After that there is a longer section about the development of property prices in Stockholm, which is compared to Arboga, situated west of Stockholm. Both towns were closely connected by the iron trade. For Stockholm a calculation is then made of the plot price per square metre in order to create a more homogeneous series than those (among other things) in size more varied properties. The three following sections deal in turn with the resulting effects of plagues, the level and change of economic inequality, and the position of women and men in the real-estate market. Finally, there is a summary discussion.

Keys and lock from the Middle Ages displayed at the Medieval Museum in Stockholm.
Source: https://stockholmskallan.stockholm.se/post/30978.

Previous research, sources, and methods

For Swedish towns during the Middle Ages and the 16th century, the source material in the form of notes in land books as well as in memory books (see below) is well known. Occasional quotations are often mentioned in the literature about Stockholm. Valuations of real estate and their importance in the credit system in Arboga during the late Middle Ages have been examined by Bo Franzén. Birgitta Lager has described in detail the property stock in Stockholm based on the 1582 house tax list.[3] We will refer to her investigation several times in the rest of the chapter. For some rural areas in Sweden, land prices during the Middle Ages and the 16th century have been mapped.[4]

Real-estate valuations and prices can provide an invaluable basis for the analysis of the distribution of income and wealth. There is a long European tradition, from the Middle Ages onwards, of valuing properties for tax purposes. Such material has been increasingly recognized in studies of economic inequality. One advantage of this source material is that the top layer of wealth owners is usually well represented. Recent research emphasizes that this top layer greatly influences the overall distribution of income and wealth. We will later refer to surveys of inequality trends in different parts of Europe in the pre-industrial era.

Research about the gender distribution in real-estate transactions during the Middle Ages and the 16th century is quite extensive. Selected Swedish rural areas have been investigated by several researchers, most recently by Gabriela Bjarne Larsson.[5] A consistent result is that women rarely bought properties. They mainly acted as sellers. This also applies to medieval Arboga studied by Bo Franzén.

*

Information about prices for properties in Swedish towns in the Middle Ages and the 16th century is mainly found in the Swedish 'town books', which have long been available in printed editions. In Stockholm, these town books include, among other things, the series of land books 1420–1498 and memory books (in Swedish: "tänkeböcker") starting in 1474. The word memory book more than suggests what kind of sources we have at our disposal. It comes from a word borrowed into Swedish from German, *denkebôk*, which literally means *memory book*. In other words, the fact that the leading burghers in Swedish towns began to make use of memory books during the late Middle Ages was a practice of German origin. The memory books can be

---

3   Lager (1962).
4   Pioneering work in this field was done by Göran Dahlbäck (1981). See also Söderberg (2013) pp. 82–99.
5   Bjarne Larsson (2010). See also the notes on Table 5.8 below.

described as memorial notices from an oral office exercise,[6] a characteristic that also applies to the land books of Stockholm. The latter occupy a special position with their epic details and storytelling about the buildings in the town and other artefacts. For Stockholm, the price information contained in both land books and memory books has been used.

Although there is much information in the memory and land books, the total stock of real-estate or property owners is never accounted for. It is only when a property is sold, inherited, etc. that we receive information about it. Even then, the value of the property in money or other units of account were often not given. The same property transaction was often entered into both the land book and the memory book. In addition to Stockholm, medieval town books have also been preserved from Arboga, Kalmar and Jönköping. However, Stockholm stands in a class of its own regarding the extent of data, followed by Arboga. We have extracted 2,976 prices from real-estate transactions in the four towns from 1297 until 1600.[7] The vast majority of observations come from Stockholm, the focus of this study, and Arboga with 2,359 and 543 cases, respectively.

Consequently, Stockholm accounts for 79 percent of the price data, Arboga for 18 percent. Jönköping and Kalmar contribute only one and two percent respectively of the total number of observations. Onwards, these are not used in our quantitative analysis. We have consistently adjusted the value of real estate for entire properties where sub-values are stated. For example, where half a yard has been traded at a certain price, this has of course been doubled. In most transactions, the price is reported in money, although payment is sometimes stated in goods or commodities such as cloth or copper. In a few cases, we only have one commodity as a value of account. Based on contemporary prices, this commodity has been converted into a monetary price.

For Stockholm, it might be possible to identify single properties as stone houses in today's Old Town (via location and measure indications). Localizing individual properties is beyond the scope of this survey but could be the basis for a future study.

---

6 The memory book of Jönköping provides us with a long note from 1547 with a uniquely detailed insight into how this oral function could work in practice. A named royal soldier brings an action of the ownership of a yard before the council in the town on behalf of his wife. The town's magistrate decides to hear two men's testimony in the matter. However, because of their high age, these cannot walk to the council house, but the councillors instead move to the town's hospital where the two men are now resident. Subsequently, their sworn testimony follows directly into the sum of six changes of ownership for this yard in chronological order, which include two inheritance, one pledge and three purchases. See *Jönköpings stads tänkebok 1456–1548* (1910–1919) pp. 155–156.

7 The vast majority of documents are printed in the series *Stockholms stads jordebok* (1876), *Stockholms stads tänkebok 1524–29* (1929–1940), *Stockholms stads tänkeböcker 1474–1600* (1917–1953), *Arboga stads tänkebok 1–4* (1935–1950), *Jönköpings stads tänkebok (1919)* and *Kalmar stads tänkebok* (1945–49). A few more documents have been obtained from the database of the Swedish Diplomatarium's main library of medieval charters (*SDHK*) at the National Archives (Sw. Riksarkivet). Most notes relating to real-estate transactions in the memory and land books for the four towns are not reproduced in *SDHK*.

Kalmar's memory book has recently been used as a basis for mapping the late medi-eval town and this shows the potential for further studies. Göran Dahlbäck has sum-marised previous, extensive research on medieval Stockholm and in his book pres-ents a figure showing various source series in 1250–1550 and provides suggestions for further studies of the town.[8]

The basic data are, as indicated, of very different kinds. They range from a single entry about a sold cellar to detailed descriptions of yards and stone houses with their many inclusions. The vast majority of transactions, however, consist of purchases of property, although prices are also found in credit notices, participation of the joint property, donations and what were called estimates (Sw. "skattningar") – genres between which there are no sharp lines. Estimates were typical of the era – particu-larly common in the early record books of Arboga. A group of men, never a woman, are said to have jointly evaluated a given property. This valuation was expressed with few exceptions in monetary terms, even though other units of account existed.[9] Besides buyer-sellers, creditors-debtors and estimators, additional actors are to be found. These include mayors and councillors, witnesses, representatives in case of a person's absence, and spouses who gave their consent to transactions.

The property data have been entered into an Excel file which we call "Database of real-estate prices in Stockholm and Arboga". There we have recorded a description of the property, type, date of transaction and price. Notes on which actors were con-nected with the property in question are also recorded. All transactions found in the sources mentioned that contain information about the type of property, year and price have been included. However, it should be pointed out that a large number of notices, including detailed ones, lack price information.

The general price level was roughly ten times higher in 1600 than it was in 1297, largely a result of the deterioration in the silver content of coins. This means that comparisons between nominal monetary amounts can easily become misleading. We have used a consumer price index (CPI) to calculate the real prices, i.e., the prices obtained when the nominal values have been deflated.[10]

---

8   See also Ferm (1987) p. 268; Dahlbäck (1988) p. 189.
9   Franzén (1998) pp. 96–100.
10   Edvinsson and Söderberg (2010), pp. 443–445.

Property prices in Stockholm

2 öre minted in 1573, which contained much less silver than previously. The debasement led to rampant inflation in the 1570s, which is important to consider when house prices are analyzed for that period.
Source: https://digitaltmuseum.se/021027342272/mynt.

Figure 5.1 presents annual median prices for all properties in Stockholm up to 1600 in Swedish mark pence ("mark penningar" in Swedish) recalculated into 1500 year's prices. Thus, these are fixed prices where the effects of changes in the value of money are eliminated. Not until the beginning of the 15th century were price quotations so frequent that trends can be discerned.

Figure 5.1 *Prices for all properties in Stockholm 1297–1600 and Arboga 1453–1569. Mark pence ("mark penningar") in year-1500 prices, medians*
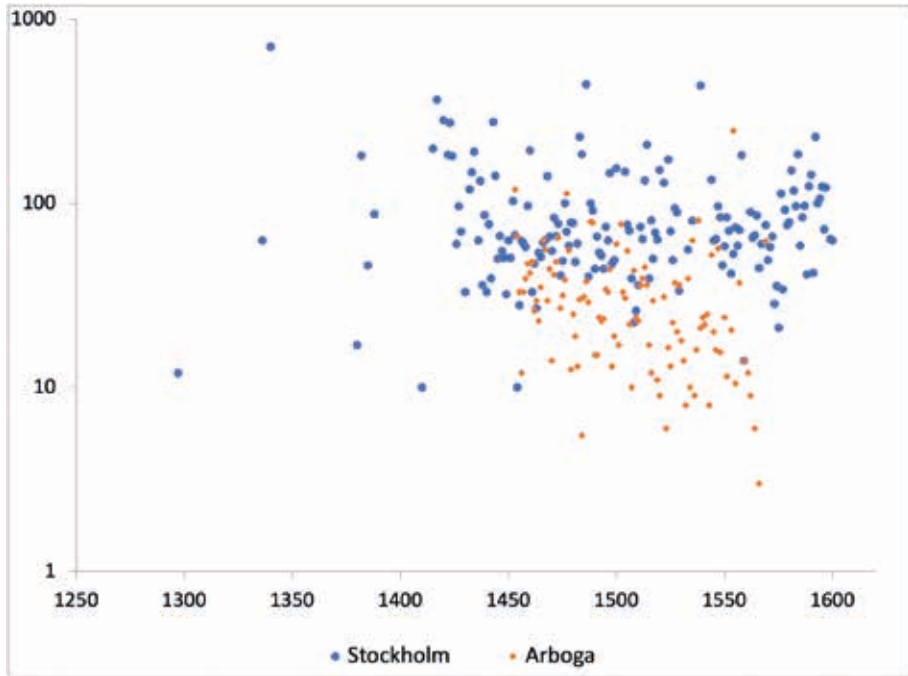
Source: Database of real-estate prices in Stockholm and Arboga.

The following tables present a breakdown on property types. Stone houses were relatively more expensive. During the late Middle Ages, more and more stone houses were built in the "Town between the bridges". Often, they were two-storey houses, built in brick on a wall of grey stone. The houses were so narrow that they generally did not have space for more than one or two rooms per floor. A timbered single-family house inside the courtyard sometimes comprised the living quarters. In the stone houses with two floors, the ground floor was usually used for sheds or workshops, while the dwelling was situated on the upper floor. The building of stone houses reduced the danger of fire while it simultaneously signified increased prosperity among the burghers. In individual cases, the town council could require that a certain house should be built in stone and not in wood. There was no general ban on wooden houses, however. From the 1520s onwards, three-storey high brick buildings became more common.

There is an ambiguity in the medieval language use of wooden houses. These were often referred to as "a wooden yard", but the same word could, albeit more rarely, designate an area where, for example, vegetables could be cultivated, a kind of garden. We have in each case tried to determine whether the transaction referred to

wooden houses or gardens. The Swedish word "trägård" without further determination can in the sources simply refer to a wooden building and be used synonymously with "a garden". North and south of the island where the actual fortified town was situated between bridges going north and south, we find "Norrmalm" and "Södermalm" which literally meant The North and South sand fields. A yard there towards the end of the 16th century was usually a plot with a wooden dwelling house with additionally buildings and a small courtyard space. The plots on the northern and southern sand fields were considerably larger than in the town between the bridges.

A model of the Soul Yard (Själagården), habited by the old and sick in the Old Town in the fifteenth century.
Source: https://stockholmskallan.stockholm.se/post/31542

Table 5.1 shows the number of transactions with different types of properties in 1297–1600 as well as the total property stock according to the house tax list of 1582. The latter list, which covers the town between the bridges, is a unique source that has been processed by Birgitta Lager.[11] This register is intended to account for the total amount of houses of different kinds, unlike memory and land books, which only register changes in the form of purchases, inheritance, etc. It should therefore be

---

11   Lager (1962) pp. 83, 85 (plot sizes), pp. 9–11 (tax list).

possible to get an idea of the extent to which the property transactions reflected the total portfolio.

Table 5.1 shows that the distribution of transactions with different types of properties during the last period, 1550–1600, is indeed similar to the distribution of properties according to the house tax list of 1582. This indicates that the real-estate trade at this time well reflected the different categories in the total stock of real estate.

In Table 5.1 we see that wooden houses (including yards) accounted for almost half of the transactions in the town between the bridges until the end of the 15th century. The proportion of stone houses seems to fall slightly in the second half of the 15th century and remains at the same level during the first half of the 16th century. Not until the second half of the 16th century has the category stone houses become dominant in the transactions. Here, however, it should be noted that the number of unspecified houses increases gradually. Judging by the prices of those houses, they were probably stone houses, as discussed below. If the unspecified houses are added to the stone houses, this expanded category will be the dominant one from the second half of the 15th century and will reach almost three quarters of the number of transactions during the latter half of the 16th century. It seems that over time the town scribes have increasingly come to perceive unspecified houses as stone houses.

Table 5.1 *Number of transactions with different types of property, 1297–1600, in the town between the bridges and total stock in 1582*

| | Transactions | | | | Portfolio |
Type of property	1297–1449	1450–1499	1500–1549	1550–1600	1582
Stone houses	45	179	168	386	451
Wooden houses, yards	42	206	119	100	130
Half-timbered houses	0	0	1	69	92
Unspecified houses	1	43	65	87	70
Total	88	428	353	642	743
% Stone houses	51	42	48	60	61
% Wooden houses, yards	48	48	34	16	17
% Half-timbered houses	0	0	0	11	12
% Unspecified houses	1	10	18	14	9
Total	100	100	100	100	100

Source: Database of real-estate prices in Stockholm and Arboga; portfolio 1582: Lager (1962) p. 57.

Table 5.2 *Price in mark pence ("mark penningar") for different types of properties in Stockholm, medians in year-1500 prices*

Type of property	Transactions 1297–1449	1450–1499	1500–1549	1550–1600
Stone houses	343	299	238	184
Unspecified houses	44	199	250	152
Half-timbered houses			128	96
Wooden houses	84	69	53	52
Commercial buildings	62	60	39	22
Plots	30	36	26	23
All	83	76	98	87

Source: Database of real-estate prices in Stockholm and Arboga.

Stone houses fell in price during the period examined (Table 5.2). The median price during the second half of the 16th century was only slightly above half of the equivalent price during the period 1297–1449. Two other property types, wooden houses (including yards and cottages) and commercial buildings, as well as stone houses, show a clear fall in prices.

The authorities had limited ability to reduce the share of wooden buildings. In the years 1570–1587, King Johan III issued about ten decrees for the demolition of wooden houses.[12] The main motive was the risk of fire, but the King also thought wooden houses made the town uglier, especially around the squares and the main streets. However, the regulations were not very well respected. As can be seen from Table 5.1, every sixth house in the town between the bridges can be counted as wooden houses, wooden cottages or yards even in the year 1582. Although the threats of demolition often were not carried out, there are examples that they created concerns, and subdued demand, among potential buyers.[13]

However, the building of half-timbered houses or "stonework" houses, as they were also called, was allowed. In 1577, it was ordered that ten wooden houses should be demolished every year and that as many stone houses or half-timbered houses were to be built in the town. The condition was a façade of "one stone thick", corresponding to the width of a brick, so that no wood was visible. This may have contributed to the half-timbered houses becoming common objects of sale in the real-estate market during the second half of the 16th century, from having previously been

---

12 Lager (1962) p. 57.

13 Mickel Persson had bought a wooden shed from Mrs. Brita but did not want to stand by the purchase with reference to the order to demolish all wooden buildings. The court rejected Mickel's request. *Stockholms stads tänkeböcker 1576–1578* (Stockholm 1943) p. 357.

registered only in individual cases. As shown in Table 5.2, half-timbered houses were more expensive than wooden houses, but considerably cheaper than stone houses and unspecified houses.

Even unspecified houses fell in price in the 16th century. During the latter half of the century, these houses were sold at prices that far exceeded the prices of half-timbered houses, while their prices were only slightly below those of stone houses. It seems reasonable to assume that unspecified houses to a large extent also were stone houses.

A half-timbered house in Visby. Half-timbered houses were common in Stockholm in the sixteenth century, but disappeared later.

https://commons.wikimedia.org/wiki/File:Agrellska_g%C3%A5rden,_S%C3%B6dra_
Kyrkogatan_5,_Laboratorn_4,_Visby,_Gotland_(6992374577)_(2).jpg

In Arboga, wooden houses dominated. The median price in all house transactions was 47 Swedish mark pence (deflated into 1500 year's prices), which can be compared to the median price in Stockholm (142 mark pence), which was three times higher. Over time the two towns show a similar, slightly downward trend in real-property prices. The fall in prices amounts to an average of 0.3 percent a year in Stockholm and 0.1 percent in Arboga. Might changes in prices for building materials or labour help to explain the falling trend in property prices? Göran Dahlbäck has investigated the cost of building two houses by a religious guild (Helga Lekamens gille) in Stockholm in 1517.[14] The first one was a stone house that cost nearly 400

---

14   Dahlbäck (1985) pp. 159–180.

Swedish mark to build. The second one was a simple wooden house that cost 60 Swedish mark. Interestingly, the distribution between building materials and labour was virtually the same in both cases. Building materials accounted for about half of the total construction cost. The material cost was dominated by the purchase of bricks, timber and boards, lime and iron components. Boards show a clear rise in price, lime a weak rise and bricks a slight decline. Of the goods mentioned here, only iron fell sharply in price during the period examined.[15] However, the amount of iron purchased was so small that this could only marginally have affected the construction cost.

Around half of the cost, therefore, consisted of labour in the (only) investigated cases. Real wages for unskilled labour in Stockholm fell by about 40 percent between 1430/1440 and 1590/1600.[16] This would, if we generalize Dahlbäck's results regarding the distribution of construction costs, mean a reduction of the order of 20 percent for building a house between the two points of time referred to. Reduced real wages can thus help to explain the long-term trend of falling property prices, while changing prices for building materials seem to have played a minor role.

Previous research has shown that the price of land in Sweden fell dramatically after the middle of the 14th century. In most of the rural provinces around Lake Mälaren, the real price per the so-called markland, that is, the nominal price in Swedish mark pence deflated by the CPI, fell by 90 percent between 1350/1399 and 1550/1599.[17] This corresponds to an annual price decline of 1.1 percent. The fall in prices in Stockholm and Arboga was thus not as strong as for agricultural properties around Lake Mälaren.

But even if the trends differed between the towns and the countryside, one could imagine that the price fluctuations would show some short-term connection. However, this does not seem to be the case.

For example, the annual percentage change in prices in the east Swedish *Markland area* do not correlate with the corresponding change in property prices in Stockholm. Both the different long-term trends and the absence of covariation in the short fluctuations can be interpreted as indications that Stockholm followed a different and more positive economic path than the surrounding countryside.

After the Black Death, the population of most towns in Europe slumped, but the decline was not as strong as in the countryside. Several scholars have pointed out that Nordic medieval urbanization followed largely the same phases of expansion and stagnation as the rest of western and central Europe. In Denmark, the Öresund region was a zone of growth with towns such as Malmö, Helsingborg, Helsingör and

---

15 Söderberg (2007) pp. 131–135, 148. For prices on bricks, boards and lime, see Jansson *et al.* (1991) pp. 45–47, 56, 58.

16 Söderberg (2010) p. 472. The real wages for carpenters fell by an estimated one-third between the mid-15th century and the end of the 16th century.

17 Söderberg (2013) p. 85. The Swedish *markland* was not an area measure, but rather a measure of what the land property yielded. Like the monetary system there were 8 öresland (öre pence) = 24 örtugsland (örtug pence) = 192 penningland (penning pence) for each markland (or mark pence).

Landskrona. They were able to benefit from the growing trade between the Netherlands and the Baltic.[18] Swedish towns also seem to have been less affected by the Black Death and subsequent epidemics than rural areas. According to the estimates by Sven Lilja, most towns already had a population in 1370 that was at least as large as the one before the Black Death, more precisely in 1330. Several towns, including Kalmar, Vadstena, Uppsala and Norrköping, continued to grow in the 15th century. Even though a few towns decreased in population after the mid-14th century, the population share of the realm that lived in towns gradually increased.[19] Towns did not experience the long-term decline in population, settlement and cultivation that affected the countryside after 1350.

The relationship between country and town seems to have changed in that agrarian decline did not restrain urban expansion. By all appearances, urban economic life became less dependent on the surrounding countryside. Agrarian desolation does not seem to have led to crises in towns. Part of the explanation may be that some towns reoriented their activities and participated in the growing long-distance trade in commodities such as fish, livestock and metals. However, the interaction between towns and their surrounding areas in the late-Middle Ages has been incompletely studied.[20]

Plot size and price in Stockholm

At first glance, it thus appears that real-estate prices in real terms were pushed down. However, these prices are far from ideal as an indicator of price developments over time. The buildings were divided into different categories mentioned above, but within each type, the variation was large in terms of size, quality, etc. For example, a stone house could be described as small, old and decayed, while another was described as brick-built with several floors, a free basement, loft and sheds.

One way to create more homogeneous categories is to utilize the information available about the size of the plots. With knowledge of length and width, the area of the plot can be approximated and thus also the price per square metre for different categories of property.[21] In just over 700 transactions in Stockholm – about one third of the total number – the plot's length and width are stated. It was thus com-

---

18   Andrén (1985); Krongaard Nielsen and Poulsen (2016), pp. 269–280; Lilja (2000) pp. 43–54. The late medieval fishing villages can be seen as a part of a social specialization that from the middle of the 14th century pushed forward an urban expansion in towns such as Skanör and Falsterbo; Lars Ersgård (1988) pp. 198–208.

19   Lilja (2000) pp. 49–50, 428–430. By the middle of the 14th century, Kalmar had become one of the kingdom's most important towns. In the 15th century it advanced further and functioned both as an economic and political centre; Harrison (2017) p. 139.

20   Andrén (1985) p. 100.

21   We have converted the area from Stockholm square cubits to square metres. A cubit is assumed here to be 55 cm before the year 1444 and 59 cm after the year 1471. Between those years, both systems of measurements were in use; Söderström *et al.* (eds.) (2014), p. 26.

mon that the Swedish town law, which stated that the length and width of the plot was to be entered into the land book of the town, was not followed.[22] Around 300 cases refer to plots that can primarily be classified as building sites. The rest provide information about the size of the plot for other types of property, mainly wooden houses and stone houses.

Construction in Slussen, south of the Old Town in Stockholm, from the 1540s excavated.
https://stockholmskallan.stockholm.se/post/31135

Plots are inevitably a heterogeneous category. Some plots are referred to as "bare", without buildings, while others contained simpler wooden buildings or basements, or were used as cabbage lots. It does not seem to have been allowed to own a plot without intending to build upon it, as a case in the memory book from 1545 shows.[23] In another case, it was required that deserted plots should be fenced in order to prevent waste being deposited there.[24]

The buildings were densified over time. The median size of plots fell from 94 square metres during the period 1422–1449 to 74 square metres during the second half of the 16th century. The densification is evident in the case of stone houses, whose plots shrank from the median value of 127 square metres during the former period to 96 square metres during the latter (Table 5.3). We see a similar downward trend for wooden houses. The difference between the town between the bridges versus Norrmalm and Södermalm was, as expected, significant. On the latter, there is no clear trend towards smaller plots. There, the plots were about three times as large as in the town.

---

22 Holmbäck and Wessén (1966) p. 73.
23 Stockholms stads tänkeböcker 1544–1548 p. 74.
24 Stockholms stads tänkeböcker 1553–1567 p. 253.

Table 5.3 *The size of the plots in square metres, 1422–1600, in Stockholm according to house type, medians*

Type of property	Period 1422–1449	1450–1499	1500–1549	1550–1600	Total
Stone house	127	129	107	96	110
Unspecified house		50	59	72	59
Half-timbered house				60	60
Wooden house, yard, cottage	107	77	75	79	78
Commercial building	30	53	66	62	55
Plot	82	96	84	70	83
Total	94	87	79	74	82

Source: Database of real-estate prices in Stockholm and Arboga.

Table 5.4 shows the plot price per square metre in fixed prices from 1422 to 1600 by district. The dominance of the town between the bridges is striking. There, the price level was much higher than on Norrmalm and Södermalm, because the town itself was an unmistakable financial centre. A lot of activities that were smelly, inflammable or space-consuming were located in Norrmalm and Södermalm. There were also plots for cabbage and herbs, stables and barns, brewery houses and bathing huts, sheds for the manufacturing of train oil along with boat houses. The resident population of Norrmalm and Södermalm consisted largely of workers, craftsmen, fishermen and boatswains.

Table 5.4 *Plot price per square metre in Stockholm, 1422–1600, by district, medians, mark pence ("mark penningar") in 1500 year's prices*

District	Period 1422–1449	1450–1499	1500–1549	1550–1600	Total
The town between the bridges	0.99	0.87	0.61	0.62	0.76
Norrmalm	0.12	0.09	0.13		0.11
Södermalm	0.08	0.09	0.10		0.09
Total	0.82	0.78	0.57	0.62	0.69

Source: Database of real-estate prices in Stockholm and Arboga.

Table 5.5 *Plot price per square metre in Stockholm, 1422–1600, in the town between the bridges according to type of house, medians, mark pence ("mark penningar") in 1500 year's prices*

| | Period | | | | |
Type of property	1422–1449	1450–1499	1500–1549	1550–1600	Total
Stone house	3.2	3.1	3.0	2.8	3.0
Half-timbered house				1.5	1.5
Wooden house	1.2	1.1	0.7	0.8	1.0
Plot	0.6	0.7	0.5	0.4	0.6
Total	1.4	1.3	0.9	1.2	1.2

Source: Database of real-estate prices in Stockholm and Arboga.

The median price per square metre of land in the town between the bridges largely decreased during the investigated period (Table 5.5). The plots for stone houses fell by six percent between the first and the last period, while the price of plots for wooden houses fell considerably more, by about one third. The difference in the price of plots for stone houses and wooden houses thus increased. This may have to do with the fact that stone houses were more often built to the height of two or more floors. All in all, considering all types of property, the price per square meter was lower during the 16th century than it had been before.

For the wealthy, investing in real estate had several advantages. It provided social reputation and high-class accommodation for the family. For the merchants who dominated the economic elite, it was of value that properties could be mortgaged as needed,[25] a phenomenon that seems to have been a well-established practice before the Black Death. Real estate as security was the basis of the credit system, in Stockholm as well as in Arboga.[26] The owner could also let properties. The rent (i. e. interest) during the late-Middle Ages was usually five percent of the property's value, but then rose and often amounted to ten percent during the latter half of the 16th century.[27] Another frequently occurring financial practice was to sell the annual return on a property in capitalized form. For example, in 1516 Didrik Westfal, a

---

25 Lager (1962) pp. 62–63.

26 SDHK 4251 and 4581. The high medieval urban phenomenon of giving credit against pawned real estate has a parallel in rural areas. In one case, 1322–1370, the interest rate for these land credits can be reconstructed with an average of five percent; Franzén (2006) pp. 137–138. About Arboga, see Franzén (1998) p. 134 (pledges) and pp. 123–124 (interest rates).

27 See e.g. *Stockholms stads jordebok 1420–1474* (1876). For samples of higher rents and interest rates during the latter part of the 16th century, see *Stockholms stads tänkeböcker 1553–1567* (1939) p. 45; räkenskaper för Danvikens hospital, in Upplands handlingar 1567:19, 1571:17, Riksarkivet. For interest rates in late medieval Stockholm, see also Almquist (1939) pp. 269, 273–274.

burgher in Stockholm, sold the annual interest of 30 Swedish mark pence from his sauna in Söderström (between Södermalm and the town between the bridges) to Archbishop Jakob in Uppsala for 600 mark. In other words, here too the return was five percent of the property's value. To the financial income from urban properties, we must add the rents that the landless majority paid for a roof over their head, a research field where much remains to be highlighted.

Real estate was taxed only on rare occasions. 1582 was, however, one of the years it was taxed. The tax was then regressive in that virtually all properties were charged the same amount (four sw. daler). That year, there were 17 people who owned at least four houses each; altogether, their holdings amounted to one eighth of the entire stock. Of these owners, 14 were burghers, while three were in the service of the crown. The largest property owner in Stockholm at this time was the member of the borough Jöns Henriksson's widow Gertrud, who owned seven or eight stone houses among the dominating wealthy merchants.[28] But there were also other groups. A wealthy stratum of distinguished officials and craftsmen in royal service, often of foreign origin, was being formed towards the end of the 16th century.[29] The trading town of Stockholm also began to get the character of capital. the capital of Sweden.

To sum up, the prices of stone houses fell sharply during the period examined, while the size of plots decreased for this type of property (Tables 5.2 and 5.4). The fact that those prices fell was partly an effect of the plots in the town between the bridges having decreased in size. Stone-house prices per square metre were basically unaltered (Table 5.5).

The shift towards smaller plots in the town between the bridges suggests that the population grew in the long term, despite several outbreaks of plague and other epidemics. Sven Lilja has estimated that Stockholm in 1410 had about 6,000 inhabitants and just as many in 1490. In 1530 the population had increased to 8,000 and in the 1570s it reached 9,000.[30]

Thus, according to these estimates, the 15th century was characterized by demographic stagnation, while the following century was more expansive. However, in our study, the diminishing plot size suggests that the population grew during the 15th century as well as in the 16th century. The settlement condensed even though large areas of new land were gradually being created in the town between the bridges by reclaiming land from the sea. This also indicates that the town experienced an increase in population.

---

28 Lager (1962) pp. 69–70. In Arboga in the 1480s, Mrs. Gesa belonged to the selected group that traded with stone houses. She was the widow of the merchant Laris Hakonsson and she probably owned several properties; Franzén (1998) pp. 64–65.
29 Lager (1962) p. 146.
30 Lilja (2000) pp. 405, 428.

Plagues and property prices

In this section, the impact of plague epidemics on property prices in Stockholm is studied. The question we ask is whether plague epidemics affected property prices in Stockholm. Prices can be expected to be lower during plague years as the population declined. Real estate thus became a less scarce commodity.

Table 5.6 shows the effects during years of plague epidemics. The intention is to capture the effects of the larger and medium-sized epidemics that affected Sweden and especially Stockholm. The effect was noticeable in that the price per property during plague years fell by an average of 19 percent, from 157 to 127 percent. The price per square metre of plot fell even more, by almost a third.

Table 5.6 *Real-property prices in Stockholm 1421–1600 during years of plagues, years after years of plagues, and other years respectively. Mark pence ("mark penningar") in 1500 year's prices, averages*

Year	Price per property	Price per square metre
Years of plague	127	0.85
Other years	157	1.24
Change, %	–19***	–31**
Years after years of plague	171	1.51
Other years	150	1.14
Change, %	14	32*

Note: * significant at the ten percent level, ** significant at the five percent level, *** significant at the one percent level.

Janken Myrdal distinguishes between large, medium-sized and minor epidemics during the Middle Ages; Myrdal, *Digerdöden, pestvågor och ödeläggelse* (Stockholm 2003) pp. 161–162. Minor epidemics are not included in the calculations above. The epidemics before 1421 are not included because price data are missing. Sources: Database of real-estate prices in Stockholm and Arboga; Myrdal (2003) pp. 243–244. For the 16th century see Ingvar Peterzén, *Studier rörande Stockholms historia under Gustav Vasa* (Stockholm 1945) p. 90; Lager (1962) pp. 18, 150; Birgitta Lager-Kromnow, *Att vara stockholmare på 1560-talet* (Stockholm 1992) pp. 86–87; Immanuel Ilmoni, *Bidrag till historien om Nordens sjukdomar 2* (Helsingfors 1849) p. 118. The years count as plague years are 1422, 1439–40, 1451, 1455, 1464–65, 1472–74, 1484, 1495, 1548–49, 1551–52, 1565–66, 1572–73, 1575, 1580 and 1588.

If the plague pushed down prices, a recovery should take place after the epidemic had petered out. This also seems to be the case. As shown in Table 5.6, prices were higher during years that followed plague years than in other years. Urban immigration

probably increased after the plagues, so that the demand for real estate rose, while the decrease in mortality contributed to a degree of lesser houses being empty. A strong recovery is already noticed in years after plague years in terms of price per square metre, which rose by as much as 32 percent. The price per property did not increase as much, from 150 to 171 Swedish mark pence ("mark penningar"). There may be reasons to attach greater importance to the calculation of the price per square metre than to the price per property, since the former, unlike the latter, takes into consideration the change in plot size per property over time.

Prices were thus affected by demographic pressure. Declining prices when the population decreased was the market's typical way of responding, in the same way as the Black Death, and the following epidemics, led to rural property falling in price.

Property prices and economic inequality

In recent years, research on long-term economic inequality has exploded. An extensive debate started when the French economist Thomas Piketty in 2013 published *Le capital au XXIe siècle.*[31] The book is mainly about inequality over the last two centuries, but in other works, Piketty has an even longer perspective, sometimes even as far back in time as the beginning of our calendar.[32]

The discussion that Piketty started has inspired other scholars to explore long-term inequality. The economist Branko Milanovic is one of them. He argues that the pre-industrial era experienced waves of increased as well as decreased inequality. These waves were brought about by a fundamental Malthusian mechanism: If the conditions of the poor were improved for some reason, inequality decreased for a time. But this prompted a population increase which, in the next phase, led to falling incomes and increased inequality. Therefore, according to Milanovic, there is no reason to expect any long-term change in inequality before the industrial revolution. Such trends could not arise until the arrival of modern economic growth.[33]

However, there is no agreement on this. The Italian scholar Guido Alfani has put forward the hypothesis that growth is linked to increased income inequality, and that inequality rose throughout the pre-industrial era. Alfani believes that the overall trend over time in inequality has been driven by the top layer of wealth owners, an empirical regularity that has remained constant from the Middle Ages to the present. Only one period deviates: the century after 1350, which was characterized by equality. From around 1450, inequality started to increase again.[34]

---

31   Piketty (2014). See also Bohlin (2014) pp. 686–697.
32   For example, Piketty and Saez (2014) pp. 838–843. At the Università Bocconi in Milan, several research reports on the theme of inequality during pre-industrial time have been published in the *Dondena Working Papers* series.
33   Milanovic (2016) pp. 46–117.
34   Alfani (2015) p. 1091. See also "Very long-term trends in economic inequality: Evidence of concentration in European wealth over seven centuries", < www.ehs.org.uk/press > (3/28 2017).

Because long-term series of income inequality can be impossible to generate, scholars often work with the distribution of wealth instead. Our basis is the aggregated purchase prices per buyer in all property transactions in Stockholm and Arboga. Here we do not have the opportunity to obtain information of the distribution of real estate among all owners. However, given certain assumptions, prices of properties sold can provide valuable information about the distribution. The top layer of property owners can be expected to be well represented. A prerequisite for the prices to give a good approximation of the wealth distribution is that the trade in property reflects the total stock of properties sufficiently well. This seems to be the case at least during the second half of the 16th century, when the transactions for different types of properties are compared with the stock according to the 1582 house tax list (Table 5.1 above).

Table 5.7 presents two measures of inequality. One is the coefficient of variation (CV), which is defined as the standard deviation as a percentage of the average. The second is perhaps the most widely used inequality measure, the Gini coefficient, which can vary between 0 and 1. The value is 0 when everyone owns identically, and 1 when the entire wealth is accumulated by a single owner.

Scholars do not agree on what is the best measure of inequality. It is well known that the coefficient of variation is sensitive to extreme values. This is a result of the deviations from the average being squared. The economist Amartya Sen sees several good points with the Gini coefficient. An advantage is that all information contained in the distribution is used in the calculation, another is that the Gini coefficient, unlike the standard deviation, does not have the average as an arbitrary reference point.[35] CV is easier to calculate than the Gini coefficient, though this hardly matters in a world filled with computers.

Table 5.7 *The coefficient of variation and the Gini coefficient for real-property prices in Stockholm 1297–1600, mark pence ("mark penningar") in 1500 year's prices*

Town	Period	CV	Gini
Stockholm	1297–1449	114	0.55
	1450–1499	128	0.58
	1500–1549	135	0.57
	1550–1600	125	0.57

Source: Database of real-estate prices in Stockholm and Arboga.

---

35   Sen (1973) p. 31.

The greatest inequality is noted for Stockholm during the latter half of the 15th century and the first half of the 16th century, depending on whether we measure using CV or the Gini coefficient. In the long term, a slight tendency towards rising inequality may be discerned in Stockholm. The fluctuations over time are limited in both towns. All calculations of the Gini coefficient end up between 0.55 and 0.58. This result seems reasonable given that values between 0.50 and 0.70 are the most frequent result in much of pre-industrial urban Europe research.[36]

The size of the Gini coefficient is close to estimates made for The Netherlands from the mid-16th century based on house rents. For Amsterdam, which then had around 30,000 inhabitants, the Gini coefficient is 0.56 and for all Dutch towns 0.52.[37] These values are nearly identical for the results for Stockholm in Table 5.7. Larger towns show higher levels of inequality, which may be due to their diversified economy as well as to the high mortality rate. As a result, there was an extensive immigration of people with little or no wealth.[38]

The Gini coefficient has been calculated for four Danish small towns around 1540, giving a median value of 0.47. The variation between the towns was large, with high values where there were wealthy merchants, and low values in their absence.[39] The outcome has thus mainly been determined by the top layer of wealth, which is consistent with the observations referred to above.

The change in inequality in Stockholm does not resemble the process observed by Alfani in his study of some small towns in north-eastern Italy. There, inequality tended to decline during the century after the Black Death, and then increased in the 16th and 17th centuries.[40] Our survey therefore does not support the hypothesis that inequality in wealth increased in Stockholm, or that it declined.

Women and men in the real-estate market

The issue addressed in this section is the position of women and men in the real-estate market. Did women's position as buyers and sellers of real estate change in the transition from the Middle Ages to the early modern period? As mentioned in the beginning, scholars have shown that the real-estate market was dominated by men in various parts of Sweden. Women did not often appear as sellers and even more rarely as buyers. It is also interesting to estimate how the property market may have been affected by the equal inheritance rights for women and men that applied in Swedish towns, but not in the countryside.

Equal rights of inheritance for men and women were applicable in Stockholm and

---

36 Garcia-Montero (2015).
37 Soltow and Van Zanden (1998) p. 28.
38 Ryckbosch (2014) pp. 15–16.
39 Krongaard Nielsen and Poulsen (2016) p. 421. The four towns are Husum, Tønder, Sønderborg and Ærøskøbing.
40 Alfani (2015) pp. 1 069–1 071.

Arboga. They were also applied consistently, as far as we have seen. Despite this, the real-estate market was dominated by men. A patriarchal structure lived on, in which men managed larger economic assets, although it was sometimes possible for women to be active.[41]

Table 5.8 *Percentage of women among sellers and buyers of properties in selected areas 1297–1603*

District	Period	Sellers	Buyers
Stockholm	1297–1449	18	6
	1450–1499	17	4
	1500–1549	19	10
	1550–1600	20	8
Arboga	1453–1523	15	3
	1524–1569	17	7
Dalarna	1545–1559	8	1
	1591–1603	20	8
Finnveden	1307–1500	17	2
Jämtland	1346–1510	9	1
Finland	1300–1500	10	3

Sources: Stockholm and Arboga: Database of real-estate prices in Stockholm and Arboga; Dalarna: Sjöberg (2001) p. 111; Finnveden och Jämtland: Bjarne Larsson (2010) pp. 164–165, 202; Finland: Lahtinen (2004) pp. 39, 41 (the proportion of women among the sellers refers to widows).

The results in Table 5.8 confirm the prevalent picture that women appeared much more often as sellers than as buyers of real estate.[42] Approximately every sixth seller in Stockholm was female and this proportion was stable over time. Similar shares are noted for Arboga and for Finnveden in Småland.

---

41 From the year 1504, we find the following illustrative example of a woman appearing before the town council in her own business. She applied for court approval that a yard she just had bought in Stockholm should be listed as her separate property (*Stockholms stads tänkeböcker 1504–1514* (1931) pp. 4–5.):
   "Furthermore, the afore mentioned Mrs. Cecilia, in front of honourable men, informed them that she had purchased this yard with her legal patrimony, which she had sold and collected the purchase-sum in Norrbotten, so that if her husband would infringe the law in some way, then said she that he should never be able to remedy what is hers, for she has enough of being violently assaulted by him in his beer boozing and dizzy madness."

42 The material from Arboga up to 1523 has been studied by Franzén (1998) pp. 149–150 (which also includes non-priced purchases).

Among the buyers, the differences between different areas were greater. In Stockholm, the proportion of female buyers reached at most ten percent, which occurred during the first half of the 16th century. This is only slightly larger than in Arboga during the late Middle Ages and Dalarna around 1600, but contrasts somewhat with the provinces of Finnveden, Jämtland and Dalarna in the mid-16th century.

The big change in the long term in Stockholm is the growing proportion of transactions where both a man and a woman act as sellers. Usually it is the wife giving her consent to the sale. The proportion increases gradually from seven percent during the period 1297–1449 to 21 percent during the second half of the 16th century. The tendency is the same as in Finnveden and Jämtland. The increase in the frequency of consent in these two areas is explained by Bjarne Larsson by the selling-off of hereditary land to distant relatives or even to non-relatives. This meant that the dependencies between buyers and sellers weakened.[43]

Anu Lahtinen has pointed out that women usually represented only a small part of the landowners in Medieval and Early Modern Europe. This applies to England and the continent as well as Scandinavia. Her own analysis of 400 medieval land transactions in Finland shows that women acted as buyers in only a few percent of those cases (Table 5.8). Here, as elsewhere, it was to a large extent men who handled the trade in land, even when it was the woman's property that was sold. According to Lahtinen, there are reasons to emphasize the continuity of land ownership and the distribution of power resources. She joins the American historian Judith M. Bennett, who believes that there were only modest changes in women's conditions between 1300 and 1700.[44] Our results for the real-estate market in Stockholm and Arboga fit well into this picture of small changes.

Concluding discussion

The chapter explores real-property prices in Stockholm before 1600 based on roughly 2 900 transactions, which is compared to the smaller town of Arboga. A consumer price index has been used to deflate nominal prices into real values. The analysis shows that houses made of both stone and wood became cheaper over time. In 1500 year's prices, the median price of a stone house in Stockholm was 343 Swedish marks in the period 1297–1449 compared to 184 marks in the period 1550–1600. For wooden houses, the same downward trend was evident: a drop from 84 marks in the first period to 52 marks in the second period. Part of the price decline is due to the fact that building plots became smaller, which suggests an increase in population in Stockholm. Declining real wages of labourers also exerted downward pressure on the cost of building a house.

Initially, the question was asked how the property in Stockholm varied in price in

43   Bjarne Larsson (2010) p. 211.
44   Lahtinen (2004) pp. 32–47.

the short and long term, which is compared to Arboga, another town for which there are rich sources. The long-term price trend for these towns is not at all similar to that of farmland in the rural provinces around Lake Mälaren, where prices fell dramatically in the late Middle Ages. Nor did we find any connection between the short price fluctuations in Stockholm and the surrounding provinces. This may indicate that the economy of Stockholm was not strongly and directly dependent on the agrarian economy.

Stone houses as well as wooden houses in Stockholm became cheaper over time, calculated in deflated prices, if we do not take into account the size of the plots. A closer look shows that the price decline was partly due to plots becoming smaller. In other words, the settlement was densified. The price per square metre of plot fell slightly for stone houses, while it fell more noticeably for wooden houses. This may indicate that the growth in population during the 15th century was limited, albeit positive. As the number of floors is usually not known, it is not possible to determine whether the densification increased.

An additional question is whether changes in the prices of building materials or labour contributed to the downward trend in property prices. Building materials can be expected to have accounted for about half of the total construction cost, labour for the other half. The main items in the cost of materials were bricks, timber and boards, lime and iron. Out of these commodities, only iron fell sharply in price during the period investigated. However, iron purchases were not so great that they could significantly affect the total construction cost. In contrast, falling wages may have pushed down construction costs. The real wage for unskilled workers fell by 40 percent between 1430/1440 and 1590/1600.

An interesting result is that the plague epidemics affected the property prices in Stockholm. During plague years, prices dropped, but they recovered quickly after the epidemics had ebbed away. This is a pattern that indicates that property prices were organized in a market economy.

We also presented tentative results on a theme that recently has received considerable attention in international research, i.e. long trends in economic inequality. The wealth distribution was captured using the aggregated purchase price per person in all real-estate transactions. Two common measures of inequality, the coefficient of variation and the Gini coefficient, were calculated. Stockholm shows roughly the same degree of inequality as Amsterdam. The changes over time prove to be small, in both Stockholm and Arboga. Thus, the hypothesis put forward in international research that inequality has increased in the long term throughout the pre-industrial era is not supported by this study.

Finally, we discussed whether it is possible to see any change in women's position in the property market during the late Middle Ages and the 16th century. In Stockholm and Arboga, it was predominantly men who bought and sold real estate. Around a fifth of the sellers in Stockholm were women. This proportion does not differ dramatically from what has been registered for several other areas in Sweden.

The proportion of female buyers varied between three and ten percent. This may seem like low numbers, but it is actually higher than has been found for several rural areas. The equal inheritance right in the towns in association with the presence of relatively wealthy widows, of which the above-mentioned councillor Jöns Henriksson's widow Gertrud is an example, probably contributed to this outcome. The proportion of female sellers shows no clear trend over time, but among buyers, there is a tendency of increase. These results do not indicate that the position of women in the property market deteriorated during the period studied, nor that it significantly improved. Continuity dominates.

References

Alfani, G (2015) "Economic Inequality in Northwestern Italy: A Long-Term View (Fourteenth to Eighteenth Centuries)", *Journal of Economic History* 75:4.

Alfani, G (2017) "Very long-term trends in economic inequality: Evidence of concentration in European wealth over seven centuries". www.ehs.org.uk/press.

Almquist, J E (1939) "Om s.k. eviga räntor i det medeltida Stockholm", *Historisk Tidskrift* 59:2.

Andrén, A (1985) *Den urbana scenen: Städer och samhälle i det medeltida Danmark*. Malmö: LiberFörlag

Arboga stads tänkebok 1-4 (1935–1950), edited by Noreen, E and Wennström, T. Uppsala: Almqvist & Wiksell.

Bjarne Larsson, G (2010) *Laga fång för medeltidens kvinnor och män: jordmarknader och monetarisering i Finnveden och Jämtland 1300–1500*. Stockholm: Institutet för rättshistorisk forskning

Bohlin, J (2014) "Kapitalism och ojämlikhet: Capital in the twenty-first century by Thomas Piketty", *Historisk Tidskrift* 134:4.

Dahlbäck, G (1981) "Jord som kapitalplacering", *Bebyggelsehistorisk tidskrift* 2.

Dahlbäck, G (1985) *Att bygga ett hus: Glimtar ur senmedeltidens vardagsliv förmedlade av Helga Lekamens räkenskapsbok* . Stockholm.

Dahlbäck, G (1988) *I medeltidens Stockholm*. Stockholm: Stockholms medeltidsmuseum.Edvinsson, R, and Söderberg, J (2010), "The evolution of Swedish consumer prices 1290–2008", *Historical Monetary and Financial Statistics for Sweden: Exchange rates, prices, and wages, 1277–2008* (eds. Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström), 412–452. Sveriges Riksbank and Ekerlids.

Ersgård, L (1988) *Vår marknad i Skåne: Bebyggelse, handel och urbanisering i Skanör och Falsterbo*. Stockholm: Almqvist & Wiksell International,

Ferm, O (1987) "Kalmar stad', in *Det medeltida Sverige* 4:1 (eds. Ferm et al.) Stockholm : Vitterhets-, historie- och antikvitetsakad.

Franzén, B (1998) *Sturetidens monetära system: Pant eller penningar som information i köpstaden Arboga*. Stockholm.

Franzén, B (2006) *Folkungatidens monetära system: Penningen mellan pest och patriarkat 1254–1370*. Stockholm: Acta Universitatis Stockholmiensis.

Garcia-Montero, H (2015) "Long-term Trends in Wealth Inequality in Urban Catalonia, 1400–1800: Initial Results", *Dondena Working Paper* 79.

Harrison, D (2017) *Kalmars historia: Den begravda staden*. Lund: Historiska media

Ilmoni, I (1849) *Bidrag till historien om Nordens sjukdomar* 2. Helsingfors.

Jansson, A et al. (1991) *Dagligt bröd i onda tider: Priser och löner i Stockholm och Västsverige 1500–1770*. Göteborg: Institutet för lokalhistorisk forskning.

Jönköpings stads tänkebok 1456–1548 (1919). Edited by Kjellberg, C M.

Kalmar stads tänkebok (1949). Edited by Modéer, I and Engström, S. Uppsala.

Krongaard Nielsen, H and Poulsen, B (2016) *Danmarks byer i middelalderen*. Aarhus: Aarhus Universitetsforlag.

Lager, B (1962) *Stockholms befolkning på Johan III:s tid*. Stockholm: Stadshistoriska institutet.

Lager-Kromnow, B (1992) *Att vara stockholmare på 1560–talet*. Stockholm: Komm. för Stockholmsforskning.

Lahtinen, A (2004) "Gender and Continuity: Women, Men and Landed Property in Medieval Finland", *History and Change*.

Lilja, S (2000) *Tjuvehål och stolta städer: Urbaniseringens kronologi och geografi i Sverige (med Finland) ca 1570–tal till 1810–tal*. Stockholm: Stads- och kommunhistoriska institutet.

Magnus Erikssons stadslag (1966). Edited by Holmbäck, Å and Wessén, E. Stockholm

Milanovic, B (2016) *Global Inequality: A New Approach for the Age of Globalization*. Global Inequality: A New Approach for the Age of Globalization.

Myrdal, J (2003) *Digerdöden, pestvågor och ödeläggelse: Ett perspektiv på senmedeltidens Sverige*. Stockholm Sällsk. Runica et mediævalia.

Peterzén, I (1945) *Studier rörande Stockholms historia under Gustav Vasa*. Stockholm.

Piketty, T (2013) *Capital in the twenty-first century*. Cambridge, Mass.: Belknap Press of Harvard University Press

Piketty, T and Saez, E (2014) "Inequality in the long run", *Science* 344, May 23.

Riksarkivet, Upplands handlingar: räkenskaper för Danvikens hospital 1567:19, 1571:17.

Ryckbosch, W (2014) "Economic Inequality and Growth before the Industrial Revolution: A Case Study of the Low Countries (14th–19th centuries)", *Dondena Working Paper* 67.

Sen, A (1973) *On Economic Inequality*. Clarendon.

SDHK, *Svenskt Diplomatariums huvudkartotek* ["The Main Catalogue of Diplomatarium Suecanum"] . Riksarkivet [National Archives], https://sok.riksarkivet.se/sdhk.

Sjöberg, M (2001) *Kvinnors jord, manlig rätt: Äktenskap, egendom och makt i äldre tid*. Hedemora: Gidlund.

Soltow, L and Van Zanden, J L (1998) *Income and Wealth Inequality in the Netherlands 16th–20th century*. Amsterdam : Het Spinhuis.

Stockholms stads jordebok, Ser. 1: and 1:2.(1876). Edited by Hildebrand, H. Stockholm: Hæggströms boktr.

Stockholms stads tänkebok 1524–29 (1929–1940). Edited by Larsson, L. Lund: Gleerup.

Stockholms stads tänkeböcker 1474–1600 (1917–1953) [contains several different series]

Söderberg, J (2007) "Prices and Economic Change in Medieval Sweden", *Scandinavian Economic History Review* 55:2.

Söderberg, J (2010) "Long-term Trends in Real Wages of Labourers", *Historical Monetary and Financial Statistics for Sweden: Exchange rates, prices, and wages, 1277–2008* (eds. Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström). Sveriges Riksbank and Ekerlids.

Söderberg, J (2013) "Resistance to Commodification: Farmland Prices and Rents in Sweden, 1274–1649", *Scandinavian Economic History Review* 61:1.

Söderberg, J and Franzén, B (2018) "Hus, gårdar och gatubodar: Fastighetspriser i Stockholm och Arboga 1300–1600", *Historisk Tidskrift* 138:2.

Söderström G, *et al.* (2014) *Gamla Stan i Stockholm: En bebyggelsehistorik*. Stockholm.

House prices in Stockholm 1600–1730: From rise to decline and stagnation

Lili-Annè Aldman, Emelie Carlsson, Rodney Edvinsson and Bo Franzén

Introduction

This chapter presents a nominal and a real hedonic house price index for Stockholm 1600–1730, and discusses the method applied. This was a period of rapid urbanisation in Stockholm, ending with partial de-urbanisation due to the Great Nordic Wars (1700–1721) and the plague of 1710, which had a substantial impact on property prices. This chapter presents a regression to reconstruct the index from the Middle Ages to 1730, which also covers the period in the preceding chapter. The appendix with the index also covers the whole period 1283–1730. The period 1726–1730 overlaps with the next chapter.

The longest real estate price index that so far has been available is for Paris in 1200–1800 (d'Avenel, 1894–1912). However, that index only approximates the average price of homes for 25-year periods and does not control for quality changes. If there is a qualitative improvement in buildings over time, then such an index will tend to overestimate the secular change.

The two main methods used for the pre-industrial period to construct a house price index are first the repeated sales method, which compares sales of the same property over time, and second the hedonic regression model. The latter does not need to be based on information of the exact location of the properties, but controls for the qualitative characteristics of those properties. Internationally, there are only a few indices reconstructed for the period covered here for Stockholm that control for quality: for example, a hedonic repeated sales index for the district of Herengracht in Amsterdam back to 1628 (Eichholtz, 1997), a hedonic index for Beijing back to 1644 (Raff, Wachter and Yan, 2013), a hedonic index for Dublin back to 1708 (Deeter, Quinn and Duffy, 2016), and a hedonic index for Edirne, Ottoman Empire, back to 1720 (Karagedikli, and Tuncer, 2021). For the 17th century, the sample sizes of these indices are quite small: the Herengracht index contains just 371 sales in 1628–1699, the Beijing index around 50, and the other two indices none.

The disposition of this chapter is as follows:

First, there is a presentation of the sources used for this study. These are of different types from the one used for the index construction from 1730 onwards, and do not contain the same kind of information. Information on exact location is missing in most cases, although the plot size is presented for many transactions. This makes calculating a price index based on repeated sales difficult.

The subsequent section discusses the different currency units that were used in Sweden during the studied period, which necessitates a transformation to the main currency unit before a real value index can be constructed. Some payments were made in three or more types of gold, silver and copper coins, and in the late 1710s also in coin tokens. Some transactions also involved payment in kind.

Next follows a description of the method applied to reconstruct the hedonic price index. We estimate a regression that includes various qualitative dummies, with half-timbered houses in Stockholm's Old Town as the reference, and time dummies for various periods. The regression includes all properties for the period 1283–1629, but only properties in the Old Town for the period 1630–1730 due to the uncertainty of the quality changes of plots and houses outside the Old Town. Since there were qualitative changes made to most types of properties during the rapid urbanisation of Stockholm in the 1630s and 1640s, this study identifies half-timbered houses as the type of housing most likely to be constant in terms of quality over time. Therefore, only half-timbered houses are included in the index covering the 1630s and 1640s.

The subsequent section discusses the evolution of the house price index, which is related to the rapid urbanisation of Stockholm in the 17th century. The index shows that there was an increase in prices from the 1620s to the 1680s, the main phase of the urbanisation of Stockholm, followed by decline and stagnation. At the end, for a robustness check, material is presented where it is possible to follow individual properties sold over time. Unfortunately, there are too few cases to enable the reconstruction of a repeated sales house price index, but the evolution of prices of the identified properties corresponds quite well with the presented hedonic house price index, which is a reassuring result for this study.

The sources

For the period from 1726, so-called Legal and Procurement protocols (Stockholms stadsarkiv, Stockholms magistrat- och rådhusrätt, A 6 a Lagfarts-, uppbuds-, protokoll) contain information of sale prices, but these cannot be used for the period up to 1725. By 1694 the Legal and Procurement protocols regarding property business in the city were removed from the civilian cases like crimes. From then on, they were instead registered separately. However, the notes written during the first decades of the separately archived legal and procurement protocols have one major flaw: prices are rarely included.

For the period 1600–1725, we have used three different sources, while for the

period 1726–1730 data comes from the study presented in the next chapter. Up to 1635, a published series of *Stockholms Tänkeböcker* (Stockholms stadsarkiv, 1939–2009), the Memory Books, is used, which are minutes from the Stockholm magistrate, and contain information on sales, economic disputes, inheritance, etc. After 1636, various unpublished sources are available. For 1638–1647, the source is the so-called Burned Book ("Brända boken") which contains copies of the property deeds distributed during this period. Some pages, along with the cover in the book, are burned. This has probably contributed to the book in the archive being referred to as the Burned Book (Wikström, 1970, p. 39). For the period 1648–1654, the unpublished series of *Stockholms Tänkeböcker* is used. For the period 1654–1725, we use the property deeds available in the Secretary's minutes, "Sekreterarens protokoll" (Stockholms stadsarkiv, Stockholms magistrat- och rådhusrätt, B1a, Sekreterarens registratur). Regardless of which of these sources has been used and despite their many shortcomings, they can provide the following information: the date of registration and date of issued bill of sale, the price, the type of property (plot, house, shed, etc.), the property size and if any other buildings or plots were included in the sale.

The growth of the city and the increase in the number of other types of official
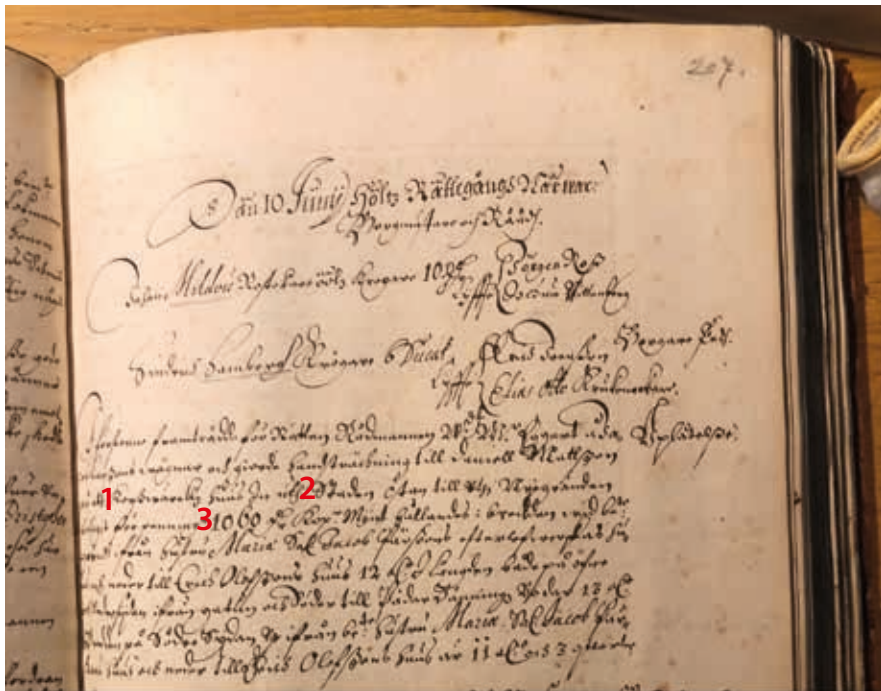
Photo of the Memory Book 1648. Illustration of a sale of a half-timbered house.
1 "korsßwärckz huus" – half timbered house. 2: "Staden Östan till" – on the East side of the present Old Town. 3: "1060 D$_r$ kop.^{r} Mjnt" – 1060 daler kopparmynt, the price.

matters, entailed that what had previously been covered by "Citizens and Councils" now required this institution to be reformed. This reorganisation started in the mid-1630s and as a result, more and more cases were transferred to different subdivisions, or "kollegier" as they were called in Swedish. Because of this, the only cases that were left in the Memory Books were judicial in nature. In 1661, the functions were divided (in a somewhat inconsistent fashion) into two branches: one for criminal and one for civilian cases. With this split came the end of the use of Memory Books by the town hall court ("rådhusrätt") that were of medieval origin (Wikström 1970).

Memory Books and the Burned Book

For 1601–1635, we have gathered 1166 excerpts from the printed Memory Books. The excerpts have been set up based on notices taken by the magistrate in 17 printed volumes carefully published by professional interpretations of the handwritten originals. As indicated above, property prices are unevenly distributed over time. The source material from Stockholm became more and more elaborate after its start in the early 15th century. A small number of the excerpts, roughly ten, are translated from the German language which confirms that German could still be used as an official language in Stockholm. Since the Middle Ages, a significant part of the population had German as its mother tongue. Not only language separated them from their Swedish neighbours, but religion also drove a wedge between people. People that were revealed to be devoted Catholics in the early 17th century had to choose between the death penalty or ostracism. In 1604, for example, "House-builder Lasse Rörby and his wife were deported from the country because of their deceitful Catholic religion" (Stb 13:97).

The printed source material of the Memory Books is transcribed from two parallel sources, so some transactions are printed twice. Even if the writing is formalised, there are some variations in the language depending to a large extent on which clerk was in charge. Many property transactions lack an articulated price. Generally, the main purpose of a notice of change in ownership of a property was not to establish the price but to make sure the transaction had been carried out legally. An example from a detailed transaction partly in translation from the notice of the magistrate of the 8 November 1634 is as follows (Stb 22:34):

> In the same way came to the court on duty the honest and well-respected man, member of the municipal court Olof Erichson, aided by honest matron wife Karin Larßdotter, blessed widow after Callmar Anders Nilsson /---/ and authorised by her son /---/ lieutenant in the province of Värmland /---/ and transferred a stone house situated in [the street] Trångsund to honest and sensible man Nilß Oloßßon, burgher and merchant in this town /---/ for eight hundred riksdaler. And as gift of honour, he honoured his mother-in-law Karin with a frock worth thirty-two riksdaler and gave his brother-in-law Nilß Anderßon 50 riksdaler; and those 800 riks-

daler as well as the honourable gifts confessed the authorised deputy to have collected on behalf of his principals from the first to the last penny as well as the gifts mentioned. [translation from Swedish]

Using a deputy, as is the case here, was common but not mandatory. The sellers and buyers often appeared themselves in front of the court. Here we lack data about a written bill of sale which is a common feature, so this can be an example of a notification more in line with an old-fashioned oral practice. Female buyers and sellers constituted a minority. It is well known that women who sold properties in pre-industrial times were often widowed, reflecting that they no longer could maintain such a palatial residence after the death of their husbands.

Of the 1166 transactions in 1601–1635, we find female parties, alone or together with other men or women, as the seller in 325 notices (28 percent) and as the buyer in 144 notices (12 percent). Here gifts of honour given by the buyer, such as the frock mentioned above, are included as a sign of ownership, but not when female consent is noted in the sources. Another source of error is that people are sometimes not mentioned by name, making it impossible to distinguish whether the parties were male or female. For example, the names of propertied children are often omitted.

Gifts of honour are almost always given by a male, often the buyer to the seller's wife. A rare exception, with a female giving a gift of honour can be found in 1634 when the widowed, high-nobility lady, Britta de la Gardie, gave the sellers 50 extra riksdaler in addition to the 650 riksdaler she had paid for a stone house. The house was bought from the three orphaned children of shoemaker Rasmus (Stb 22:14). The children are not mentioned by their names and this example illustrates that the donor had to be of a higher rank than the receiver (or at least not of a lower rank).

The Burned Book contains copies of the property deeds ("fastebrev" in Swedish) that were distributed between 1638 and 1647. This source got its name due to the city's original documents disappearing in the 1697 fire at the Tre Kronor castle whereby all those who received property deeds during the period in question were asked to send in copies of these deeds. Whether the book really contains all the property deeds is not known. The number of copies collected, in comparison with the number of deeds collected during other years and periods, indicates that if not all, then close to all, deeds are present in the Burned Book. Also, since this period coincides with the street regulation discussed below, it can be assumed that it was very important for the property owners that both the old and new plots were properly (and in accordance with the law) registered with the city's Magistrate Court. Registration of ownership was also of great importance if the property was to be sold through division of property in the future. In these cases, the property deeds had to be verified against the city's register. This was done to make sure that no one else had bought either shares or the entire content of the property deed after the copy kept by the owner had been issued. When dealing with property division, the deeds were

Photo of a burned page from the Burned Book ("Brända boken").

important to show whether the property was part of a birthright ("bördsrätt"). In addition, creditors could not mortgage the property (as collateral for a loan) if the registration of the property deed was missing from the city's archive (Holmbäck and Wessén 1966, pp. 70–74).

The Secretary's register

In comparison with the Burned Book's copies of issued property deeds, the so-called Secretary's minutes consist of the substrates to the issued property deeds. Therefore, it is not surprising that both sources are perceived to be almost identically designed. They have the same structure throughout the period. The few exceptions were usually the result of the installation of a new secretary who had not yet fully adapted to the procedures. This is evident since the property deeds that differ from the rest are written in different handwriting compared to previously issued deeds. When these are followed over time, the design often aligns with the others after the newly installed secretary had written just two deeds. This indicates that the property deeds were standardised from at least 1637 and almost all the deeds include the information that is relevant to our research.

The property deeds were official letters about the change in ownership of a property. The property deeds were written, at the buyer's request, one year after the last "uppbud" (procurement) if no relative, or other person in close connection with the seller, had objected to the sale. These deeds were the new owner's insurance that no one else could claim ownership of the plot or building in question. The deeds regarding property in the City of Stockholm between 1653 and 1757 were written down and kept in the archive "the Secretary's register" ("Sekreterarens registratur"). From 1726, the Legal and Procurement protocols have been used instead, since they contain more sales.

Photo of the register of a property deed from the Secretary's minutes in 1667 (archived under the heading of "Secretary's register"). The first line reads: "Property deed for wife Cathar Wilde concerning a house in Town East, folio 6". 1: "fastebreef" (property deed), 2: "húús" (house), 3: "Östan till" (East side), 4: "gårdh" (courtyard), 5: Södermalm, 6: "steenhúús" (stone house), 7: "Stadzens Östra deel" (East part of the Town), 8: "2^{ne} Tompter" (two plots), 9: "gråmúnkeholm" (Gråmunkeholm, the present Riddarholmen).

The property deed usually includes prices, names and occupations of the seller and the buyer, the geographical location, the name of the bordering streets, and the owners of adjacent properties, the type of building and the size of the plot and/or house being sold. However, this was not managed in a consistent manner. Only some of the registered property deeds have an attached block name, most of them includes street names but a few only locate the plot or house by pointing out who owned the

surrounding houses. Most commonly, the information missing in the property deeds is the specific block name and number attached to the plot of land or building being sold. It is, therefore, not a very easy source to handle. Some properties were bought from several different owners at different times. Since the location of the properties is often also missing, or would require substantial research to determine, we have followed the price of different types of properties, which is also used for the period up to 1600 by Bo Franzén and Johan Söderberg.

Below follows a transcription of part of a property deed depicting the sale of a property in Stockholm's Old Town, in S:t Nikolai parish, in 1725. Noble lady Ulrica Stiernhof sold a stone house to the royal caretaker Jonas Weyman for 8000 daler kopparmynt, equivalent to the pay for 5,333 days of work for a male worker (Söderberg, 2010). The house was located on Stora Nygatan (previously Stora Kungsgatan) and property number 24 in the block Galathea:

> Deed of purchase for caretaker Jonas Weyman / Weijman
>
> Our Mayor and Council of the Royal Residence Capital Stockholm informs all readers of this open letter that in the One Thousand Seventh Hundredth and Twenty-fifth year after our Lord's and Saviour's birth dated 12th of July when we held Our Town Hall Court came to us and our sitting court the Caretaker of the Royal Council Well-Respected Jonas Weyman, displaying one by Well-born Mrs Maria [should be Ulrica] Stiernhof dated 5th of May [this year] signed Contract of Sale whereby the mentioned Mrs Stiernhof for a sum of Eight Thousand Daler Kopparmynt and in addition a gift of honour of 500 daler kopparmynt to Caretaker Weyman make available and sell her stone house situated in the Town [present Old Town] at Kongsgatan at the corner of Måns the Weaver's Alley and next to the house of Captain Mr Carl Mäyer and Gold Worker Mr Gottfried du Bois as it is to the length and breadth with its own four walls, everything free and its own ground, under this sale a black pear tree Wardrobe and a Cistat corner cupboard are included.
>
> And all the while Mrs. Stiernhof now only in the actual deed of purchase of the above-mentioned date confesses, without and through her brother Cavalry Captain Well-born Herr Georg Stiernhof house before the Court also acknowledged and confessed the pledged purchase price of 8000 daler kopparmynt the last coin with the first to be properly put up and paid, making in addition to Weyman a friendly imbursement, who then paid a fee according to the law, for the sake of acknowledging and declaring caretaker Well-respected Jonas Weyman and his dear wife and children to the above-mentioned stone house and all its belongings given to him and them in full consideration of this power and permission to use, dig, possess, build on, mortgage or sell, and thereby do and dispose, as with all other his and their legally and correctly obtained property, happily and free from all blame

and prosecution now and in the coming times forever to… and here it has been processed according to city law, confirmed with the city seal and let it happen. Year, Day, and Place as Above. [translation from Swedish]

The text in the property deeds always begins with when and how the matter was raised before the town mayor and the town hall court council's members. Then comes a short description (name and occupation) of the buyer, seller, and any predecessors as well as which property or plot the sale refers to, the date of the bill of sale ("köpebrev") and the sale price. Following this is a description of the property or plot size and any other buildings, walls, etc. that were to be included in the sale. The text always ends with the seller renouncing all right to the property to the buyer and then it states that this buyer and his/her heirs have the right to build, renovate and in other ways change the property as they like. Lastly, it is always stated that the seller and the buyer have made an honest handshake ("handsträckning") and that the sale is thus approved by the mayor and the town hall court.

In itself, the date of registration for a property sale is of less value for this study, but in cases where the date of an issued bill of sale is unclear or missing completely, the date of registration is important for our assessment. The law demanded that before any property deeds were issued, the sale had to go through at least three rounds of so-called "uppbud", or procurements (see upcoming chapters). The system of "uppbud" entailed that every sale was announced publicly three times in three successive court sessions. It gave relatives, neighbours and others related to the seller a chance to protest against the sale. Due to this, no property deeds could have been applied for before at least three months had passed since the actual sale. In cases where the date of purchase is missing completely or if the property deed is issued before April (if the sale is made in December, the third "uppbud" cannot be made until March), this is important since it helps us determine the earliest possible time when a sale could have taken place. For this study, it is the year within which the sale took place that is of interest (and not the exact date).

Regardless of the source, there are always some cases where a long time could pass between the sale and the application for a property deed. This was sometimes because the purchase consisted of several partial sales (for example when the property had many sellers, often heirs). The process could also be prolonged when a relative or neighbour asserted her or his birth- or neighbour right to buy the property before others or when creditors were involved to deal with the previous owner's mortgage. It was also common that properties or plots were sold through the town's auction system. If so, the previous owner/s or their predecessors rarely participated and this led to a situation where the purchase itself had one date and the bill of sale had another one, often much later. In these cases, it has become clear to us too late in the process that different participants in this project have used different dates. While we have tended to register the date of purchase for earlier periods, for later periods we have mostly registered the date of the bill of sale. In most cases, this does not affect

our results, but some problems could arise if the auction was conducted at the very end of a year and the bill of sale is written the following year, especially if the sale took place at the interchange between two five-year periods. Another aspect of the auction sales is that the price for any type of property or plot tended to be lower than when they were sold through other processes. When looking at the price development for a specific property over time, there is often a price dip related to the property being sold at auction.

As mentioned above, the property deeds follow the same structure throughout the period and this gives us a good insight into the size and extent of different properties that were bought and sold. The description of the type of property is most often very straightforward, i.e. that the sale concerned a house, a plot, a stone house, a stable, a tavern, etc. Following that often comes a detailed description of the location of the property including street name, any well-known landmarks near the house and possible neighbours. For example, in the property deed depicted above, the house that Mr Weijman bought was located in S:t Nikolai parish on Stora Kongsgatan on the corner of the Måns Wäwaren alley next to Captain Mr. Carl Mäyer's and Gold Worker Mr. Gottfried du Bois' houses. However, even though this description is detailed, it does not give us the information we are looking for. From the property deeds, the location can often be deduced from the data from the 18th century, but this is increasingly difficult further back in time. First, the street names in use at the time are not the same ones that are in use today. In addition, block names and the associated numbering of the houses in each block were in those days established in the public consciousness, but these names are very rarely mentioned in the property deeds that apply to sales within St Nikolai parish during the 17th century. With the use of old maps, online archives and registers, address directories, probate inventories etc., it would probably be possible to locate the exact building in question in almost every case. Due to time restraints, however, this has not been done in a complete fashion in this study. Nonetheless, as a result of this study, we have started to build a database that will serve as an excellent starting point for future research regarding the specific blocks and houses involved in different sales.

The means of payment used

It is important to understand the currency system at the time. In addition, the sales prices could consist of different parts, and what (or who) was behind the sales could cause the process to drag on over a long period of time. For deflation of nominal prices, a Consumer Price Index is used (Edvinsson and Söderberg, 2010).

The means of payments used in the transaction of properties varied substantially. The same transaction could also be made in different types of currencies or means of payment. Even if commodities are mentioned occasionally for this period as payment, the property market seems to have been monetarised with an abundance of coins. Our database indicates that in 28 percent of the property transactions between

1297 and 1520 it was expressively stated that payment was made solely in coins. For 1601–1635, it increased to 43 percent.

The monetary system during the studied period was extremely complex especially after the introduction of a copper standard in 1624. Moreover, the parallel circulation of different silver and gold coins, whose market value fluctuated in relation to each other despite establishment of fixed exchange rates, also complicates the analysis. However, not only coins could be used as payments. Silver and other commodities, such as iron and grain, were also common means of payment. All transactions had to be transformed into gram silver, using exchange rates presented in Edvinsson (2010), and then transformed back to nominal values of the predominant currency unit in use (daler up to 1624, and thereafter daler kopparmynt).

Before 1624, the main means of payment was silver coins in mark and öre denomination counted in daler. One mark silver coin was worth 8 öre silver coins. In the 16th century, the daler was a coin of its own, but in the early 17th century it was called riksdaler (specie). The daler instead became a unit of account equal to 4 marks or 32 öre. The riksdaler and daler became two different currency units, and their exchange rate fluctuated during the whole period of investigation. During the 17th century, some payments were made in actual riksdaler coins, and these were especially common around the middle of the century.

The most common gold currency was the ducat, which was valued at two riksdaler. However, at least during the early stages of the 17th century, other gold coins were also used as payment. The value of gold coins was transformed into ducats mainly based on their gold content. One rosenobel is set equal to 2.5 ducats, one portugalös to 10 ducats, and one Hungarian gulden to one ducat.

When a copper standard was introduced in 1624, copper coins were minted in the denomination of öre. The state decreed that an öre in copper coins was equal in value to an öre in silver coins. However, quickly the öre copper coins fell in value relative the öre silver coin, while silver öre also fell in value relative the mark silver coins. By the late 1620s, one daler in copper coins was no longer equal to one daler in öre silver coins, which in turn was no longer equal in value to a daler in mark silver coins. Often it is specified in which coins a daler was counted. In the late 1620s and the early 1630s, many sums were denominated in daler without specifying whether they were in daler in copper coins or silver coins. The assumption made here is that, when not specified, the currency unit was in fact daler kopparmynt. There was actually an incentive to pay in daler kopparmynt, in accordance with Gresham's law that bad money tends to drive out good money. When the payment was to be made in a stronger currency, then it probably would have been specified.

In 1633, it was established that 1 daler silvermynt was to be valued 2 daler kopparmynt, which was appreciated to 2.5 daler kopparmynt in 1643. The parity between 8 öre in silver coins and 1 mark in silver coins was restored temporarily. In 1665, 1 daler silvermynt was set at 3 daler kopparmynt. The daler silvermynt and daler kopparmynt developed into units of account and did not necessarily refer to

actual silver or copper coins. For example, the copper plates that were minted were denominated in daler silvermynt. Actual silver coins, minted in mark and öre denominations, could be valued at more than their nominal value in daler silvermynt. Therefore, two separate silver currencies were established, daler courant that was counted in öre silver coins, and daler carolin that was counted in mark silver coins, in addition to the riksdaler that continued to circulate as an international hard currency throughout the copper standard era.

Admittedly, after 1630, purchases were most commonly made in daler kopparmynt, daler silvermynt or riksdaler. A daler in "white coins", "white pennies", "white silver" ("hvidt silver") or "white round pieces" probably meant that payment was made in actual öre silver coins, later termed courant. How the price between daler silvermynt and riksdaler specie had been determined at the time of sale is often stated in cases when the buyer chose to pay in full or in part in, for example, riksdaler specie instead of daler silvermynt. In a few cases, there were also notes on the value relation between daler silvermynt and daler kopparmynt.

In the second half of the 17th century, some amounts are specified as riksdaler in "white coins", ducat in carolins, riksdaler carolin, etc. This implies that the payment was not made in actual riksdaler specie or ducat coins, but in other types of coins and valued in riksdaler according to the official rate. While "white coins" referred to öre silver coins, the carolins referred to mark silver coins.

The market rate of the riksdaler and ducat was often above the official rate, which means that a riksdaler in white coins was valued less than a riksdaler specie, and a ducat carolin less than a ducat. For example, in 1659, one part of a payment was made in 800 riksdaler "vitt mynt" ("white coins"), using the official rate 1 riksdaler = 1.5 daler in silver coins, which means that the sum was equal to 1200 daler in öre silver coins. At the time, the market rate of the riksdaler was actually 1.62 daler in silver coins, so the actual sum paid was 739 riksdaler specie, not 800 riksdaler specie. One problem is when prices are expressed just in riksdaler, i.e. not specified whether it was in riksdaler specie or not. For many periods, a riksdaler was equal to riksdaler specie. Even if the payment is made in other coins, the difference is not very large. We here assumed that, without specification, the riksdaler was the actual riksdaler specie coin.

In 1670, out of 23 transactions for properties in the Old Town, 13 were made in riksdaler specie coins, 3 in daler kopparmynt, 2 in daler silvermynt, 2 both in daler kopparmynt and daler silvermynt, 1 in both riksdaler and daler kopparmynt, 1 in daler kopparmynt and outweighed silver, and 1 in riksdaler, daler kopparmynt and ducats. The common use of riksdaler, despite it not being the main domestic currency unit, reflects the large minting of riksdaler at the time, the need to pay larger transactions in coins of higher value, and the underdeveloped use of paper notes. Later during the 17th century, the use of riksdaler diminished.

At the end of the 17th century, the copper standard was briefly abolished, even if the daler kopparmynt continued to be in use as a unit of account. Copper plates disappeared from circulation, and only copper coins of lower denominations contin-

ued to circulate. However, in 1709, copper plates were being minted once again, and the copper standard was reintroduced.

At the end of the 1710s, large amounts of coin tokens, termed emergency coins, came into circulation as a consequence of the failed war with Russia. This led to price inflation, and coin tokens fell in value relative to copper plates and silver coins. When reconstructing a house price index, it is important to take into consideration which currency this index is following. The Consumer Price Index follows the coin tokens (Edvinsson and Söderberg, 2010). An index following better coins should therefore not be deflated by the Consumer Price Index, but first transformed into the same unit as used by the CPI before being deflated. Purchases of consumer goods were probably mostly made in coin tokens. However, most transactions in the housing market were made in proper coins, copper plates or silver coins. In some of the sources, it is explicitly stated, for example, that payment was made in copper plates or in "proper coins".

A daler kopparmynt in coin tokens was officially equal to a daler kopparmynt in copper plates or silver coins. However, coin tokens quickly fell in value relative to copper plates and silver coins, which in turn fell in value against the riksdaler specie and the ducat. The sources for this period often state in which coins payments were made, for example, daler kopparmynt in carolins, in plates, in "good coins", "white pennies", or coin tokens. One payment in 1718 consisted of 8,000 daler kopparmynt in plates and 4,000 daler kopparmynt in coin tokens. Payments in coin tokens were still less common, and mostly noted in late 1718 and early 1719. The assumption is therefore made that payments that were only expressed in daler kopparmynt were made in proper coins, and not coin tokens. It is assumed that the premium on better coins was 6 percent in the second half 1716, 9 percent in the first half of 1717, 24 percent in second half of 1717, 3.5 percent in the first half of 1718, 13 percent in July–September 1718, 17 percent in October 1718, 50 percent in November 1718, 70 percent in December 1718, 80 percent in January 1719, 90 percent in February 1719, and 100 percent in March–April, based on sporadic information of the premium and a monthly price index for Gothenburg where payments for consumer goods were made in coin tokens (see Edvinsson, 2010). In 1719, coin tokens were de facto devalued by 50 percent.

When there was a payment in kind it was usually made in iron, silver ware, clothing, or other goods. In cases where silver ware was used as payment, it is always stated how many "weights" ("lod") these wares consisted of. The lod weighed 13 grams, while the gross weight of the riksdaler specie was around 29 grams. The assumption is therefore made that one lod silver was valued 45 percent of the riksdaler specie. It is more difficult with iron, clothes, etc., as it is rarely clear what their monetary value was. When iron was used as payment, it is sometimes stated that it was valued with reference to the iron price in Stockholm at that specific time. This makes it possible to use various databases on prices.

In connection with the sale price, it is often, but not always, stated that the buyer

also paid a "gift of honour" ("äreskänk" in Swedish) as exemplified earlier. This phenomenon was sometimes also called a "friend gift" ("vängåva") and could consist of, for example, a sum of money (sometimes in a different currency), silver (in the form of everything from teapots to jewellery) or various types of clothing, books and furniture.

One example of a sale where there is a gift of honour involved is in the transcribed property deed above. The buyer and royal caretaker Johan Weijman paid 8,000 daler kopparmynt for the property that he bought from noblewoman Ulrica Stiernhof in 1725, and in addition he also paid 500 daler kopparmynt as a gift of honour. The goods used as a gift of honour in the 17th and early 18th centuries included a hat (1673), a Bible (1692), a garment (1693) and two gilded silver goblets (1713).

There are also, a few cases where the gift of honour is not specified beyond statements like "a gift of honour" or "a gift of honour deemed reasonable by the buyer". The gift of honour seems to have been higher in the first half of the 17th century. If not specified, it is assumed that a gift of honour equalled 5 percent of the regular payment up to 1647 and 3 percent afterwards.

On some occasions, the gift of honour was to be given to another person, i.e. it was not intended for the individual that was officially selling the property. This was, for example, the case in 1699 when nobleman Christopher Adlerflycht bought a stone house on Västerlånggatan in St. Nikolai parish. In addition to paying the actual purchase amount, Adlerflycht, according to the property deed, was also to pay a gift of honour (200 daler kopparmynt) to the seller's wife.

There are also some types of property transactions that have been excluded from this study. Sales where the property is exchanged for another property without indicated price are excluded. Property sales that were conducted through city auctions are excluded for some periods. In many of these cases, the property deeds make it clear that the buyer only paid the amount he or she had lent against collateral in the property. There are only a few cases where the buyer paid more than the original amount of the debt. This was probably because there had then been several individuals involved in taking out a loan on the property and hence, several individuals took part in the bidding during the auction. Alternatively, there was a relative with a birthright who made a claim on (part of) the property. Even if this relative had priority in buying the property, it is clear in the notes that it only applied if they could pay the entire mortgaged debt within a reasonable time.

Finally, some sales took place in stages, especially when there were several stakeholders. Such sales could be time-consuming and sometimes extend over several years. An example of this is when the merchant's wife Karin Trotzig bought the first third of a manor house from a woman named Brita. Brita was the wife of Mayor Jacob Grundell and had inherited the indebted house in 1634. The house had its own foundation and courtyard between Skomakaregatan and Prästgatan with the width along Vattubrinken (today called Tyska Brinken). Almost 3.5 years later, when the two women had become widows, Karin bought the remaining two thirds

of the property from Brita. When the price difference was large and when the time span meant that parts of the property were purchased in different years, as was the case in the example described above, the case is excluded from the analysis. On the other hand, when the various parts of the property were purchased within the same year and at the same price, the listing is included.

The index

Depending on the data, various methods to reconstruct an index can be applied (Eurostat, 2013, pp. 25–26). The simplest method is to calculate a central measure of sales in one period, such as the Paris index for 1200–1800 (d'Avenel, 1894–1912), which is biased since sales in one period may not be representative of the whole stock and there could be quality changes. In the literature, there are four main methods to adjust for quality changes. Stratification or mixed method entails the sales material being grouped into strata based on various constant qualities, which ensures that the aggregate holds these qualities constant. A repeated sales index involves sales of the same property at being compared at different points in time. A drawback of the latter method is that quality often changes for the same property. Hedonic regression methods entail the use of regression to control for various qualities – often time dummies are added. A Sale Price Appraisal Ratio (SPAR) is based on data on tax values, the ratio of market price to tax values and the regular appraisal of tax values. This method avoids the problem of sales perhaps not being representative of the whole stock, but it requires reliable tax values.

Since the location of the property is not known, the repeated sales method cannot be used for the period before 1726. The present index can be described as a mixture of a hedonic and stratified index. Wood (2005, p. 214) describes stratification as followed:

> House price observations are grouped into sets or 'cells' of observations on houses with similar location and physical attributes… The mean prices in each cell are weighted together to give a 'mix-adjusted' price. A change in the composition of the sample will alter the number of observations in each cell. But if the cells are defined sufficiently precisely, so that all elements of the cell have similar prices and price trends, then such compositional changes will not systematically affect the mix-adjusted house price.

In this study, the logarithm of the real price, p_t, is regressed on m quality dummies, Q_i, and n time dummies, T_j (excluding reference categories):

$$LN\,(p_t) = a + \sum_{i=1}^{m} b_i Q_i + \sum_{j=1}^{n} c_j T_j + u$$

The quality dummies consist of various house types (stone house, house, half-timbered house, manor houses, etc.), additional quality characteristics (large, small, burnt down, etc.), locations for the period up to 1630, with the half-timbered houses in the Old Town without quality characteristics as the reference. The time dummies consist of various sub-periods, five-year periods from 1550, and ten-year periods 1420–1539, with one of the periods as a reference. The two time-dummies of 1283–1349 and 1350–1419 are also included, despite few cases in these periods – we consider our index reasonably reliable only from 1420 onwards. The cut-off year of 1350 is used to differentiate between pre- and post-Black Death conditions. For cross checks, 5-year periods from 1730 to 1874 are also included in the regression, encompassing only stone houses in the Old Town. For the period 1283–1599, 2,306 observations are used, for the period 1600–1730 1,889 observations, and for the period 1731–1874, 2,600 observations. However, our database covers more properties sold, but many of the observations are not used.

The composition of house types that were sold changed over time. Although these changes mainly reflected actual transformation of the composition of buildings, it cannot be excluded that some changes of terminology also occurred. For example, it was common that unspecified "houses" were sold.
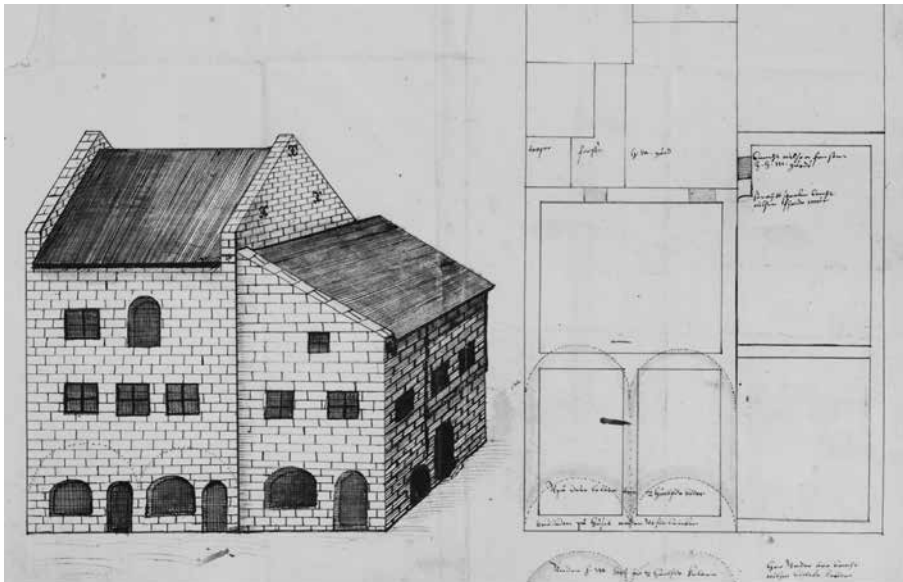
A drawing from 1628 of a property consisting of one larger and one smaller stone house, today the property is named Hippomenes 6. The two buildings were constructed in the second part of the 15th century, and exemplify typical medieval stone houses. They were modernised in the 1680s.
Source: Wikimedia Commons.

Stone houses constituted a large share of the sales, and they were also generally the most expensive type of property. Their share of totals sales increased over time, especially during the 17th century, reflecting the transformation of the Old Town where other types of houses were replaced. After 1730, almost all properties that were sold in the Old Town were stone houses.

Photo of "Vädersolstavlan", The Sundog Painting, 1535. Illustration of various house types (multi-storied stone houses above) in the Old Town of Stockholm.
Source: Wikimedia Commons.

During the Middle Ages, the sale of courtyards (gård) in the Old Town was about as common as the sale of stone houses. However, after 1520 courtyard sales, as a share of total sales, decreased substantially, while sales of stone houses increased. It is possible that they were relabelled as wooden houses, which were a common property sold in the period 1540–1590, but quite uncommon before then. In the 1570s, substantial efforts were made to remove wooden houses from the Old Town. The last recorded sale of a property labelled as a "gård", courtyard, in the Old Town was from 1685. However, courtyards were commonly sold outside of the Old Town in the 18th century as well.

In the 16th and 17th centuries, another house type on the market was the half-timbered house (korsvirkeshus). These were houses built with heavy timber, with filler material between the timbers. The first recorded sale of a half-timbered house in the Old Town was in 1549, and they were most common in the period 1580–1630. By the early 18th century, however, they had largely disappeared from the market.

Photo of the The Bloodbath Painting, from 1524. This picture depicts various types of houses.
Source: Wikimedia Commons.

Many properties could undergo qualitative changes despite being labelled the same. In 1629, the first plot was sold on Skeppsbron, which previously had not contained any large buildings, and today is both a street and a quay consisting of some of the largest stone houses in the Old Town. During the 1630s and 1640s, it seems some buildings were transformed. One type of building that probably did not undergo substantial qualitative or conceptual transformations is the half-timbered house (korsvirkeshus). The prices of such buildings also increased much slower in the 1630s and 1640s than those of other types of properties. In the regression model of this study, the quality is assumed to remain constant for half-timbered houses, while an indicator variable is constructed separately for stone house, plots, stone sheds and other properties from 1650 onwards. For the period 1630–1649, only half-timbered houses are included in the regression, since the increases in prices for other properties likely reflect quality and conceptual changes.

Figure 6.1 presents the estimated values of various types of houses for the period before 1630, with half-timbered houses as the reference (index equal to 100), holding constant for location. Stone houses were substantially more expensive than half-timbered houses. The category of houses probably referred to different types of buildings, with a value somewhere between a half-timbered house and a stone house. After 1650, according to the regression analysis, stone houses increased in real value by 61 percent compared to half-timbered houses, unspecified houses by 89 percent, plots by 169 percent, stone sheds by 193 percent and other properties by 105 percent.

Figure 6.1: *The value of various types of properties up to 1629 according to the regression analysis in this study.*
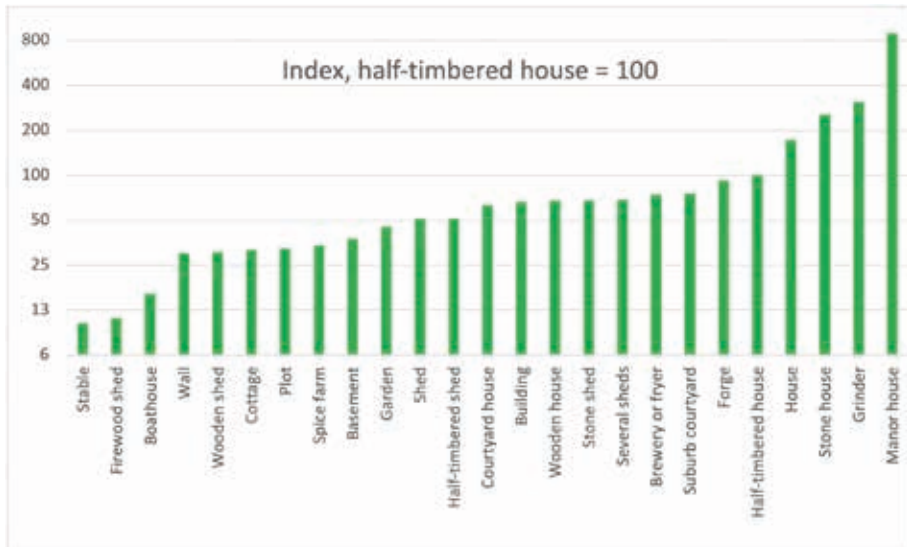
Given the major transformation of Stockholm during the 17th century, where parts of the present inner town were urbanised, the major focus is to follow properties in the present Old Town. For the period 1630–1730, no properties are included outside of the Old Town in the regression. The reason is that including such prices probably would distort the index, given that it is possible that the prices of properties located in the urbanised countryside grew much faster than properties in locations not undergoing such change. The index would then be substantially affected by the composition of sales, which may vary from one period to another.

Price changes of properties outside the Old Town may contain information on prices changes of properties in the Old Town. For the period before 1630, prices outside of the Old Town are also used, given the smaller number of transaction and that the main urbanisation of Stockholm took place in the 1630s and 1640s. For the period before 1630, the value relation between properties in the Old Town and north and south of the Old Town did not undergo any substantial change, except for properties in Norrmalm before and after 1540. An indicator variable is included for properties in Norrmalm for 1540–1629. The properties in Södermalm were valued, on average, 24 percent less than properties in the Old Town before 1630, while properties in Norrmalm were valued 62 percent less before 1540, and 24 percent less in 1540–1629.

In some periods, quite expensive houses could be sold, while in other periods the sale of such houses may have been less common. However, since logarithms are used, outliers do not distort the estimated values in any substantial way. The present study

henceforth de facto estimates the geometric average price of various properties, which gives higher weight to low-price properties than the arithmetic average.

Figure 6.2 compares the index according to a model where qualitative adjustments are made to the period 1630–1649 with a model where no indicator variables are included for property types from 1650. The main difference is for the growth from the late 1640s to the early 1650s. Although the index adjusting for quality changes records some growth in property prices in the first half 17th century, it is not as pronounced as the index without such adjustments.

Figure 6.2: *Comparison of real property index with and without quality adjustments in the 1630s and 1640s for the period 1600–1730.*
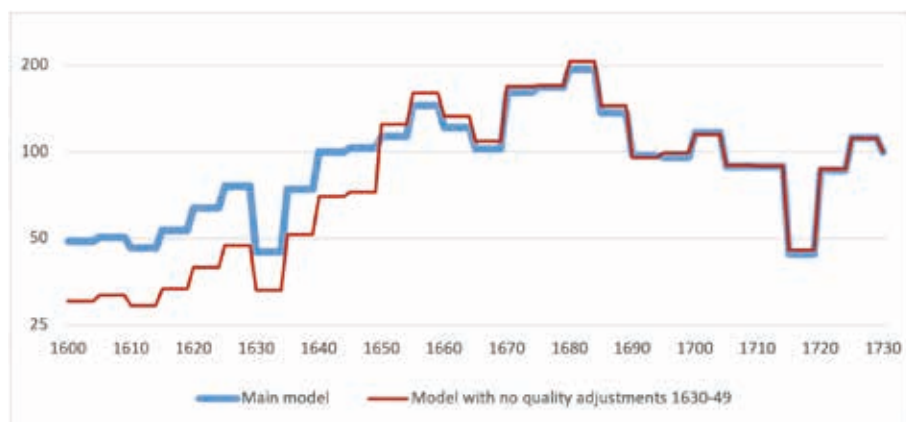
The series of the hedonic real house price index (HRHPI) is linked to the repeated sales real house price index (RSRHPI) from 1730 onwards discussed in the next chapter. An overlapping series of half-timbered houses is estimated for the whole period up to 1874, for splicing of the two series and robustness check. To estimate the final index for year *t* before 1730, the following formula is applied:

$$HRHPI_{t,\,final} = \frac{HRHPI_{t,1st\,approximation}}{\left(\prod_{i=1730}^{1769} HRHPI_{i,t,1st\,approximation}\right)^{1/40}} \left(\prod_{i=1730}^{1769} RSRHP_i\right)^{1/40}$$

A problem when splicing the two series, is that the hedonic real hedonic price index (based only on the Old Town) grew by much less than the repeated sales real house price index (based on the whole of the present inner city of Stockholm) from the late 1720s to the 1730s. The main reason is that prices developed differently for stone houses in the Old Town and properties in the rest of the inner town. At the end of

the Great Nordic Wars, property prices were substantially depressed, but more so for properties in the periphery of Stockholm. When prices rebounded in the 1720s and 1730s, the rebound was stronger for the peripheral properties. Focusing on the Old Town is probably best to hold quality constant, since properties in the periphery that were, for example, abandoned due to war could be expected to undergo substantial qualitative transformation. The problem of what should be included in the index, and how the components should be weighed, is a classical problem affecting all index constructions. Often different index construction yields the same result, but in some extreme situations, such as the 1720s in our study, that may interestingly not be the case.

The development of house prices and urbanisation

Figure 6.3 presents the hedonic real and nominal house price index, and population in the present inner city of Stockholm in 1600–1730. Population data is from Palm (2001), but he may underestimate the size of the population in the late 17th century as well as the demographic decline following the plague in 1710. However, at present there are no other population series of higher quality.

The price of a property could be decomposed into a land-price component, which is largely determined by supply and demand, and the price of the building, which is largely determined by the building costs. In the pre-industrial period, real costs were probably quite stable. For example, real wages did not change much in the long-term (Söderberg, 2010). It is possible that, from the demand side, population impacted on property prices, especially if the land-price component of a property was quite large. Figure 6.3 shows that real prices increased from the 1620s to around 1680, only to decline and stagnate after that, which mirrors the development of population.

There were substantial declines in real prices in the early 1630s, in the 1660s, in the late 1680s and early 1690s, and in the early 1710s. Nominal prices increased more than real prices due to inflation. Some of the downturns in nominal prices were not as severe as in real prices, given that inflation episodes often eroded real prices, while nominal prices kept stable or declined only slightly. For example, while real prices declined by 41 percent between 1625–1629 and 1630–1634, nominal prices increased by 7 percent, and while real prices were halved between 1710–1714 and 1715–1719, the nominal prices only declined by 16 percent.

Figure 6.3: *The estimated hedonic real and nominal house price index 1600–1730 (1730=100) and population of the inner town. The population was probably substantially larger around 1680 than displayed in the figure.*
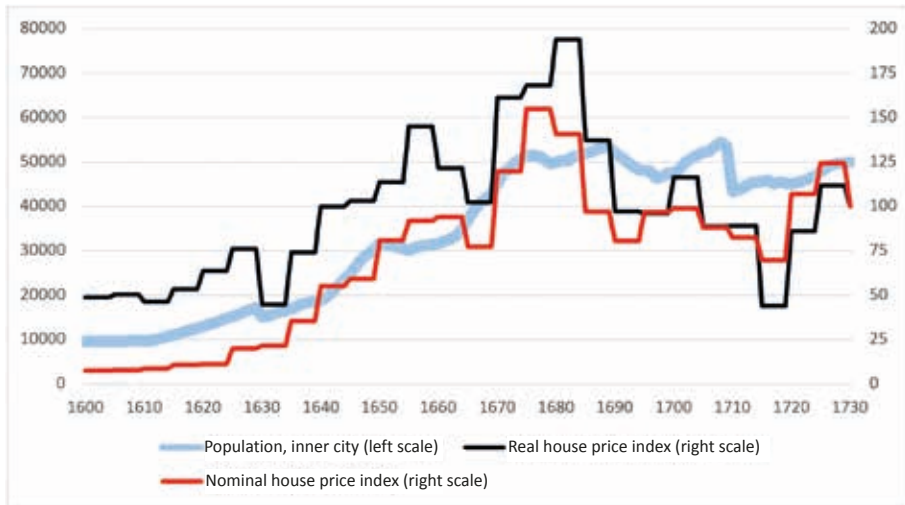
Standard errors of the time dummies in the regression to reconstruct the hedonic real house price index can be used to construct confidence intervals. Figure 6.4 displays error bars for the 90 percent confidence interval for the period 1600–1729. These intervals are large, but still do not take into account additional uncertainties, for example, concerning the changing qualities. Figure 6.4 shows that the largest error bars are for the period 1630–1649, which is when the index only follows half-timbered house, and therefore does not utilise the whole database that is available. The downturn in 1630–1634 was large, but not statistically significant even at the 10 percent level – in addition, there is uncertainty concerning the currency used in some of the sales in that period.

Figure 6.4: *The hedonic real house price index 1600–1729, with error bars for the 90 per-cent confidence interval based on the standard errors for the time dummies of the regression equation to reconstruct the index, 1730 = 100.*
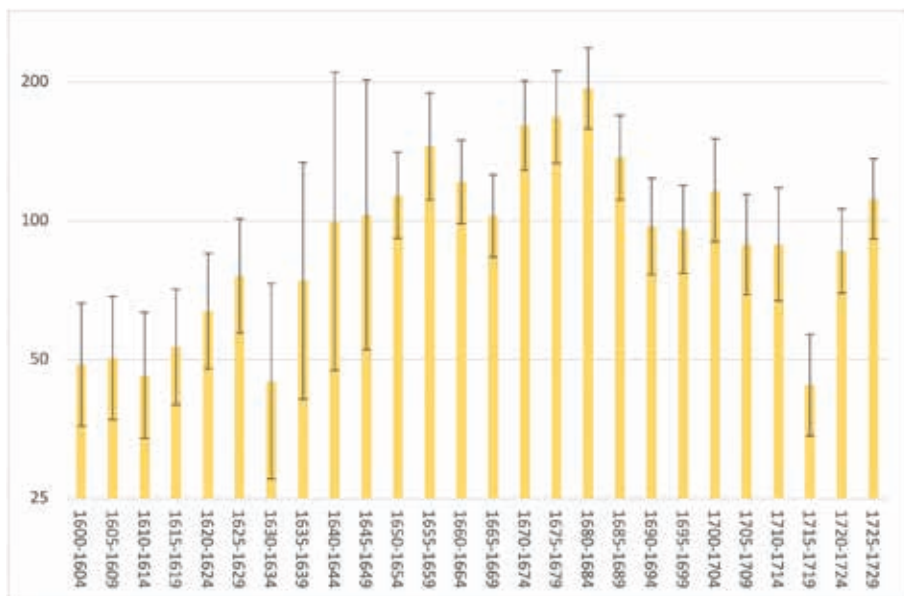
In the beginning of the 17th century, two significant negative external factors affected everyday life in Stockholm including its land market, contributing to stagnating prices in the first decades of the century. One was frequent war, the other was plague. The Vasa royal family was split into two branches, one Catholic in Poland and one Lutheran in Sweden, which led to civil war in the realm in the late 16th century. There was also a war with Denmark ending in a loss in 1613 in which the taxpayers of Sweden had to pay an enormous ransom to recover the Castle of Älvsborg (in today's Gothenburg). It protected the only piece of land Sweden had on the Kattegat which gave the realm access to the North Sea. In 1630, Sweden entered the Thirty Years' War on the protestant side.

These negative factors can be traced in the empirical material. For example, in 1614, we find no property prices from the Old Town and only six from the suburbs Norrmalm and Södermalm. Plague is mentioned off and on (e.g. Stb 13:181 in 1623). 1601, 1622–1623 and 1629–1630 seem to have been periods when Stockholm was badly hit by plague – a disease that ravaged many other areas in contemporary Europe. It was not until well into the 18th century that Europe managed to get rid of the notorious Black Death. As mentioned earlier, real prices declined substantially in 1630–1634, following a dip in population, but inflation, due to the spread of copper coins that fell in value relative to silver coins, had a decisive impact. Inflation is also related to fiscal and economic strain.

During the studied period, the town of Stockholm was transformed both demographically and in terms of its cityscape. In the early 17th century, Stockholm was a minor town (Utrednings- och statistikkontoret, 2005). As during the Middle Ages, most of the population lived in the present Old Town, characterised by narrow streets and wooden houses. Two pictures show panoramas of Stockholm from Södermalm and Norrmalm in the 1570s, illustrating the compactness of the town.

During the reign of Queen Christina in 1632–1654, real prices increased markedly. It was also during this period that Stockholm grew substantially, reflecting the rise of Sweden as a great power in the first half of the 17th century. While the population of Stockholm was only around 10,000 in the early 17th century, which made dignitaries hesitant to invite foreign statesmen for fear of embarrassment, it increased to around 50,000 in the 1670s (Utrednings- och statistikkontoret, 2005; Sidén, 2002; Palm, 2001).

With the rise of Sweden as a great power, following the Thirty Years' War, Stockholm rose in importance as an administrative centre. Sweden became a major exporter of iron and copper, and most of the foreign trade went through Stockholm. The panorama from the late 17th century displays quite a different city to the one in the painting from the 1570s (see pictures), with some common landmarks, such as the Tre Kronor Castle (that burnt down in 1697). New larger stone houses, on Skeppsbron located on the eastern sea front of Stadsholmen (the main island of the Old Town), had also been built.

Photo of the picture "Civitates orbis trerrarums". Illustrating Stockholm in the 1570s. Top, a view from Norrmalm. Below, the view from Södermalm.

Photo of picture in Sueccia antiqua et hodierna *printed in 1693, showing how large parts of Södermalm (to the left of the Old Town in the middle) and Norrmalm (to the right of Old Town) became urbanised.*

The government act of 1634 codified that Stockholm was to be the capital, and the royal court, government, parliament, and state administration were moved to the city. From 1630 and onwards, there was a pronounced political goal aimed at changing, and improving, Stockholm's street views. The great fires in the 1620s resulted in the widening of streets and alleys as well as an increase in the surface area of Stadsholmen, the main island of the Old Town, partly by tearing down the walls, partly by reclaiming land along the waterfront. Streets were widened to attract and impress foreign visitors to the city. Ideally, wooden buildings would be demolished and replaced with stone houses, especially inside the town and along the main streets (Rubenson 1897 pp. 222–227). The extent to which this street regulation, which was stipulated in law, was actually implemented is clear from all the property deeds that were distributed, especially between 1638 and 1647.

There were significant changes in the town's street network, and plots disappeared when the streets were widened from the 1630s onwards. This process was especially visible for Stadsholmen, given that the island's surface at the beginning of the century was also limited by the city wall fortifications (Dahlbäck, 1995, p. 40). During the 1630s and 1640s, a city plan was developed for Södermalm and Norrmalm, with more rectangular grids of streets and blocks, where the direction of the main streets pointed towards the Castle situated in the north of Stadsholmen. Without the demolition of the city wall, it would hardly have been possible to accommodate all the migrants who wished to settle on Stadsholmen (Hall and Källström, 1999, pp. 60–61). However, quite a few settled on Södermalm and Norrmalm. For instance, there were about 100 farms on Norrmalm in 1609. 26 years later the number increased to about 1,000 (Forsberg, 2001, p. 41). The material left over from the demolition of the city wall was used as construction material to extend the town along the waterfront. The best-known extension is the stretch along Skeppsbron and the one outside the Mälarmuren, the Wall facing Lake Mälaren (Dahlbäck, 1995 p. 42). The last refers to the stretch from Söderport (today Slussen) and past Åkaretor-

get (today Kornhamnstorg) to where Mälartorget is today (see, for instance, SSA: Stockholms magistrat och rådhusrätt (M&R): Sekreterarens registratur: B1a: 13; Stadsingenjörskontoret E2a:2).

Where the new streets were to be drawn, the city bought the land that lay in the way. The previous owners were forced to demolish their buildings and clear the plots themselves. Admittedly, they normally received another plot of land of the same size as compensation, but these had to undergo a lot of groundwork before their previous or new building(s) could be set up. Compensation for all the work required was rare and in cases where the new plot (sometimes two smaller ones put together) was larger than the old one, the owners were forced to pay the difference. The few exceptions concerned those who were willing to build a stone house. They either got the surplus land at a reduced price or did not have to pay for it at all. The latter mainly applied to the nobility. Even after the street regulation, the need for housing and other buildings grew as migration to the town increased. Norrmalm became part of the city and the new urban area Ladugårdslandet (today's Östermalm and Gärdet) was established.

Even if the data that can be found are sporadic, it shows that the population in Stadsholmen increased by at least 44.4 percent between 1611 and 1652, and by an additional 23.1 percent between 1652 and 1676 (Sidén, 2006, ÖÄ: GIBA:4–5). According to the state's tax records (mantalslängder), (ÖÄ: GIAA:1–2), in 1699, it had risen in comparison to 1676 by another 42.5 percent. According to Söderström's (1975) data, there had been a significant population decrease between 1700 and 1727, although there was a rebound in the 1720s (Boëthius, 1943, pp. 30–31; Ericson Wolke 2001, p. 100; Nilsson and Lilja, 1996, pp. 324–325; Utterström, 1949, pp. 238–276; Aldman, 2006, pp. 105–108; Aldman and Lenander-Fällström, 2019, p. 23).

The population on Södermalm and Norrmalm rose even more. The migration of artisans, and also traders, increased after the Thirty Years' War in 1618–1648, and they mostly settled in Södermalm or Norrmalm. That population remained intact, at least until the Great Nordic War broke out in 1700. According to the 1652 state tax records, Stadsholmen including Riddarholmen accounted only for between 22 and 23 percent of Stockholm's population. The state tax records in the 17th century indicate that Södermalm had the highest population growth, followed by Norrmalm (SSA: Överståthållarembetet för uppbördsärenden (ÖÄ): Kamrerareexpeditionen; GIBA: 4-5: Mantalslängder; G1AA:1–2 Kronotaxeringslängder; Söderström 1975). It is clear from the source material that the street adjustments in Södermalm and Norrmalm make it exceedingly difficult to identify specific properties over time.

Various historical maps, clearly show the rapid urbanisation during the 17th century. Real prices reached a high point in 1680–1684, and nominal prices in 1675–1679. This also coincided with declining interest rates, which may be related to the development of financial institutions (Edvinsson, 2011). The first bank in Sweden, Stockholm Banco, was established in 1657, which was restructured as Riksens Ständers Bank in 1668, becoming the world's first central bank. While interest rates of 10–12 percent or more were common before these institutions were formed, a

maximum interest rate of 8 percent was introduced in 1666, and of 6 percent in 1687. After the 1680s, real house prices started to decline, coinciding with grave economic and demographic crises. Due to the Scanian War 1675–1679, the finances of the Swedish Crown had deteriorated. Therefore, in 1680, King Charles XI introduced the "Great Reduction", through which the Swedish Crown recaptured some of the land that had previously been granted to the nobility (Åberg, 1958, pp. 93–111; Trager, 1979, p. 256; Rystad, 2003, p. 101). In the 1690s, Sweden was hit by several harvest failures (Edvinsson, 2009). By 1690–1694, both real and nominal house prices had been almost halved compared to the peak level ten years earlier.
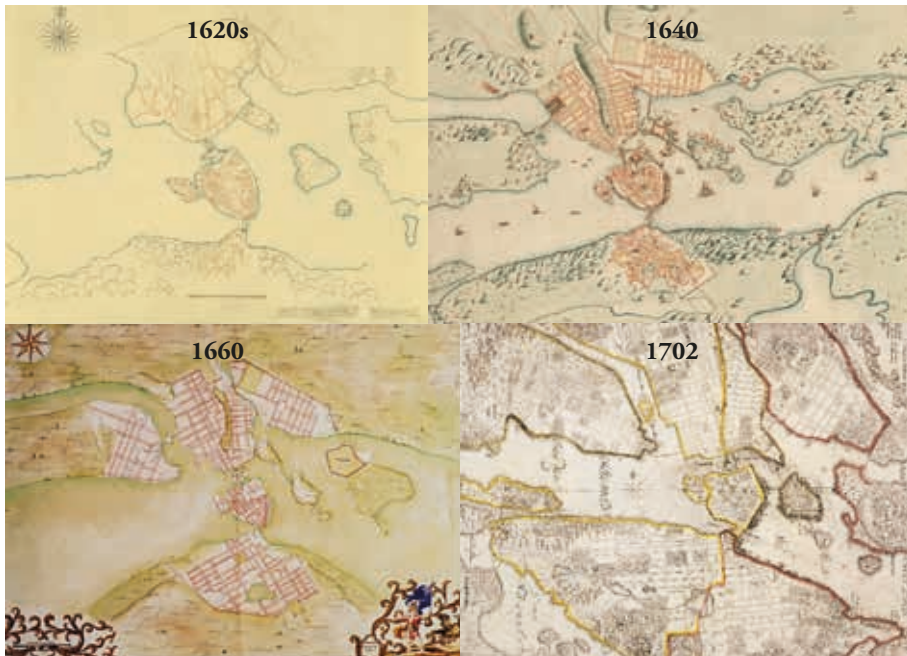
Historical maps of Stockholm showing its rapid urbanisation during the 17ᵗʰ century.

After 1700 real property prices stagnated, reflecting the demographic development. According to Jansson (1991 p. 270), the growth rate in town decreased around 1680, and in 1720 the number of inhabitants was less than in 1688. After 1700, we know that the silk weavers, who had been recruited to Stockholm during the 1680s, started to leave the town and when the war was over, there was only one left. A major negative factor was the shortage of raw materials (Corin, 1958, p. 526 ff; Aldman 2006, pp. 10–11). On the other hand, Stockholm accepted quite a few refugees, who exclusively lived on Skeppsholmen until the end of the war (Marcus 1942, p. 32). After 1712, these refugees were allowed to run businesses for their own livelihood, whereby some chose to stay in the town even after the war had ended (Karlsson

1994, pp. 245–246; Aldman, 2006, p. 104). The decline in property prices accelerated during the Great Nordic Wars. At the battle of Poltava in 1709, Sweden suffered major losses. When the plague hit Stockholm in 1710, a large part of the population perished (Broberg, 1985), which was followed by declining real property prices. The inflation caused by the circulation of coin tokens at the end of the Great Nordic Wars caused real prices to fall even below the level they were at during the Middle Ages, although the decline in nominal prices was not as severe. By the 1720s, Sweden's role a major European power was over, but real property prices and the population rebounded. From the 1730s, more artisans started to arrive in town, mainly settling in Södermalm and Norrmalm. However, in 1840, with a population of around 80,000, Stockholm was not much larger than 150 years earlier.

Tracing repeated sales of individual properties as a robustness check

As previously mentioned, given the difficulty to determine whether two sales at different times denote the same property, it is not possible to construct a repeated sales index. The street adjustments in the 17th century makes this even more difficult. Moreover, some property owners closed off passageways so that the property could be sold to two different individuals (SSA: M&R; Sekreterarens registratur: BIa:22 pp. 363 and 366).

There are, however, a few descriptions of exact locations, such as sources referring to the corner of two streets, where the buyer can be matched with the later seller or later legal certifications mentioning earlier sales. For the period 1600–1729, it is possible to detect at least 10 stone houses, one half-timbered and two houses with gardens that were sold multiple times. All stone houses and the half-timbered house were sold at least nine times, while the houses with garden were only sold four times. Table 6.1 summarises mean and median price per square ell (new Swedish aln) in daler kopparmynt of 1730 (Edvinsson and Söderberg, 2010) for those properties during six sub-periods covering 1580–1729. One new Swedish ell is about 0.594 metres (Owen Jansson, 1985 p. 18). The area refers to the plot size and not the size of the building. In most cases, the plot area consisted only of the land on which the building was standing, but in some cases, the ground area was slightly larger than the building area itself. For example, sometimes a piece of the pavement was included. Although the number of cases is too low to construct an index, the table may serve as a robustness check of the index presented in this chapter. There are additional stone houses and houses with garden that were sold more than once, but not included in Table 6.1. The length of periods in Table 6.1 are adjusted to the number of sales. No sales from the period 1700–1719 are included.

One of the stone houses was sold twice just one year apart in the 1680s. In this case, we have chosen to use the second sale for the period, since the price rose markedly between the two years. Additionally, the first sale indicates that the property was purchased in connection with the owner going bankrupt.

Table 6.1: *Mean and median values for properties with repeated sales 1600–1730, price per square ell (new Swedish aln = 0.594 metres) in daler copper coins, fixed prices of 1730.*

Price per square ell	1580–1629	1630–1649	1650–1659	1660–1679	1680–1699	1720–1730
Number of stone houses	9	9	10	9	9	9
Number of houses with gardens	2		2		2	2
Hedonic Real House Price Index, 1730=100	55	81	129	138	131	99
Stone house mean	31.9	42.2	45.6	45.1	70.4	54.0
Stone house median	26.0	31.5	31.3	43.9	75.7	49.5
House with garden, mean	7.29		23.2		54.2	41.2
Half-timbered house	12.3	23.1	21.4	25.4	25.7	10.0

Sources: Stockholms stads tänkeböcker1580–1635 (printed); SSA: M&R: A1a:8–14; A6a:4–25; Sekreterarens registratur BIA:3–36; Stockholms Stadsingenjörskontor: E2a:2 (Brända boken) 1635–1647; Tänkeböcker, huvudserien, A1a:8–13; ÖÄ: GIIAA1–3 &G2: GIBA: 3–12; Söderström B. 1975 For fixed prices in 1730, see Edvinsson and Söderberg 2010.

From Table 6.1, it can be seen that the mean and median price for the identified stone houses rose marginally between 1630 and 1679, reaching a high point in 1680–1699, and decreasing thereafter, a development similar to the hedonic real house price index. It is reassuring that our reconstructed index reflects actual price development. The table also shows that, after the Great Nordic War, the mean and median price per square ell was markedly below the price for 1680–1699. The development for the identified houses with garden was similar. On the other hand, the price decline after the war was not as significant. This may to some extent be due to the value only having been measured from two properties, one of which was on Västerlånggatan, a street that seems to have been very attractive to the traders who migrated into the town up until 1730 (SSA: Bemedlingskommissionens arkiv: GIa:3–13).

While the stone houses had a more unsteady development during the period, the price of the half-timbered house remained quite stable after the rise prior to the 1690s. On the other hand, the price per square ell was more than halved in the 1720s, reflecting the general collapse in prices in the aftermath of the Great Nordic War, but it should also be considered that this house was over 100 years old.

Some houses were moved due to fires, decisions to tear down the city wall and the reclaiming of land from the sea after the 1620s (along Skeppsbron and all the way to today's Munkbrotorget) and the widening of streets and alleys (see e.g. Rubenson 1897, pp. 222–227). This development complicates the tracing of individual property over time, although some houses were just moved within the owner's plot. Some

of the plots decreased in size, but the size and the placement of the house compared to other buildings in the neighbourhood remained. It can be assumed that these properties were considered as being old by the buyers, which affected the price, especially when an increasing number of "modern" buildings had been constructed in the adjacent area.

Table 6.2 presents the price per square ell (new swedish aln) of 16 stone houses in four areas of the Old Town–East, South, West and Inner– in the constant prices of 1730. The Inner area is the oldest part of the Old Town. Only those stone houses that had been preserved during the whole period are included, regardless of whether they were renovated or additional building were added during the period. To have the same number of properties in each area, a few stone houses that were sold more seldom have been added compared to Table 6.1.

Table 6.2: *Price per square ell (new swedish aln) divided into properties and area, 1580–1729, daler copper coins, fixed price of 1730, rounded to one decimal place*

(Name of block) in 1729 year's numbers	1580–1599	1600–1629	1630–1649	1650–1659	1660–1669	1670–1679	1680–1689	1690–1709	1710–1719	1720–1729
(Marsyas) East 34		13.2	4.8	42.8	27.9	23.2	49.8	20.5	6.7	
(Bacchus) East 66		21.3	21.4		27.4	40.7			13.6	
(Phoebus) East 122 & 130	10.7	25.2			22.3	30.5	48.9			
(Pollux & Apollo) East 82 & 91		11.6	19.8				43.4		31.4	8.6
(Mercurius) West 67		15.0	52.6			37.2		60.9		38.2
(Cephalus) West 109		14.2	7.4		42.6	39.4	55.0	72.1		64.3
(Polyphemus) West 57		23.9		58.8	41.3		62.5	74.9	58.5	74.0
(Pyreneus) West 57		10.1	6.0				27.3	6.2		17.0
(Latona) South 21 & 31		20.4		33.9				33.6	8.6	
(Pandora) South 74		18.7	35.1		43.8					65.8
(Deucalion) South 55		28.0		44.1	32.7			59.0		10.9
(Trivia) South 23		21.5		82.9	66.5	80.1				46.4
(Ceres) Inner 69	15.8	9.4	50.4	31.3	91.4	84.6	70.2		13.7	34.0
(Phaeton) Inner 155	20.5	29.6		32.4	104.9	72.2	97.1	127		
(Echo) Inner 47	6.7	16.5		19.1		79.7		49.5		
(Hippomenes) Inner 5	4.5	22.1	54.7	53.5		51.2			6.8	59.0

Sources: See Table 6.1

The location affected the price per square ell. After 1720, prices developed differently in Södermalm and Norrmalm compared to the Old Town, as discussed in the

next chapter. We have not reconstructed any price indices for Södermalm and Nor-
malm before 1720, but prices may have developed differently.

As seen from the properties included in Table 6.2, the price development in dif-
ferent parts of the Old Town was similar. Even if the number of cases is low, these
properties at least indicate how prices could change. The prices were normally high-
est for buildings in the Inner area. The property Phaeton, at the northern corner of
Köpmannagatan at Stortorget, was one of the city's largest buildings. Earlier research
(e.g. Ågren 2007) shows that rich merchants and iron exporters settled in the south-
ern area. At least before the houses along the Skeppsbron were completed, it could
have been expected that the price in the southern area would be higher, but those
buildings were not more expensive than in other parts of the Old Town. Prices in the
Eastern area remained quite low, even after the houses along Skeppsbron were fin-
ished. However, these building were older, as none of the new houses along Skepps-
bron have been included.

Some of the downturns in the price of individual properties in Table 6.2 were
related to surrounding fires and/or new construction in the same block or nearby. It
is likely that renovation and/or adjustments to an extension increasing the building's
footprint affected the price. The population increase was largely managed by new
construction in the Old Town as well as in Norrmalm and Södermalm. However, at
least from the 1650s until the 1680s, as well as after the Great Nordic War, there are
signs that the price was affected by economic upswings and downturns.

The locations of stone houses displayed in Table 6.2 in the Old Town, marked by red circles.

Conclusions

This chapter is built upon a hedonic real house price index for the period 1600–1730, which bridges previous estimates of the development of house prices for the period up to 1600 discussed in the preceding chapter and the period 1730 onwards discussed in the next chapter. Qualitative adjustment consists of differentiating between various house types, addition qualitative markers and location in the Old Town, Södermalm and Norrmalm. For the period 1630–1730, only properties in the Old Town are followed due to the rapid urbanisation in Södermalm and Norrmalm, where the countryside was built on. This urbanisation may distort the development of prices in those marginal areas, which would reflect a transformation from countryside to city rather than an intra-city development. For the period 1630–1649, only half-timbered houses are followed, given that other house types, and especially the concept of what was considered to be a regular stone house, may have changed. A stone house at the end of the 17th century was larger than a stone house a hundred years previously. Half-timbered houses did not undergo any substantial qualitative transformation. Although we have not been able to present a repeated sales index based on the exact location of the properties, our index would still be superior to a non-hedonic repeated sales index given the rapid urbanisation of Stockholm. For a robustness check, we also investigate the development of prices of individual properties, whose location can be determined, which indicates a similar development as for the hedonic house price index.

The main picture is of substantial movements in real prices during the studied period. Prices stagnated up to the 1620s, but a major upwards shift took place in the 1630s and 1640s, coinciding with the transformation of Stockholm from a medieval small town of around 10,000 inhabitants or less to a city of more than 50,000 inhabitants (although there is considerable uncertainty of the size of the population). A high point was reached in the 1670s and 1680s, while prices tended to decline somewhat up to the early 18th century. Prices collapsed in the 1710s following wars and plagues, but rebounded in the 1720s, although below the level of the high point in the 1670s and 1680s. As discussed in the next chapter, the rise in real prices of the 17th century corresponds in magnitude to two other rises, one in the second half of the 19th century and one in the 1990s and early 21st century. These three price rises were accompanied by demographic expansion as well.

Acknowledgement

References

Printed primary sources
Stockholms stadsböcker från äldre tid, 1876–1948, Stockholm.
Stockholms stadsarkiv, 1939–2009, Stockholms stads tänkeböcker från år 1592, D. 1–23. Stockholm.

Electronic primary sources
SDHK (Medeltidsbreven), https://sok.riksarkivet.se/SDHK

Primary sources, Riksarkivet
Stockholms stadsingenjörskontor, Dokumentböcker 1600-tal-1740-tal, vol. 2 1635–1647 ["Brända boken"].

Primary sources, Stadsholms Stadsarkiv
Stockholms magistrat- och rådhusrätt, A 6 a Lagfarts-, uppbuds-, protokoll, vol. 4–25.
Stockholms magistrat- och rådhusrätt, Sekreterarens registratur, vol. 2–63 [1653–1725]
Stockholms Magistrat och Rådhusrätt, Tänkeböcker, huvudserie, vol. 8–13
Överståthållarembetet för uppbördsärenden (ÖÄ): Kamrerareexpeditionen; GIBA: 4–5: Mantalslängder; G1AA:1–2, Kronotaxeringslängder
Söderström B. 1975, Husbönder och anställda i Stockholm 1727. Unpublished, available at Stockholm Stadsarkiv.
SSA: Bemedlingskommissionens arkiv: GIa: 3–13.

Literature
Aldman L-A. 2006, *Protektionismens genombrott: Den svenska handels- och näringspotlitkens omställning och dess effekt på Stockholms textila handel och importörer 1720–1738*. Licentiate treatise. Uppsala.
Aldman and Lenander-Fällström, 2019, "Företagande och entreprenörskap i Örebro och Stockholm under 1700-talet". Working paper discussed at higher seminar EHFF, Handelshögskolan i Stockholm 23/3 2019.
d'Avenel, G., 1894–1912, "Histoire économique de la propriété, des salaries, des denrées et de tous les prix en général depuis l'an 1200 jusqu'en l'an 1800", Imprimerie Nationale and Ernest Leroux, Paris.
Boëthius B., 1943, *Magistraten och borgerskapet i Stockholm 1719–1815*. Stockholm: Norstedt
Broberg, J., 1985, "Om pesten i Stockholm 1710", in Hadenius, Stig (ed.), *Historia kring Stockholm*. Stockholm: Wahlström & Widstrand.
Corin, C., 1958, *Självstyre och kunglig maktpolitik inom Stockholms stadsförvaltning 1667–1697*. Stockholms monografier
Dahlbäck, G., 1995, *I medeltidens Stockholm*. Stockholm: Stockholmia förlag.

Deeter, K., Duffy, D., and Quinn, F., 2016. "Dublin house prices: A history of booms and busts from 1708–1949". *Journal of Statistical and Social Inquiry Society of Ireland*, XLVI, 1–17.

Edvinsson, R., 2009, "Swedish Harvests, 1665–1820: Early Modern Growth in the Periphery of European Economy", *Scandinavian Economic History Review*, 57(1), 2–25.

Edvinsson, R., 2010, "The multiple currencies of Sweden-Finland 1534–1803" in *Exchange rates, prices, and wages, 1277–2008* (eds. Edvinsson, R, Jacobson, T, and Waldenström, D.). Stockholm: Sveriges Riksbank and Ekerlids.

Edvinsson, R., and Söderberg, J., 2010, "The evolution of Swedish consumer prices 1290–2008" in *Exchange rates, prices, and wages, 1277–2008* (eds. Edvinsson, R, Jacobson, T, and Waldenström, D.). Stockholm: Sveriges Riksbank and Ekerlids.

Edvinsson, R., 2011, "Shadow interest rates in Stockholm and the integration of early financial markets, 1660–1685: was Heckscher right?", *Financial History Review*, 18 (3), 309–329.

Eichholtz, P. M. A., 1997. "A long run house price index: The herengracht index, 1628–1973. Real Estate Economics", 25 (2), 175–192.

Ericson Wolke, L. 2001, *Stockholms historia under 750 år*. Lund: Historiska Media.

Eurostat, 2013, *Handbook on Residential Property Prices Indices* (RPPIs).

Forsberg L. 2001, *Stormaktstidens Stockholm tar gestalt: Gaturegleringen i Stockholm 1625–1650*. Stockholm: Stockholmia.

Franzén B., 2006, *Folkungatidens monetära system: Penningen mellan pest och patriarkat 1254–1370*. Stockholm : Acta Universitatis Stockholmiensis.

Hall, T., and Källström, G., 1999, Huvudstad i omvandling- Stockholms planering och utbyggnad under 700 år, Sveriges Radio, Stockholm.

Hedegård, G., Franzén, B., and Svensson, R., 2020. *Acta Monetaria Sueciae: Sveriges handlingar om mynt, priser och ädelmetaller 1164–1318*. Stockholm: Svenska numismatiska föreningen.

Holmbäck, Å., and Wessén, E. (eds.), 1966. *Magnus Erikssons stadslag*. Stockholm.

Jansson, A (1991, *Bördor och bärkraft: Borgare och kronotjänare i Stockholm 1644–1672*. Stockholm: Komm. för Stockholmsforskning,.

Karagedikli, G., and Tuncer, A. C. (2021), "House prices in the Ottoman Empire: evidence from eighteenth-century Edirne", *Economic History Review*, 74 (1), pp. 6–33.

Karlsson Å., 1994, *Den jämlike undersåten: Karl XII:s förmögenhetsbeskattning 1713*, Uppsala: Diss. Acta Universitatis Upsaliensis, Studia Historica Upsaliensia.

Marcus, M., 1942, *Stockholm som handels- och sjöfartsstad. Anteckningar till frågan om Stockholms kommersiella uppland*. Isaac Marcus Boktrycker-Aktiebolag

Nilsson, L., and Lilja, S., 1996, *Historisk tätortstatistik del 2: Städernas folkmängd och tillväxt i Sverige med Finland ca 1570–1810*. Stockholm: Stads- och kommunhistoriska institutet.

Owen Jansson, S., 1995, *Måttordboken*. Stockholm: Nordiska museets förlag.

Palm, L., 2001, *Livet, kärleken och döden: fyra uppsatser om svensk befolkningsutveckling 1300–1850*. Gothenburg.

Raff, D., Wachter, S. M., and Yan, S., 2013. "Real Estate Prices in Beijing, 1644 to 1840". *Explorations in Economic History*, 50 (3), 368–386.

Rubensson, M., 1897, "Gaturegleringar", Dahlgren E. W. *Sveriges hufvudstad skildrad med anledning af Allmänna konst- och industriutställningen enligt beslut af Stockholms stadsfullmäktige, D. 2*. Stockholm: J. Beckmans förlag.

Rystad, G., 2003, *Karl XI - en biografi*. Lund: Historisk media.

Sidén, P.-G., 2002, *Mälarstädernas befolkningsutveckling 1200–1611*. Unpublishes magister thesis, Stockholm University. https://www.historia.su.se/polopoly_fs/1.27754.1320939842!/SidenD.pdf

Söderberg, J., 2010, "Long-term trends in real wages of labourers" in *Exchange rates, prices, and wages, 1277–2008* (eds. Edvinsson, R, Jacobson, T, and Waldenström, D.). Stockholm: Sveriges Riksbank and Ekerlids.

Trager, J., 1979, *The People's Chronology: A Year-by-year Record of Human Events from Prehistory to the Present*. New York: Holt, Rinehart & Winston.

Utrednings- och statistikkontoret, 2005, *Befolkningen i Stockholm 1252–2005 – Från 1721 enligt stadens statistiska årsböcker*. Stockholm: Stockholms stad.

Utterström, G., 1949, *Stockholms folkmängd 1663–1763*, Stockholm.

Wikström L. 1970, "Fastighetsforskning i stadsarkivet. En översikt av källmaterialet intill 1850". http://digitalastadsarkivet.stockholm.se/Bildarkiv/Egenproducerat/Skannade-artiklar/Fastighetsforskning1970.pdf.

Wood, R., 2005, "A Comparison of UK Residential House Price Indices", pp. 212–227, in *Real Estate Indicators and Financial Stability*, BIS Papers No 21, Bank for International Settlements, Washington DC: The International Monetary Fund.

Åberg A., 1958, *Karl XI*. Stockholm: Wahlström & Widstrand,.

Ågren, K., 2007, *Köpmannen i Stockholm: Grosshandlares ekonomiska och sociala strategier under 1700-talet*. Uppsala: Acta universitatis Upsaliensis.

Appendix

Table A6.1. *The estimated index of properties in Stockholm 1283/1420–1730 and related variables, (1730 = 100)*

Period	Hedonic real index	Hedonic real index without quality adjustments 1630–1649	Hedonic index, silver price	Hedonic index, nominal	CPI, silver price, geometric average	CPI, nominal price, geometric average
1283–1349	(105)	(63)	(98)	(1.62*)	(93)	(1.54*)
1350–1419	(89.9)	(55)	(63)	(1.38*)	(70)	(1.53*)
1420–1429	77.4	48	40	1.30	51	1.68
1430–1439	82.8	51	37	1.25	45	1.51
1440–1449	64.9	40	29	1.00	44	1.54
1450–1459	61.0	37	29	0.99	47	1.63
1460–1469	61.5	38	28	1.03	45	1.67
1470–1479	78.4	48	30	1.13	38	1.44
1480–1489	62.1	38	24	0.97	39	1.56
1490–1499	71.1	43	28	1.16	40	1.63
1500–1509	62.2	38	22	1.12	36	1.80
1510–1519	63.7	39	24	1.35	37	2.11
1520–1529	54.8	33	21	1.57** (2.35***)	38	2.86** (4.30***)
1530–1539	74.3	46	30	2.55	40	3.44
1540–1549	37.7	23	19	1.93	50	5.11
1550–1554	33.3	21	22	2.23	67	6.69
1555–1559	29.4	18	20	2.01	67	6.82
1560–1564	35.5	22	25	3.31	72	9.33
1565–1569	37.0	23	26	5.58	70	15.1
1570–1574	36.8	23	22	14.31	61	38.8
1575–1579	22.6	14	26	2.08** (13.50***)	113	9.2** (59.7***)
1580–1584	66.7	42	54	6.39	81	9.6
1585–1589	49.7	31	43	5.42	86	10.9
1590–1594	48.4	31	48	5.93**	99	12.2**
1595–1599	45.8	29	57	7.17	125	15.6
1600–1604	48.8	30	59	7.46	120	15.3
1605–1609	50.5	32	57	7.80	112	15.4
1610–1614	46.3	29	50	8.89	109	19.2

Period	Hedonic real index	Hedonic real index without quality adjustments 1630–1649	Hedonic index, silver price	Hedonic index, nominal	CPI, silver price, geometric average	CPI, nominal price, geometric average
1615–1619	53.3	33	59	10.7	111	20.1
1620–1624	63.8	40	61	11.2	96	17.6
1625–1629	76.0	47	71	20.1	94	26.5
1630–1634	44.9	33	54	21.6	119	48.0
1635–1639	74.2	52	91	35.3	123	47.5
1640–1644	100	70	129	55.2	129	55.3
1645–1649	103	73	134	59.2	130	57.4
1650–1654	114	125	178	80.9	157	71.2
1655–1659	145	160	190	91.9	131	63.4
1660–1664	121	133	174	94.1	143	77.5
1665–1669	102	109	130	77.4	127	75.5
1670–1674	161	169	196	120	122	74
1675–1679	168	170	208	155	123	92
1680–1684	194	206	199	141	103	72
1685–1689	137	145	137	97	100	71
1690–1694	97	96	115	81	118	83
1695–1699	96	100	131	97	136	101
1700–1704	117	115	136	99	117	85
1705–1709	89	90	119	88	134	99
1710–1714	89	89	113	83	127	93
1715–1719	44	46	62	70** (91***)	140	158** (208***)
1720–1724	86	87	105	107** (214***)	122	124** (248***)
1725–1729	112	112	126	124	112	111
1730	100	100	100	100	100	100

Note: The silver price and nominal indices are estimated by reflating the hedonic real house price index using the nominal and silver price Consumer Price Index, and calculating a geometric average for the various periods (Edvinsson and Söderberg, 2010). The nominal index follows the currency unit of the mark up to 1624, and mark kopparmynt 1624–1776 (Edvinsson, 2010). At some occasions, when debased coins were exchanged for newer coins of higher silver content, this may spuriously seem to look like a deflation.

* Median, the period includes debasement cycles.

** In better coins.

*** In debased coins.

A real-estate price index for Stockholm, 1726–1875

Emelie Carlsson, Rodney Edvinsson, Klas Eriksson and Gustav Ingman

1. Introduction

This chapter presents new, nominal and real price indices for real estate in Stockholm from 1726 up to 1875.[1] The previous chapter presented an index of Stockholm house prices up to 1730, but focused on the Old Town before 1730, and, given that addresses could not be collected for most of the properties, applied a hedonic price method. The period 1726–1729 is also presented in this chapter as an overlapping period. The new series presented here can be linked to already existing price indices for real estate in Stockholm: first from 1875 up to 1957;[2] from 1957 to 1975[3] and from 1975 up to 2020.[4] As discussed in the previous chapter, prices outside of the Old Town increased faster than in the Old Town during the 1720s. If trends in house prices in various parts of a city diverge substantially, it will be a major challenge to interpret the development, something which is further discussed in this chapter for the period 1726–1875.

For the new series covering the period 1726–1875, a new database is used that covers registered real-estate transactions in the present inner city of Stockholm for the period and the method of repeated sales is applied. The indices are based on information from 22,169 unique transactions. To control for qualitative changes in the housing stock, a database of 7,915 issued building permits has been used.

The structure of the chapter is as follows. Section 2 describes the sources. Section 3 discusses methodological issues when constructing a historical real-estate price index. Section 4 describes our database. Section 5 presents and discusses the real-estate index.

---

2   Edvinsson, Blöndal, and Söderberg 2014.
3   Sandelin 1977; presented in Edvinsson, Blöndal, and Söderberg 2014.
4   Statistiska Centralbyrån, 'Fastighetsprisindex (FASTPI) för permanenta småhus, efter län och år'.

2. Sources

There are many ways to assess historical real-estate prices. The two primary sources are information about real-estate transactions and assessment values like, for instance, taxation registers. The present study builds on information about real-estate transactions. This can be found in the archive of Stockholm City Council, today maintained by the Stockholm City Archives.

Housing transactions

Stockholm City Council, as well as the rest of Sweden, historically used a system of what was called "uppbud". This meant that every sale of a plot of land and/or a building was announced publicly three times in three successive court sessions. This system was established to give relatives, neighbours and others in close connection to the seller an opportunity to protest against the planned sale. This protest gave these individuals a chance to put forward arguments for why they should have the right to buy the land and/or house instead of the buyer(s) suggested during the court sessions.

Our primary sources for the 18th and 19th centuries (more specifically from 1725 and onwards) are the so-called Legal and procurement protocols or "uppbudsprotokoll" in Swedish (Stockholms stadsarkiv, Stockholms magistrat- och rådhusrätt, A 6 a Lagfarts-, uppbuds, protokoll). Following each court session, protocols of each "uppbud" were drafted by City Council employees. In this study, the protocol that was drafted after the first court session is used. No matter who was deemed the rightful buyer in the end, the price stayed the same throughout the proceedings.

The legal and procurement protocols contain information about the name and profession of the seller and buyer, the location of the property (including parish, street name, the name of the block and the number attached to the specific plot or house), relevant dates (both date of purchase and date of registration), whether the property was on free or unfree land,[5] and prices. The present study mainly uses these protocols to build a database of housing transactions.

Until year 1800, the protocols also included information about house type. The most common types were wooden houses (Swe: *gård*) and stone houses (Swe: stenhus). Examples of other types of real estate are gardens, windmills and graves. After 1800, stone houses and wooden houses are both referred to as "property" (Swe: *fastighet* or *fast egendom*). We have only included wooden houses and stone houses in our dataset. Because of the change of praxis from 1800, we have not used the information about house type when constructing the index. Instead, we have used building permits to control for changes of house type at specific addresses.

---

5   An unfree property was located on land that was owned by the City, and the owner had to pay a regular fee to the City for usage. Sometimes when an unfree property was sold, the buyer could also pay the City for a "fribrev", paying a fee, which made the property free. In the Old Town, the properties that were sold were free, which is also one reason why focusing on the Old Town enables us to follow properties of similar type.

The data do not allow us to make a distinction between residential and commercial properties. In many cases, the properties sold may well have been used for both purposes. It was not uncommon for part of a building to be used as a workshop, shop or warehouse. Some parts could be used by the owner's household, others could be let to third parties.

Figure 7.1 below gives an example of what an uppbudsprotokoll looked like. It also shows what that specific record looked like in the Estate Register "Fastighetsregister 1675–1875",[6] a card register stored at the Stockholm City Archives. The card register

Figure 7.1: *"Uppbud"-protocol from 1753 and the same sale in the Estate Register.*

Source: Stockholms stadsarkiv.

6   Stockholms stadsarkiv. Fastighetsregister 1675–1875. https://sok.stadsarkivet.stockholm.
     se/?template=view_post&id=153 [2020-04-26]

is discussed in more detail below, under the section on house numbers. In the specific protocol seen in this picture, the following information can be found: 1) the title and name of the buyer; 2) the street name of the property; 3) the block name; 4) the block number; 5) if the land is included in the transaction or if it is owned by the city; 6) the house type; 7) the price; 8) the title and name of the seller(s); 9) the date when the contract was signed. The numbers in the picture of the protocol correspond to the numbers in the picture of the card register. As can be seen, the card register does not include any price information.

Example of a sales contract

The information about real-estate transactions in the protocols was collected from sales contracts. Most of it still remains in the archives. The information that can be retrieved from the contracts differs, but they often include more details than the protocols.

Figure 7.2 exemplifies a sales contract from 1756 for a property in the Old Town. The property was sold for 162,000 daler kopparmynt, which at that time was equivalent to approximately 81,000 days wages for an unskilled laborer.[7] It was sold by the King to Baron Erland Broman. The property was located in two blocks; the main stone house with a courtyard in the middle in the block called Aurora, and a stable property in the Triton block.

The included map shows the location of the two properties, including a drawing of the buildings. The contract specifies that the plot on which the stone house stood was 2111.875 Swedish square ells (745 square meters), and the property contained a stables of 742.375 Swedish square ells (262 square meters). The property in the Aurora block was called Piper Palace ("Piperska palatset" in Swedish) but was later renamed Petersen House (Petersenska huset). Figure 7.3 shows the building in 1700.

Not all contracts, however, include drawings or even the size measurements of the plot and house. In the present study, the contracts have been used where important information in the protocols is lacking, e.g. location of the sold estate.

---

7   Calculation based on Edvinsson and Söderberg 2011.

Figure 7.2: *A sales contract from 1756.*

Source: Stockholms stadsarkiv.

Block names and numbers

The protocols of real-estate transactions, the uppbudsprotokoll, do not always contain all the relevant information. In particular, the block and/or block number are often missing in the early material. Without that information, it is virtually impossible to identify each building, something that the method we are using to construct the real-estate price index requires. In those cases, the information needs to be sought elsewhere. These complementary sources include contracts, maps, archival registers, street directories, population registers and probate inventories.

Block- and street names as well as plot numbers have changed throughout history in Stockholm. During the Middle Ages, Stockholm's Old Town was divided into four main quarters, called "fjärdingar". Block names for each separate building block started to emerge during the seventeenth century. In 1729 each plot or building in each of the four quarters was given a number and finally in 1810, the system still in place today was implemented and every block received its own series of numbers. Street addresses and numbers for all plots and buildings were introduced in 1832. Using the register, it

Figure 7.3: *Piperska huset, in the Aurora block , around 1700, by Erik Dahlbergh (1625–1703).*
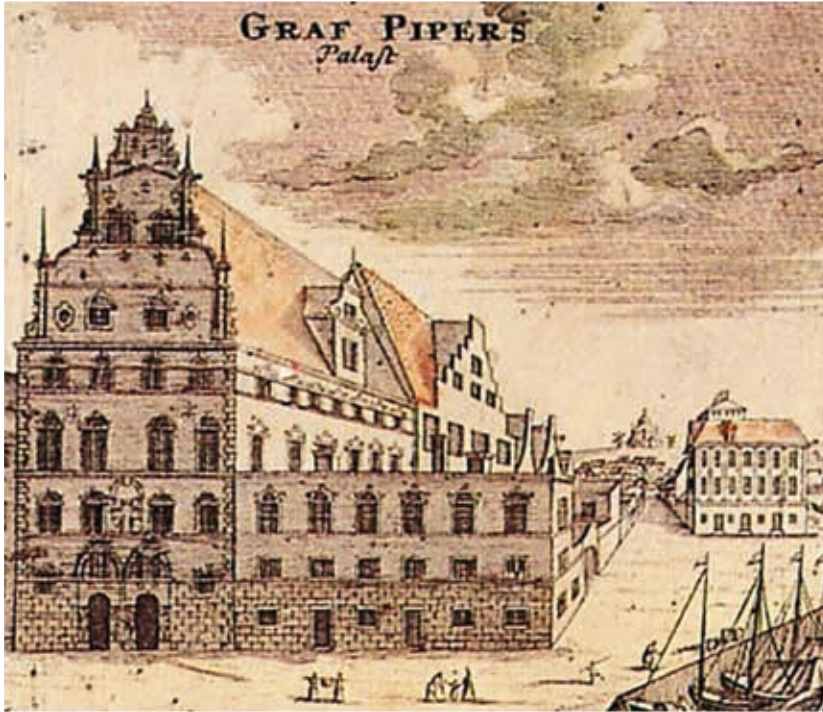
Source: Wikimedia Commons.

is possible to conclude which plot or building was being sold, which parish it belonged to, its block name, the old or new property number and/or the street name. An example of a record in the Estate Register is shown above in Figure 7.1.

The old maps (see examples below) were used to locate the block on which the property was located via the street names or other geographical descriptions in the protocols and sales letters.[8]

Addresses could be located using another register that is available online, the "Kvarters- och adressnyckel 1730–1810".[9] This is an interactive tool set up by the staff at the Stockholm City Archives. Despite this, the match between old and new plot numbers is not perfect, given, for example, that some plots in the new system contained several plots in the old system. We could therefore not compare sales when plot numbers could not be matched.

8   The Stockholm city archive has collected many useful maps at their web portal Stockholmskällan.

9   Stockholms stadsarkiv. Kvarters- och adressnyckel 1730–1810. https://sok.stadsarkivet.stockholm.se/?template=view_post&id=147 [2020-04-26]

The Estate Register, "Fastighetsregister 1675–1875"[10], was set up by amateur genealogists on typewriter-written cards and at some point handed over to the Stockholm City Archives. The specific date at which the original records were created, and by whom, is unknown. The register was stored for a long time in lockers located in the City Archives' reading room. Now digitalized, all the material stored in the lockers is now available online via the City Archives website. The cards contain information about the owner/s of a specific property, changes in ownership and the property's address (block name, property number and street name). The creator/s of this register used a variety of sources to crosscheck and establish who owned a property, as well as the correct block name and property number. To confirm the information in the transaction protocols, they used different sources such as population registers ("mantalslängder" in Swedish) and probate inventories ("bouppteckningar").

The Swedish state's use of population registers goes back to the 16th century. From 1652, all adult citizens were counted annually and had to pay a specific tax called "mantalspenning". This register excluded some groups (for instance the nobility, military staff and the very poorest people) but included most of the population. Probate inventories have been compulsory by Swedish law since 1734, but this procedure was common even earlier than that, especially in larger towns and cities. The purpose of the probate inventory was to take care of all assets and liabilities in connection with a citizen's death or bankruptcy.

In the late 17th century, Johan Olofsson Holm was appointed City Engineer of Stockholm. Acting on orders from the Riksråd[11] Claes Rålamb he created "Holms tomtbok" (Holm's book of properties) which is a collection of maps depicting Södermalm (the eastern part in 1674[12] and the western part in 1679[13]) and how plots of land were distributed between different owners.

In addition to the sources mentioned above, there are a variety of texts produced in Stockholm in which its citizens were noted and registered. For instance, the very first Swedish street directory over Stockholm, named *Den nu för tiden florerande widtberömde kongliga residence-staden Stockholm* is a collection in which residents, companies, trading companies, associations, establishments and the like in the city are listed. Information about the residents' names, titles, occupations, housing and more is also included. This directory was published in 1728 and can be used to locate a specific person in connection with a specific plot of land or building, however, it does not include all citizens of Stockholm. Only persons that were paying taxes were registered in the directory.

---

10 Stockholms stadsarkiv. Fastighetsregister 1675–1875. https://sok.stadsarkivet.stockholm. se/?template=view_post&id=153 [2020-04-26]

11 The Riksråd or Council of the Realm was a group of individuals acting as councils to the king or queen who helped rule Sweden from the late Middle Ages until well into the 18th century.

12 Stockholms stadsarkiv. Holms tomtbok, södra förstaden östra 1674. https://sok.stadsarkivet.stockholm.se/bildarkiv/Egenproducerat/atlas/holm/Holms-tomtbok-1674public.pdf [2020-03-12]

13 Stockholms stadsarkiv. Holms tomtbok, södra förstaden västra 1679. https://sok.stadsarkivet.stockholm.se/bildarkiv/egenproducerat/atlas/holm/Holms-tomtbok-1679public.pdf [2020-03-12]

Figure 7.4: *Plan of Stockholm between Norrström and Söderström (i.e. the present Old Town) 1733*

Soruce: Wikimedia Commons (originally from Stockholms stadsarkiv)

Building permits

One of the main problems with most of the methods that can be used to construct a real-estate price index, is that it is often hard to separate price changes from qualitative changes to the housing.

Over the centuries, many houses in Stockholm have been transformed so much that they can barely be said to still be the same structure. New floors might have been added to existing ones, façades might have been changed or, sometimes, the old building has been destroyed and a new building erected in its place. As the block names and numbers have remained the same, even if the house has changed or been replaced with a new one, it is therefore important to try to sort out buildings that have undergone large transformations. To do this, we have studied building permits, in addition to housing transactions.

As early as 1686, there was a regulation stating that all new buildings had to be reported beforehand to the city administration. The regulation was re-enacted in 1708 and it was specified that a construction drawing was to be included. Thanks to this, the Stockholm City Archives have substantial building permit documentation in the form of construction drawings. The series starts in 1713 and ends in 1874.[14] The documentation has been catalogued online by the Archives, and contains – among

---

14   Wikström 1969.

other things – the date of the document, the property it concerns, and a photocopy of the drawing. All this information was collected from the internet and compiled in a database. All and all, the database includes 7 915 building permit documents.

The drawings give a detailed picture of what kind of changes were planned. Furthermore, they also include notes from a city architect and approvals of the permit. This means that the archive could in theory be used to analyse renovations in more detail. The time frame of the current project, however, did not allow for that. Our database provides information on which building a permit concerns and when the permit application was submitted.

In Figure 7.5 below, an example of a building permit is given. It's associated metadata includes, in this order, year of the permit (år), date (datum), parish (plats), block (kvarter), street (gata), architect (arkitekt), client (beställare), type of document (typ), quarter number (kvarter ej normerad) and information about paper type.

Figure 7.5: *Example of a construction drawing.*
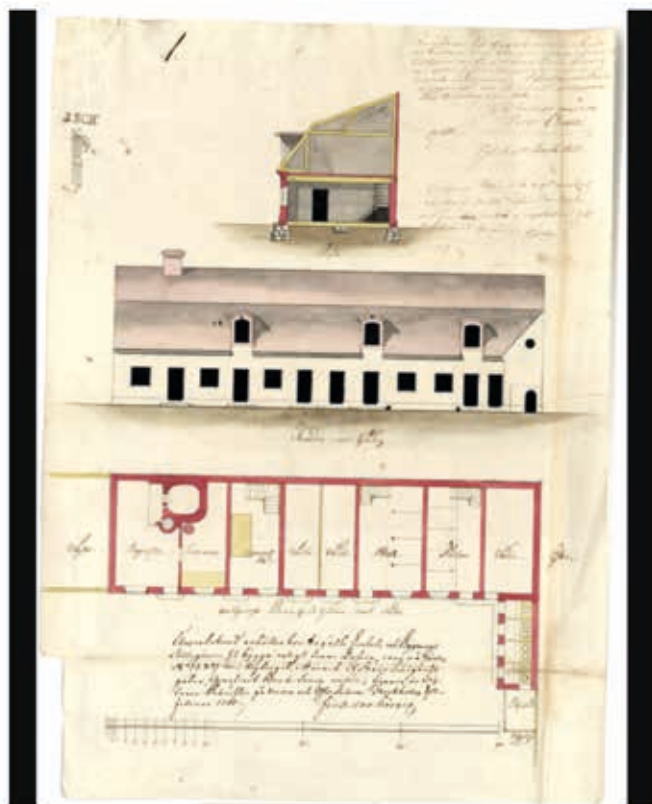
Source: Stockholms stadsarkiv.

3. Method

To construct a historical real-estate price index, researchers usually make use of transactions records, archived by the city. There are then multiple methods available to construct an index from the price information. Simply using yearly averages or median prices fails to account for the qualitative differences in properties sold; like size, building material, condition, etc. The most commonly used are, instead, hedonic regression, sales appraisal ratios and repeated sales regression.

This section starts with a short survey of long-run house price indices. As will be seen, numerous methods are employed. But in the end, they all struggle with the problem of how to take qualitative changes into account. The second part of the section explains the repeated sales method that is used in the present study.

Earlier studies

Hedonic regressions

A number of previous studies that have attempted to construct a long-run real-estate price index have used hedonic methods. The idea is to include relevant indicators of the qualitative characteristics of the properties sold and estimate a regression model.

Raff, Wachter and Yan presents an index for Beijing, 1644–1840. They include information about number of rooms, geographical location, number of court yards, if the house had a well and building material.[15] Karagedikli and Tunçer have constructed a price index for Edirne in the Ottoman Empire, 1720–1814. Their hedonic regression includes numerous variables that detail the the building's quality, the composition of the neighborhood and the geographical location.[16] A paper by Deeter, Duffy and Quinn (2016) tracks housing prices in Dublin, 1708–1949. Their hedonic regression includes information about location, if a garden or garage was included, and the number of properties included in each transaction.[17] Ronan Lyons uses a similar approach, but adds dwelling size, to construct a house price index for Dublin, 1900–2015.[18]

Repeated sales

There are also several studies that have used a repeated sales method. This method uses information about the price changes between sales of individual properties. The advantage of this method is that no additional information about housing quality is needed. One can, however, only use transaction data for houses that have been sold

---

15   Raff, Wachter, and Yan 2013.
16   Karagedikli and Tunçer 2021.
17   Deeter, Duffy, and Quinn 2016.
18   Lyons 2015.

more than once. Furthermore, one has to either assume constant quality of the individual houses or in some way control for qualitative changes.

One of the first analysts that employed a repeated sales approach to construct a real-estate price index was Gaston Duon. In an article from 1946, Duon presented a house price index for Paris, 1840–1944. Duon's data are discussed, and linked forward to 2015 by Friggit. Using information from the property register, Duon was able to exclude transactions where the building had undergone transformations. He also tried to estimate the average annual depreciation of a house and take that into account when constructing the index.[19]

In a pioneering study, Eichholtz used repeated sales regression to estimate a real-estate price index for the Herengracht district in Amsterdam. He also controlled for the transformation of houses from residential into commercial buildings.[20] Korevaar has recently used a new database from the Amsterdam City Archive compiled from all documented legal sales in Amsterdam between 1563 and 1811. In total, the database contains 164,067 transactions. It can be compared with the Eichholtz index that used 4 252 observations.[21]

Eitrheim and Erlandsen use a repeated sales method to estimate house price indices between 1819 and 1989 for four Norwegian cities: Oslo, Bergen, Trondheim and Kristiansand. They control for qualitative changes of the houses by excluding all properties for which the plot size has been changed or a new house has been built.[22]

Sales price appraisal ratios

In previous Swedish studies, real-estate indices for Gothenburg have been compiled for the years 1875 to 1957.[23] Indices for Stockholm have been compiled for the periods 1818 to 1875[24] and 1875 to 1957[25]. In all three cases, a sales appraisals ratio method (SPAR) was used.[26] The SPAR method combines sales data with taxation records for each property included in the dataset. The ratio between market price and appraisals is supposed to catch qualitative changes of the properties sold, given that the taxation value increases when new constructions are added to the property.[27]

---

19 Friggit 2008.
20 Eichholtz 1997.
21 Korevaar 2021; A discussion about housing quality in the context of historical rents in Amsterdam can be found in Korevaar, Eichholtz, and Lindenthal 2021.
22 Eitrheim and Erlandsen 2005.
23 Bohlin 2014.
24 Edvinsson, Eriksson, and Ingman 2020.
25 Edvinsson, Blöndal, and Söderberg 2014.
26 For comparison, all studies also constructed an index with a repeated sales method.
27 A lengthy discussion about pros and cons of the RS and the SPAR method can be found in Edvinsson, Eriksson, and Ingman 2020.

Other notable studies on long-run real-estate prices are Shiller's index for the US, 1890–2014[28] and Knoll, Schularick and Steger's compilation of house prices for 14 countries, 1870–2012[29]. Both these studies have, however, the problem that they combine indices of different qualities. Especially when it comes to the period before 1953, Shiller's index has been criticized for the use of non-robust methods such as median prices and for including few observations per city and year.[30] Knoll et al. do not work with primary data and the indices they use are of a different quality. Furthermore, they do not separate urban and rural price indices and seldom take qualitative changes into account.[31]

To sum up, all methods try in different ways to control for the problem that houses are a heterogenous commodity, that they are infrequently traded, and that their quality may change significantly between sales. Choice of method largely depends on the data availability.

The present study

If appraisal data had been available for the period of this study, it would have made sense to use the SPAR methodology from previous Stockholm studies. That would have facilitated the comparability and the linking between the series. We, however, lack data that would have made this possible. Instead, the present study employs a *repeated sales method* (RS) in similar fashion to the studies on Amsterdam and Norway discussed above. We will, also, take measures to control for transformations between sales.

The RS method was originally proposed by Bailey, Muth and Nourse in 1963.[32] The basic idea is that if one can assume that investments in a property over time correspond to depreciations, one can estimate the development of real-estate prices from the price differences when the same buildings are sold numerous times.

The repeated sales method is a systematic comparison of prices in multiple sales of a given property. The method regresses the logarithm of the ratio of the price of a given property in the second sale to the price of the property in the first sale, on time dummy variables set to –1 in the year of the first sale, and to 1 in the year of the second sale, and otherwise 0. The regression coefficients of the time dummy variables are estimated for each year by OLS, and a yearly repeated sales index is obtained for the studied period.

One can suspect that the probability of a qualitative change for an individual house increases with time between two sales. If that is the case, the variance of price

---

28   Shiller 2006.

29   Knoll, Schularick, and Steger 2017.

30   Lyons 2015, 5.

31   See discussion in Korevaar, Eichholtz, and Lindenthal 2001, 14f.

32   Bailey, Muth, and Nourse 1963.

ratios will increase when the time interval between sales increases. To circumvent that problem, Case and Shiller have developed a modified RS method, often referred to as a *weighted repeated sales method* (WRS).[33] By taking the squared residuals from the initial RS regression, they regress them on an intercept and variable representing the interval time between the sale pairs. In the next step, the fitted values from this regression are used as weights in a weighted least squares regression that, apart from the weights, has the same input as the initial RS regression. The WRS method is applied in the present study.

In comparison to, for instance, annual averages, the RS method does not presuppose homogeneity between properties sold during the same year. It does, however, presuppose homogeneity between individual properties over time. This assumption is often violated. An individual property can change a lot between two sales: it can, for instance, be rebuilt or replaced with a new building.[34]

To control for this, we decided to complement the house transaction database with building permit documentation. For the whole period of this study, building permits were required when rebuilding or building a house. It was not possible to decide which ones of the applications for building permits that were approved or not, i.e. it was not possible to know whether an application was followed by a new construction or not. We therefore excluded all sales pairs in which a building permit was applied for. By doing this, a large proportion of properties that underwent major qualitative changes were removed.

4. Data

The database

Our database includes 22,169 unique transactions of houses in Stockholm between 1726 and 1875. It provides information about the sales price, the name of the property, when the sale was registered, and in what parish the property was located. All properties were located in the inner city of Stockholm: Kungsholmen, Norrmalm, the Old Town, Södermalm and Östermalm.

---

33 Case and Shiller 1987.
34 See discussions in Eurostat 2013; Bourassa, Hoesli, and Sun 2006; Englund, Quigley, and Redfearn 1999.

In Figure 7.6 below, the number of registered sales per year is illustrated. Sales are grouped for each year, i.e., the year that the sales contract was signed. On average, the sample consists of 147 transaction per year, with a median of 138 and a standard deviation of 94.6. There are some cyclical movements in the number of transactions per year, and a general increase towards the mid-1850s.

Figure 7.6: *Number of registered housing transactions per year, 1726–1875.*
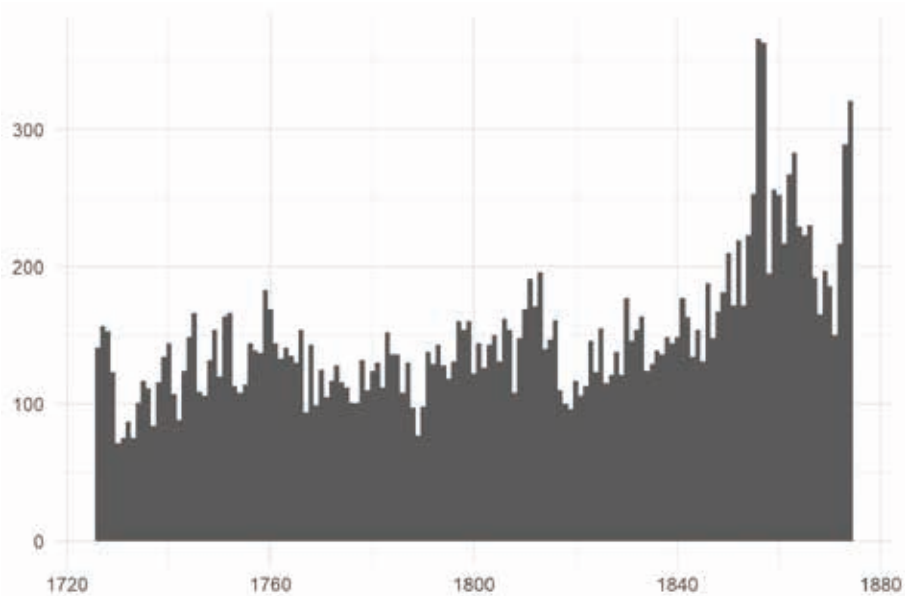
The geographical distribution of sold properties is relatively constant over the period 1726–1875. As can be seen in Figure 7.7 below, about half of the transactions took place north of, and about one third south of the Old Town. For all years, there is a fairly equal number of transactions in northern and southern Stockholm, respectively. The number of transactions in the Old Town is lower. This probably reflects a much lower number of existing houses and limited possibilities to expand the city on the Old Town island.

The lower part of Figure 7.7 shows the geographical distribution in northern and southern Stockholm, based on parishes. It shows that the distribution of number of sales between parishes was quite stable over the investigated period.

Figure 7.7: *Proportional geographical distribution of registered transactions.*
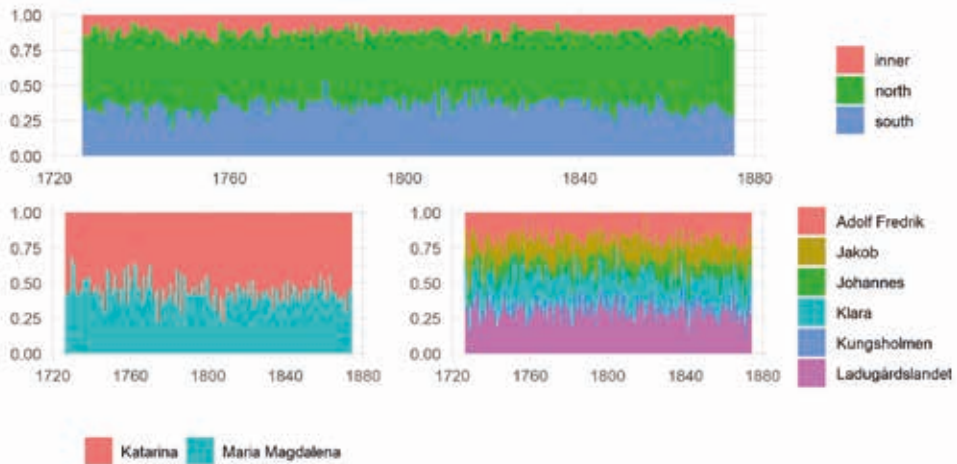
Difference between registration and sales date

Our data provides information about both the date of sale (the time when the transaction was agreed upon) and registration date (the time that the City registered the sale). Normally, a sale was reported within 100 days after the transaction was agreed upon. There are, however, several cases where the difference is much larger. The largest in our sample was the sale of the property Skravelberget större 1, located in north eastern Stockholm in the parish of Ladugårdslandet. The sales contract was signed on 4 August 1733, but the sale was registered on 7 November 1774, more than 41 years later. This phenomenon continues well into the 19th century. For instance, the property Barnhusväderkvarnen 11, 12, located in the Adolf Fredrik parish in Norrmalm, was sold on 17 November 1812, but the sale was registered on 12 December 1831.

In most cases, the sale of a property was registered the same year. An exception is when the registration is done during the first quarter of each year. These registrations often represented transactions carried out in the year before. The median difference between the year of registration and the year of sale for all years in our database is 0. The mean and the standard deviation, however, tended both to increase over the period. These trends are illustrated in Figure 7.8.

Figure 7.8: *Mean (line) and standard deviation (shaded area) in difference between registration and sales year, 1726–1875.*
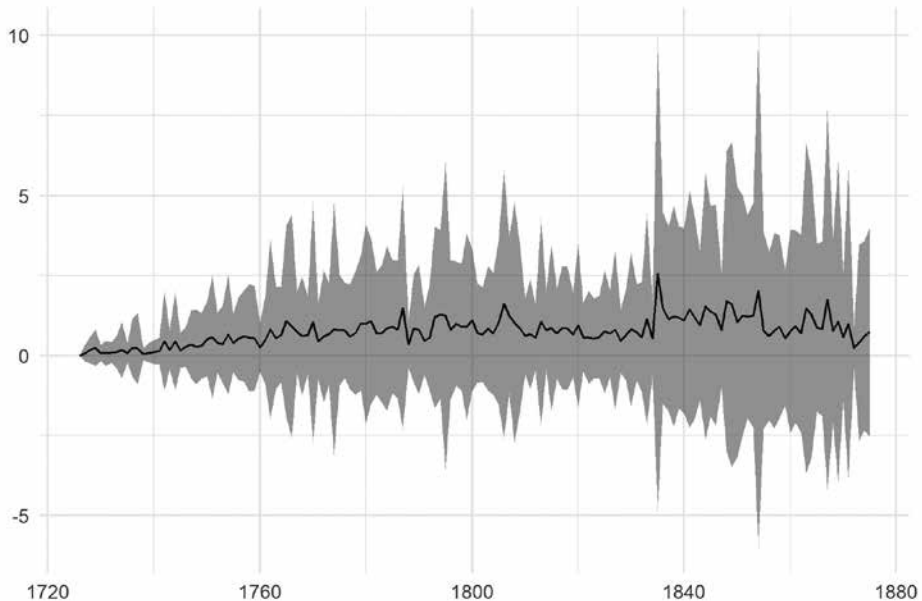
This shows that when constructing an annual index, it is important to group the data after sales year, not registration year. Otherwise, the result can be misleading.

Currencies in use

The currencies system changed substantially during the studied period. This is expressed in the type of prices paid for various properties. Up to the first half of the 19th century, there were parallel currencies in circulation.[35] We therefore needed to convert all registered prices into one and the same unit.[36]

Many payments were made in multiple currencies. Some transactions were also made in silver, expressed in weight, others in gold. In practice, during most of the period, only one currency dominated the transactions. However, this was not necessarily the weakest currency in circulation, given that it was important that the money paid according to a contract did not lose its value. It is likely that the composition of the currencies used in the purchases of properties may have been different from the composition for other trade transactions.

---

35   For a history of the Swedish monetary standards, see Edvinsson 2010.

36   This could be done with the online price converter 'Prisomräknare från medeltiden till 2100' at www.historia.se. It builds on the work of Söderberg and Edvinsson 2010.

Before 1624, Sweden had a silver standard. The main currency unit in Sweden was the mark, which was divisible into eight öre. Four marks were also denominated as daler. Both the mark and the öre were minted as silver coins, while the daler was a unit of account. Parallel to the mark, Sweden also minted riksdaler coins, which were international. The value of the riksdaler fluctuated relative to the mark.

Up to 1776, different currencies were in circulation, based on silver, copper and gold coins, but later also on fiat money. Despite this, the most common unit in the transaction of properties was the daler kopparmynt. Payments recorded in daler silvermynt and riksdaler were rare, which was quite a different situation from 1670. In addition, it was also common to make payment in actual silver, measured in the weight unit of lod. For example, in 1740, all 170 payments were recorded in daler kopparmynt. In only two of the transactions were additional payments made in silver, and in one transaction additional payment was made in gold rings, each set equal to one ducat. The main change compared to the 17th century was the widespread use of paper notes, especially for larger transactions, and the unit of daler kopparmynt followed the value of notes after convertibility to copper coins was abolished in the mid-1740s.

In 1777, the silver standard was reintroduced, and the copper standard abolished. The main currency unit came to be the riksdaler, which previously had functioned as an international hard currency. The riksdaler was set equal to 6 daler silvermynt or 18 daler kopparmynt. The gold ducat, however, continued to be minted, and used in some transactions, although its share in the money supply was very small. The switch in the currency unit is evident in the data on property sales. While daler kopparmynt were used in almost all sales up to the end of December 1776, from January 1777 almost all sales were recorded in riksdaler.

The monetary stability did not last long. When the Riksbank refused to lend money to King Gustav III, he established Riksgäldskontoret in 1789, which issued notes that soon replaced the Riksbank notes as the main means of payment. The value of the riksgälds notes fell in value relative the banco notes, although the exchange rate between the two fluctuated. One riksdaler banco continued to be convertible on request for one riksdaler specie, i.e. one riksdaler as an actual silver coin. The monetary disarray is evident in the transactions in the property market.

Up to November 1790, all payments seems to have been made in riksdaler banco. The first payment in riksdaler riksgälds is recorded for December 1790. During the rest of the 1790s, many payments were made both in riksdaler banco and riksdaler riksgälds, and some payments also included silver and gold ducats. Unfortunately, for some of the transactions, it is not completely clear which currency unit was used. Sometimes the payment was denominated just in riksdaler, and in periods where riksdaler riksgälds were mostly used, we have assumed that this was the unit. It was not until August 1803 that 1 riksdaler banco was fixed to 1.5 riksdaler riksgälds. Afterwards, most transactions were denominated in riksdaler banco. The riksdaler riksgälds and riksdaler banco continued to be used as units of account, although

both referred to the same underlying currency. In 1855 riksdaler riksmynt replaced the other units.

In 1809, due to the over-issuance of banco notes to finance the war against Russia, convertibility of the riksdaler banco into riksdaler specie was suspended. The riksdaler banco, and in consequence also riksdaler riksgälds, fell in value relative to actual silver riksdaler coins, which were termed riksdaler specie. Payments for properties continued to be almost exclusively made in riksdaler banco, and only on a few occasions were they made in riksdaler specie.

The repeated sales dataset

From our database, 14,706 transaction pairs could be created. The original dataset consists of 6,854 unique property names. 4,419 of them appear more than once and can therefore be used in the repeated sales dataset. In total, 2,435 property names only appear once and those transactions are therefore excluded. The data loss amounts to around 11 percent of the database. In Figure 7.9 below, the proportion of excluded transactions per year is depicted. The figure shows that the share of excluded transactions rarely exceeds 20 percent.

Figure 7.9: *Annual proportion of housing transactions that could not be used, 1726–1875.*
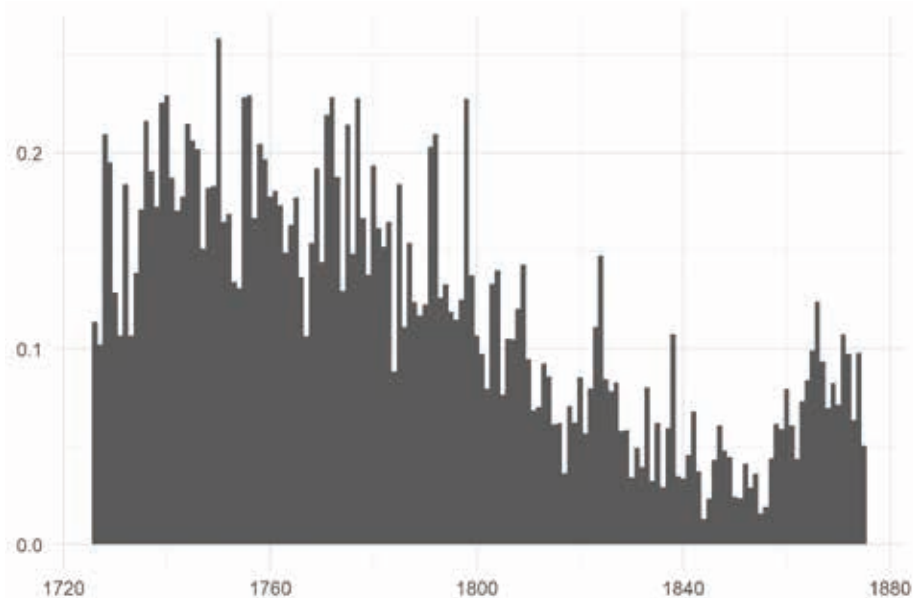
As has been discussed earlier, we wish to exclude houses that underwent large renovations or that were rebuilt between two sales. We therefore excluded all observations for which a building permit existed from a date in between the sales.

This procedure led us to exclude 3,022 observations, leaving the repeated sales sample with, in total, 11,684 pairs. The number of registered building permits per year and the number of transaction pairs excluded are depicted in Figure 7.10. Evident from the graphs is that the number of building permits increased rapidly towards the end of the 19ᵗʰ century. This, of course, coincided with a growing population. One can also see that this is reflected in the number of transaction pairs excluded. It becomes increasingly more common at the end of the time period.

Figure 7.10: *Number of building permits per year and number of transactions excluded due to building permit per year.*
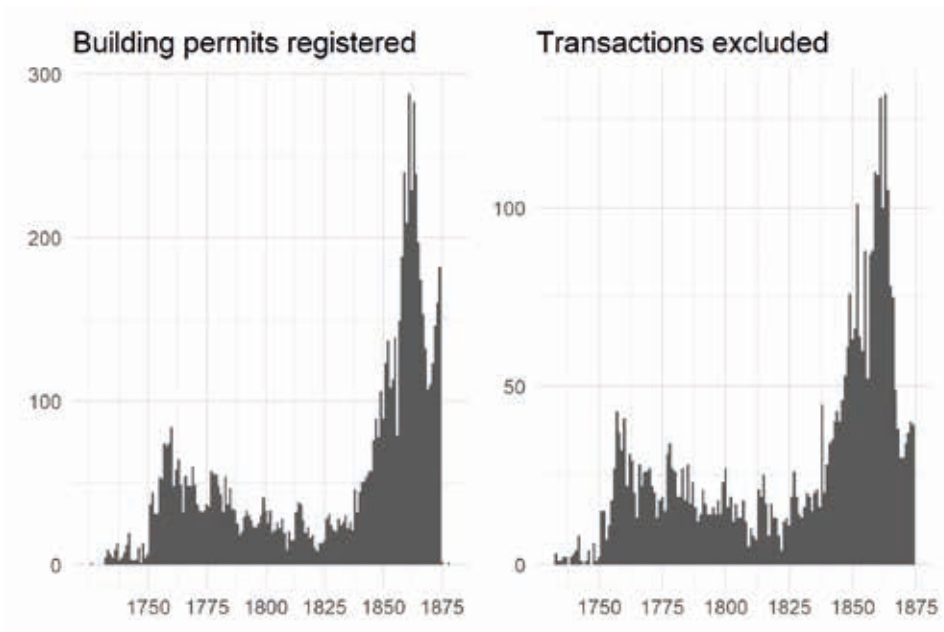
On average, there were 79.4 observations per year at time 0, and 77.9 observations at time 1. Time 0 is the first registered sale for each pair, time 1 is the second. The number of observations for each year is depicted in Figure 7.11.

Figure 7.11: *Number of transaction pairs per year of first (time0) and second (time1) transaction.*
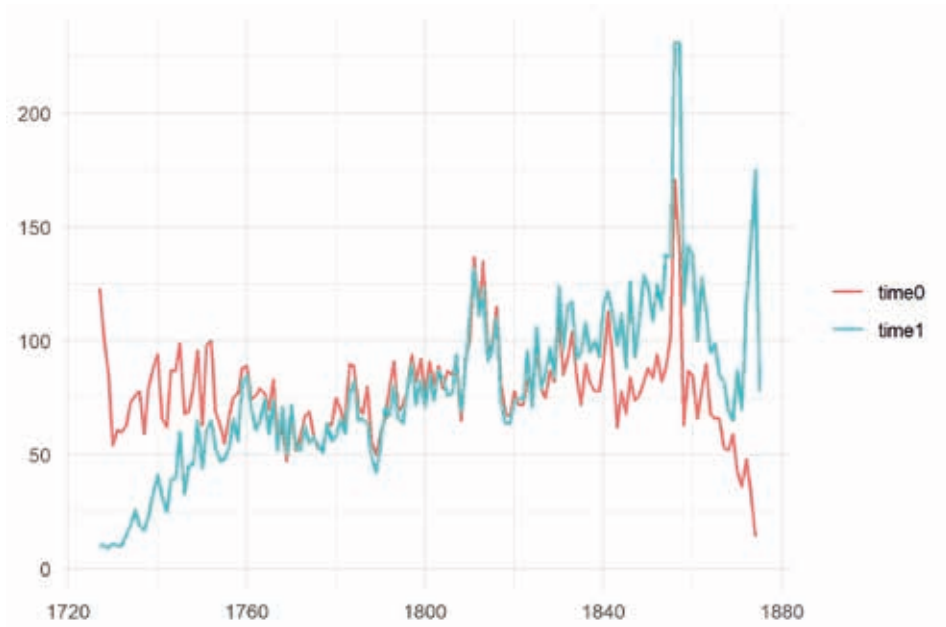
Buyers, sellers and items sold

The "uppbuds"-protocols, which we use as our source material, contain some information that has not been analyzed in a systematic way for this study. This includes information on the type of property, if the land was included and name, gender and professional title of both seller and buyer. This information is not necessary for the construction of a housing-price index, but it might provide a deeper understanding of the historical housing market of Stockholm and therefore deserves a short comment here. Restrictions on who could participate as agents on the market could also increase transaction costs, and therefore indirectly impact price formation.

What kinds of property were sold?
The "uppbuds"-protocols provide information about the type of property. The praxis for registering these sales, however, changed over the period investigated. During the 18th century, it was normally noted if a house sold was a stone house, a half-timbered house or a wooden house. In the densely populated inner city, today's Old Town, almost all houses were made of stone. Wooden houses were common in the outskirts of the city. Stone houses were normally the most expensive house type.

In addition to houses, plots of land and gardens, sometimes a house plus a garden,

were also sold frequently. Occasionally, shops and sheds, mills and even graves were sold. Our dataset, however, only includes houses.

Sometimes, the housing transactions in Stockholm did not include the land that the house stood on. Many houses stood on, so called, "unfree ground" meaning that the city, and not the house owner, owned the land. Owners of properties on unfree ground had to pay an annual fee, so called "tomtören". When such a property was sold, 1/30 of the contract price was paid as a fee to the city.[37]

Who were the sellers and buyers?

There is a perception among earlier generations of Swedish historians and economic historians that during the 18th century, women mainly took part in business, the housing market, and other public affairs as widows. The formal institutions of the time, such as legal texts, support this perception as women's participation was heavily regulated. Young unmarried women were to be represented in legal matters by their fathers, another male relative or a male appointed as legal guardian, while wives were to be represented by their husbands. According to the law, it was only when the husband was away for a long period of time and when a woman became a widow that she was free to act on her own in business and legal matters.

However, just as in many other historical contexts, formal institutions seldom depict the whole truth. Maria Ågren argues that "the labouring couple" was a central cultural notion among common people, that very large group in society who did not get a chance to make an impression on the law.[38] In other words, according to the perception of a large majority of Swedish citizens at that time, women were equally responsible for any and all kinds of family business, trade and property ownership. In relation to this perceived reality, individuals within a society shape, and organize their everyday life by informal institutions rather than only looking to formal ones for guidance.

There is now an increasing amount of research indicating that women – many widows, but also wives and sometime even unmarried women, participated in commercial trade, in the sphere of artisan work as well as in the housing market fairly consistently during the 18th century. After a new law of 1734, which officially prohibited women's independent business and trade in Sweden (widows excluded), there was a decline in participation. But women never completely stopped participating as independent agents in the real-estate market and their participation is continuous throughout the investigated period.

When looking at the data collected from primary sources, women mainly appear as co-sellers with their husbands, almost all the "uppbud"-protocol notes include a reference to a woman. When a married couple sold a property they were, in both the "uppbud"-protocols and the "fastebrev", most commonly registered as the husband's work title and name followed by a reference to his wife, for example "åkaren Erich

---

37 Wikström 1969.
38 Ågren 2009.

Hallberg och dess hustru Magdalena Hallberg"/ " Haulier Erich Hallberg and his wife Magdalena Hallberg". In many of these cases, when looking at consecutive sales of a specific plot or building, it is clear that the property came into the household via the wife's inheritance and when it is later sold, that same wife is only mentioned as the spouse of her husband. And, following that, when the couple bought a new property; the husband is the sole buyer.

Even though most of the women mentioned in the primary sources were registered as co-sellers along with their husbands, there are many examples of women selling and buying property with no husband or other male guardian involved.

There are also examples of women acting independently in the Stockholm housing-market on a larger scale during the 18th century. For instance, there was a widowed woman named Anna Bergklyft who, after her husband died in 1740, bought at least 15 properties over a 40-year long period. She bought (and sometimes sold) plots of land, buildings, and parts of buildings within a geographical area covering around eight blocks located between Adolf Fredrik Church and the Stockholm Observatory on Norrmalm in Stockholm, part of the area which is today known as Vasastan. Her belated husband, Anders Bergklyft, was a small shop-owner ("hökare") and has not been found to own more than his and his family's home. After he died, Anna seems to have started some kind of real-estate business.

People involved in property transactions normally came from the richer strata of Stockholm's population. The largest group is craftsmen, normally masters. In those cases, it is probable that the bought houses were used both as workshop and dwelling. Common examples of that group are shoemakers, brewers, and carpenters. Others were small shop-owners, wholesale merchants and seamen. The most expensive transactions, naturally, involved the very richest in society. Merchants, factory owners and the upper class with high-ranking positions in the state administration or the military.

The price differences were often large. Let us exemplify with a comparison between the most expensive and the least expensive property sold in 1794. The most expensive transaction included the nobleman and governor Robert Wilhelm de Geer as the buyer. He bought two stone houses on the island of *Blasieholmen* on the street *Arsenalgatan.* They cost in total 16 500 riksdaler riksgälds. The sellers were the heirs of Countess Ulrica Eleonora von Düring. The least expensive property – a wooden house – was located in the south of the city, in the alley *Lilla fiskargränd*, and was bought by the soldier Nyström. The house was sold by Maria Hackman, a widow of the district court judge (Swedish: rådman), for a price of 56 riksdaler riksgälds. The first transaction was equal to the pay for 74,250 days of work by unskilled labour in Stockholm, and the second only 252 days of work.[39]

---

39 Söderberg and Edvinsson 2010, 474.

The housing price index for Stockholm 1726–1875

Figure 7.12 depicts the evolution of real-estate prices in Stockholm between 1726 and 1875 in logarithmic values. The upper series shows nominal values, the bottom series is the nominal series deflated with the Swedish consumer price index. Figure 7.13 shows the same series in logarithmic values. The base year is here set to 1726, in contrast to the appendix table where it is set to 1730.

Stockholm is here restricted to today's inner city, that is: the Old Town, Södermalm, Norrmalm, Kungsholmen and Östermalm. During this period, most people lived around what is today known as the Old Town (the parish of Nikolai). This can be seen in Peter Tillaeus map, reproduced in Figure 7.17 below.

As can be seen in the graphs, the nominal prices increased with nearly 7,900 percent (from 100 to 8,000) over the whole period. For real values, the corresponding increase was around 350 percent (from 100 to 450). If we, however, focus on real prices, the increase is not linear and two main trends can be noticed. First, between year 1726 and 1809, housing prices are more or less stagnant in the long run. After 1810, a period of rising prices begins.

Figure 7.12: *Real-estate prices in Stockholm, 1726–1875. 1726 = 100.*
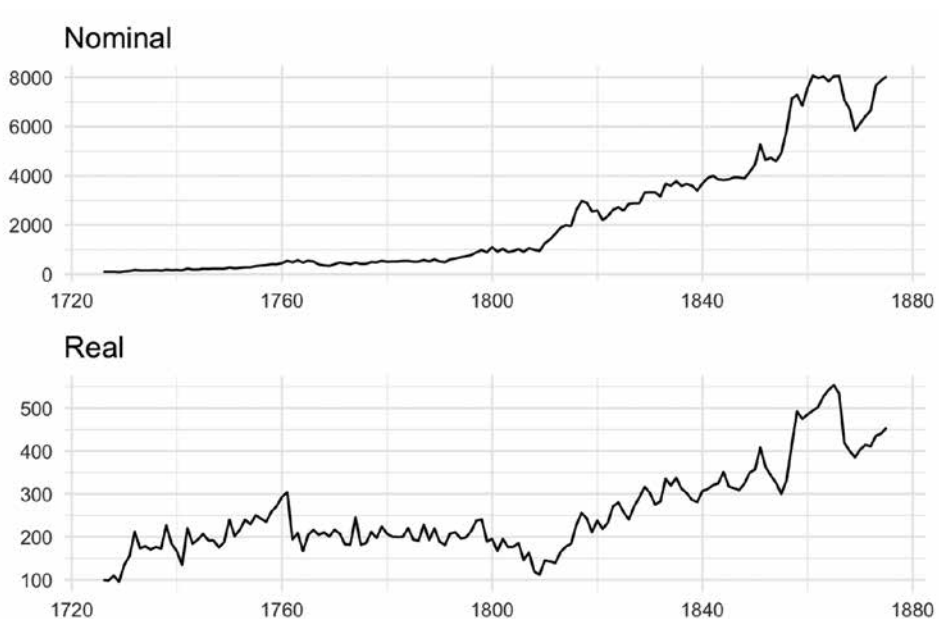
Figure 7.13: *Real-estate prices in Stockholm in logarithmic scale, 1726–1875. 1726 = 100.*
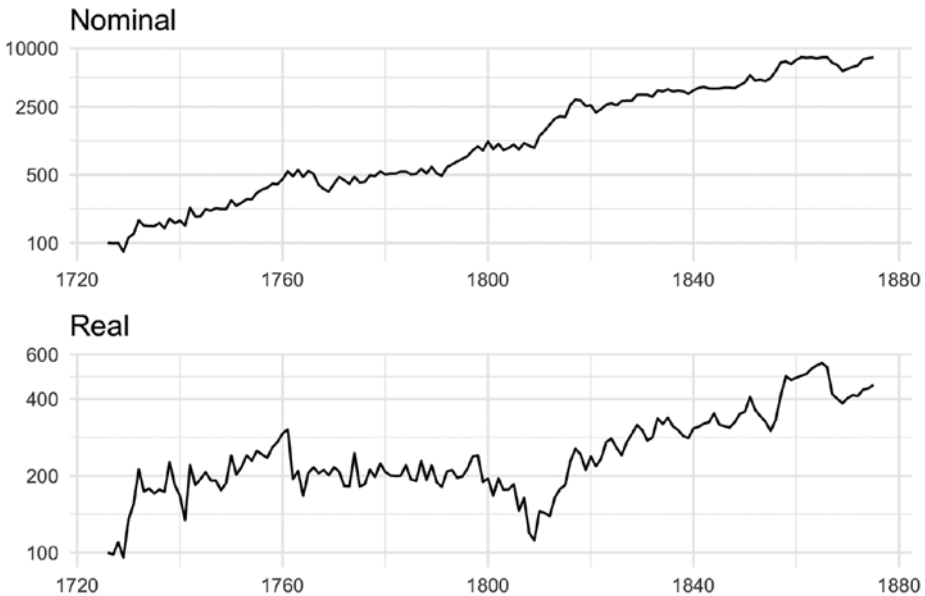
Source: Present study, Söderberg and Edvinsson (2010) and. Our calculations.

The average growth rate was 3.6 percent in nominal prices, and 1.9 percent in real prices between 1726 and 1875. For the same time period, the compound annual growth rate was 3.0 percent for nominal prices and 1.0 percent for real prices.

Regional differences in real-estate prices, 1726–1875

We can compare regional differences in real-estate prices by subdividing our original dataset with repeated transactions into the three main districts of the city: the inner city (today's Old Town), the city north of the Old Town and the city south of the Old Town. Figure 7.14 shows the five years moving average of the three repeated sales indices in natural logarithms. As can be seen, the inner city (the Old Town) has a significantly slower price development over the period. The up- and down cycles, however, seem to be closely correlated among all three indices.

The different price developments might be explained by the growth of the city. As the population soared, one can expect rising land prices in what were the outer parts under development. Better infrastructure might also have added to this. The differences might also reflect larger qualitative improvements of the housing stock in the outer parts of the city, especially as wooden houses were replaced with stone houses.

Those changes should, however, be accounted for by our use of building permits to exclude properties that underwent large changes between sales.

Figure 7.14: *Regional real-estate price indices, nominal values and five years moving average, 1726–1875. 1726 = 100.*
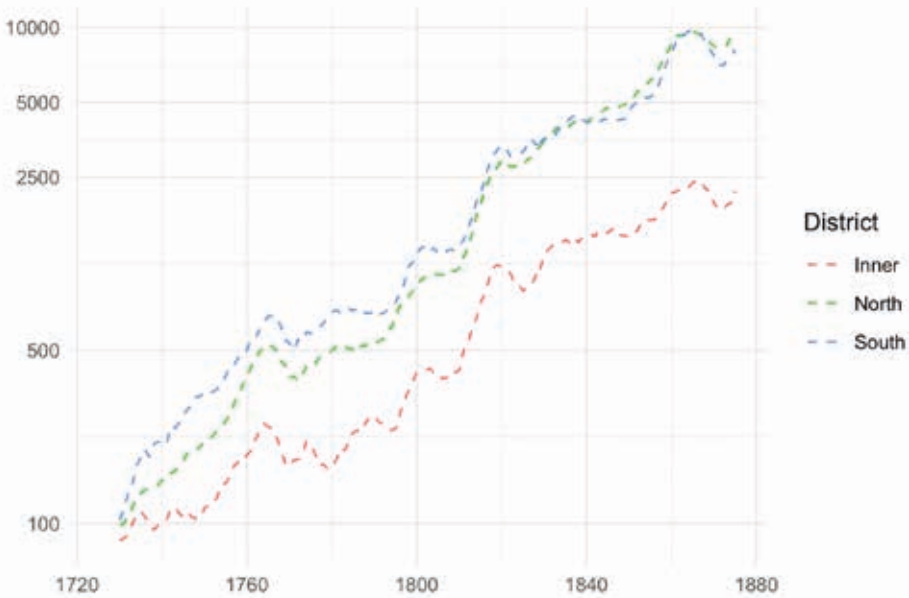
Comparison of methods for constructing housing price indices

The present index partly covers time periods that have already been investigated. Edvinsson, Eriksson and Ingman[40] have presented a real-estate price index for Stockholm from 1817 to 1875. That index was based on transaction data between the (slightly longer) period 1804 and 1875 and the data was processed using two different methods: weighted repeated sales (the method that is used in the present study) and a sales price appraisals ratio (a ratio between transaction price and taxation value).

In Figure 7.15 below, the previously constructed indices are depicted together with the index of this study. Let us look at the period 1726–1875 first. As can be seen, estimated trend, fluctuations and overall growth are all very similar in all three cases. The index of the present study shows a slower price increase towards the end of the period. That probably reflects that we have accounted for the rising number of building permits.

----

40   Edvinsson, Eriksson, and Ingman 2020.

Figure 7.15: *Comparison of real-estate price indices, nominal values, 1804–1875. 1804 = 100.*
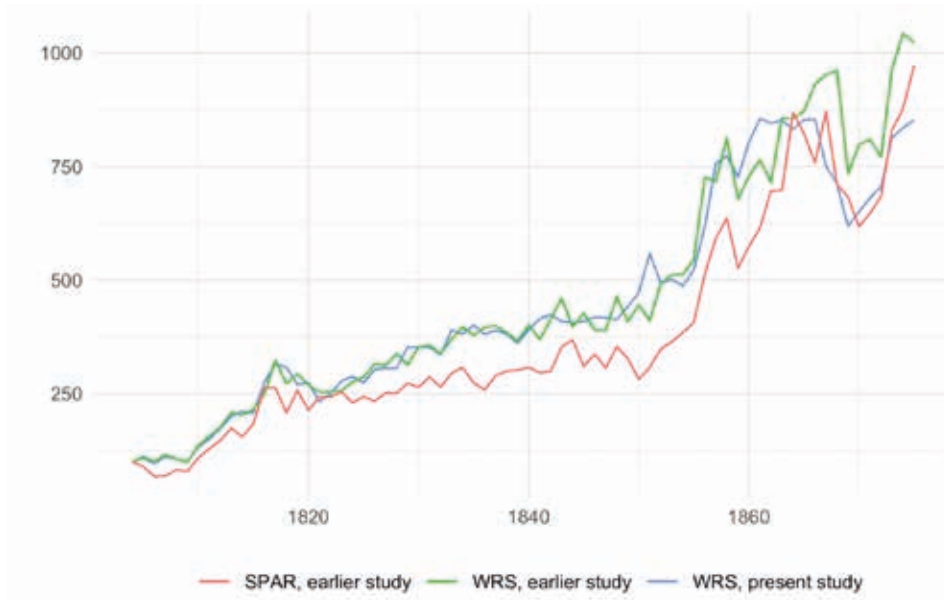
Historical context 1726–1875

The stagnant real-estate prices coincide with a period of more general economic stagnation in Stockholm. As discussed in the previous chapter, Stockholm changed dramatically between 1600 and 1690, which led to increasing property prices. The city became Sweden's administrative centre and expanded rapidly in terms of population and economic importance. Military defeats drained the state resources, and a plague caused the death of approximately 20,000 inhabitants, amounting to 35–40 percent of the total city population. As shown in the previous chapter, prices collapsed in the early 18th century, but rebounded in the 1720s. The downward trend in population was followed by a recovery in 1720–1750, after which Stockholm entered a stagnation phase where its role relative to smaller cities weakened.[41] Other change that had a negative impact on Stockholm's economy was the rearrangement of the military fleet, which moved from Stockholm to Karlskrona during the 1680s.[42]

The stagnation continued in 1750–1850. Johan Söderberg has identified five separate aspects of Stockholm's growth problems during this period:

1. The growth was not only low from a European perspective, but also relative to other Swedish towns.

---

41   Lilja 1992, 116f; ibid., 32.
42   Lilja 1992, 32.

2. The decline of capital was most severe in the textile industry. Only a few small trades grew during this period, for instance tobacco and sugar. Interregional competition emerged for instance in the shipping industry and glass manufacturing.

3. In trade, Stockholm declined in relative but not in absolute terms.

4. No expansion of handicrafts can be observed.

5. There was a secular decline in real wages for unskilled workers from 1750–1800 and they fluctuated substantially in 1800–1850. This pattern was shared with large parts of Europe and the rest of Sweden.[43]

From 1726 to 1800, the population of Stockholm increased by around 50 percent, from 49,700 inhabitants in 1725 to 75,800 in 1800. The increase, however, mainly took place between 1745 and 1757. Figure 7.16 depicts the population of Stockholm between 1725 and 1875.[44]

The outer parts of today's inner city were to a large extent undeveloped. This can be seen in Petrus Tillaeus map over Stockholm from 1733 (reproduced below).

The real-estate price volatility during this period can to a large extent be explained by changes in the consumer price index. Many of the largest price drops, like the one 1738–1741, are not clearly visible if we look at the nominal price index.

There is particularly one price that stands out in the nominal index during this period: between 1765 and 1769, nominal prices fell with 40 percent. In real terms, the fall had already started in 1761 and bottomed out in 1764. The price fall coincided with a deflationary crisis in Sweden in 1767–1769. The crisis was preceded by monetary instability and was eventually triggered by an attempt by the ruling political majority to push down the Swedish exchange rate. Their plan backfired when the intervention became publicly known, and people started to hoard notes and postpone payments. Earlier research has noted that urban real-estate markets were negatively affected by the crisis. The falling property prices had a severe effect on the finances of people who had large mortgages. The lower housing prices led to a rising number of compulsory auctions, as mortgage holders could not make their loan repayments and were forced to sell their properties.[45]

Stockholm's population started to grow at a faster pace in the 19th century. This is remarkable given that the city's death rate actually exceeded its birth rate. Stockholm was therefore dependent on migration for growth.[46]

---

43 Söderberg, Jonsson, and Persson 1991, 12f; The decline of textile production in Stockholm has been investigated by many researchers, see for instance Schön 1979; Nyberg 1999.
44 Stockholms utredningskontor 2005.
45 Montgomery 1920, 65; Wetterberg 2009, 93ff.
46 Råberg 1976.

Figure 7.16: *Population of Stockholm, 1725–1875.*
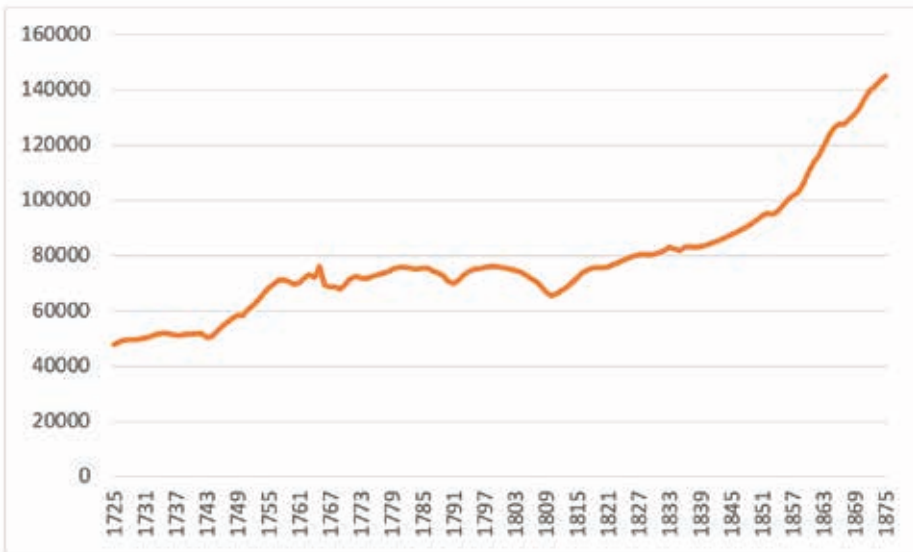
Figure 7.17: *Swedish name: General Charta öfwer Stockholm med Malmarne Åhr 1733. Med Kongl: Maij:ts alldranådigste Privillegio Upsatt af Petrus Tillaeus Stads Ingenieur.*

During the 19th century, especially one price fall stands out as especially severe both in nominal and real prices. Between 1866 and 1869, nominal prices fell by around 28 percent and by 30 percent in real prices. This coincided with repeated harvest failures that caused a famine in Sweden.[47]

Our period of study comes to an end right in the middle of some of the most dramatic changes in the history of Stockholm. Towards the middle of the 1800s, the economic growth of Stockholm begun to pick up pace. The city's institutions were modernized. Among other things, the guild system was abolished in 1846 and a freedom of trade reform was launched in 1864. Sweden begun its industrialization in the mid-1800s[48], and Stockholm once again played a major role in the Swedish economy.[49] The city population grew by more than 50 percent 1850 to 1875, from 93,000 to 145,000 registered inhabitants. By 1900, the population had surpassed 300,000.

---

47 Edvinsson, Eriksson, and Ingman 2020.
48 Jörberg 1991; Schön 1997.
49 Ahlberg 1958; Cederqvist 1980; Gustafson 1976.

References

Physical archives

Stockholms stadsarkiv, Byggnadsnämndens expedition och stadsarkitektkontor 1865–1965, F 1 AA Bygglovsritningar 1713–1874.

Stockholms stadsarkiv, Stockholms magistrat- och rådhusrätt, A 6 a Lagfarts-, uppbuds-, protokoll.

Stockholms stadsarkiv, Stockholms rådhusrätt, Avdelning 1, A 1 A Lagfartsprotokoll

Stockholms stadsarkiv, Stockholms Stad (1856–1974). *Stockholms Adresskalender*.

Online resources

Edvinsson, Rodney. 'Prisomräknare från medeltiden till 2100'. http://historicalstatistics.org/Jamforelsepris.htm [visited 21 January 2021].

Statistiska Centralbyrån. 'Fastighetsprisindex (FASTPI) för permanenta småhus efter län och år'. https://www.statistikdatabasen.scb.se [visited 25 January 2021].

Stockholms stadsarkiv, Bygglov 1713–1874. https://sok.stadsarkivet.stockholm.se/Databas/bygglov1875–1980/Sok [visited 21 January 2021].

Stockholms stadsarkiv, Fastighetsregister 1675–1875. https://sok.stadsarkivet.stockholm.se/Bildvisning/Default.aspx?app=fastighetsregister-1675–1875&indexvarde1=Adolf+Fredrik&indexvarde2=Adlern [visited 21 January 2021].

Stockholms stadsarkiv, Kvarters- och adressnyckel 1729 och 1810. https://sok.stadsarkivet.stockholm.se/Databas/1729-och-1810-ars-tomtnummer/Sok [visited 21 January 2021].

Stockholms stadsarkiv, Stockholmskällan. https://stockholmskallan.stockholm.se/ [visited 21 January 2021].

Other references

Ågren, Maria. 2009. *Domestic secrets : women and property in Sweden, 1600–1857*. Chapel Hill, N.C.: University of North Carolina Press.

Ahlberg, Gösta. 1958. *Stockholms befolkningsutveckling efter 1850*. Stockholms utveckling under de senaste hundra åren. Stockholm: Stockholms kommunförvaltning.

Bailey, Martin J., Richard F. Muth, and Hugh O. Nourse. 1963. A Regression Method for Real Estate Price Index Construction. *Journal of the American Statistical Association* 58 (304): 933–942.

Bohlin, Jan. 2014. A price index for residential property in Göteborg, 1875–2010. In *Volume II: House Prices, Stock Returns, National Accounts, and the Riksbank Balance Sheet, 1620–2012*, edited by Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström, 26–62. Historical monetary and financial statistics for Sweden 2.

Stockholm: Ekerlids.

Bourassa, Steven C., Martin Hoesli, and Jian Sun. 2006. A simple alternative house price index method. *Journal of Housing Economics* 15 (1): 80–97.

Case, Karl E, and Robert J Shiller. 1987. *Prices of Single Family Homes Since 1970: New Indexes for Four Cities*. Working Paper. National Bureau of Economic Research. Available at <http://www.nber.org/papers/w2393>. Accessed 31 July 2018.

Cederqvist, Jane. 1980. *Arbetare i strejk. Studier rörande arbetarnas politiska mobilisering under industrialismens genombrott. Stockholm 1850–1909*. Stockholmsmonografier 41. Stockholm: Stockholms kommun.

Deeter, Karl, David Duffy, and Frank Quinn. 2016. *Dublin House Prices: A History of Booms and Busts from 1708–1949*. SSRN Scholarly Paper. Rochester, NY: Social Science Research Network. Available at <https://papers.ssrn.com/abstract=2871321>. Accessed 18 May 2018.

Edvinsson, Rodney. 2010. Swedish monetary standards in a historical perspective. In *Historical Monetary and Financial Statistics for Sweden: Exchange rates, prices, and wages, 1277–2008*, edited by Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström, 1:. Vol. 1. Stockholm: Ekerlids.

Edvinsson, Rodney, Sölvi Blöndal, and Johan Söderberg. 2014. A price index for residential property in Stockholm, 1875–2012. In *Historical Monetary and Financial Statistics for Sweden: House prices, stock returns, national accounts and the Riksbank balance sheet, 1620–2012*. Stockholm: Ekerlid :

Edvinsson, Rodney, Klas Eriksson, and Gustav Ingman. 2020. A real estate price index for Stockholm, Sweden 1818–2018: putting the last decades housing price boom in a historical perspective. *Scandinavian Economic History Review*: 1–19.

Edvinsson, Rodney, and Johan Söderberg. 2011. A Consumer Price Index for Sweden, 1290–2008. *Review of Income and Wealth* 57 (2): 270–292.

Eichholtz, Piet M. A. 1997. A Long Run House Price Index: The Herengracht Index, 1628–1973. *Real Estate Economics* 25 (2): 175–192.

Eitrheim, Øyvind, and Solveig K. Erlandsen. 2005. House prices in Norway, 1819–1989. *Scandinavian Economic History Review* 53 (3): 7–33.

Englund, Peter, John M. Quigley, and Christian L. Redfearn. 1999. The Choice of Methodology for Computing Housing Price Indexes: Comparisons of Temporal Aggregation and Sample Definition. *The Journal of Real Estate Finance and Economics* 19 (2): 91–112.

Eurostat. 2013. *Handbook on Residential Property Prices Indices (RPPIs)*. Methodologies and working papers. European Commission.

Friggit, Jaques. 2008. *Comparing four secular home price indices*. Working Paper. Paris: Conseil général de l'environnement et du développement durable (CGEDD).

Gustafson, Uno. 1976. *Industrialismens storstad. Studier rörande Stockholms sociala, ekonomiska och demografiska struktur 1860–1910*. Stockholm: Stockholms kommunalförvaltning.

Jörberg, Lennart. 1991. The diffusion of technology and industrial change in Sweden during the nineteenth century. In *Technology, transfer and Scandinavian industrialisation*, edited by Kristine Bruland, 185–200. Oxford: Berg.

Karagedikli, Gürer, and Ali Coşkun Tunçer. 2021. House prices in the Ottoman Empire: evidence from eighteenth-century Edirne†. *The Economic History Review* 74 (1): 6–33.

Knoll, Katharina, Moritz Schularick, and Thomas Steger. 2017. No Price Like Home: Global House Prices, 1870–2012. *American Economic Review* 107 (2): 331–353.

Korevaar, Matthijs. 2021. Reach for yield and real estate. In *Financial lessons from the long history of housing markets*. Maastricht: Maastricht University. Available at <https://cris.maastrichtuniversity.nl/en/publications/financial-lessons-from-the-long-history-of-housing-markets>. Accessed 18 January 2021.

Korevaar, Matthijs, Piet Eichholtz, and Thies Lindenthal. 2001. 500 years of housing rents. In *Financial lessons from the long history of housing market*. Doctoral dissertation. Maastricht: Maastricht University,.

Korevaar, Matthijs, Piet Eichholtz, and Thies Lindenthal. 2021. Long Run Affordability and (Ine)Quality. In *Financial lessons from the long history of housing markets*. Maastricht: Maastricht University. Available at <https://cris.maastrichtuniversity.nl/en/publications/financial-lessons-from-the-long-history-of-housing-markets>. Accessed 18 January 2021.

Lilja, Sven. 1992. Den stagnerande stormaktens huvudstad. Forskning om Stockholm 1650–1750: aktuellt läge och framtida möjligheter. In *Huvudstadens historia : sju kunskapsöversikter kring Stockholms historia från äldsta tid till idag*, edited by Lars Nilsson. Stockholm: Stads- och kommunhistoriska institutet ;

Lyons, Ronan C. 2015. Measuring house prices in the long run: Insights from Dublin,1900–2015.

Montgomery, Arthur. 1920. Riksbanken och de valutapolitiska problemen 1719–1778. In *Sveriges Riksbank 1668–1918*, 3:. Vol. 3. Stockholm: Norstedt.

Nyberg, Klas. 1999. *Kommersiell kompetens och industrialisering : Norrköpings ylleindustriella tillväxt på Stockholms bekostnad 1780–1846*. Acta Universitatis Upsaliensis. Available at <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-49624>. Accessed 22 March 2019.

Råberg, Marianne. 1976. En Framtid För 1800-Talets Stockholm? Storstadens Framväxt Underindustrialismen: Aktuella Bevarande- Och Saneringsplaner. *Stadsvandringar* 1: 7–27.

Raff, Daniel, Susan Wachter, and Se Yan. 2013. Real estate prices in Beijing, 1644 to 1840. *Explorations in Economic History* 50 (3): 368–386.

Sandelin, Bo. 1977. *Prisutveckling och kapitalvinster på bostadsfastigheter*. Göteborg: Nationalekonomiska inst., Göteborgs univ.

Schön, Lennart. 1979. *Från hantverk till fabriksindustri : svensk textiltillverkning 1820–1870*. Arkiv avhandlingsserie, 0347–4909 ; 9. Lund: Arkiv för studier i arbetarrörelsens historia.

Schön, Lennart. 1997. Internal and external factors in Swedish industrialization. *Scandinavian Economic History Review* 45 (3): 209–223.

Shiller, Robert J. 2006. *Irrational Exuberance*. 2 edition. New York: Crown Business.

Söderberg, Johan, and Rodney Edvinsson. 2010. The evolution of Swedish consumer prices 1290–2008. In *Historical Monetary and Financial Statistics for Sweden: Exchange rates, prices, and wages, 1277–2008*, edited by Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström, 1:. Vol. 1. Stockholm: Ekerlids.

Söderberg, Johan, Ulf Jonsson, and Christer Persson. 1991. *A stagnating metropolis. The economy and demography of Stockholm, 1750–1850*. Cambridge: Cambridge University Press.

Stockholms utredningskontor. 2005. *Befolkningen i Stockholm 1252–2005*. Stockholms stad.

Wetterberg, Gunnar. 2009. *Pengarna & makten : Riksbankens historia*. Stockholm: Sveriges riksbank i samarbete med Atlantis.

Wikström, Lars. 1969. Fastighetsforskning i stadsarkivet: en översikt av källmaterialet intill 1850. *Årsberättelse Stockholms stads arkivnämnd och stadsarkiv* 1968 (33–35).

Appendix A

Table A7.1. *The estimated index for properties in Stockholm 1726–1875, (1730 = 100)*

Year	Nominal index				Nominal index deflated by CPI				CPI
	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	
1726	88	92	87	90	74	77	73	76	119
1727	88	94	88	94	73	78	73	78	120
1728	88	92	88	92	81	85	81	85	108
1729	72	78	72	78	71	77	71	77	101
1730	100	100	100	100	100	100	100	100	100
1731	109	115	110	115	115	121	115	121	95
1732	150	150	150	150	157	157	157	157	96
1733	132	135	133	135	129	131	129	131	103
1734	131	135	132	135	132	136	132	136	99
1735	131	140	131	140	126	135	127	136	103
1736	141	147	141	148	131	137	131	137	108
1737	124	131	125	132	128	135	128	136	97
1738	156	163	157	164	168	175	168	176	93
1739	140	148	141	148	137	144	137	144	103
1740	149	155	150	156	124	129	124	130	121
1741	133	133	134	134	100	99	100	100	134
1742	203	209	204	211	163	168	164	170	124
1743	164	174	165	175	137	144	137	146	120
1744	165	178	166	180	144	155	145	157	115
1745	195	199	196	202	153	157	154	159	127
1746	189	197	190	199	142	148	144	150	133
1747	200	199	202	202	142	142	143	144	141
1748	196	210	198	213	130	139	131	141	151
1749	196	203	198	206	139	144	141	146	141
1750	240	243	243	247	178	180	180	183	135
1751	213	225	215	228	150	158	151	161	142
1752	228	241	231	245	161	170	162	173	142
1753	247	256	250	260	178	185	180	188	139
1754	247	258	250	263	170	178	172	181	145
1755	288	300	292	305	186	193	188	197	155
1756	310	323	314	329	180	187	182	191	172

Year	Nominal index				Nominal index deflated by CPI				CPI
	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	
1757	324	337	329	344	174	181	177	185	186
1758	358	363	362	370	192	194	194	198	186
1759	354	368	359	376	201	209	204	214	176
1760	398	419	404	429	217	229	220	234	183
1761	479	480	486	491	226	226	229	231	213
1762	426	443	432	453	144	150	146	153	296
1763	497	509	505	522	155	159	157	163	321
1764	420	429	427	440	124	127	126	130	339
1765	482	504	490	517	152	159	154	163	318
1766	452	461	459	472	160	163	163	168	282
1767	348	367	354	377	152	160	154	164	229
1768	315	324	320	332	156	161	159	165	201
1769	297	306	301	314	149	154	151	158	199
1770	356	375	362	385	160	169	163	174	222
1771	420	431	428	444	154	158	157	163	273
1772	388	404	394	415	135	141	138	145	287
1773	356	375	363	386	135	142	138	146	264
1774	423	434	430	445	182	187	185	192	232
1775	367	377	373	388	135	138	137	142	272
1776	374	386	381	398	138	142	140	146	272
1777	435	430	443	444	157	155	160	160	277
1778	428	450	437	464	147	154	149	159	292
1779	478	497	488	513	166	173	169	178	288
1780	445	457	454	471	153	158	156	162	290
1781	454	471	464	486	149	154	152	159	305
1782	454	463	464	478	148	151	151	156	306
1783	475	496	485	513	148	155	151	160	320
1784	475	487	485	503	163	167	167	173	291
1785	446	465	456	481	143	150	147	155	311
1786	452	474	462	491	142	149	145	154	318
1787	510	530	520	548	170	177	173	182	300
1788	453	469	463	485	143	148	146	153	318
1789	532	542	543	560	163	166	166	172	327
1790	456	462	466	478	140	142	143	147	326
1791	431	445	441	461	134	139	137	144	321

Year	Nominal index				Nominal index deflated by CPI				CPI
	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	
1792	528	534	541	555	154	156	158	162	342
1793	564	580	578	603	156	161	160	167	361
1794	604	620	619	645	146	150	149	155	415
1795	642	674	658	701	147	155	151	161	436
1796	686	699	702	726	158	161	162	168	433
1797	787	816	806	847	177	183	181	190	446
1798	862	869	884	904	178	180	183	187	483
1799	787	812	807	846	141	145	144	151	560
1800	969	980	994	1020	144	146	148	152	671
1801	807	821	829	857	124	126	127	131	652
1802	917	944	942	984	145	149	149	155	633
1803	795	822	817	857	131	135	134	141	608
1804	831	865	855	905	131	136	135	143	634
1805	901	918	926	959	137	140	141	146	656
1806	802	825	825	861	108	111	111	116	742
1807	932	944	959	988	121	123	125	129	768
1808	878	911	903	954	88	92	91	96	992
1809	834	867	858	907	83	86	85	90	1007
1810	1103	1131	1138	1187	108	110	111	116	1026
1811	1248	1265	1286	1327	106	107	109	113	1177
1812	1442	1470	1486	1541	103	105	106	110	1398
1813	1665	1705	1717	1789	122	125	126	131	1366
1814	1759	1808	1814	1900	132	135	136	142	1337
1815	1727	1843	1782	1939	136	146	141	153	1265
1816	2295	2304	2370	2426	169	169	174	178	1360
1817	2618	2613	2703	2750	189	189	196	199	1382
1818	2563	2624	2643	2757	180	184	186	194	1423
1819	2244	2298	2316	2417	156	160	161	168	1436
1820	2280	2302	2354	2424	177	178	182	188	1290
1821	1932	1999	1998	2109	162	167	167	177	1195
1822	2082	2161	2151	2276	173	180	179	189	1203
1823	2310	2325	2387	2450	201	202	208	213	1148
1824	2396	2414	2479	2548	208	209	215	221	1154
1825	2274	2329	2354	2461	191	196	198	207	1190
1826	2522	2602	2608	2745	178	184	185	194	1413

Year	Nominal index				Nominal index deflated by CPI				CPI
	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	
1827	2543	2582	2634	2731	201	204	208	216	1265
1828	2545	2625	2636	2775	217	223	224	236	1176
1829	2925	2931	3033	3106	235	235	243	249	1246
1830	2933	2966	3041	3143	224	227	232	240	1308
1831	2929	2946	3038	3123	204	205	212	218	1435
1832	2793	2868	2899	3044	210	215	218	228	1333
1833	3242	3319	3365	3522	249	255	258	270	1303
1834	3172	3249	3294	3451	237	243	246	258	1339
1835	3333	3355	3463	3567	251	252	260	268	1330
1836	3165	3228	3289	3432	232	236	241	251	1366
1837	3235	3255	3363	3461	224	225	233	240	1444
1838	3172	3380	3301	3601	212	226	221	241	1494
1839	2999	3122	3121	3325	209	217	217	231	1438
1840	3253	3276	3385	3490	228	229	237	244	1428
1841	3447	3477	3589	3709	231	233	240	248	1494
1842	3527	3552	3674	3793	238	239	248	256	1484
1843	3398	3469	3549	3716	241	246	251	263	1413
1844	3379	3460	3528	3704	260	267	272	285	1298
1845	3397	3462	3542	3701	235	240	246	257	1442
1846	3473	3572	3627	3828	232	239	243	256	1495
1847	3468	3520	3623	3775	229	233	240	250	1513
1848	3430	3471	3582	3721	240	243	251	261	1426
1849	3668	3756	3836	4033	259	266	271	285	1414
1850	3929	3967	4107	4258	265	267	277	287	1485
1851	4642	4581	4853	4921	302	298	316	321	1535
1852	4094	4174	4283	4485	269	274	282	295	1521
1853	4171	4203	4367	4523	254	256	266	276	1640
1854	4045	4110	4238	4428	242	246	253	265	1674
1855	4341	4307	4543	4636	222	221	233	238	1952
1856	5137	5107	5385	5510	246	244	258	264	2089
1857	6294	6183	6609	6690	308	302	323	327	2044
1858	6424	6491	6753	7034	365	369	384	400	1761
1859	6037	6003	6347	6511	352	350	370	380	1714
1860	6674	6679	7012	7238	360	360	378	390	1855
1861	7114	6934	7486	7537	367	357	386	388	1941

Year	Nominal index				Nominal index deflated by CPI				CPI
	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	Weighted repeated sales with constant	Unweighted repeated sales with constant	Weighted repeated sales with no constant	Unweighted repeated sales with no constant	
1862	7024	7121	7400	7749	372	378	392	411	1886
1863	7082	6892	7442	7483	391	380	411	413	1812
1864	6912	6945	7269	7550	402	404	423	439	1718
1865	7092	7036	7475	7672	411	407	433	444	1728
1866	7098	6832	7475	7445	396	381	417	415	1793
1867	6245	6354	6588	6941	311	316	328	345	2009
1868	5916	5937	6244	6489	297	298	313	326	1992
1869	5142	5163	5431	5648	286	287	302	314	1800
1870	5404	5181	5721	5690	299	287	317	315	1806
1871	5660	5698	6007	6275	307	309	326	341	1842
1872	5863	5909	6227	6516	305	307	324	339	1923
1873	6762	6706	7199	7427	323	320	344	355	2094
1874	6941	6978	7398	7754	327	328	348	365	2125
1875	7083	7265	7577	8113	337	345	360	386	2103

Note: The nominal index follows the mark kopparmynt 1624–1776, riksdaler specie 1776–1789, riksdaler riksgälds 1789–1855, riksdaler riksmynt 1855–1873 and SEK 1873–1875 (Edvinsson, 2010).

The house price index for Stockholm 1420–2021

Rodney Edvinsson, Bo Franzén and Gustav Ingman

Introduction

Following the global financial crisis 2007, the interest in real estate prices and their possible effect on the macroeconomy soared. In light of the rapidly growing prices in Stockholm and many other cities during the last 30 years, many researchers have turned to history for lessons on financial instability. However, it has been argued that the existing house-price series are often too short to be useful for researchers. As Jordà, Schularick and Taylor (2015) note: "Financial crises and asset-price boom-busts are relatively rare events. Thus, any empirical study must employ very long time series and the historical experience of more than one country to have any hope of conducting a reasonable statistical analysis".

The trading town of Stockholm was founded on an island in the middle of the 13th century. In fact, it is situated where Lake Mälaren still flows into the Baltic Sea. Today, it is called the Old Town of Stockholm and its pre-industrial buildings and narrow, well-preserved alleys attract tourists from all over the world. Since the Old Town is still surrounded by water, it is sometimes referred to as the town between the bridges. The location for a pre-industrial export harbour was practical since it was risky to take ships through the strong currents. It was a place that simply was perfect for trans-shipping.

This chapter presents an overview of the development of Stockholm's real estate prices from 1420 to 2021. It summarises the results from the three studies in the present volume, which present new price indices for the periods 1420 to 1630, 1630 to 1730, and 1730 to 1875. Furthermore, it links together all these indices with already existing ones that cover the periods 1875 to 1957, 1957 to 1975, and 1975 to 2021, respectively. In addition, we have also gathered a few sporadic sources on sales back to 1283, only a few decades after the founding of Stockholm, which can give a very rough idea of the price level before and after the Black Death. Together, they form some of the longest existing real estate price indices in the world.

With this study, we can assess for the first time the trajectory of house prices in Stockholm over almost the full history of the city. This will not only give us new

insights into Stockholm´s economic history but will also be an important source for researchers seeking to include historical real estate prices as a variable in any future studies. Only a few high-quality real estate price series stretching back to the 1800s still exist, and there are even fewer going further back than that. There is therefore a need for studies like the present one to improve our knowledge of historical price developments.

The Blockmakers House, at Södermalm in southern Stockholm, was built in the early eighteenth century. Over the years, it was housed by craftsmen and poor persons.
Source: https://stockholmskallan.stockholm.se/post/3544

## Comparing source material and methods of the spliced index

To reconstruct a real estate price index for Stockholm up to the present day, several indices must be combined. The index presented in this book is based on the work presented in four chronological chapters written by eight authors. In volume 2, the period from 1875 is covered by Söderberg, Blöndal and Edvinsson (2014). In this volume, Franzén and Söderberg cover the period up to 1600, Aldman, Carlsson, Edvinsson and Franzén the period 1600–1730, and Carlsson, Edvinsson, Eriksson and Ingman the period 1730–1875 (including an estimate for the period 1726–1729 using the same method and sources as from 1730).

The index for the period after 1875 presented in Söderberg, Blöndal and Edvins-

son (2014) consists of one series based on primary data for the period 1875–1957, and earlier published series for the period from 1957 onwards.

For the period 1875–1957 two different methods are applied, both of which rest on the same dataset and are published in the same article (see also discussion in Edvinsson, Eriksson, and Ingman, 2020). In that study, the original repeated sales method was used. As can be seen in Figure 8.1, the repeated sales method produces a much more volatile index than the SPAR method. This is probably due to the small numbers of observations per year after the 1920s.

Figure 8.1: *Comparison of house-price indices constructed using different methods, nominal values, 1875–1957. 1875 = 100.*
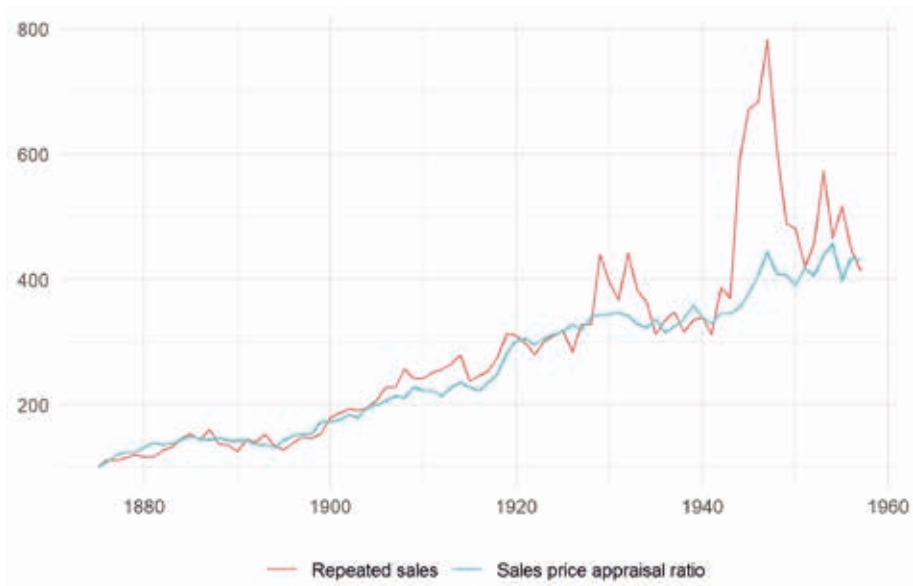
Source: Our calculations based on the material of Söderberg, Blöndal and Edvinsson (2014).

Because of the problem with volatility when constructing repeated sales indices with small samples, and because there has been no control for renovations or rebuilt houses for the index 1875–1957, the SPAR indices are preferred for the period 1875–1957. That series is linked to the series presented in the present study.

Real estate prices between 1957 and 1975 were initially compiled by Bo Sandelin (1977) and rests on data from Statistics Sweden. Sandelin also uses a sales price appraisals ratio, with the addition that he makes some adjustments to control for qualitative changes. The data can be found in Söderberg, Blöndal and Edvinsson (2014). From 1975 and onwards, housing-price statistics are available on the website of Statistics

Sweden. We use the Real Estate Price Index (in Swedish abbreviated as FASTPI) of Statistics Sweden, which rests on prices of sold properties combined with information about the whole housing stock. We follow Söderberg, Edvinsson and Blöndal (2014) and use the index for permanent single-family houses instead of apartment buildings. That is because rent regulations probably pushed down the prices of apartment buildings, so that prices of single-family houses better reflect the market price.

The combination of different indices means that the geographical boundaries are different between periods. From 1730 to 1957, only houses bought and sold within today´s inner city of Stockholm have been used. The index from 1957 to 1975, covers the city of Stockholm. This means that some of its suburban areas are included. From 1975 to 2021, we use data for Stockholm county, meaning that both the inner city and its suburbs are used. As almost all single-family houses today are located outside the inner city of Stockholm, the index 1975 to 2021 rarely include information about inner city dwellings.

Table 8.1: *Linked indices, 1283/1420–2021.*

Period	Method	Coverage	Sources
1283/1420–1630	Hedonic	Old Town and its vicinity, all properties	*Stockholms stads tänkeböcker* ["Memory Books"]; Stockholms stads jordebok ["Land book of Stockholm"]
1630–1650	Following price of half-timbered houses only	Old Town, only half-timbered houses	*Stockholms stads tänkeböcker* ["Memory Books"]; *Brända boken* ["Burned Book"]
1650–1730	Hedonic	Old Town, all properties.	*Stockholms stads tänkeböcker* ["Memory Books"]; *Sekreterarens protokoll* ["Secretaries minutes"]
1726/1730–1875	Weighted repeated sales	Inner city, all properties except those sold in parts	*Uppbuds- och lagfartsprotokoll* ["Legal and Procurement protocols"]
1875–1957	Sales price appraisals ratio	Inner city, all properties registered April–December	*Stockholms adresskalender* ["Address Calendar of Stockholm"]
1957–1975	Sales price appraisals ratio	The municipality of Stockholm	Sandelin (1977).
1975–2021	See underlying source of FASTPI	Stockholm county	Statistics Sweden (2022), *Statistikdatabasen; Mäklarstatistik* (2022).

As can be seen in Table 1, the geographical coverage of the individual price series is not the same. The main reason behind this is that Stockholm has grown over the last 700 years so its geographical borders have expanded. First via the islands surround-

ing the Old Town (*Gamla stan*), and later, during the twentieth century, across today's suburban areas outside the inner city. As this study aims to investigate price changes in a city, one cannot use the present borders of Stockholm county when studying the period before 1900 as that in practice would have meant that our sample, to a large degree, would have consisted of rural properties. On the other hand, one does not want to narrow the borders so much that observed changes might not be generalisable to the city as a whole.

The studies presented here have up until 1726 concentrated on the Old Town. The reason behind this is that the parts of the inner city that today are located outside the Old Town to a large extent were unexploited or only had smaller wooden houses built on them. From 1726 up until 1957, the index covers the inner city of Stockholm, i.e. Norrmalm, Södermalm, Östermalm, and Kungsholmen. After 1957, series from the official statistics are used and they cover Stockholm with its suburbs that began to grow during the first part of the twentieth century. This way, our indices roughly exclude parts that for the time period studied cannot be considered part of the city, but rather were rural areas. For the period before 1630, the vicinity of Stockholm is included, but the properties of the Old Town dominated.

The long-term perspective

Figure 8.2 presents the spliced housing-price index from the Middle Ages to the present day deflated by the Consumer Price Index and wages, respectively. For the period 1420–2021, the index is based on frequent observations, which is why we put the start year at 1420. The figure also includes estimates based on the few observations that exist for the period 1283–1419. Deflation by the Consumer Price Index indicates how much the property cost in terms of consumer goods and services. However, in the 20th and 21st centuries real wages increased continually, i.e. an hour worked could buy ever more of these consumer goods and services. Deflation by wages, therefore, indicates how expensive the property was in terms of how much a labourer need to work to purchase it. The wage series is spliced using different wages in different periods.

It should be emphasised that what the index actually follows over a very long time is difficult to interpret, but this also relates to the index for the last decades constructed by statistical offices. The index follows some kind of constant quality, but this should not be mixed up with a square-meter price, given that the quality of a square meter can also change. It is likely that quality per square metre increased over time. For example, in the medieval period, the price of a square metre located in a stone house was higher than in a wooden house. In the Old Town, wooden houses disappeared during the course of the 16th and 17th centuries, and were replaced by stone houses, which means that the average quality per square metre most likely increased. During the 20th century, there were substantial improvements in the quality of housing.

Part of a drawing of Stockholm picturing Old Town from 1630s. The drawing was discovered at an auction in 2009 where it was erroneously stated that it portraited Brussels.
https://stockholmskallan.stockholm.se/post/19301

It is from 1420 that more frequent data exists, allowing the construction of an index per decade. However, there are also a few recorded sales before 1420, six in 1283–1349, i.e. occurring before the Black Death, and eight 1350–1419. In 1283 two yards in Stockholm were sold, that yielded 20 mark penningar per year (SDHK 1243). Assuming a rental income of 5 percent, which was prevalent in the Middle Ages, this means that the two yards were valued at 400 mark penningar. Concerning the year 1297, we have evidence in the form of a price in Stockholm in a charter telling us the value of 10 Swedish mark for a yard situated at Norrmalm (SDHK 1734).

Although Stockholm was founded in mid-13th century, there were other towns before that period located within the present borders of Stockholm county. In the early Viking age of what was to become Sweden, in the middle of the 8th century, the very first town was founded with a clear plot division on the island of Björkö, from which it took its Latin name Birka, located in Ekerö municipality (which is part of our index from 1975 onwards). Birka had 700 to 1,000 inhabitants. Around the year 830 Birka was visited by Ansgar, a Christian missionary sent out by the Carolingian emperor. According to his biography, *Vita Anskarii*, Ansgar bought a plot in Birka for a parsonage (Rimbert 1986, p. 56). The exact location of that building ground has not yet been determined by the archaeologists in their ongoing research on Björkö. However, this seems to be the first recorded purchase of landed urban property in Swedish economic history, although no information on the price is provided by the source.

The 12 sales recorded for Stockholm in 1283–1419 indicate that prices probably

were not lower in the first period of the development of Stockholm. In fact, before the Black Death, real prices may have been higher than for the next three centuries, reflecting the demographic decline that followed the Black Death. Between the 1420s and 1530s, the real housing price index was quite stable, with a slight declining trend.

Very roughly, the trajectory of the real housing price index can be described as the movement between long periods of stagnation or slight decline and shifts upwards between such periods. The periodisation of the shifts upwards depends on which criteria are used. However, we can roughly identify three periods of relatively stable real prices:

- **Period 1: 1420–1624**. The geometric average of the real housing price index was 58 (i.e. 42 percent below the level in 1730 given that the index is set to 100 in 1730), with a maximum of 83 in the 1430s and minimum of 23 in 1575–1579. Before 1420, the few cases of sales that we have gather indicate a somewhat higher level. During the reign of Gustav Vasa (roughly the Henry the VIII of Sweden), and continuing after his death in 1560, there was a decline in real prices, reaching a low point in the 1570s. However, by the 1580s real prices rebounded to a level slightly below the level reached in the Middle Ages.

- **Period 2: 1655–1814**. The geometric average of the real housing price index was 128, i.e. more than twice the average level in 1420–1624. As discussed in chapter 6, there was an upswing in real housing prices from the 17th century, reflecting the rapid growth of Stockholm. However, during the Great Nordic wars, there was a substantial decline in prices, followed by a recovery during the 1720s and 1730s.

- **Period 3: 1875–1999**. The geometric average of the real housing price index was 511, i.e. four times the level in 1655–1814. As discussed in chapter 7, there was a long upswing in real housing prices during 19th century, which is comparable in magnitude to the long upswing in the last decades. In 2020–2021 the index stood at 1907, i.e. almost four time the average in 1875–1999 – whether this level will be the beginning of a fourth period of stability can, of course, only be determined in the future.

The series deflated by wages displays a similar evolution up to the mid-19th century. However, afterwards there was a substantial deviation. While, the real housing price index indicates that prices in 2000 were slightly higher than in 1900, the index deflated by wages displays a substantial decline. The difference is explained by rising real wages in this period, which made housing much more affordable than in the 19th century. In fact, housing prices deflated by wages in 2021 was less than one fourth of the level in 1860s, and only slightly above the level in the 15th century. This is, however, not the square metre price, and it may be suspected that the quality per square metre has increased over time.

Figure 8.2: *The house price index of Stockholm deflated by CPI and wages, 1420–2021. 1730 = 100.*
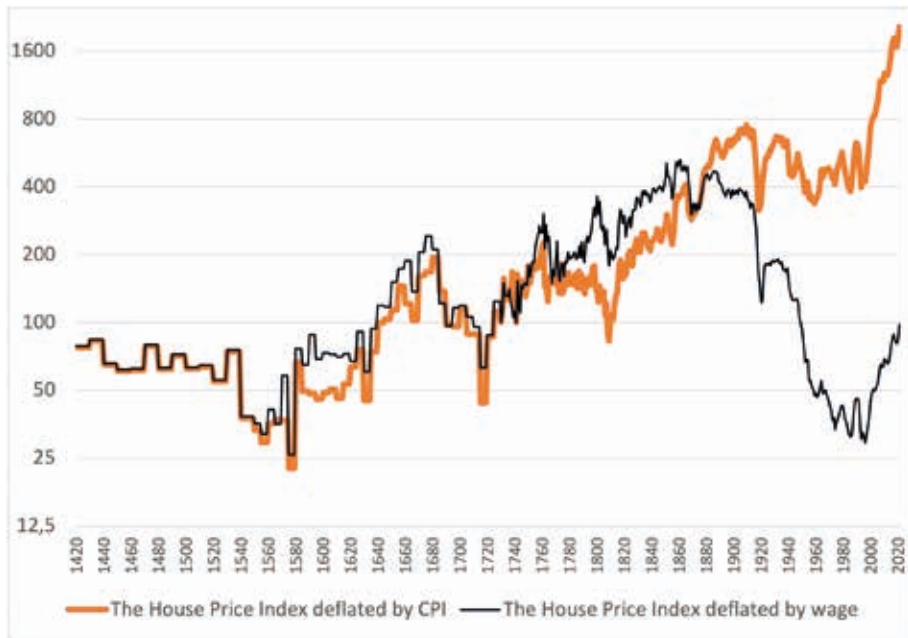
Source: Housing price index: This book, Söderberg, Edvinsson and Blöndal (2014). Consumer Price Index: Edvinsson and Söderberg (2010). Linked wage index: Söderberg (2010) – day male worker, Prado (2010) – male industrial worker, Statistics Sweden (2022) – whole business sector. Our calculations.

The largest falls in real housing prices

Table 2 presents the 10 largest falls in the real housing price index. These are kind of medium-term crises, given that only geometric average of 5-year periods after 1550, and 10-year periods 1420–1549, are compared. Crises followed various types of macroeconomic shocks, although the exact causal mechanism is not investigated here.

Table 8.2: *The 10 largest declines in the real housing price index during a 10-year period over 10-year periods from 1420 to 1549 and 5-year periods from 1550 to 2019.*

Period	Real housing price index, change (%)	Inflation (%)	Nominal housing price index, change (%)	Context
1705/09–1715/19	−50	124	11	Great Nordic War 1700–1721. Spread of coin tokens, which were devalued by 50 percent in 1719.
1680/84–1690/94	−50	14	−43	Harvest failure in 1693. Stockholm's population declining.
1530s–1540s	−49	49	−24	Few recorded sales in 1530s, which makes the result uncertain. Silver inflation.
1905/09–1915/19	−41	94	15	World War I. Suspension of gold standard in 1914.
1625/29–1630/34	−41	81	7	Copper coin inflation
1565/69–1575/79	−39	296	142	Northern Seven Years' War 1563–1570. Älvsborg's ransom paid in 1571. Debasement of coins: 1 mark of better coins exchanged for 6.5 marks of debased coins in 1575.
1795/99–1805/09	−34	75	16	Finnish War 1808–1809. Sweden lost Finland to Russia. Suspension of the convertibility of Riksbank notes in 1808.
1945/49–1955/59	−31	51	5	Inflation. Post-war regulations.
1655/59–1665/69	−29	19	−16	Stockholm Banco suspends convertibility of notes in 1664 due to bank run, and restructures as Sveriges Riksbank in 1668.
1930/34–1940/44	−29	43	2	1930s crisis and World War II.

A majority of the crises were accompanied by rampant inflation. In fact, during 7 out of the 10 crises nominal housing prices actually increased. This indicates that a major explanation of drastic decreases in the real housing prices is inflation. Nominal housing prices especially in the pre-industrial period were prone to be quite stable, and sudden depreciation of the currency could depress real housing prices for several years. Historical evidence may suggest that inflation and wars are more of a threat to the value of housing than financial crisis, even if the financial crises of 1907, early 1930s, early 1990s and 2008 were accompanied by declines in real housing prices. A majority of the crises happened during or after wars, which were accompanied by monetary instability.

The largest decline occurred at the end of the Great Nordic Wars. Coin tokens that came to dominate money supply were in circulation, quickly leading to inflation, until they were devalued by 50 percent in 1719. While real housing prices declined by

50 percent between 1705/1709 and 1715/1719, nominal prices actually increased by 11 percent. This example underlines how important it is to deflate nominal prices in order to arrive at a more accurate picture of real economic conditions over time.

A decline of equal magnitude occurred in the early 1690s. This was also, in contrast to the other crises, a very substantial decline in nominal housing prices. Real housing prices reached a peak in the 1680s, and the population of Stockholm started to decline. The 1690s experienced several severe harvest failures.

While real housing prices were quite stable during the Middle Ages, and up to 1530s, during the period 1540–1579 they reached a much lower level, a period characterised by inflation (Edvinsson, 2010). First there was silver inflation, i.e. silver lost its purchasing power, which was followed by debasement, i.e. that the silver content of coins was lowered. In the 1540s, real housing prices were halved compared to the 1530s, although this is uncertain since we only have data on a few sales in the 1530s, which may distort the result. During the Northern Seven Years' War 1563–1570 and its aftermath, Sweden suffered from rampant inflation, due to the deterioration of the silver content of the mark silver coin. By the 1570s a low point was reached in Stockholm's real housing prices, reaching less than half the level of the late Middle Ages, this despite some apparent population growth. One important factor could be the declining real wages during the 16th century.

While housing prices started to increase in the 1620s, following the increase in the population in Stockholm, there was a setback in the early 1630s. While real housing prices declined by 41 percent between 1625–1629 and 1630–1634, nominal housing prices increased by 7 percent. The discrepancy can be explained by the introduction of the copper standard in Sweden in 1624 (Edvinsson, 2010). Initially, one daler in copper coins was set equal to one daler in silver coins, but towards the end of the 1620s, copper coins fell in value. In 1633, one daler in silver coins was set equal to two daler in copper coins.

Two of the major setbacks to the real housing prices in the 20th century occurred during the two world wars, despite Sweden not participating in these wars. Inflation followed the suspension of the gold standard.

The largest falls in nominal housing prices

For the period after 1730, our dataset also allows the investigation of more short-term crises in housing prices. The four largest declines in nominal housing prices all occurred during periods of anti-inflationary policy:

- The largest decline, by 39 percent, occurred between 1765 and 1769. This followed the deflationary policy of the time to reintroduce the silver standard at the old exchange rate (Edvinsson, 2010). Since the Consumer Price Index fell by 37 percent, the real housing price index only declined slightly. The deflationary policy was a failure, the old parity between notes and silver coins had to be abandoned, and inflation resumed in the early 1770s.

- Between 1991 and 1993 nominal housing prices declined by 28 percent, which was the second largest decline since 1730. The crisis of the early 1990s is generally considered the worst financial crisis in Sweden. Sweden defended the fixed exchange rate between the Swedish krona and the ecu, a defence that was abandoned in November 1992.

- Between 1865 and 1869 nominal housing prices declined by 28 percent as well. In 1867, Sweden experienced one of its worst harvest failures of the 19th century, which later contributed to increased emigration to America. It was not until 1876 that nominal housing prices surpassed their 1865 level. Sweden was on a silver standard at the time, whereby the riksdaler riksmynt was convertible into silver coins (the gold standard was introduced in 1873).

- Between 1818 and 1821 nominal housing prices declined by 26 percent. This was a period of monetary instability, with a floating exchange rate for the riksdaler riksgälds, following the suspension of the silver standard in 1808. Monetary policy aimed to restore the silver standard, although that did not fully occur until 1834.

A copper plate minted in 1742 with the nominal value of ½ daler silvermynt. Copper plates constituted an important part of the available means of payment in the eighteenth century. Source: https://digitaltmuseum.se/0210211589238/platmynt.

The four secular upswings

Identifying periods of upswings is somewhat problematic given that different criteria yield a different periodisation. Some of the upswings continued for a long time. Table 3 identifies the four secular upswings of highest growth in the real index since 1420 in several steps, although it must be seen as mostly a heuristic device. Firstly, a geometric average of the index is calculated for each decade, so as not to let short-term movements in the index impact on the identification. Secondly, growth is calculated for periods from one to ten decades. Identifying long upswings of 100 years is motivated given that growth on two occasions continued steadily during the entire time span. Thirdly, four periods experiencing growth in the real index of more than 100 percent are identified that do not overlap with each other.

Two secular upswings of 100 years duration can be identified, 1570/79–1670/79, and 1800/09–1900/09. During both upswings, real prices increased almost sixfold. Both periods were also characterised by a substantial increase in the population of Stockholm. The secular upswing in 1950/59–2010/19 only comes in third place, although it may continue. In 2021 the real index was on a 440-percent higher level than in the 1950s, which comes close to the increase of 1570/79–1670/79 and 1800/09–1900/09. The fourth strongest secular upswing occurred in 1710/09–1750/59, when real prices almost trebled.

All four secular upswings were initially rebounds from low points, but it was the upswing of 1800/09–1900/09 that saw the biggest increase compared to the previous high point. The upswing of 1710/09–1750/59 could be described as almost entirely a rebound from the crisis at the end of the Great Nordic Wars. The level at the peak of 1750/59, was only slightly higher than the level at the peak of 1670/79.

Table 8.3: *Four secular upswings of highest growth in the real index since 1420 determined in several steps.*

Ranking	Period	Growth (%)	Index, low point	Index, high point	Decade, previous high point	Index, previous high point	Growth from previous high point (%)
2.	1570/79–1670/79	471	29	165	1430/39	83	99
4.	1710/19–1750/59	182	63	176	1670/79	165	7
1.	1800/09–1900/09	477	119	689	1750/59	176	290
3.	1950/59–2010/19	292	381	1493 (2054 in year 2021)	1900/09	689	117

International comparisons

As discussed in chapters 5, 6, and 7, there are only a few studies presenting a housing price index stretching back beyond the twentieth century. Even fewer cover the pre-industrial period. Figure 8.3 depicts indices that cover periods before 1900.

The longest index that, to our knowledge, has been presented is for Paris from 1200 onwards. This series is published by Friggit (2008) and consists of several spliced indices. As early as in 1894, Georges d'Avenel (1894–1912) presented a real estate price index for the center of Paris from 1200 to 1800. Duon (1943) built on that material and presented an index for Paris 1625–1944. While d'Avenel's series built on transaction prices averaged over 25-year periods, without controlling for changes in the housing stock, Duon presented average prices calculated over 10 to 50 years for the period 1625 to 1790. Between 1790 and 1850, Duon used the repeated sales method to calculate an index for 10-year periods. After that, an annual repeated sales index is reconstructed. The last series has recently been extended into the present by Friggit. Paris stands out for its long indices, but an annual index using modern econometric methods has only existed after 1840.

Figure 8.3: *Periods covered by long-run real estate price indices for different areas.*
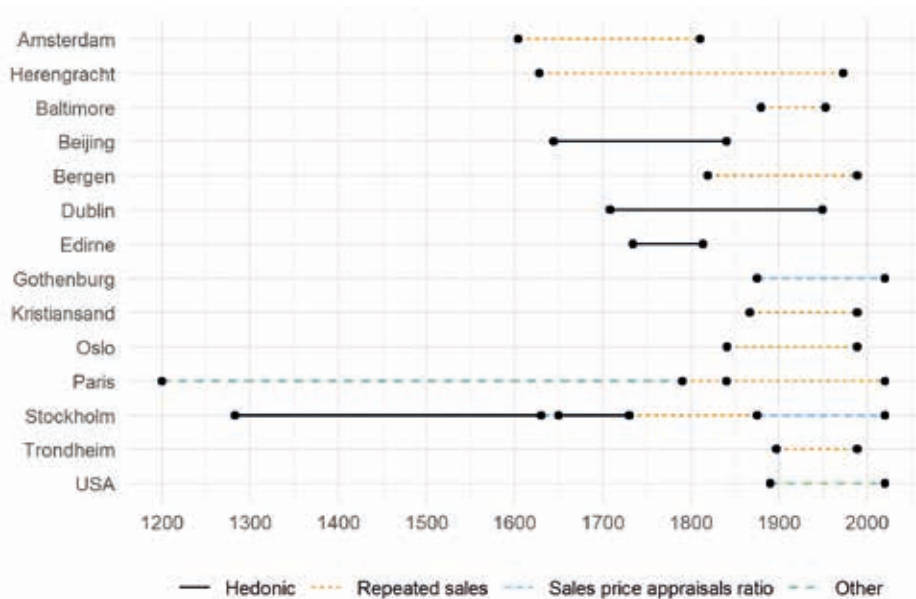

Source: See the main text.

Except for Paris and Stockholm, two other cities stand out with their long house price series. Eichholtz (1997) presents an index from 1628 to 1973 for the Herengracht district in Amsterdam. Korevaar (2021) presents an index building on all recorded legal sales in the city of Amsterdam from 1604 to 1811. In both cases, a repeated sales method has been used. Deeter, Duffy, and Quinn (2016) construct a price index for Dublin from 1708 to 1949 with a hedonic regression method.

Other long-run indices include: Beijing between 1644 and 1840 (Raff, Wachter, and Yan, 2013); the four Norwegian cities Bergen, Kristiansand, Oslo, and Trondheim from 1819 to 1989 (Eitrheim and Erlandsen, 2005); Edirne in the Ottoman Empire back to 1720 (Karagedikli and Tunçer, 2021); Gothenburg from 1875 to 1957 (Bohlin, 2014); Baltimore from 1880 to 1953 and other cities in the United States from 1890 until today (Shiller, 2016).

Building on various previous studies, Knoll, Schularick, and Steger (2017) present a dataset of 14 countries' house price data, covering the period from 1870 to 2012. They conclude that the price increase over the last few decades is unique from a historical perspective. Jordá, Schularick, and Taylor (2017) present a dataset of 17 countries.

Since real estate price indices that stretch back to medieval times only exist for Paris and Stockholm, it is interesting to compare those two cities. Figure 8.4 depicts the trajectory of the respective series. As already discussed, this data must be interpreted with caution, especially when it comes to volatility. Nonetheless, both series have the same long-run trend from around 1500. If we go back before that period, it seems like Paris prices started at a lower level than Stockholm's, relative to the price levels in 1840. A possible explanation is that the Paris series does not adjust for quality improvements as the Stockholm series does. The aftermath of the plague that hit Paris in 1349 stands out with its severe downfall. One can also note that from around 1800, the series in general moves in the same direction. The biggest deviation is that Paris prices plunged much deeper during the Second World War and that they have exhibited stronger growth since then.

Figure 8.4: *Real estate prices in Stockholm and Paris, 1283–2020, deflated with consumer price indices. Logarithmic scale. 1840 = 100.*
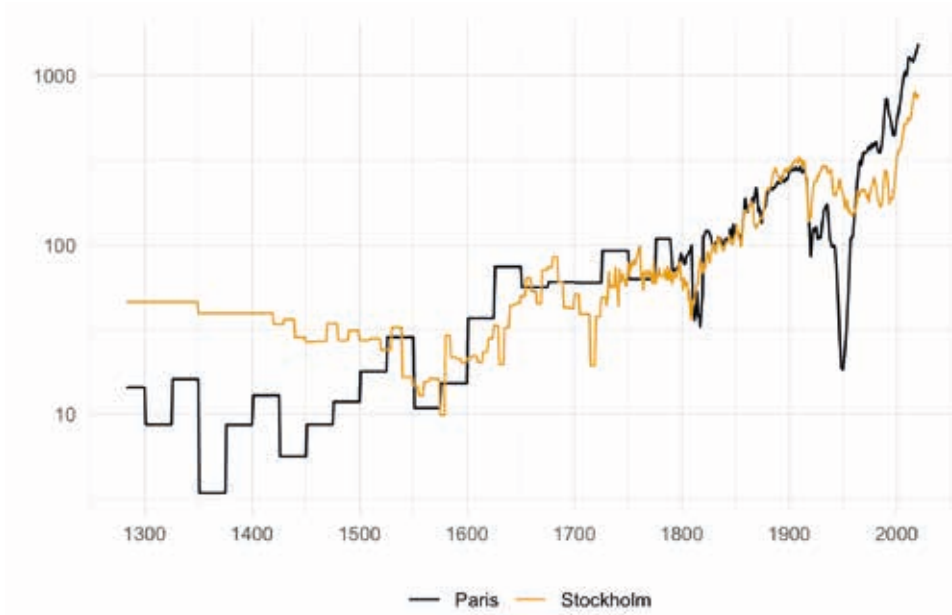
Source: *The Paris data is presented in Friggit (2008) and builds on d'Avenel (1894–1912), Duon (1943), and Friggit (2008). The Stockholm data is described in Figure 8.2.*

Conclusions

This book presents a new housing price index for Stockholm back to the Middle Ages. The various periods are discussed in detail in several chapters of this book series. From 1420 there is enough sales data for our index to be reasonably reliable, although there is data on sales as far back as 1283. Having such a long index is unique from an international perspective and it sheds new light on the present debate on housing prices. The growth of real housing prices in the last few decades is not unique, and there have been upswings of similar magnitude earlier in time. The largest declines in real housing prices were mainly caused by inflation and wars, not financial crises.

The indices presented in this book rest on various assumptions that may be questioned, for example, concerning the representativity of the sales and adjustments for quality. Although studies show that there is some robustness to various assumptions for the analysis of overall trends, this raises new questions, answers to which we look forward to reading about in future research projects. First, for Sweden, we only have an index for Stockholm that goes back to the Middle Ages, and for Gothenburg back

to 1875. It should be possible to construct indices for more Swedish towns and also extend the Gothenburg series backwards. Second, our database for Stockholm could be expanded further, for example, by including more areas, especially outside the Old Town in the period 1600–1726, or outside the present inner city. Such a dataset would, for example, contribute to our understanding of how various crises during the 17th and early 18th centuries, but also in the 20th century, affected housing prices in the periphery of Stockholm. Furthermore, we have not been able to geographically locate the properties sold before 1726, which is possible to accomplish but would also be extremely time-consuming. Third, a more in-depth analysis is needed of exactly what a housing price index measures, and how the quality of housing has changed over time. For example, in the future, our dataset could be used to construct an index of the price per square metre, although that would require investigating the size of various properties sold in the past. Last, the present study allows more in-depth analyses of factors behind movements in the housing price index. With more international studies in the future, more international comparisons can also be made.

Acknowledgement

References

Primary sources

Mäklarstatistik (2022), www.maklarstatistik.se.

Statistics Sweden (2022), *Statistikdatabasen*, www.scb.se.

Stockholms stads jordebok (1876).

Stockholms stads jordebok 1420–1474 (1876).

Stockholms stads jordebok 1474–1498 (1914).

Stockholms stads tänkebok 1524–29 (1929).

Stockholms stads tänkeböcker 1474–1636 (1917–2009).

Stockholms stadsarkiv, Stockholms magistrat- och rådhusrätt, Sekreterarens registratur, vol. 2–63 [1653–1725]

Stadsholms stadsarkiv, Stockholms magistrat- och rådhusrätt, A 6 a Lagfarts-, uppbuds-, protokoll, vol. 4–25.

Stockholms stadsarkiv, Stockholms magistrat och rådhusrätt, *Tänkeböcker*, huvudserie, vol. 8–13

Stockholms stadsarkiv, Stockholms rådhusrätt, Avdelning 1, A 1 A Lagfartsprotokoll

Stockholms stadsarkiv, Stockholms stadsingenjörskontor, Dokumentböcker 1600-tal– 1740-tal, vol. 2 1635–1647 ["Brända boken"].

Stockholms stadsarkiv, Stockholms Stad (1856–1974). *Stockholms Adresskalender*.

Literature

d'Avenel, G. (1894–1912), "Histoire économique de la propriété, des salaries, des denrées et de tous les prix en général depuis l'an 1200 jusqu'en l'an 1800", Imprimerie Nationale and Ernest Leroux, Paris.

Bohlin, J. (2014), "A price index for residential property in Göteborg, 1875–2010". In *Historical monetary and financial statistics for Sweden, vol II: House Prices, Stock Returns, National Accounts, and the Riksbank Balance Sheet, 1620–2012* (eds. Edvinsson, R., Jacobson, T. and Waldenström, D.), 26–62. Stockholm: Sveriges Riksbank and Ekerlids.

Deeter, K., Duffy, D., and Quinn, F. (2016), "Dublin House Prices: A History of Booms and Busts from 1708–1949". SSRN Scholarly Paper. Rochester, NY: Social Science Research Network.

Duon, G. (1946), 'Documents sur le problème du logement'. Ministère de l'Economie, Études Économiques, vol 1 1946, 1–165.

Edvinsson, R. (2010), "The multiple currencies of Sweden-Finland 1534–1803". In *Historical Monetary and Financial Statistics for Sweden: Exchange Rates, Prices, and Wages, 1277–2008*, (eds. Edvinsson, R., Jacobson, T. and Waldenström, D.), 133–237. Stockholm: Sveriges Riksbank and Ekerlids.

Edvinsson, R., and Söderberg, J. (2010), "The evolution of Swedish consumer prices 1290–2008". In *Historical Monetary and Financial Statistics for Sweden: Ex-*

change Rates, Prices, and Wages, 1277–2008, (eds. Edvinsson, R., Jacobson, T. and Waldenström, D.), 412–452. Stockholm: Sveriges Riksbank and Ekerlids.

Edvinsson, R., Eriksson, K., and Ingman, G. (2020), "A Real Estate Price Index for Stockholm, Sweden 1818–2018: Putting the Last Decades Housing Price Boom in a Historical Perspective", *Scandinavian Economic History Review*, 1–19.

Eichholtz, P. M. A. (1997), "A Long Run House Price Index: The Herengracht Index, 1628–1973". *Real Estate Economics* 25 (2): 175–192.

Eitrheim, Ø., and Erlandsen, S. (2005), "House prices in Norway, 1819–1989". *Scandinavian Economic History Review* 53 (3): 7–33.

Friggit, J. (2008). "Comparing four secular home price indices". Conseil général de l'environnement et du développement durable (CGEDD).

Jorda, O., Schularick, M., and Taylor, A. (2015), "Leveraged Bubbles". *Journal of Monetary Economics* 76, 1–20.

Karagedikli, G. and Tunçer, A. (2021), "House Prices in the Ottoman Empire: Evidence from Eighteenth-Century Edirne". *The Economic History Review* 74, no. 1: 6–33.

Knoll, K., Schularick, M., and Steger, T. (2017). "No Price Like Home: Global House Prices, 1870–2012". *American Economic Review* 107, no. 2, 331–53.

Korevaar, M. (2021), "Reach for Yield and Real Estate". In Financial Lessons from the Long History of Housing Markets. Maastricht: Maastricht University.

Prado, S. (2010), "Nominal and real wages of manufacturing workers, 1860–2007". In *Historical Monetary and Financial Statistics for Sweden: Exchange Rates, Prices, and Wages, 1277–2008*, (eds. Edvinsson, R., Jacobson, T. and Waldenström, D.), 479–527. Stockholm: Sveriges Riksbank and Ekerlids.

Raff, D., S. Wachter, and Yan, S. (2013) "Real Estate Prices in Beijing, 1644 to 1840", *Explorations in Economic History*, 50, no. 3, 368–86.

Rimbert (1986), *Boken om Ansgar/Ansgars liv*. Translation by Eva Odelman.

Sandelin, B. (1977), *Prisutveckling Och Kapitalvinster På Bostadsfastigheter*. Göteborg: Nationalekonomiska inst., Göteborgs universitet.

Shiller, R. (2016), *Irrational Exuberance*, 3 edition. New York: Crown Business.

Söderberg, J. (2010), "Long-term trends in real wages of labourers". In *Historical Monetary and Financial Statistics for Sweden: Exchange Rates, Prices, and Wages, 1277–2008*, (eds. Edvinsson, R., Jacobson, T. and Waldenström, D.), 453–478. Stockholm: Sveriges Riksbank and Ekerlids.

Söderberg, J., Blöndal, S., and Edvinsson, R. (2014) "A Price Index for Residential Property in Stockholm, 1875–2012." In *Historical monetary and financial statistics for Sweden, vol II: House Prices, Stock Returns, National Accounts, and the Riksbank Balance Sheet, 1620–2012* (eds. Edvinsson, R., Jacobson, T. and Waldenström, D.), 63–100. Stockholm: Sveriges Riksbank and Ekerlids.

The National Wealth of Sweden, 1810–2020*

Daniel Waldenström

1. Introduction

This chapter presents the evolution of national wealth in Sweden from 1810 to 2020. The historical period spans agricultural and industrial eras as well as the postwar emergence of a globalized service economy. For the historical period up to 1980, all data series come from Waldenström (2016, 2017), and for the years thereafter, data come from the official national wealth statistics compiled by Statistics Sweden.

National wealth is defined as the current value of all non-financial and financial assets minus liabilities held by a country's private and public sectors. The private sector contains corporations and households and the public sector contains central and local governments.

The historical database is based on a wide array of sources, primarily secondary materials in public and other statistical publications (for example, tax assessments, private bank statistics) but also information in the large previous body of economic and historical research on Sweden. Making the series consistent both across variables and over time has been a central ambition. However, this is not always simple. For instance, official bank lending statistics, used to estimate household borrowing, have undergone changes in reporting standards, definitions of lending units or new financial instruments. Share ownership encompasses not only the household share of the readily observed stock exchange market capitalization but also values of all non-listed incorporated company shares for which current market prices do not always exist. Government wealth consists of several non-standard, bulky assets whose market values can be quite uncertain. Despite these difficulties, however, the problems are often manageable and the final series appear to offer a robust picture of national wealth in Sweden.

The chapter consists of two parts. The first presents basic facts on the historical evolution of Sweden's national wealth, as well as descriptions of earlier Swedish studies of national wealth, basic methodologies and measurement problems. The second part contains a set of appendices, which discuss details of the database, methodological considerations, further measurement problems and robustness checks.

---

* This chapter's first part is based on the data presentation, discussions and analyses in Waldenström (2016, 2017).

2. Earlier studies of Sweden's national wealth

The chapter is based on the series originally presented in Waldenström (2016, 2017), but there are also several earlier analyses of Sweden's aggregate balance sheets.[1] These have been assessed several times, but for shorter periods and in some cases for single years. Nonetheless, these assessments have been crucial inputs in the construction of the Swedish long-run series presented in this chapter.

The earliest known studies appeared in the first half of the nineteenth century. The first known one is an unpublished summary of the wealth tax assessment in Sweden and Finland made in the year 1800.[2] The exact source of this study is unknown, but a retrospective treatment by Fahlbeck (1890, p. 88) refers to a total taxable wealth in 1800 of about 800 million SEK in current prices (or 200 million *riksdaler specie*, the monetary unit used at the time). Adding non-taxable wealth such as inventories and livestock, but not debts, gross national wealth in 1800 was acclaimed to be well above one billion SEK.[3] For the years around 1810, a second estimate was made by Hyckert (1815, pp. 28ff). This estimate was also a relatively rough and sketchy calculation, combining tax sources and capitalized flows. Its estimated gross national wealth was 2,218.6 million SEK (or 1,479,117 *riksdaler banco*), but Fahlbeck (1890, p. 88) criticizes this number for being both badly documented and for not sufficiently accounting for liabilities of the various sectors.

The late nineteenth century saw some new attempts to estimate Sweden's national wealth. These estimates relied on more "modern" templates for constructing wealth totals, using sectoral decompositions, more transparent methods (mainly capitalizing observed yields) and a richer balance sheet structure. Karl Daniel Bollfras made two assessments, one for 1875 (Bollfras, 1878) and another one for 1880 (Bollfras, 1885). A third estimate was made for 1885 by Pontus Fahlbeck (Fahlbeck, 1890) and a fourth one, essentially updating his previous numbers, was made for 1898 by Fahlbeck (1901, pp. 453ff). These were all systematic and ambitious studies of the total stock of wealth. Values for several asset classes were reported such as forestry, financial assets, inventories, infrastructure and communication equipment. Private and public – mainly foreign – debt was also assessed for the first time. Unfortunately for our purposes, no decomposition was made between public and private sectors nor, of course, for households.

---

1   Note also that there is a sizable postwar literature in other countries analyzing aggregate household and national wealth, often in a historical perspective. Prominent examples are Goldsmith (1962, 1985), Goldsmith, Lipsey and Mendelsen (1963), Atkinson and Harrison (1978), Wolff (1989), Soltow (1989), and Piketty and Zucman (2014, 2015).

2   Lee Soltow used material from this assessment to compute estimates of the distribution of personal wealth in Sweden in 1800 (Soltow, 1985).

3   Soltow (1985) examines the 1800 wealth census in a study of personal wealth distribution, but only includes a sample of households and therefore lands at smaller aggregate values.

Pontus Fahlbeck (1850–1923), professor of political science at Lund University, constructed an estimate of Sweden's national wealth for the year 1890. Picture from https://sok.riksarkivet.se/

The most comprehensive analysis of Sweden's national wealth before the 1980s is Isidor Flodström's monumental study of national wealth in 1908 (Flodström 1912). Flodström collected information about all private firms, associations, and public bodies and estimated household wealth from a survey of probate records. Despite this, there is no sectoral decomposition made in accordance with today's system. Households and firms are throughout combined into a single category, "the public", and the probate-based estimations of household wealth only report the final net marketable wealth and no split between assets and liabilities.

Isidor Flodström (1856–1939), statistician at Statistics Sweden and the Swedish Chamber of Commerce, estimated Sweden's national wealth in 1908. Picture from https://sok.riksarkivet.se/

A follow-up on Flodström's study was made by Englund (1956) to capture national wealth in 1952. However, Englund's exercise was not very ambitious as it merely used Flodström's setup from 1908 and a set of back-of-the-envelope calculations using updated figures. In the 1970s, Roland Spånt published an extensive study of the evolution of the Swedish household wealth distribution since 1920 (Spånt, 1979). The basis for Spånt's analysis was information about household assets and debts reported in the Swedish Censuses of 1935, 1945 and 1951. Complementary data was collected from smaller surveys made in

1958 (a savings survey), 1966 (public estate and wealth tax return surveys), 1970 (a public household budget survey) and 1975 (a wealth tax return survey). Among Spånt's most important contributions is that he provides detailed compositional evidence of the household wealth for each these data points. Furthermore, he reports assets in both tax-assessed and (approximate) market values.

An important contribution is Lennart Berg's estimations of annual household balance sheets made for the period 1950 onwards (Berg 1983, 1988, 2000 and later updates). The basis for Berg's pre-1970 series is Spånt's analysis, but he extends these data in a number of important ways not only by constructing annual estimates but also by adding estimates of the stock of consumer durables and pension assets. Berg's post-1970 data are based on the financial information in the Financial Accounts (of Statistics Sweden). Information on real assets is retrieved from other official data series at Statistics Sweden. The consumer-durable series are constructed using annual consumption data and the perpetual inventory method. While these data are to a large extent state-of-the-art, they still suffer from the deficiencies of the material underlying Spånt's analysis.

In an attempt to reconcile the financial assets and liabilities of all sectors in society, Werin (1993) collected a unique database spanning the period 1945–1990. The series are basically an extended version of the financial accounts. While the project is impressive in its scope, there is no documentation for much of the pre-1970 part of the series, which make it problematic for subsequent use. Furthermore, the project disregarded—deliberately—the real assets on the balance sheet.

Since 2016, Statistics Sweden has produced complete, annual national wealth statistics for Sweden covering the period from 1980 onward. This project is a continuation of previous national wealth analyses by Statistics Sweden. Specifically, for the period 1980–1994, Statistics Sweden constructed an official series of national wealth for Sweden (Tengblad, 1992, 1993; Statistics Sweden, 1995). The ambition was to generate aggregate balance sheets for the entire economy that were incorporated with the flow accounts in the National and Financial Accounts. The generated series were carefully executed and many of them provide important benchmarks for the series reported in the current study.

Other important recent contributions to the analysis of Swedish household assets and liabilities are the studies of Bergman, Djerf and Lindström (2010) and Bergman (2015), and also Lindmark and Andersson (2014). In Bergman et al. (2010), a comprehensive examination of the evolution of household balance sheets between 1970 and 2008 is presented. The authors' point of departure is the Financial Accounts which covers balances and transactions of all financial assets and debts of all sectors, but they also compute estimates of non-financial assets by extrapolating the stocks of Statistics Sweden's national wealth project mentioned above by using housing price developments for both earlier and subsequent years. Bergman (2015) extends these data and discusses the financial approach to national accounts, where the corporate sector is incorporated into the other sectors of society with no net worth of its own.

Lindmark and Andersson (2014) study series from tax assessments, fire insurance compilations and some other sources to discuss a number of issues in measuring the size of the capital stock.

Swedish historical national accounts, focusing on flows of income and investments, have been generated for a long time. One important project is the one started in the 1970s and 1980s by, among others, Lennart Schön and Olle Krantz. Their work has generated several versions of historical series on income and production, both for the economy as a whole and for its sectors, and summaries are available in Krantz and Schön (2007) and Schön and Krantz (2012, 2015). Another important piece of work on the Swedish historical national accounts is also that of Edvinsson (2005, 2014). The Edvinsson series comprise the primary source of the national income series used in this chapter. The basis is the historical series on GDP by expenditure, which is the main GDP concept used by Piketty and Zucman (2014) and today also by Statistics Sweden.[4]

3. Methodological considerations

There are several methodological principles and empirical problems associated with construction a historical national wealth database. All variables follow the current statistical principles of the System of National Accounts, SNA 2008 (United Nations, 2009) and ESA 2010 (Eurostat, 2013). The works by Piketty and Zucman (2014) have also been important influences when construction the Swedish historical database.

The main variable of interest is net wealth, which is defined as the sum of non-financial assets and financial assets in current market values less liabilities. Non-financial assets are composed of produced assets, which are outputs from a production process (goods, constructions, dwellings etc.), and non-produced assets, which appear naturally (farmland, forestry, gardens etc.). Financial assets and liabilities are claims, held and issued, that are payable in everything from the (sometimes very) short-run (currency, deposits) and longer-run (stocks, bonds). In the case of households, liabilities include mortgage debt, consumer debt and all other household debt. Note that the balance sheet is unconsolidated, which means that financial assets and matching liabilities are not netted out within sectors by, for example, cancelling out all informal lending of households to other households. Instead the assets held by one sector, for example, households, are matched by liabilities of other households as well as of other sectors (corporations, public agencies or foreigners).

---

4   The appendix section E examines the Swedish wealth-income ratio changes if one switches national income series coming from the different sources. The results suggest overall small effects, but since the recent upgrading of both historical (for example, adding home production) and current GDP have raised GDP, the main wealth-income ratio is somewhat lower than the ones where other national income series are used.

Sectoral wealth holdings are also reported. Private wealth is the sum of household and corporate net wealth. The estimation of private wealth is based on subtracting all household liabilities from all household assets. Corporate wealth held by the private sector is thereby included in the private wealth through the household stock owner-ship. This follows an approach of Piketty and Zucman (2014), which denotes this as the market-valued wealth. An alternative approach would be to treat households and corporations separately, adding the book values of their respective assets and liabili-ties. In the Piketty and Zucman terminology, this would be the book-valued wealth. The historical database for Sweden does not report corporate sector balance sheets before 1980, which means that it is the market-value approach to national wealth that is used in the historical analysis. The two approaches generate similar levels and trends over time. Deviations may appear of the market value of corporations differ from their book value. For this reason, the sections below present an analysis of Tobin's Q for Sweden since 1980. Government wealth is the sum of central and local government wealth. National wealth, finally, is the sum of private and public wealth. Table 9.1 presents the balance sheet of Swedish national wealth, with a detailed focus on the household balance sheet, by the end of 2014.

Table 9.1: *The national wealth of Sweden in 2020.*

	Billion SEK	Share of national wealth (%)	Share of national income (%)
Private assets	28,912	96	680
Non-financial assets	10,776	36	253
Financial assets	18,136	60	426
Private liabilities	4,908	16	115
Private net wealth	24,004	79	564
Government assets	9,709	32	228
Central government	5,662	19	133
Local government	4,047	13	95
Government liabilities	3,495	12	82
Central government	2,447	8	58
Local government	1,048	3	25
Government net wealth	6,214	21	146
National wealth	30,218	100	710

Problems and challenges associated with constructing a national balance sheet that spans over long time periods have previously been pointed out by, for example, Goldsmith (1985) and Piketty and Zucman (2014). A central difficulty concerns the

valuation of assets (and sometimes liabilities). The guidelines of the SNA 2008 and ESA 2010 stipulate that assets should always be market-valued, at current market price levels. Many of the non-financial assets in the Swedish national wealth database are recorded in tax-assessed values, which typically – but not always – differ from market values (sometimes explicitly stipulated in tax legislation). Considerable effort is therefore spent on converting the tax values to market values and the main method to do so is to use market-to-tax value ratios based on local sales prices compiled by statistics authorities and related to tax values. Evidence on market prices comes from public statistical publications and previous studies. The method performs quite well overall, but after particularly large tax reassessments, its adjustment becomes coarse and causes too large jumps in asset values.

Sectoral decompositions in historical aggregate data series are another problem. Today's sectors (public, non-financial and financial corporate, households, foreign) did not form the basis for how past statistical evidence was presented. Some sources, for example, banking statistics and property tax sources, often lump households and firms together into one joint category. Drawing on different objective and subjective evidence of the shares of household and firm assets or liabilities, a homogenous household sector has been created for all series.

Perhaps the single most difficult asset component to estimate, and yet one of the most important ones in the entire national balance sheet, is privately owned shares in corporations, mutual funds and unincorporated firms. A basic distinction concerns whether or not the incorporated shares are listed (and traded) on organized secondary securities markets (stock exchanges). This difference has a bearing on both valuation approaches and, in particular, the general availability of information on the size of these stocks. In the case of listed shares, information about the number of listed shares and their market value was recently presented by Waldenström (2014). For non-listed shares, however, little is known about numbers or total values both today and for the historical period. Unincorporated businesses are even more problematic and in the absence of systematic public sources of information, their size has to be estimated from estimations of their total output and assumptions about capital-output ratios. Adding to this uncertainty is the almost complete lack of previous attempts to estimate the size or aggregate value of this arguably important class of private assets.

Distinguishing between produced and non-produced non-financial assets, main categories in today's balance sheet definition, is another difficulty since this was typically not done in the historical materials. The central source, tax assessments, presents aggregate property values in most historical periods without reference to the relative values of produced (dwellings, other buildings, livestock) and non-produced (land, farmland, forestry) assets. Using scattered evidence in the previous national wealth studies and from the 1920s onward series on buildings, land, forestry etc., relative shares of produced assets are estimated.

Public sector assets are more difficult to value than private assets since many pub-

lic entities are not for sale and therefore lack a market price. This is especially true for the many public utilities (water power, railways etc.). In these cases, rough capitalization approaches have been used, using reported annual earnings and assumptions of rates of return (usually three percent real rate). Since the 1990s, most public organizations were transformed into public corporations and valuation is more straightforward.

4. The basic facts: Swedish national wealth over two centuries

This section reports some basic results of the new national wealth series. Some specific areas are discussed: the composition of deposits across bank categories, the historical trends in household indebtedness, the role of listed and unlisted corporate shares, the importance of pension entitlements and also the stock of consumer durables, the estimation of government wealth. The section ends by depicting the long-run trends in Sweden's national wealth. Note that most figures report wealth (or its composition) as a share of national income.[5] This is done to make the stocks more easily interpretable in real terms and relative to an intuitive – and consistently measured over time – economic concept: the total amount of income earned by the Swedes during one calendar year.

4.1 Private wealth

Figure 9.1 shows the private wealth-income ratio for Sweden over the last two centuries. Several interesting patterns stand out. To begin with, the level of the wealth-income ratio hovers between three and five, meaning that the private sector net assets have represented between three and five year's income through the past two centuries. The series nevertheless exhibit some apparent secular trends that are informative for the economic historiography of Sweden. During the pre-industrial era, which ended around 1870, the wealth-income ratio was stable at a relatively low level, roughly 300 percent. The industrial take-off (approximately 1870–1910) brought with it an increase in the ratio, to 400–450 percent. Although Swedish households experienced a sharp wealth shock, largely inflation-driven, around the time of World War I, it had already been restored to pre-war levels by the early 1920s. During the rest of the twentieth century, the private wealth-income ratio fell steadily, despite continuing industrialization, up until the 1980s when it fell to even below pre-industrial levels. From around 1990, by contrast, there is a sharp and rapid increase and today it has reached a level not seen for a century.

Looking at the composition of private wealth, non-financial assets represent the most important component over the entire period. During the nineteenth century,

---

5   National income equals the gross domestic product minus net foreign factor income (that is, incomes to and from foreigners in and outside of Sweden) and capital depreciation. Data come from Edvinsson (2005, 2014).

they completely dominated the asset side. This was before the emergence of orga-
nized corporate legislation, free enterprise and formal credit markets. Transactions
were largely based on barter or in-kind based exchanges. Industrialization and eco-
nomic modernization began in the 1870s, monetizing the economy and this spurred
a rise in the share of financial assets in household portfolios which caught up with
non-financial assets by the outbreak of the First World War. Liabilities were rela-
tively unimportant in the agrarian era, even when including estimates of the sizeable
informal credit market (see further below). Over time their share rose steadily, how-
ever, and in recent decades has reached historic levels.

Figure 9.1: *Private wealth-income ratio in Sweden, 1810–2020.*
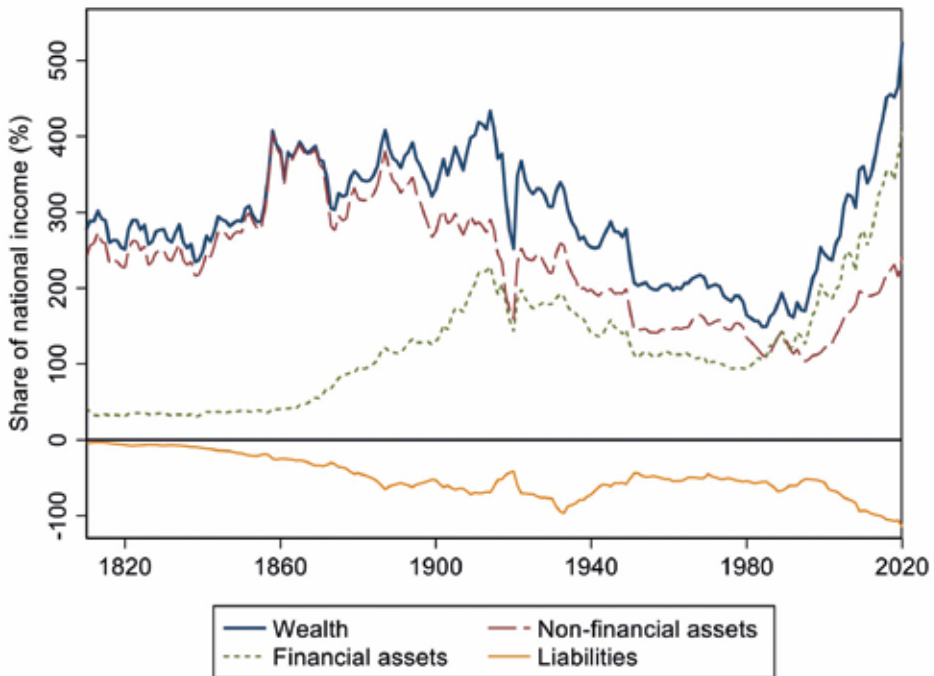
Figure 9.2 shows a picture of the long-run trends in aggregate household indebted-
ness when related to national income, household disposable income and total house-
hold assets. This offers historical perspective to the current discussion about the
solidity of households. The two income denominators series are bound to differ and
this is most clearly visible in the postwar era. This naturally reflects the increasing
share of welfare services shifting from private to public provision, financed largely via
the tax bill. While it is a matter of perspective which one of these series one prefers to
use, the arguably most homogenous one over time is the ratio based on national

income as this is not sensitive to the column shift from private to public welfare spending.

The figure shows a clear rise in both ratios over time up until the middle of the twentieth century, after which the series behave differently from each other. The debt-to-income ratio fluctuates more, perhaps not too unexpectedly, and the rise in the two last decades has taken the ratio to historically high proportions with the sum of debt reflecting about one full year's national income (and almost two years of disposable household income). Looking at the debt-to-asset ratio, however, there is a different story of a much less dramatic development of household debt. In fact, in recent years the rising debts are matched by rising asset levels, which adds an interesting perspective when estimating the degree of indebtedness.

Figure 9.2: *Household debt over income and assets, 1810–2020.*
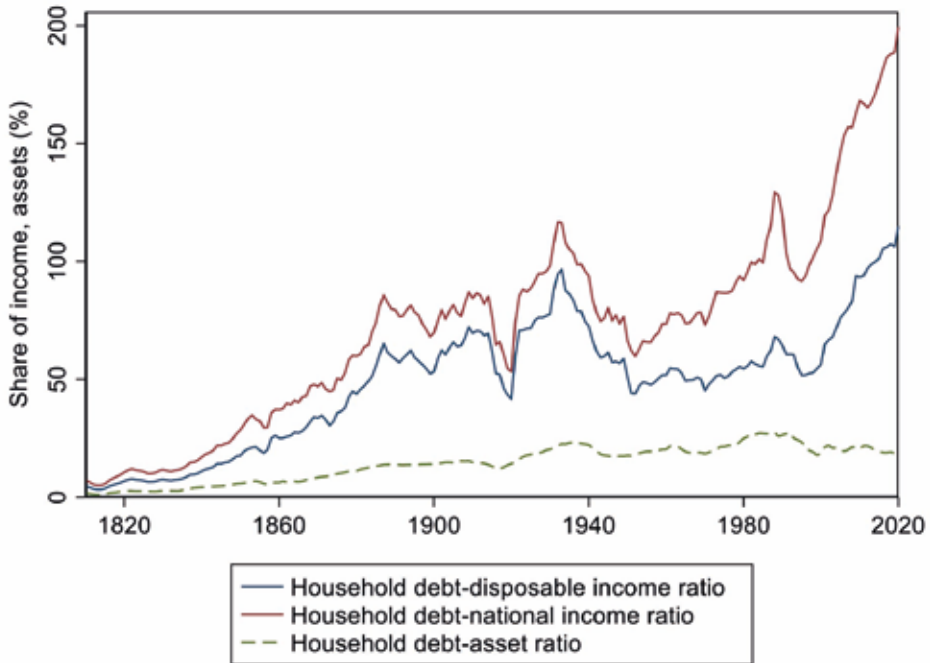
How are household assets and liabilities structured? Figure 9.3 shows a detailed decomposition and its evolution over the long run. The left panel shows that agricultural assets, including farmland, forests and buildings (including livestock), comprised four fifths of non-financial assets in the agrarian era while housing stood for the remaining fifth. Industrialization brought about a reduction in the share of agriculture, caused by the gradual rise of the value of personal homes that become more

important to people as their incomes rose. The process was slow and it was not until the 1930s that housing became the major share of non-financial household assets.

The middle panel shows financial asset composition. Until the 1970s, about two thirds of financial assets were made up of deposits and currency together with business equity (incorporated and unincorporated). Informal claims, that is, loans given informally to others as trade credit or other type of loans, were important in the nineteenth century, representing about one fifth of financial assets. The large share of business equity is interesting and, when making a serious attempt to value the stock of businesses, unincorporated and later incorporated, it turns out that its total value was sizeable. In the late postwar era, insurance savings – mainly funded occupational pension savings –rapidly expanded in household portfolios and today represent half all financial household assets.

Figure 9.3: *Composition of Swedish household assets and liabilities, 1810–2020.*
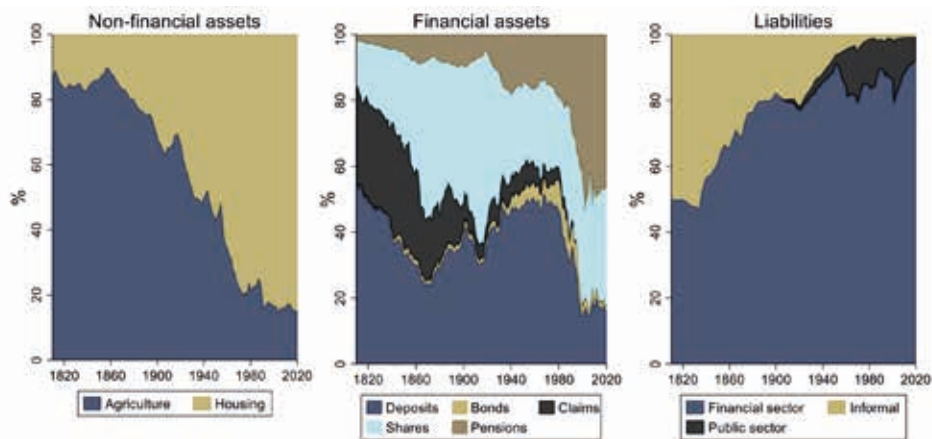
The right panel shows the composition of household debts. As already been mentioned, Sweden had no really well-functioning household credit market before the twentieth century. The few banks and financial intermediaries that existed mainly focused on lending to agriculture (saving banks, mortgage associations) or private industry (commercial banks) and attracted deposits (savings banks). As a consequence, the majority of pre-1900 household loans were informal.[6] Along with finan-

---

6   Quantifying the spread and size of these informal claims is, of course, difficult since they do not appear in the official statistical sources or banking statistics. However, they do show up in people's probate records that are compiled at the time of death, and this source of the sum of informal credits has formed the basis for their estimation (see further Waldenström, 2015b). The structure informal and formal credit markets in nineteenth century Sweden has been studied by, for example, Lindgren (2002), Lilja (2004) and Perlinge (2006).

cial institutional development and the rise of a middle class, the Swedish banks over-
took the role as main household creditor in the twentieth century. Today, financial
intermediaries are responsible about 90 percent of all household borrowing while the
rest comes from state lending to mainly students in post-secondary education.

Figure 9.4 shows a disaggregate view of liquid financial assets held as cash and
bank deposits between 1810 and 1970. Early on, notes and coins represented about
four fifths of people's financial assets with the rest being deposits in the Riksbank
and discount banks. Savings banks started emerging in the 1820s and soon became
relatively important and even though the first commercial banks came in the 1830s,
they were not oriented towards household services until the 1870s when joint-stock
banking became widespread. By 1900, commercial and savings bank deposits were
the vastly dominating form of household savings, mirroring the remarkable financial
development that Sweden underwent during this era.

Figure 9.4: *Household bank deposits and currency, 1810–1970.*
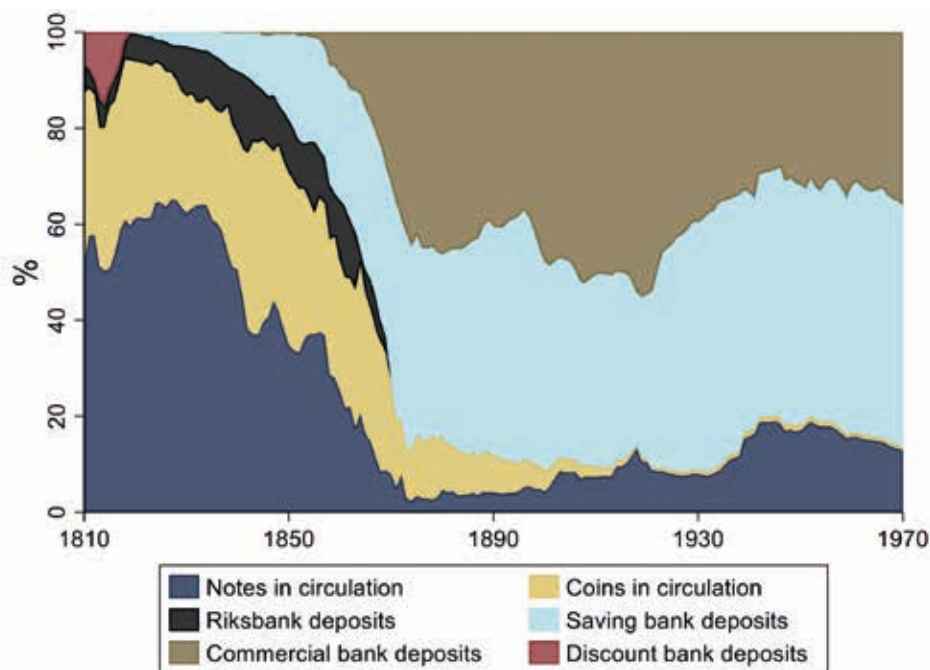
Pension wealth is specific and partly excluded from the analysis. Funded pensions
savings, private and public, are included in the private financial assets, but unfunded
(defined benefit) pension entitlements in private and public pension schemes are
not. The reason for excluding the latter is that they lack a well-defined counterparty
(there is no balancing pension debt in the state balance sheet) and they are therefore

placed in a memorandum category in the SNA, outside the main wealth concept. However, people may still consider expected future pension incomes when making decisions about how much wealth to accumulate during their working life, and therefore it may be interesting to estimate these unfunded pension claims when examining total private wealth.[7]

4.2 Government wealth

Public sector assets and liabilities form an important part of national balance sheets. Herein are the basic structures of public infrastructure, utilities and much of the potential to offer welfare services that many scholars have stressed as being key to long-run economic development. The public sector balance sheet is covered since 1870, the first year when full government data are available. In the database, the public sector is divided between *central government* and *local government*, which basically follows the way government has been institutionally organized in Sweden for centuries. Central government is effectively the state but includes since the 1950s the social insurance system, which is effectively assets in the public pension system. Local government consists of two administrative levels: counties (*landsting*, later *regioner*), in charge of health care and public transport, and municipalities (*kommuner*), responsible for among other things childcare, education and elderly care.[8]

Figure 9.5 shows the evolution of assets, liabilities and net wealth as a share of national income of Swedish central and local governments. The figure depicts several historical episodes of importance, for example, the state borrowing expansion during the Second World War (war loans) and the 1990s economic crisis. The drastic increase of state assets in the postwar era is due to the expansion of a public pension system and the installment of public buffer funds (so-called Public Pension funds, or AP funds) implied a tripling of state assets between 1950 and 1970. Local government balance sheets are smaller and less volatile, a fact partly due to balanced budget requirements that have been in place over most of the period. The central government wealth, by contrast, exhibits a more volatile pattern. Particularly interesting episodes are the accumulation of state pension funds in the 1960s and government borrowing during the 1980s and 1990s, both of which were of historic proportions as shown by the database.

---

7   Indeed, Feldstein (1974), Berg (1983) and Gale (1998) present evidence on a negative relationship between public pension assets and private financial wealth.

8   Modern municipalities and counties were formalized in the early 1860s. The exact division of public services across state, counties and municipalities has changed over time.

Figure 9.5: *Public wealth: Central and local government, 1870–2020.*
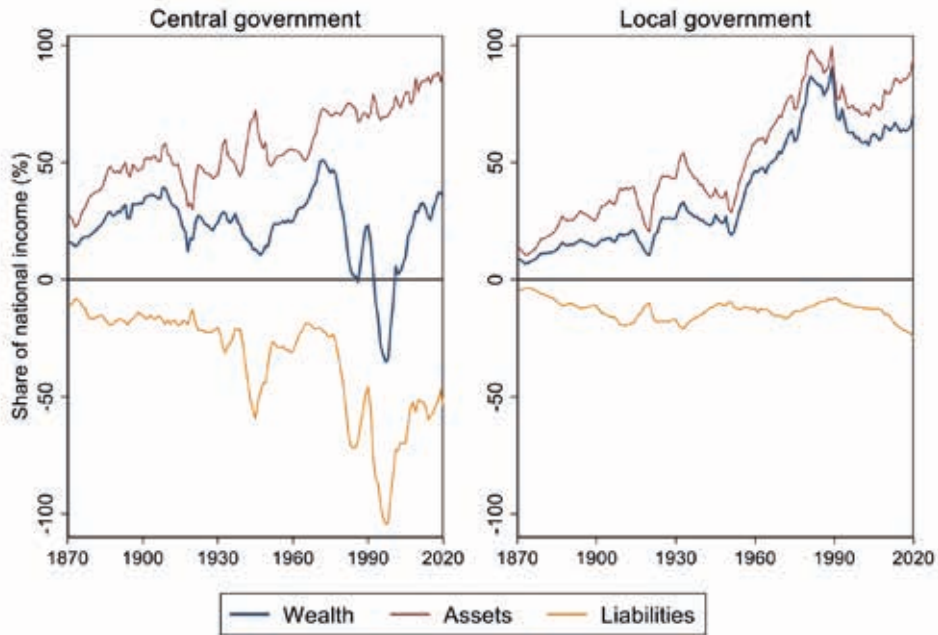
4.3 National wealth

The evolution of national wealth in Sweden as a share of national income during 1870–2020 is shown in Figure 9.6. The dominance of private wealth over public wealth is obvious, and during the course of only a couple of decades in the postwar period, the Swedish government, following a rapid accumulation of buffer funds to back up the public pension system, reached a sizable share of total national wealth.

   How does the historical development of the Swedish wealth compare with other western countries? Figure 9.7 presents national wealth-income ratios in these countries over the same period. The pattern is similar, with Sweden having a pre-First World War ratio of about half of that of France, Germany and Britain. However, it is almost at the same level as that in the U.S. and the appendices below attribute this difference to relatively low saving rates in the less-developed Sweden which prevented the country for accumulating a domestic capital stock of its own. During the twentieth century, however, the geopolitical and economic turmoil associated with the two world wars and interwar economic crises had huge implications for wealth on the European continent, but almost none in Sweden. That this divergence in outcomes is closely related to the wars seems quite plausible, although the effect may have primarily been via political channels rather than military ones. In their account of the dramatic swings in household wealth during the twentieth century, Piketty

Figure 9.6: *The national wealth of Sweden, 1810–2020.*
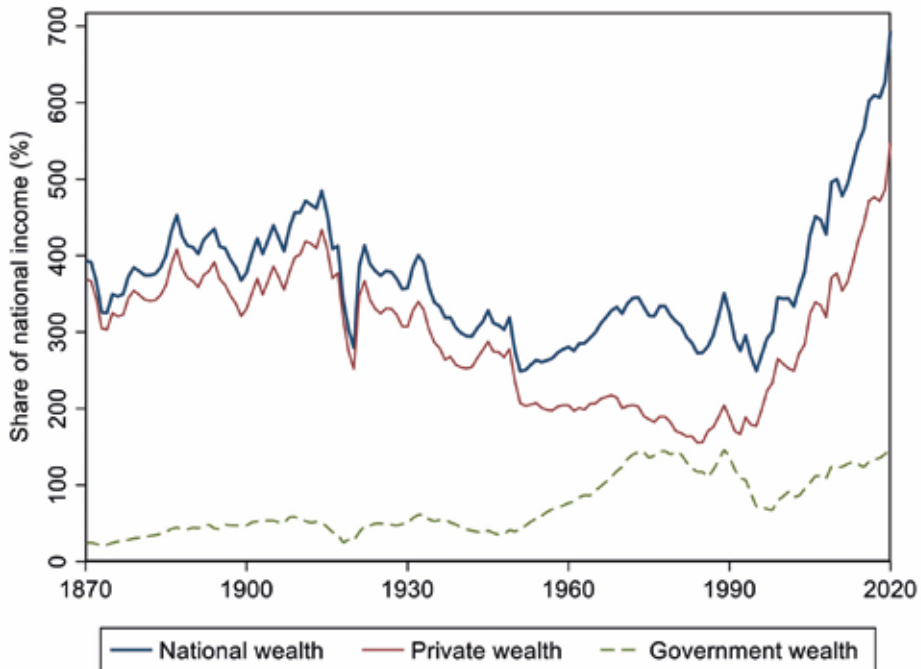
and Zucman (2014) suggest that wartime capital destruction represented only a small part of absolute and relative wealth compression. Instead the main mechanisms seem to have been government regulation and, in particular, increased taxation of wealth, property and high incomes. Sweden was neutral in both wars, and although the country did indeed raise taxation of the rich and increased the regulatory pressure on the private sector, this does not seem to have been pursued at the same order of magnitude as in the belligerent countries.[9] After the Second World War, the Swedish national wealth-income ratio is almost on a par with those of the other countries.

9　That wars matter for taxation of the rich has also been established by Scheve and Stasavage (2016), who have linked the degree of tax progressivity and the level of inheritance taxation to mass mobilization of countries actively participating in wars. Their suggested mechanism is that increased taxation was the "price" that the wealthy had to pay for the rest of the population risking their lives in the actual fighting.

Figure 9.7: *International comparison of wealth-income ratios.*
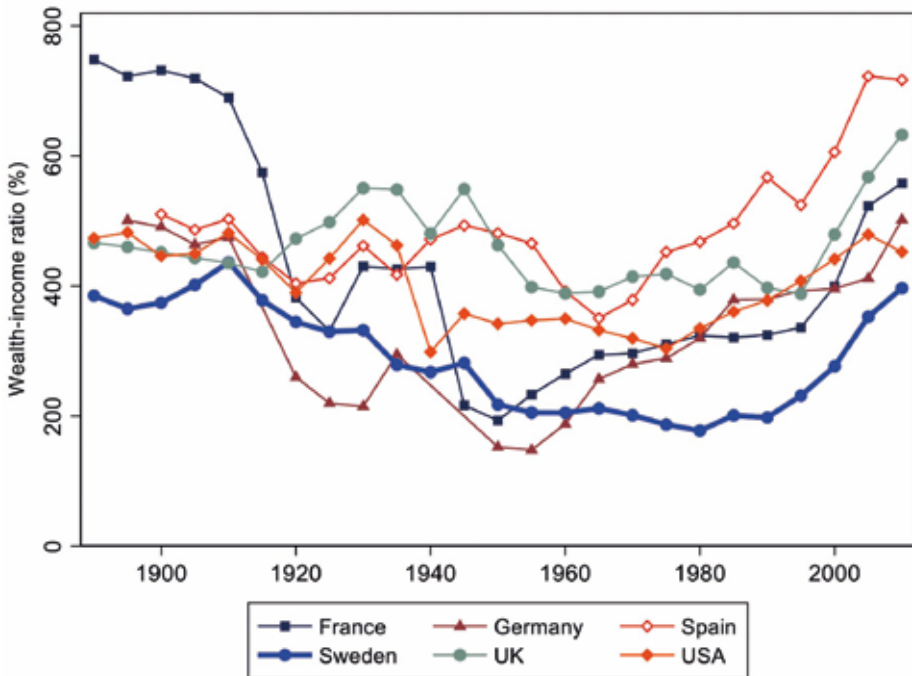
Note and sources: Data for France from Garbinti et al. (2020), Germany from Albers et al. (2022) (see also Piketty and Zucman 2014), Spain from Artola Blanco et al. (2020), from the United Kingdom from Madsen (2019) (see also Piketty and Zucman 2014), Sweden this chapter, and the United States from Piketty and Zucman (2014). Data updates are from the WID.world database,

5. Concluding remarks

The historical evolution of Sweden's national wealth since the early nineteenth century shows several interesting patterns. Swedes were relatively poor in the agrarian era, with incomes too low to allow people, or the country, to save and accumulate new wealth. This poverty trap evaporated during the industrialization, and assets grew faster than incomes. However, during the twentieth century, income growth surpassed the rate of wealth accumulation, a process fueled by the expansion of educational attainment and also increased redistribution in the emerging welfare state. Since the 1980s, wealth has once again outgrown income and this seems largely attributable to large capital gains in housing and financial markets.

Appendix A. Household sector: Non-financial assets

Non-financial assets constitute a core component in households' balance sheets. The System of National Accounts (SNA) divides them into two major categories: *Produced assets*, which are outputs from a production process such as buildings and inventories, and *Non-produced assets*, which are assets that appear naturally such as gardens, farmland and forestry. Durable consumption goods are not included the household balance sheet, following the recommendations of the SNA. The reason is that these durables emanate from consumption and are therefore by construction assumed to depreciate away within one year, which does not allow for the formation of a stock.[10] However, it is well-known that some consumption goods do last for considerably longer than one year, for example, cars or boats, and SNA has therefore put consumption durables in a memorandum category attached to the main balance sheet. In this study, the stock of consumer durables is also estimated for Swedish households over the entire period, but reported separately (see further below).

The main source used to estimate the Swedish stock of non-financial assets is the property tax assessments. These assessments have been reported annually by the Swedish tax authorities since 1813.[11] This means that our non-financial asset series are based on assessed running stock values instead of estimated stocks based on the perpetual inventory method (PIM). In short, PIM uses investments that are accumulated over time to generate a stock value accounting from an assumed certain rate (or sometimes several rates) of depreciation. Whether to use stocks from the tax assessments or PIM-generated stocks based on investment flows and assumed depreciation rates is an open question that researchers and statisticians have discussed for a long time. In their recapitulation of the main pros and cons with the respective methods, Piketty and Zucman (2014) point out that although no approach is without flaws, the problems with PIM tend to be more difficult to handle than the problems with assessed stocks. For this reason, they recommend using stocks over PIM estimates. Note that the official national wealth estimates of Statistics Sweden made for the period 1980–1994 (Statistics Sweden, 1995) are based on PIM estimates and below I discuss the instances where those series differ from the ones presented in this study.

There are several adjustments of the raw tax assessment data needed to make it useful as a basis for calculating stock values of non-financial assets. Below is a brief listing of them, but they are all reported and discussed in further detail in the following sections.

---

10   Described in corporate terms, the consumption of durables is regarded as a running expense and not as an investment which accumulates to a stock. However, the SNA has placed the stock of consumer durables as a memorandum item on household balance sheets.

11   The tax assessments were called *bevillning* during the 19th and early 20th centuries and *fastighetstaxeringarna* thereafter. See further details on the property assessments below under the subsection describing produced non-financial assets.

Adjustment 1: Division between produced and non-produced assets. The sources for property tax assessments did not divide assets into produced and non-produced assets for a long time. Instead the assessments separated agricultural from non-agricultural real estate, both of which contained both produced assets (for example, buildings, livestock) and non-produced assets (for example, farmland, forestry). Beginning in the 1920s, the value of buildings was reported separately and similar estimates are available in some of the earlier individual national wealth estimates. Using this evidence, a subdivision between produced and non-produced assets is presented for the whole period.

Adjustment 2: Converting tax values to market values. All assets in this study are reported in current market values. The main strategy to convert the Swedish tax-assessed property values to current market values is to use sales price ratios (*köpeskillingskoefficienter*) defined as sales price of an estate divided by its tax-assessed value. A sales price ratio of 1.25 thus expresses that the property's market value is 25 percent higher than its reported tax value. Throughout, sales price ratios are used for this conversion, and the sources for these ratios are both the official statistics and different studies using historical evidence. In some cases, particularly following share tax reassessments, this adjustment is not very smooth as the sales price ratios are based on sales of a subset of the assessed property. As a consequence, there are some instances of sudden jumps in the market values of assets which are entirely an artefact of the mismatch between changes in sales price ratios and reassessed property values.

A problematic part of the conversion of tax values to market values is also related to the fact that the reported annual tax values between tax assessments are not fully representative. Swedish general property tax assessments were typically made every fifth-eighth year with smaller special assessments sometimes made with higher frequency. Most of the time, however, tax values were often left unchanged in the years between general assessments regardless of the underlying value developments. In the postwar era, annual sales price ratios are supposed to account for most this annual variation (as changing sales price ratios reflect changing market values if tax values are constant). For earlier years, however, annual values are typically interpolated linearly between the assessments. For produced and non-produced agrarian assets between 1820 and 1860, however, reported tax values arguably deviate more from plausible levels and additional adjustments were made.

Adjustment 3: Separation between household and non-household private sectors. As discussed in the main text, the focus of this paper lies on private sector wealth as reflected in the household sector balance sheet. Assets and liabilities of households incorporate the privately and domestically owned net worth of the corporate sector through the market value of shares in incorporated and unincorporated firms. Therefore assets and liabilities held by corporations are excluded from the stocks reported in the sources used. This separation is most important in the cases of

non-agricultural fixed produced and non-produced assets (that is, excluding commercial real estate).

Adjustment 4: Currency adjustments. Before the installment of the Swedish krona (SEK) in 1873, there were several different currencies circulating in Sweden, and even the official statistics were not uniform in terms of reporting in one of these currencies, less so over time. All numbers in the final database are in current million SEK, and exchange rates between the precursor currencies riksdaler riksgälds, riksdaler specie, riksdaler banco and riksdaler riksmynt are taken from Edvinsson (2010).

Data quality varies considerably over time. In general, data from the earlier periods, especially before the 1860s, are increasingly uncertain. Tax assessments were reorganized and modernized in the early 1860s and contemporary writers state that the comparability of statistics before and after that change is quite low (Fahlbeck, 1890, p. 94). One main reason is the fact that information on tax returns was controlled and collected by local authorities, and the literature indicates that there was local variation in both how assets were valued and in the routines for collection and reporting values. I have tried to meet these differences in various ways, constantly strived to homogenize all series to get market-valued household-owned assets that harmonize with today's reporting standards.

Table A9.1 collects the estimated shares and sales price ratios of the various assets in the category of produced assets owned by Swedish households. The table presents decennial averages in order to be more easily accessible.

Table A9.1: *Asset shares and sales price ratios in the calculation of Swedish produced assets.*

| | Agricultural property | | | | | | Non-agricultural property (urban dwellings) | | | |
| | Farms | | | | Timber tracts | | | | | |
	Share of agricult. prop.,%	Share of land in farms, %	Share of build. in farms, %	Sales price ratio	Share of agricult. prop.,%	Sales price ratio	HH share of dwell-ings, %	Share of land in dwell., %	Share of build. in dwell., %	Sales price ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1810	75.5	33.1	66.9	1.50	24.5	2.00	0.9	24.5	75.5	1.12
1820	75.5	33.1	66.9	1.50	24.5	2.00	0.9	24.5	75.5	1.12
1830	75.5	33.1	66.9	1.50	24.5	2.00	0.9	24.5	75.5	1.12
1840	75.5	33.1	66.9	1.50	24.5	2.00	0.9	24.5	75.5	1.12
1850	75.5	33.1	66.9	1.45	24.5	2.00	0.9	24.5	75.5	1.12
1860	75.5	33.1	66.9	1.25	24.5	2.00	0.9	24.5	75.5	1.12
1870	76.9	33.1	66.9	1.25	23.1	2.00	0.9	24.5	75.5	1.14
1880	80.1	32.5	67.4	1.24	19.9	2.00	0.9	24.5	75.5	1.05
1890	80.1	27.5	71.7	1.22	19.9	2.00	0.8	24.5	75.5	1.02
1900	80.1	22.6	77.0	1.20	19.9	2.00	0.7	24.5	75.5	1.09
1910	80.1	22.7	77.3	1.19	19.9	2.00	0.7	24.1	75.9	1.04
1920	79.7	25.4	74.6	1.24	20.3	2.00	0.7	23.5	76.5	1.14
1930	76.7	28.1	71.9	1.13	23.3	2.00	0.7	22.8	77.2	1.10
1940	73.8	30.8	69.2	1.44	26.2	2.00	0.7	21.1	78.9	1.23
1950	65.9	34.8	65.2	1.48	34.1	2.00	0.7	18.8	81.2	1.33
1960	60.9	41.8	58.2	1.62	39.1	2.00	0.7	16.3	83.8	1.65
1970	59.1	48.2	51.8	2.13	40.9	2.00	0.7	19.7	80.3	1.96
1980	51.9	45.3	54.7	1.97	48.1	2.00	0.7	25.8	74.3	1.80
1990	40.7	36.6	63.4	1.92	59.3	2.00	0.7	26.8	73.2	1.76
2000	39.8	38.8	61.2	2.09	60.3	2.00	0.7	32.6	67.4	1.85
2010	41.2	41.2	58.8	1.94	58.8	2.00	0.7	39.1	60.9	1.58

Note: (1): Percentage share of farms in total agricultural property; (2): Percentage share of land in (1); (3): Percentage share of buildings and constructions in (1); (4) Sales price ratio of farms, defined as sales price divided by tax-assessed value; (5): Percentage share of timber tracts in total agricultural property; (6) Sales price ratio of timber tracts; (7) Household Percentage share of non-agricultural property; (8) Percentage share of buildings in non-agricultural property; (9) Percentage share of land in non-agricultural property; (10) Sales price ratio of owner-occupied housing. See text for sources.

A1. Produced non-financial assets

A1.1 Fixed produced assets

Tangible fixed produced assets represent the main part of produced assets. They include buildings and constructions which are divided into agricultural assets, machinery and equipment and non-agricultural assets. The first category is by far the most important, especially concerning the role of dwellings. Machinery is of little relevance for the household sector, included primarily in the form of machinery in the agrarian sector.

Property tax assessments are the main source used for estimating the stock of produced non-financial assets. General Assessments were made with some years in between, typically every sixth to eighth year, with less comprehensive Special Assessments being made annually in the years in between. Assessed values have been reported annually by the Swedish tax authorities since 1813. For the year 1810, tax-assessed values were collected and reported by Åkerman (1967, appendix 1) for eighteen South and Middle-Swedish counties representing four fifths of the country's total land value. From 1813, data exist for the whole country and between 1813 and 1862, national tax tables were published annually by the National Debt Office (*Riksgäldskontoret*).[12] Swedish property tax assessments are traditionally focus on two main categories: agrarian property (*jordbruksfastighet*) and non-agrarian property (*annan fastighet*). In order to get a division between produced (buildings) and non-produced (land) assets, one therefore needs to adjust each of the reported categories with respect to information about data on the value of buildings, land and so forth. This adjustment is described below in the cases of agrarian and no-agrarian property, respectively.

---

12 See the publication "General-Sammandrag öfver 18XX års bevillning", series "Öfverdrag från Sammandragen öfver Taxeringslängderne N:ris 1, 2 och 3 för 18XX" (with XX naturally denoting different years). Tax values for the property items "Hemman" (homesteads) and "Lägenheter" (farm dwellings) were included in agricultural real estate. To link the estimates for 1810 and 1813, I use information on values for the counties reported in 1810 that are also available for subsequent years. Between 1810 and 1813, the average value increase was 43 percent, and this number together with the total for 1813 is used to compute the total value of 1810. There are gaps in the archives and for the years where no information was found, 1811–1812, 1814–1815 and 1817–1818, values are linearly interpolated.

Summary of the property tax assessment in 1821, reported for Sweden's 25 regions and sepa-rately for the city of Stockholm.

A1.1.1 Agricultural fixed produced assets

Agricultural assets constitute historically the largest asset class in Swedish household portfolios. Like most other countries, Swedish farms are traditionally run as unincorporated family businesses. Following SNA 2008, this means that they as a whole should be included in the household sector.[13] Main components of agricultural assets are farmland, forestry, buildings and livestock.[14]

As already discussed, the raw agricultural tax returns data need to be adjusted in several ways. First, the reported totals need to be divided into produced and non-produced assets. Up until the mid-1970s, there is no continuous information about this division, but a few historical estimates exist. The earliest useful information available

---

13 An alternative would be to count the farms as incorporations, thus placing them in the corporate sector. This would imply that only the running business equity (net assets) should be added to household portfolios. In practice, however, the share of incorporated family farms in Sweden was basically zero up until the 1990s when it started increasing slowly, reaching a level of about five percent in 2010 (Swedish Board of Agriculture, 2011, pp. 10ff).

14 The definition of agrarian property (*jordbruksfastighet*) has been relatively constant over time. The 19th century tax ordinance ("Bevillningsförordningen", fifth paragraph) defines agricultural as consisting of "all Swedish land (including growing timber, buildings) except urban dwellings and plots legally defined as 'other property', communication installations, crown lands, mines and iron ore reserves, and fishing waters. See Fahlbeck (1890, pp. 8f) for a further description.

is a sketchy calculation for 1885 in Fahlbeck's study.[15] Fahlbeck (1890, pp. 11–14) uses fire insurance statements of the total insured value of fixed items and from this, he estimates the approximate value of buildings in agrarian estates in 1885 to be 1,387 million SEK, but then adjusts this to the round number of 1,500 million SEK. As the total tax value of agrarian property in this year was 2,242 million SEK, the estimate suggests that buildings represented some 67 percent (1,500/2,242) of the total. Another estimate is provided by Flodström's estimation of market values of agricultural land and buildings in 1908. His estimates, based on farm output and adjusted fire insurance values of buildings, suggest that produced assets represented 79 percent of total farm assets excluding timber tracts (Flodström 1912, pp. 138–143). He finds the total tax value of farmland to be 508 million SEK (21 percent of the total) and the total value of farm buildings to be 1,912 million SEK (79 percent of the total). Next, Englund (1956, p. 503f) updates Flodström's estimates for the year 1952 and assumes that farmland represents one third of the total value at 4,300 million SEK, and that agricultural buildings represent two thirds at 8,800 million SEK. Finally, from 1975 onwards there are reports of annual tax valuations of agricultural land and buildings in the official statistics of Statistics Sweden.[16] On average during 1975–1979, farmland represented 44 percent and buildings 56 percent of total agricultural tax-assessed property. In between these years, we linearly interpolate the relative shares for the calculation of annual numbers. Furthermore, we use the same sales price ratios for produced and non-produced agricultural assets, thus assuming that their relative shares of the total property are the same in tax-assessed and market values.

Convert into SEK: Currencies are recalculated into and expressed in today's Swedish currency unit, krona (denoted SEK, which was made the official currency in 1873). This adjustment mainly affects tax assessments up to 1858 which were predominantly reported in riksdaler banco. The banco was a local currency with an exchange rate of 1:(2/3) to the subsequently used currency riksdaler riksgälds, that later was transformed at a rate 1:1 to the krona.

From tax-assessed to market values: A second adjustment is to convert tax-assessed values into current market values. This is a crucial adjustment since the published tax values at times depart quite substantially from the (estimated) true market values. However, the conversion is made difficult for several reasons, the main one being the general scarcity of reliable information about current market prices of land as well as

---

15 In Finanskommittén (1863, Table XXXI, p. CXXII), there is an even earlier observation for the value of buildings in the countryside, suggesting a value of 505 million SEK in 1858. The source of this estimate, however, is unclear as, when compared to the total (estimated) agricultural property value of 1,700 million SEK, the share is only one third of the total. Due to this uncertainty, this early observation is left out of the study.

16 The data come from Statistical Yearbook of Agriculture (*Jordbruksstatistisk* årsbok), various years.

their relation to tax-assessed values.[17] A number of tax reassessments were carried out during the period, updating tax values often with respect to newly surveyed market values.[18] In between these events, however, the ambitions to match tax values to market values varied. As for the earliest decade, the 1810s, there are some attests by nineteenth century scholars reporting that tax values in these years were close to, though not precisely at, market values.[19] This was because the tax laws in the 1810s stipulated that assessments should aim to value assets at their market prices. However, political pressures soon forced legislators to abandon this ambition, and the period between roughly 1820 and 1862 saw an increasing wedge between tax and market values.[20] A major turning point was the tax ordinance of 1861 ("1861 års bevillningsförordning", SFS 1861:34) which set new principles for the valuation and collection of land and real estate values. From this date, tax values were again aimed at corresponding to market values, and between 1861 and 1862 agricultural tax values increased by 280 percent, reflecting the long lag in updating tax values.[21] Additional evidence rejecting the constant level of agricultural estate values during 1820–1861 is the increasing agricultural estate prices (since 1840) reported for one Swedish region by Martinius (1970).[22] Furthermore, several sources state that the tax values of city dwellings were much more in line with true market values than was the case for agricultural real estate.[23] Based on this indication, the yearly progression of agricultural tax values are imputed econometrically using the evidence on agricultural property purchase prices

---

17   The role of property tax rates represents another concern. The level of taxation influences market prices, and therefore the ratio of market to tax values, as well as the incentives to report one's amenities truly. According to Seth (1863, p. 21), the property tax rate (*bevillning för fast egendom*) was constant in most of the sensitive period up to the new tax ordinance of 1861.

18   Major tax reassessments, called General Assessments (*allmän fastighetstaxering*), of all non-public real estate property, both agricultural and non-agricultural, were carried out every third year before 1898 (especially large assessments were made in 1862, 1879, 1884, and 1898) and every fifth year between 1898 and 1988 (especially large assessments were made in 1918, 1922, 1952, 1957, 1965, 1970, 1975 and 1981). From 1988, the new property tax law (1979:1152) stipulated that the general assessments are made every sixth year for each property class after a rolling scheme (with three such classes, assessments are made every second year).

19   See Fahlbeck (1890, p. 6–7) and Seth (1865, p. 21).

20   Both Fahlbeck (1890, p. 7) and Adamsson (1966, pp. 122–128) describe the evolution of the property tax legislation and the gradually lowered ambition to report true market values in the tax assessments (*Bevillningsförordingar*) with important changes occurring in 1818, 1823, 1830 and 1841. Nilsson (2008, p. 207) also cites contemporary sources stating that farmland tax values were (erroneously) constant during 1840s and 1850s.

21   That this increase reflects a valuation update is confirmed by the summary of the quinquennial county reports (Statistics Sweden, 1868, p. 119). But according to Fahlbeck (1890, p. 104), the tax values of 1862 were still most likely too low. This opinion is shared by Seth (1865).

22   Martinius (1970, ch. 4) studies a large sample of farms in a Southern county, Skaraborg. His study of agricultural estate prices between 1833 and 1892 shows that prices were unchanged up to around 1840, then doubled up to 1850 and then more doubled up to 1860.

23   There was no break in this series at all in 1862. See further Seth (1865, p. 25), Statistics Sweden (1868, p. 119).

reported annually by Martinius (1970, p. 70) and reported tax-values of agricultural property in the beginning and the end of the period.[24]

Sales price ratios (*köpeskillingskoefficienter*), defined as the ratio of market values to tax-assessed values, are multiplied to tax values in order to attain market values. For the most part, these ratios are based on actual data on surveyed contemporary purchase prices but for the early period they rest on a combination of actual observations and subjective assessments. For the nineteenth century, there are a few analyses of this issue and they are used for constructing the sales price ratios. Martinius (1970, Table 31–32, p. 81) presents market and tax values in a region in Western Sweden, both for some hundreds (*härader*) and for the county (*län*) as a whole. He finds that the sales price ratio of the hundreds in 1842 was 1.40. In 1862, he finds that the ratio was 1.04 for the same hundreds and 1.08 at the county level, suggesting a correction upwards of the ratio for the hundreds. Assuming the same correction in 1842, the county-level sales price ratio is 1.45, which will be assumed to be valid for the country as a whole.[25] As already discussed, agrarian tax assessments in the first half of the nineteenth century were aimed at being close to the market values but in practice this was not always the case. During this period, there was also a generally acknowledged increase in agrarian prices (Pettersson, 1987; Magnusson, 1983). To derive an annual variation in these agrarian prices between 1810 and 1842, I use the deflator for the agricultural sector computed by Pettersson (1987, pp. 8–17), chaining from the 1842 benchmark back in time. In 1810 and 1811, sales price ratios are below one and then we set them to one. For the year 1860, Seth (1863, pp. 26–27) presents numbers, landing at a purchasing price coefficient of about 3 of the raw tax values. Using the interpolation-adjusted values, the coefficient is about 1.5. In the report Statistics Sweden (1863, p. 69), the ratio is said to be around 2 but this number is not backed by any actual numbers and therefore less credible than the estimate of Seth (1863). Altogether, I use the coefficient of Martinius for the early period. For the period 1862–1876, a coefficient of 1.25 is used. Sidenbladh (1878, p. 116) presents an analysis of the relationship for the year 1876, landing at a coefficient of 1.5. However, Fahlbeck (1890, p. 22n) criticizes this estimate arguing for a coefficient of 1.25, which in retrospect appears to be a more sensible estimate and therefore the coefficient 1.25 is used here. Flodström (1912, Table B, p. 137) presents a thorough analysis of market-to-tax value ratios collected from individual transactions across the country made in the year 1908, which he finds to be 1.19.[26] The Swedish Parliament ordered a survey of agrarian property transactions during the 1920s, generating estimates of sales price ratios between 1.55 in 1921 down to 1.11 in 1929 (with an

---

24   The Stata program *ipolate* was run using information about agricultural property values in 1810–1823 and 1862, and non-agricultural property values in the missing years.

25   Martinius (1970, p. 81) estimates the market value for property in a number of hundreds in 1842, 1862 and 1892. In 1842 the tax-assessed values (million SEK), market values (million SEK) and sales price ratio were the following for hundreds around: Alvhem (denoted "Pu" in table), 5.4, 7.6 and 1.41; Haga (denoted "Cu" in table), 11.8, 16.6 and 1.41; Storeberg (denoted "Ru" in table), 4.6, 6.5 and 1.41.

26   See also Flodström, 1912, Bil. A. Taxeringsvärden och köpeskillingar å fastigheter, pp. 299–303.

average of 1.23).[27] In Spånt (1979, Appendix B) reports a ratio of 1.11 for 1935 and 1.43 for 1945. For the period 1938–1944, Statistics Sweden (1945) reports purchasing price coefficients based on large samples of purchases and corresponding tax values. All years in between, coefficients are linearly interpolated. From 1952 onwards, purchasing price coefficients are reported annually by Statistics Sweden.[28] The sales price ratios are presented in Table A9.2.

Table A9.2: *Agricultural sales price ratios (köpeskillingskoefficienter), 1810–2010.*

Period	Sales price ratio (average)	Source/Comment
1810–1842	1.29	Martinius (1970) studies market and tax values of land in five hundreds (*härader*) in the county of West Gothnia in 1842 finding a sales price ratio of 1.40, which after correcting for county-level sales price ratio is 1.45. The annual variation 1810-1841 is based on agricultural deflator index from Pettersson (1987, Tab. 6).
1843–1861		Linear interpolation.
1862–1876	1.25	Seth (1863) refers to studies finding a sales price ratio of 3 for 1857, but after our adjustment for underreporting (resulting doubled tax values) the suggested ratio is 1.50. BiSOS (1863, p. 69) suggests (without references) a ratio of 2, which after out adjustment would suggest a ratio of 1. Sidenbladh (1878) suggests a ratio of 1.5, but Fahlbeck (1890) finds it too high, suggesting 1.25. Altogether, we suggest a sales price ratio of 1.25 for the period.
1877–1907	1.22	Linear interpolation.
1908	1.19	Flodström (1912) makes a national survey of individual sales and tax values, finding sales price ratio of 1.19.
1909–1920	1.37	Linear interpolation.
1921–1928	1.26	In a special study by the Swedish Parliament, large samples of property transactions were collected from six counties from all Swedish regions (Swedish Parliament, 1930).
1929–1937	1.14	Linear interpolation.
1938–1944	1.36	Statistics Sweden (1945) presents annual country-level data on sales and tax values of agricultural estates.
1945–1950	1.55	Linear interpolation.
1951–2010	1.88	Official sales prices ratios for agricultural estates reported in the Statistical Yearbook of Statistics Sweden.

Note: See text for sources.

---

27 Swedish Parliament (1930), "Särskilda utskottets utlåtande nr 2", bilaga B, p. X. The studied counties were Malmöhus, Östergötland, Skaraborg, Västmanland, Gävleborg and Västerbotten.

28 Statistics Sweden's publications: Statistical Yearbook, Statistical Messages (series J) and Yearbook of Housing and Building Statistics (*Bostads- and byggnadsstatistisk* årsbok).

Removing private non-household shares: Households have been the predominant owners of private farms and forests in Sweden throughout the period studied. Still, there have also been non-households (incorporated family farms, banks, other corporations, thrifts etc.) owning agricultural assets. Their share needs to be removed from the totals, but doing this is not simple because of a general lack of information about ownership shares across sectors. Flodström (1912) finds that in 1908, non-government entities, mainly banks, held about 15 percent of total private agricultural assets.[29] Since the 1930s, there have been some tabulations of the ownership of agricultural property and forests made in relation to general tax assessments, most of them expressed in terms of amounts of land (hectars) but some also in terms of tax-assessed value. For farm property, physical persons (including estates) have held almost exactly 90 percent of the agricultural land surface since the 1930s, and between 84 and 94 percent of its taxed values.[30] For this reason, the household share of all fixed agricultural property is set to 90 percent for the whole period, including the nineteenth century.

A specific challenge concerns Sweden's period of very high inflation and deflation levels during the end for World War I and immediately thereafter. Consumer prices doubled between 1916 and 1919, and peaked in 1920. While annual price levels, and current incomes, co-vary relatively well, the nominal tax-assessed assets are more sluggish and do not fully adjust from year to year. As a consequence, real asset values plummet during periods of extreme inflation (as during 1916–1919) and soar during periods of extreme deflation (1919–1921). An alternative approach to generate stock values is to use the perpetual inventory method, PIM, which uses annual investment flows that continuously reflect actual price levels and thereby move more quickly along with nominal fluctuations.[31] In the case of non-agricultural housing, Edvinsson (2005) reports values generated using PIM for the period around and immediately after World War I in Sweden.[32] In comparison with the tax-assessed stocks, the

---

29 In 1908, total private (taxable) farm land value was 3,022 million SEK. That year, 454 million SEK (15 percent) was held by non-households such as local thrifts, banks, corporations (Flodström, 1908, pp. 681, 697, 727, 743).

30 For share of land surface: Statistics Sweden (1959, tab. E.4, p. 35) showing 89 percent in 1937 and 90 percent in 1944 and 1951; Statistics Sweden, Statistical Yearbook of 1982, tab. 82, p. 102, showing 88 percent in 1975, and Statistics Sweden, Statistikdatabasen (table "Allmän fastighetstaxering för lantbruk efter ägarkategori, tabellinnehåll och år") showing 91 percent each of the years 1998, 2005, 2008 and 2014. For the share of tax values: Statistics Sweden, Yearbook of Agricultural Statistics (Jordbruksstatistisk årsbok) of 1970, showing shares between 84 and 96 percent between 1945 and 1969 and shares are 89 percent during 1998–2020 using the same source as above.

31 Recall that the critique against the perpetual inventory method is primarily concerned with its problems to accurately account for true deflation of the value of some goods (old computers are valued too high). Short-term variations may thus be correctly reflected but over time the method returns too high stock values.

32 I use Edvinsson's series "Residential buildings" in appendix K. "Net (capacity) stock of various types of produced assets (in current, purchasers' prices, million SEK), aggregate economy, and the total net stock of produced assets of the aggregate economy, of the private sector and of manufacturing and handicrafts (1 January each year)".

PIM-generated stocks are 20 percent higher in 1916 and then increases to +29 percent (1917), +53 percent (1918), +80 percent (1919), +78 percent (1920), and +45 percent (1921), whereas they are roughly equal both before and afterwards. Which one of these stocks should one prefer: the sluggish tax-assessed stocks, which experience a sharp devaluation during the high inflation, or the PIM-stocks which do not? One potentially exogenous check is to look at the sales-price based valuation of Swedish agricultural property made by Åmark (1923) in a thorough analysis of three agriculturally important Southern counties spanning the period 1877–1919.[33] I compare Åmark's estimated land values for the three counties with the national stocks generated from either tax assessments or the PIM. Over the pre-WWI period, the national total is almost twice as large as the stock of the three countries. Then during 1915–1920, the difference is still about twice as large when using the tax assessments (land values still more than double in nominal terms) but it is more than three times as large when the PIM-adjusted stocks are used. From this simple check, I decide to stick to the strategy of the rest of the paper, basing the stocks on tax assessments instead of on the PIM.

Livestock is also included in the fixed produced agricultural assets according to SNA 2008. Market-valued totals for livestock are therefore constructed and added to the other agricultural assets. While livestock are at times neglected in modern estimations, they are important from an historical point of view; livestock represented between 10 and 15 percent of all real assets up to the First World War and about five percent up until the Second World War. During the nineteenth century, horses were the most important livestock, representing between 30 and 40 percent of the total value of livestock followed by cows whose share increased from one fifth to one third. By contrast, in the twentieth century cows overtook the role as most important livestock measured in terms of aggregate market value.

The estimation of the current market value of livestock done by multiplying the total number of animals of each type by assessed average market prices at each point in time. Fortunately, relatively detailed information exists about both of these items as well as some attempts to calculate national totals. The number of animals at Swedish farms has been carefully counted and reported by Statistics Sweden.[34] For the period up to 1914, market prices of most livestock types are collected from Jörberg

---

33 Åmark samples a large set of prices of land, grain, timber from the counties Halland, Skaraborg and Östergötland. He distinguishes between agricultural property dominated by plains/farmland and property dominated by forestry/timber.

34 Up to 1950, data from Statistics Sweden (1959, pp. 61–64) showing the number of different kinds of livestock (for example, horses, cows, oxen, young cattle, pigs, sheep) are used. For the period from 1950 onwards, I use livestock insurance data, published annually since the 1920s in Statistics Sweden (1960, p. 111) and thereafter in Statistical Yearbook. These insurance data report both the number of livestock and their (insurance) values though only for cows and horses. From the 1980s onwards, there is no information on annual average prices or livestock insurance. Instead I assume the value of livestock to be the same share of agricultural property as it was in the late 1970s (about five percent).

(1972). Furthermore, detailed estimations of the national value of livestock exist for the following years: 1885 in Fahlbeck (1890, pp. 41–42), 1898 and 1908 in Flodström (1912, pp. 143, 148) and 1952 in Englund (1956, p. 504). These values are used to complement and amend the values retrieved from the other sources in the early period. A recent study of Swedish agricultural production in 1810 by Linde and Andersson Palm (2014) has revised the previous statistics, suggesting that the number of livestock is perhaps two thirds higher than previously suggested. I deem their new series credible and adjust the older annual statistics upwards but phase it out gradually until 1914.

For the period from 1914 up to 1982, data come from historical tables published in Statistics Sweden (1960, p. 111), up to 1950, and after that annually in Statistical Yearbook, where average market values are drawn from livestock reinsurance values. After that, information is less accessible and instead the livestock value is assumed to be eight percent of the total value of other agricultural assets, the average share it had during the 1970s up to 1982. Figure A9.1 shows the development of the aggregate value of the stocks of agricultural assets and livestock relative to national income during the full study period.

Figure A9.1: *Agricultural assets and livestock relative to national income.*
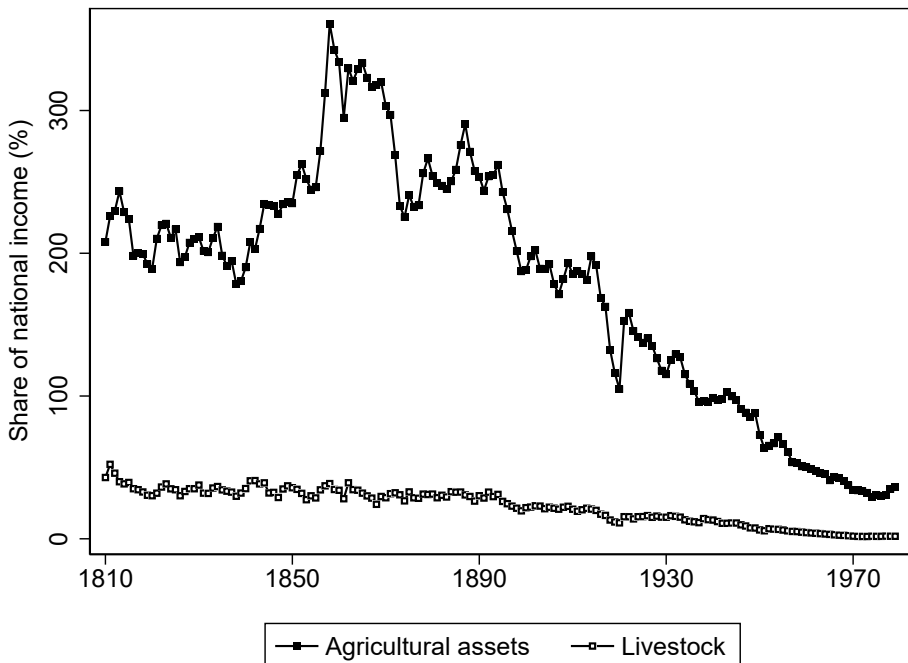
The estimation of the current market value of livestock is done by multiplying the total number of each type of animal by assessed average market prices at each point in time.

A1.1.2 Machinery and equipment (in agriculture)

The value of agricultural machinery, equipment and tools ("dead inventories") is added to the other property values. They are not included in the tax assessments.

   The first known estimate is made for 1858 by Finanskommittén (1863, Table XXXI), suggesting a value of 51 million SEK, amounting to roughly 2.5 percent of total agricultural property. Fahlbeck (1890, pp. 42–43) refers to the "well-known fact among professionals" that the total value of machinery, equipment and livestock amounts to one fourth of the total agricultural property, from which he finds that the value of machinery and equipment is 139 million SEK, about 5.2 percent of the total property. Flodström (1912, pp. 148–150) makes even more careful estimations, finding that it amounts to 322 million SEK, or 9.2 percent of total agricultural property. Englund (1956), finally, finds a slightly lower relative level for 1952.[35]

   From these estimates, it is plausible to assume that the value of machinery and equipment in Swedish agriculture has been around 5 percent of total property value, and this is also assumed to be true for the entire period of study.

A1.1.3 Non-agricultural fixed produced assets (housing)

Besides fixed agricultural assets, the other large category of fixed produced assets is non-agricultural real estate, denoted "Other property" (*Annan fastighet*) on Swedish tax returns. This summary concept contains several items, for example, owner-occupied housing, vacation housing, rental apartments, condominiums and inventories. According to the nineteenth century tax ordinance (*Bevillningsförordningen*), other property consists of urban dwellings, including gardens and buildings, and other buildings and constructions that are not associated with the agricultural sector.[36] Notably, historically this included almost all private non-agricultural property, such as factories, mills, sawmills and ironworks.[37]

   Condominiums represent a special case. Being apartments in which people live, and thus ideally part of the stock of dwellings within produced non-agricultural

---

35 Englund (1956) does not estimate machinery separately but in combination with inventories, reporting a total share of 17.8 percent of agricultural property (to be compared to 22.5 percent in 1908 and 20.2 percent in 1885).

36 For further descriptions, see Fahlbeck (1890, pp. 30f) and Flodström (1912, pp. 112ff).

37 In the Swedish historical tax tables, these are called *Bergverk* (mines, ironworks), *Manufacturer, Fabriker och inrättningar* (factories, manufactures), *Qvarnar* (mills). They are only reported separately up during 1813–1861, and during this period they represented approximately one third of the total tax-assessed non-agricultural property values.

assets, condominiums are treated as financial assets and reported as such in the Financial Accounts by Statistics Sweden. The reason for this classification is that condominiums, formally, are apartments owned by a non-financial corporation (the condominium association) while the households own shares in this condominium. However, in this study condominiums are treated as non-financial assets, as part of the housing stock. If one considers that all households need somewhere to live, and that a condominium apartment is just one of several housing alternatives, it should be relatively uncontroversial to treat condominiums as housing assets instead of as financial assets. A practical implication of this choice is that the tax-assessed property needs no further adjustment as it also includes condominium apartment buildings. Of course, the value of condominiums in the Financial Accounts (FA5190, "tenants ownership rights") is removed from the stock of financial assets.

The source for the non-agricultural property is the same as for agricultural real estate, the "General-Sammandrag öfver 18XX års bevillning" collected for the period 1813–1861. The series used are *Hus, Tomter, Stadsjord m.m.*, *Frälseräntor*, *Bergverk*, *Manufacturer, fabriker och inrättningar* and *Qvarnar* reported in *Sammandrag öfver Taxeringslängderne N:o 1*. For 1810, this publication does not exist, and instead the same principle as for agricultural assets is used, namely to implement a 43 percent value increase up to 1813. From 1862 onwards, the values for *Bevillningsskyldig annan fastighet* are used, reported in Statistical Yearbooks of Statistics Sweden.[38]

Separating produced and non-produced non-agricultural assets: The first adjustment is to set the shares for produced assets (dwellings) and non-produced assets (plots) in the non-agricultural property tax assessment totals. For the nineteenth century, there are no reports in the examined historical sources on this issue and the earliest estimate is the one for 1908 made by Flodström (1912, pp. 113–119). On the other hand, this estimate is based on a very ambitious study of a large sample of urban properties with and without buildings, matched with fire insurance values of each property. Flodström finds that the value of garden land with and without buildings amount to 433 million SEK in Stockholm, 357 million SEK in other towns and 940 million SEK in total for the whole country. In relation to the total assessed property value of 3,831 million SEK, this means that urban gardens represent 25 percent while urban buildings and constructions represent 75 percent of the total non-agricultural estate. I assume that this share for produced assets, 75 percent, is true for the entire nineteenth century as well. Possibly this is an overstatement of the true share because of the increased housing qualities, in particular thanks to stone houses, emerging in the latter part of the nineteenth century. From 1935 onwards, Statistics Sweden reports the non-agricultural property values divided into buildings (*byggnadsvärde*) and gardens (*markvärde* or *tomtvärde*), and these values form the

---

38 See, for example, Statistics Sweden, Statistical Yearbook of 1917, Table 222, p. 244: *Bevillnings-taxeringarna åren 1862–1916*, where the series *Uppskattat värde, kr., å bevillningsskyldig fastig-het*, *Annan fastighet* was used.

basis for dividing the total property into produced and non-produced assets.[39] The share of buildings in total non-agricultural property hovers around 80 percent between the 1930s and 1970s, going down to 75 percent in the 1980s and 1990s but then decreases sharply down to 60 percent in the 2000s.

Adding farm dwellings: Throughout the period, the assessed agricultural property has also included the homes of farming families. In the statistics, there is only information about this since 1975 and in this later era housing represented about 70 percent of the total building value in the assessed farm property. However, in order to avoid attributing too large values to housing especially in the early period, the share of personal homes in farm building property is set at 50 percent over the entire period.

From tax-assessed to market values: The adjustment of tax values to generate market values is done as in the case of agrarian property, using sales price ratios (estimated and observed). Until recently there were no data on Swedish real estate prices before 1952, when Statistics Sweden started an annual house price index. Sandelin (1977) has examined and adjusted this index to be fully homogenous and nationally representative over time. For the period before 1952, an ongoing research project at the Riksbank has generated two carefully executed studies of historical real estate prices in Sweden stretching back to 1875. In Söderberg, Blöndal and Edvinsson (2014), a newly constructed real estate price index for Stockholm during 1875–2011 is presented, and Bohlin (2014) contains a similar housing price index for Gothenburg 1875–1952. Both these latter studies follow a common methodology, in which thousands of sold properties are followed over time, linking individual properties and making adjustment for assumed investments and depreciation. All of these studies also present annual sales price ratios for one- to two-family homes (*småhus*) and apartment buildings (*flerfamiljshus*) for the entire period. I use these new series as a basis for converting tax-assessed values of non-agricultural dwellings into market values up to 1952. From 1957 onwards, I use the national sales price ratios for one- to two-family homes reported annually in the Statistical Yearbook of Statistics Sweden.[40] For the period before 1875, I assume that the sales price ratio was equal to an unweighted average of sales price ratio (1.12) in Stockholm and Gothenburg during the decade 1875–1884. The sales price ratios for 1903 and 1908 also coincide with Flodström's national estimates.[41]

---

39   The sources are: Statistic Sweden (1960, tab 238, p. 226) for the period 1922–1949, Statistical Yearbook of Agriculture (*Jordbruksstatistisk* årsbok) for the period 1950–1974 and Statistical web database (*Statistiskdatabasen, Fastighetstaxering* för *lantbruk*) for the period 1975–2010.

40   The period 1952–1957 is linearly interpolated. I use data for permanent, one- or two-family houses and for latter years also including townhouses (*rad- och kedjehus*). The years 2001–2002 have sales price ratios that result in abnormal market-valued stocks when combined with the reported tax-valued stocks, and these two years are instead linearly interpolated.

41   Flodström (1912), Bil. A. *Taxeringsvärden och köpeskillingar å fastigheter, som gått i köp under tiden mellan 1903 och 1908 års taxeringar*, pp. 299–303.

Removing private non-household shares: Another adjustment is the removal of non-household non-agricultural produced assets, that is, constructions owned mainly by the corporate sector. Again, there is not much information about this in the historical statistics. The share of households was very high in the nineteenth century, which is natural due to the small size of the incorporated business sector. I assume it to be at the same level as agricultural property (see above), 90 percent. A first detailed account is possible to make for 1908, using Flodström's data on non-agricultural property holdings in the balance sheets of the corporate sector. These items amount to 1,072 million SEK, which is 72 percent of the total tax-assessed value of non-agricultural property in 1908.[42] From 1975 onwards, Statistics Sweden has reported annual tax-assessed private property values by categories, and then it is possible to estimate the precise value of dwellings, summer cottages and all land adhering to private individuals.[43] However, not all of the dwellings are owned by households, which must be adjusted for. Unfortunately, there is not much historical information before 1980 about ownership categories in terms of tax-assessed values (the statistical yearbooks of Statistics Sweden report number of dwellings, including both apartments and houses, per owner category). In the Yearbook of Housing and Building Statistics (*Bostads- and byggnadsstatistisk* årsbok), there is information about total tax-assessed values of housing by owner categories, and this suggests that households (sum of "one- to two-family homes", "condominium associations" and "individuals") held 65 percent of total dwelling values.[44]

As a rough consistency check, I compare in Figure A9.2 the SNWD series "Building value in non-agricultural real estate", which consists of market-valued tax-assessed stocks, with the "Net (capacity) stock of residential buildings" generated by Edvinsson (2005) from investments in residential buildings and accumulated into stock values by using the perpetual inventory method. The figure shows the ratio of the SNWD stock to the Edvinsson (2005) stock and over the long run there seems to be a relatively close connection between the two. The ratio hovers around unity, with an arithmetic average of 0.92. In some periods, the deviation is larger; during the high-inflationary First World War-period, tax-assessed stocks dipped relative to investment-generated stocks that picked up the price increases faster, producing a ratio of 0.5.

---

42 In Flodström (1912), Bil. P, "Svenska aktiebolag och solidariska bankbolag jämte grupper enkla bolag (handelsbolag) eller föreningar": Table 1A, p. 727 shows 1,063 million SEK for joint-stock companies and unlimited banking companies and Table 2A, p. 742 shows 8 million SEK for smaller incorporated firms.

43 In all these years, I use the sum of values for constructions (*byggnad*) and land (*mark*). Before 1998, 200+ (one- to two-family homes) and 300+ (apartment buildings, excluding non-housing localities) categories are used, and from 1998 onward, categories 200+, 300+ , 500+ owner-apartments (*ägarlägenheter*) and 600+ (unbuilt land) are used.

44 Note that this is lower than the ratio of all dwellings to all tax-assessed property (70-80 percent) that was used in the v1 of SNWD. However, the new, lower values of household-owned property are closer to the official national wealth data of Statistics Sweden from 1980.

Figure A9.2: *Residential buildings in SWND vs. Edvinsson (2005).*

Note: The figure shows the ratio of the building value in non-agricultural real estate in the SNWD to the current value of the stock of residential building (K. Net (capacity) stock of various types of produced assets (in current, purchasers' prices, million SEK), aggregate economy, and the total net stock of produced assets of the aggregate economy, of the private sector and of manufacturing and handicrafts (1st of January each year)). See text for sources.

A1.2 Inventories

The stock of inventories is mainly related to farmland and timber inventories. Included in the agrarian inventories are crop and feed grains, and slaughter animals. Timber inventories include sawed timber and pulp wood. These values are added to the other property values in our series since they are not included in the tax assessments.

   The value of inventories has been estimated for a few years. Fahlbeck (1890, pp. 53f) emphasizes that this value is difficult to assess because of the considerable variations over a year's span. In the end, he estimates the value of inventories to be equivalent to half the annual revenues of the agricultural sector, or 400 million SEK in 1885 which is 15 percent of total agricultural property value. Flodström (1912, pp. 150–152) makes a similar estimation, arriving at a value of 475 million SEK, equivalent to 13 percent of property values. Englund (1956) estimated the sum of machinery and inventories to be 4,000 million SEK in 1952, or 24 percent of the total

agricultural property value. Finally, in the period 1980–1994, Statistics Sweden (1995) estimated inventories worth about seven percent of agricultural property.

Based on these examinations, we assume that agricultural inventories represented values equivalent to 15 percent of total market-valued agricultural property in the period up to 1950 and seven percent thereafter.

A2. Non-produced non-financial assets

The second large group of non-financial assets is non-produced assets, which consists of three categories: agricultural land, timber tracts, other land and subsoil assets. In this study, where focus lies on the household balance sheet, only the first two are included. Although subsoil assets are indeed part of non-financial corporate sectors, the private wealth total is captured via the net wealth of corporations as held by household in the form of shares in business equity.[45]

A2.1 Agricultural land

The estimation of agricultural land values is based on almost the exact same sources and methodologies used to estimate the value of agricultural produced assets. In fact, the presentation above shows that many of the estimates for agricultural buildings are derived from inquiries into land values. The following description of agricultural land value estimates is therefore deliberately brief. For further details about the adjustments and calculations, see section A1 above.

Tax assessments of agricultural property (*jordbruksfastighet*) are the basis for these estimations. As these assessments lump together agricultural property/farms and timber tracts, a first adjustment is to make a separation of these two asset categories. Furthermore, the agricultural property consists of both land and buildings, and a second adjustment therefore needs to separate between these two classes.[46] This division is based on studies by among others Sidenbladh (1878), Fahlbeck (1890), Englund (1956) and the official tax statistics published by Statistics Sweden. Market values are achieved using the same sales price ratios as used for agricultural buildings (see the table above).

---

45 In Statistics Sweden's national wealth project, there were some subsoil assets ascribed to households, but they amounted to less than half a percent of all household-owned non-produced assets (Tengblad, 1993, Table B). Historically, however, subsoil assets such as metal and iron ore reserves have been important in private-sector balance sheets, and a complete analysis of national wealth should naturally include them *in extentio*.

46 Many of the early studies divided agricultural land into field (åker) and meadow (äng), and discussed the transformation of land from meadow into arable field during the 19th century.

A2.2 Forestry and timber tracts

Forests and timber tracts are an important part of non-produced non-financial assets, representing historically about one third of the total value of non-produced agricultural property but trending downwards from around 40 percent in the nineteenth century and down to around 20 percent in recent years. Timber tracts are defined so as to contain both the value of forest land and the value of standing timber in these forests.[47]

The household share of timber tract values is estimated from the historical tax statistics, typically using the same sources as used for other agricultural property discussed in previous sections. Between the 1930s and the early 1990s, households held roughly two thirds of the privately owned forest area and then this share was sharply reduced down to just over half. Looking at the share of values, households had a share of around three fourths in the 1930s through the 1970s and then a share of around 60 percent thereafter.[48] I assume that household shares of forest values declined for various institutional reasons, largely the growing share of corporations as forest owners, and comprised a share of 80 percent before 1920, 65 percent in 1920–1980 and 60 percent thereafter.

The valuation of timber tracts differs somewhat from agricultural land. There is to begin with much less historical information about the value of timber tracts and this affects the construction of sales price ratios for timber tracts. The first source found that addresses this issue is Sidenbladh (1878), but even if his calculations are quite detailed, they never really arrive at an explicit ratio between market and tax values. Flodström (1912) emphasized that the valuation of timber tracts is insufficient in Swedish tax assessments, presenting two special studies of forest and timber valuation.[49] Relating Flodström's preferred estimate of the total value of private timber tracts, 1,248 million SEK (Flodström, 1912, Table D, pp. 160f), with their estimated tax-assessed value, 602 million, suggests a sales price ratio of 2.07. This is

---

47 Early Swedish tax assessments talk about "outskirts" (*utmark*) in which forests (*skog*) and pasture (*hagmark*) are included (Sidenbladh, 1878). The 20th century assessments differ between forest land (*skogsmarksvärde*) and timber/growing wood (*skogsvärde*). See SOU 1936:52, pp. 32ff for further details on the historical treatment. In SNA 2008, standing timber is included in "inventories in work-in-progress" (SNA 13.41).

48 Households including estates. See Statistics Sweden (1959, tab E.4, p. 35) for various years between 1937 and 1951 and Statistical Yearbook of Statistics Sweden for years until 1975. Here, households (*enskilda*) hold 50 percent of all forests, and the State around 20 percent. Since state forests were not part of taxable forest land, the household share of taxable forestry is around two thirds (0.5/0.8). For 1992, see Swedish Forest Agency, Swedish Statistical Yearbooks of Forestry of 1995, tab. 2.2, p. 43. For 1998–2020, see Statistics Sweden, Statistikdatabasen (table *Allmän fastighetstaxering för lantbruk efter ägarkategori, tabellinnehåll och år*).

49 Flodström (1912, pp. 158–166), and the two appendices H1. *Försök till värdering av Sveriges skogar under förutsättning, att nuvarande skogsavverkning fortfar till skogstillgången, där avverkningen är mindre än tillväxten, uppnår normal storlek, eller, där avverkningen är större än tillväxten, tar slut* and H2 *Värdet av Sveriges skogar*.

74 percent higher than the sales price ratio for all agricultural property. This sales price ratio is assumed to be true for the entire nineteenth century and up to 1908. There are data for 1938–1944 in Statistics Sweden (1945), showing annual sales price ratios for agricultural property with more than 90 percent of its value being growing forest or forest land. These sales price ratios are on average 1.82, which is 54 percent higher than the ratios for all agricultural property. I apply these "markups" of sales price ratios of timber tracts in the period between 1908 and 1938 to the agricultural sales price ratios reported above for total agricultural property. Englund (1956, pp. 504f) presents a fairly extensive discussion of the total value of Swedish timber tracts in 1952, arriving at a value of 10,700 million SEK, which compared with the estimated tax value of 9,339 million SEK suggests a sales price ratio of 2.47.

For the period after 1952, the sales price ratio for timber tracts is based on information about sales price ratios for the period 1980–1994 and 1995–2010. In the period, one can use data from Statistics Sweden's national wealth project which calculated the total market value of timber tracts using information about actual transactions, estimated sales price ratios and various adjustments for family transfers etc. (Tengblad, 1993; Statistics Sweden, 1995). The ratio of those values to the observed tax-assessed totals yields a sales price ratio ranging between 0.88 and 3.07, with an average of 1.77.[50] For the second period, in Statistics Sweden's "Statistical Yearbook of Forestry" there are sales price ratios for agricultural property with a different share of standing forest and forest land value of total assessed value. The property consisting of a 100 percent share of forest land value has an average sales price ratio of 2.14, which is on average ten percent higher than the sales price ratio for all agricultural property.

Altogether, I use the following sales price ratio for timber tracts. For the period 1810–1974, I assume a ratio of 2.00. As shown above, there is almost no reliable information from the early eras, but available estimates are strikingly consistent around the assumed ratio. For the period 1975–1994, I use the sales price ratio for agricultural property presented above multiplied by 1.11 to reflect the fact that pure forest property is valued higher in relation to its tax value. Table A9.3 presents the sales price ratios for timber tracts.

---

50 Having sales price ratios below one (in the early 1990s) is quite unrealistic, both as the tax assessments were deliberately aimed at being lower than the market values to avoid over-taxation and because timber tracts tax values are normally lower than those of other agricultural land. We therefore disregard them in the analysis.

Table A9.3: *Timber tracts sales price ratios (köpeskillingskoefficienter), 1810–2010.*

Period	Sales price ratio (average)	Source/Comment
1810–1908	2.07	Flodström (1912) estimates the value for 1908, the ratio of private timber tracts (1,248 million SEK) to their tax-assessed value (602 million SEK = 20 percent of total agricultural property).
1909–1937	1.80	Based on data in 1908, 1921–1928 (see agricultural property above) and 1938. Annual values are interpolated linearly and multiplied by the average difference between sales price ratios for timber tracts and all agricultural property in the start and end years.
1938–1944	1.77	Statistics Sweden (1945) presents annual country-level data on sales and tax values of agricultural estates. For timber tracts, the property with at least 90 percent of its share being standing forest and forest land is used.
1945–1951	2.27	Linear interpolation.
1952	2.47	Englund's (1912) estimate. The ratio is between private timber tracts (10,700 million SEK) to their tax-assessed value (9,339 million SEK = 32 percent of total agricultural property).
1953–1994	2.06	Agricultural sales price ratio reported above multiplied by 1.11 to reflect the higher sales price ratio for timber tracts (average differential of the ratios during 1980–2010).
1995–2010	2.15	Official sales price ratio on agricultural real estate with 100 percent timber tracts, from *Statistical Yearbook of Forestry*.

Note: See text for sources.

A2.3 Other land

No adjustment of the tax values was needed (unlike for the agricultural real estate) and the purchasing price coefficients, used to adjust tax values to market values, were the following. As already described in the previous section, there were contemporary attempts to study the deviations between the tax values and "true" market values in relation to the tax reassessments of 1858 and 1862 (see, for example, Statistics Sweden, 1865, p. 69). In the case of non-agricultural real estate, these deviations were found to be quite small and therefore the purchasing price coefficient for 1862 is set to 1. For the years 1903 and 1908, Flodström (1912) presents careful large-sample estimates of tax and market values finding coefficients of 1.11 in 1903 and 1.00 in 1908. From this and previously cited references stating a close resemblance between tax and market values for city dwellings in 1862, similar evidence of market values is available for the years 1935 and 1945 in Spånt (1979), with ratios 1.11 and 1.43, respectively.[51] For the years between these reference dates, coefficients were linearly interpolated.

---

51 Flodström, 1912, Bil. A. *Taxeringsvärden och köpeskillingar å fastigheter, som gått i köp under tiden mellan 1903 och 1908 års taxeringar*, pp. 299–303; Spånt (1979), Appendix B.

In the 1950s, Statistics Sweden started publishing official purchasing price coefficients. They are reported annually in Statistical Yearbook since 1957. As in the case of agricultural property, the coefficients were based on sales prices compiled for small regional areas and adjusted for house-specific information about size, building year and assumed quality depreciation.

A3. Memorandum category: Consumer durables

In this study, the total stock of consumer durables alongside other non-financial assets is estimated for the first time for the full nineteenth and twentieth centuries (see below for previous estimates made for Sweden).

Consumer durables, that is, goods such as cars, furniture, electronic equipment, are typically not included in household balance sheets. The main reason for this is that, in the national accounting system, they are assumed to evaporate within one year and are therefore classified as running expenses rather than capital investments. But many consumer goods last considerably longer than only one year such as cars, boats, electronic equipment and furniture.[52] Moreover, these durables are often purchased with borrowed money, and since the debts are more visible, one needs to also account for the assets in order to avoid underestimating household net worth. Consumer goods also reflect long-run changes in household welfare, as households tend to consume more as they get richer.

Semi-durable goods, primarily clothing, will not be included in the calculations. This is potentially problematic from a historical point of view when clothing was most likely relatively more important in the portfolios of poorer households. But notwithstanding this conceptual issue, the aggregate values of clothing should be minor at any point in the currently studied period.

In general, measuring the stock of consumer durables is difficult. The standard procedure used by statistical agencies is the perpetual inventory method, which defines the stock of consumer durables CD_t as the accumulated annual consumption flows I_t (in real terms) accounting for annual depreciation δ:

$$CD_t = I_t + (1 - \delta)CD_{t-1} \; .$$

The basis for computing equation (1) is to derive acceptable estimates for annual household consumption of consumer durables. There are no official series at Statistics Sweden over the stock of consumer durables, but there are some previous estimates made, mainly concerning the annual flows of consumer purchases across categories of goods, as well as some calculations of the stock. The only real series of a

---

52 Naturally, even if the goods are utilized in homes, their market values typically decrease rapidly and it is actually this market value reduction that is reflected in the depreciation term δ (which statistical agencies assume to be 100 percent.

consumer durable stock is computed by Berg (1983, 2000) for the period since 1950. In Bollfras (1878), Fahlbeck (1890) and Flodström (1912), residual values from fire insurance values are used to address the amount of other household assets. Other than that, most attention has been put on constructing annual *flows* (for example, Lindahl, Dahlgren and Kock, 1937; Bentzel et al., 1957; Dahlman and Klevmarken, 1971) or to study these items within small subsets of the population (Kuuse, 1969; Lilja, 2004).

From 1950 onwards, the official series from the Swedish national accounts is used (Berg, 1983). During 1931 and 1950, I use the series of inventories, motor vehicles and bicycles from Bentzel et al. (1957, tables A:IV and A:VI, pp. 407–409) and between 1861 and 1930, data from Lindahl, Dahlgren and Kock (1937) are used. For the earliest period, 1810–1860, there are no detailed series for private durable consumption. There is, however, evidence available on private total final consumption reported in Edvinsson (2005, Table F), which dates back to year 1800. When relating the observed durable consumption during the 1860s to Edvinsson's total final consumption that same decade, one finds that the share of durable consumption over total private consumption was quite stable around three percent of private final consumption during the 1860s (after which it started to increase). For this reason, I assume that this was also the share that was true all the way back to 1810.[53]

The most important durable consumer good in the second half of the twentieth century is undisputedly cars. From 1930 onwards, I am able to compute stocks separately for motor vehicles (cars and motorcycles) and other durable goods as there are data on consumption flows for these two broad items from this year. In order to arrive at sensible relative sizes of stocks and also a balanced depreciation rate (see below), one must determine some yardstick stock values for motor vehicles at different points in time. I have done this for 1930, 1951 and 2010 using information on the number of cars and motorcycles in Sweden from the official registries (deducting 20 percent to account for vehicles owned by firms and the public sector) and assessed

---

53 All stock calculations are made for volumes, that is, using deflated data. The only CPI series that reaches back to 1810 is the new one by Edvinsson and Söderberg (2010), which I therefore use.

average market values for cars[54] and motorcycle[55] prices. The car stock in 1951 comes from the very careful study of travel habits by Endrédi (1969, table 5, p. 113). Figure A9.3 shows the development of the aggregate value of the stocks of consumer durables and cars relative to national income during the entire study period.

Figure A9.3: *Cars and non-car consumer durables relative to national income.*
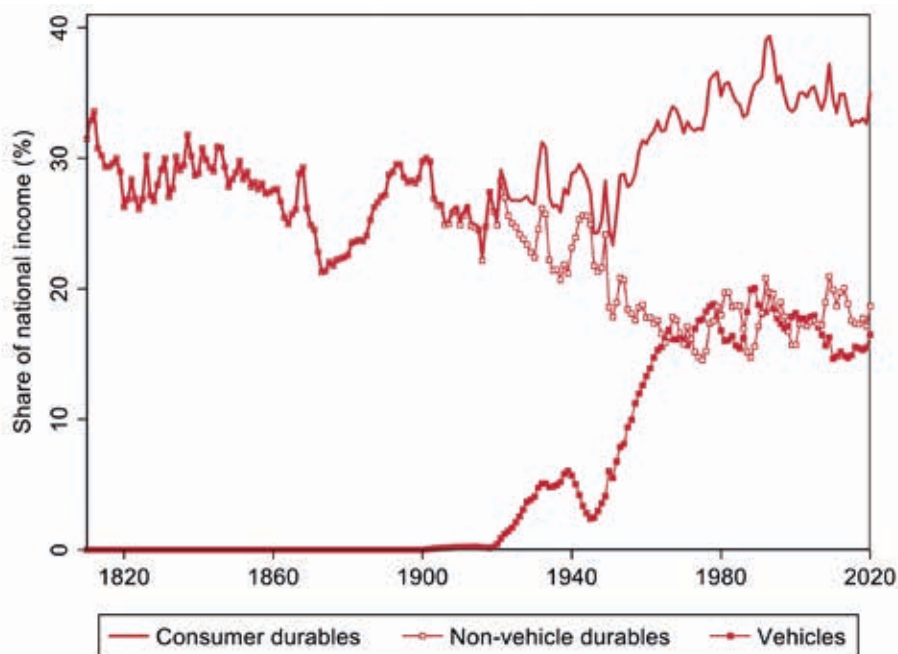
Note: See text for sources.

---

54   The average value of a car was 3,000 SEK in 1930 and 75,000 SEK in 2010. According to car historical expert Jan Ströman (former lecturer at the Royal Institute of Technology) there was a great variation in car prices after the First World War. The most commonly owned car in the 1920s, the T-Ford (representing about half of all registered cars in Sweden), was sold at prices around 2,000 SEK in current prices. Around 1930, European car manufacturers such as Opel and Renault had started to gain market shares with their more robust, and inexpensive, smaller cars costing about 3,000 SEK whereas the more expensive American-made Chevrolet, costing about 5,000 SEK, had also gained in popularity. For 2010, average market prices come from one of the largest Swedish internet markets for new and used cars, www.webcar2000.com (2 June 2011).

55   The average value of a motorcycle was 1,500 SEK in 1930, 1,085 SEK in 1951 and 52,000 SEK in 2010. Historical values are collected from a survey of historical motorcycle models and their prices performed by the Swedish Technological Museum (REF). It states that standard models of both the Swedish Husqvarna manufacturer and Harley & Davidson were worth 1,500 SEK in 1928. In 1950, the popular Swedish motorcycles by Husqvarna and Nymans cost about 1,100 SEK. In 2010, finally, the average motorcycle market value was 52,000 SEK according to www.webcar2000.com (2 June 2011).

Figure A9.4: *Wealth-income ratios with and without the stock of consumer durables*
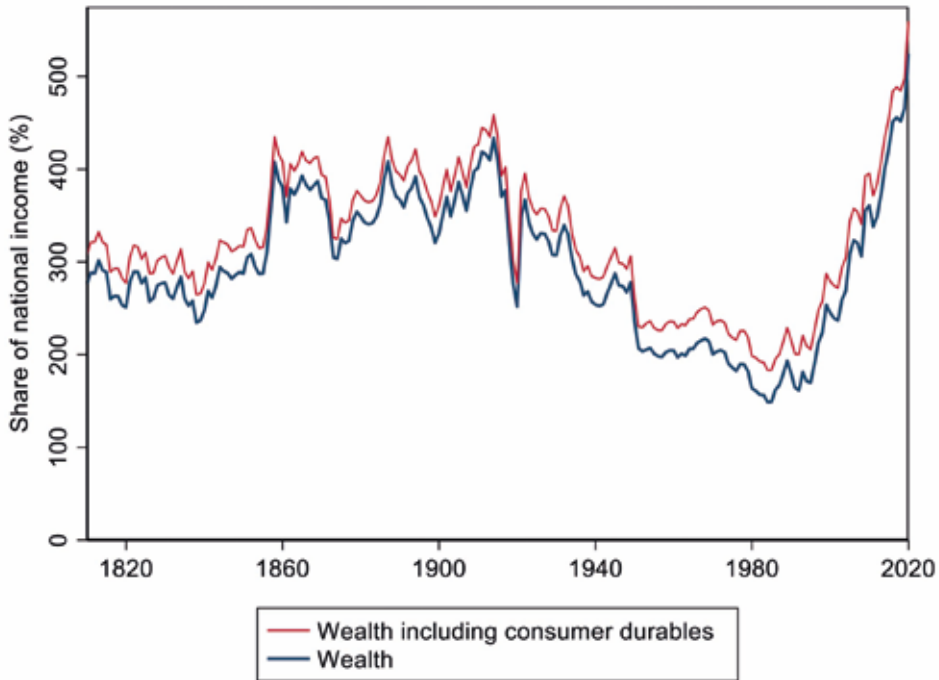
An important parameter in the perpetual inventory method is the depreciation rate δ. Determining the depreciation is difficult as it is not directly observed, and the choice always introduces some arbitrariness. Moreover, the depreciation rate should probably vary over time, but in what way and due to what factors is not clear and therefore a constant rate will be used. Importantly, I use the yardstick estimates of the separately estimated motor vehicle stock to tune in a sensible depreciation rate, and have arrived at 0.15. This means that 15 percent of the value of purchased goods "rusts away" each year and that half of the market value of the goods is gone after four years. Finally, all calculations are made in volumes, using deflated values, and the only CPI series that reaches back to 1810 is the recent series by Edvinsson and Söderberg (2010), which is therefore used.

How do the new series match previous estimates of the stock of consumer durables made in the late nineteenth and early twentieth centuries? Bollfras (1878) found that they amounted to roughly 450 million SEK in 1880, Fahlbeck (1890, p. 55) suggested 650 million SEK in 1885 and Flodström (1912, p. 215) 940 million SEK in 1908. These amounts are larger than the ones I present, and the difference is notable (from a third to four times as large). The exact reasons for these deviations are unclear, but the fact that the previous estimates also include clothing can be one important explanation.

The role of consumer durables for the total private wealth-income ratio in Swe-den is shown in Figure A9.4. It is evident that the inclusion or exclusion of the stock of consumer durables is not crucial for the overall level or trend of the wealth-income ratio.

A4. Memorandum category: Fire insurance values

There is a long tradition in national accounts of using fire insurance values to esti-mate the value of national non-financial assets. In Sweden, fire insurance values have not been important in the construction of national wealth estimates but have been discussed in some of the studies of the extent to which these values indicate similar levels and trends to other estimates of non-financial assets.

There are some conceptual problems with using fire insurance values in the pres-ent study of Swedish wealth. The most important one is that officially reported val-ues of fire-insured assets will contain both gross assets of households, primarily hous-ing and consumer durables, and gross assets of corporations. This makes it difficult for the calculation of private and national wealth using this study's methodology which departs from the full account of households. In addition, fire insurance values have been disputed as an accurate reflection of the true value of the stock of insured assets due to problems of valuation, an interest of insurance companies to over-in-sure their clients, underinsurance by cash-constrained small companies or poor fam-ilies and by large corporations that prefer to bear the risks themselves.

There are some series showing the total value of fire-insured assets in Sweden as insured by Swedish insurance companies and foreign insurance companies licensed in Sweden. These values were reported by Statistics Sweden in various publications between the 1850s and the 1960s.[56] Figure A9.5 shows the ratio between fire-in-sured valued non-financial assets to national income and the standard ratio of non-fi-nancial assets in tax-assessed values to national income. The main message is that the fire-insurance values trended more and also seem to vary more than asset values based on tax assessments. Englund (1956) discusses this trend and, in particular, why fire insurance values of the 1950s exceed those of tax-assessed, and market-price based, values of the insured property. He offers no clear answer but suggests that there may be a combination of depressed market values of rental buildings due to postwar rent controls and a discrepancy between the going concern value of a build-ing and the total cost of rebuilding it in case of a fire.

Given the large uncertainty about which assets are actually included in the insur-

---

56 The first observation is for 1858 in Finanskommittén (1858, p. 30–32). Then the five-year reports of the Swedish counties (BiSOS, femårsberättelse, sammandrag) report these values every five years between 1860 and 1885. Flodström (1912, pp. 124–125) report a series for 1891–1908. Finally, Statistics Sweden's Statistical Yearbook reports annual stocks of fire-insured values during the period 1910–1968.

ance data, the conclusion is that these values are of little help when computing national or private wealth in Sweden.

Figure A9.5: *Comparing tax-assessed and fire insurance-based values of non-financial assets including consumer durables divided by national income.*
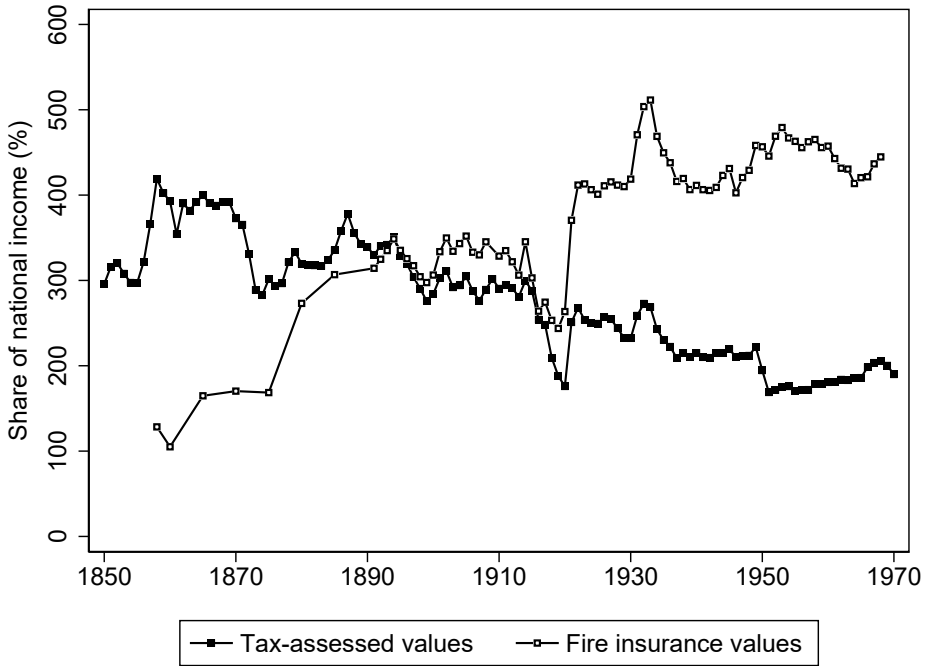
Appendix B Household sector: Financial assets

Financial assets represent the second major asset component in the portfolio of households and nonprofit institutions serving households. Following the system of national accounts structure, the items within this asset class are: Deposits and currency, Shares and mutual funds, Bonds, Other claims and Individual pension and insurance savings.

The main source material for the financial asset statistics is historical financial sector publications, as reported either by banks themselves or by the Riksbank or Statistics Sweden. Historically, there have been many different kinds of banks that have all catered for different parts of the Swedish economy. When it comes to household assets, the most important part concerns household deposits in savings and commercial banks.

Because of the relatively ambitious regulations that have always surrounded banks, there have been annual statistical records on balance sheet statements for nearly all banking types since their inception. As some economic historians have noted, one should be wary about the slight variations in quality of these statistics over certain time periods due to deficient reporting requirements as well as a general lack of supervision. Still, these variations should be well within the acceptable error margins for our purposes (Ögren, 2011).

Distinguishing between households and firms is difficult in the published banking statistics. While these are today regarded as separate sectors in the national accounts, in the past banks typically bunched them together into one category, called "the public". The following describes how the relative shares of these two groups are estimated over time and across asset classes.

B1. Deposits and currency

One of the most important components of household financial assets in past times has been currency and bank deposits. The main source for these data is the official banking statistics, published annually over the entire period.

Data on banknotes and coins in circulation are taken from the official Riksbank monetary statistics. The data come from the balance sheets of the Riksbank and, between 1834 and 1903, also from private note-issuing commercial banks.[57] It is widely recognized that practically all of this is in the hands of households.[58]

Household deposits at banks are estimated as follows. During the first half of the nineteenth century, there were very few banks and other financial institutions active in Sweden. In the 1810s, there were only a handful of so-called discount banks (*Diskonterna*) acting as commercial banks in the major Swedish regions, but they all

---

57 Up until 1870, the source is Sveriges Riksbank (1931). From 1870 onwards, the series of Edvinsson and Ögren (2014) is used.

58 This has been argued by, for example, Thunholm (1969).

ceased to exist in 1818. In Brisman (1924, p. 244), there is data on total deposits at the three largest discounts, Göta Kanal, Göteborg and Malmö. Bertil Andersson studied the share of personal deposits among all deposits at the Malmö Diskont, finding shares ranging from 0.43 to 0.6 (Andersson, 1985, table 16). The total deposits counted are thus the sum of deposits times the household share of deposits.[59]

The Parliament-owned Riksbank acted as a commercial bank in this period and its deposits (listed in Riksbanken (1931, Tab. A) as *Växelbankens kreditorer* up to 1828 and *Löpande räkning i depositionsavdelningen* up to 1901 by which time household deposits had disappeared) are therefore also included in our series. Privately owned commercial banks did not appear until 1834. Although commercial banks were traditionally regarded as banks mainly focused on servicing the corporate sector, they had household customers from the beginning. Today households hold most of their deposits with commercial banks. In order to separate out the share of deposits held by households, I sum deposits in savings accounts (*sparkasseräkning*), most long-term deposit accounts (*depositions- och kapitalräkning*) and a small share of checking accounts. Household shares of the account types were retrieved from several studies of Swedish banks. That savings accounts were largely held by households is reported by Kock (1932, p. 74) and Thunholm (1969, pp. 67f). Kock (1958, p. 23) reports that households held about four fifths of the long-term deposits, and I therefore take 80 percent of the deposits reported in Statistics Sweden's Statistical Yearbook on the *Depositions- och kapitalräkning* (before 1956) and the sum of *Depositions- och kapitalräkning* and *Kapitalsamlingsräkning* (from 1956s onwards). Finally, as for checking accounts, Thunholm (1969, pp. 63ff) states that these were historically the running expense-accounts for private business, but as wages and salaries started being paid through banks in the late 1950s, the number of households with such an account increased rapidly. I assume that households held ten percent of the value of checking account deposits up until the mid-1950s after which their share had increased up to 100 percent by 1970. By this time, firms had started to use other account types (primarily the giro capital account).

Savings banks emerged in Sweden in the 1810s, and their main purpose was to offer savings accounts to individuals or households. I include all of the savings bank deposits in the household portfolios, and I also include all deposits held at the state-owned Post Savings Office (Postbanken). See also the discussion in Thunholm (1969, pp. 109–111). Data are mostly collected from Statistics Sweden (1960, pp. 99, 103) and they are annual from 1860 onwards. Before this date, total deposits are reported only for single years and not farther back than 1834 (despite the fact that

---

59   There are some other studies of the Swedish discount banks supporting the numbers used. Annual balance sheets of the third biggest Discount bank, *Malmö Diskont*, are reported for some years in Kärrlander (2008). See also Kärrlander (2011). Nygren (1985, p. 29–32) reports that this bank was as large as the one in Gothenburg, but that the largest was Göta Kanal Diskont, with about seven times larger deposits.

the first Swedish savings bank appeared in 1813). I linearly interpolate the years in between the points of observations. For the period before 1834, I estimate the deposits as follows. I have the number of banks each year from Statistics Sweden (1960). Then I assume that the average amount of deposits per bank was the same back to 1813 (the founding year of the first savings bank) as it was in 1834, a year for which such data exist. It is reasonable that a savings bank attracted roughly the same amount of savings as these were made on quite a standard deposit scheme. Having said this, the total amounts deposited at savings banks in 1834 was still quite small in relative terms—only about five percent of all notes and coins in circulation— which is why this has little impact on the total household portfolio.

From 1970 onwards, the Financial Accounts is used for total household deposits, supplemented by the Riksbank series over notes and coins in circulation, and from 1980 onward all data come from the Financial Accounts.

B2. Shares and mutual funds

An important and partially difficult component in households' financial portfolios is shares in business equity and mutual funds, and also in unincorporated businesses. A basic distinction concerns whether or not the shares are listed (and traded) on organized secondary securities markets (stock exchanges). This difference has a bearing on both valuation approaches and, in particular, the general availability of information on the size of these stocks.

In the case of market-listed shares, the quality of information about the number of listed shares and their market value has recently become improved thanks to research efforts (for example, Gernandt, Palm and Waldenström, 2012; Waldenström, 2014). Market capitalization, that is, the current market value of all listed shares, of the Stockholm Stock Exchange is known for the twentieth century and there are also estimates available for the nineteenth century. For non-listed shares, however, the opposite is unfortunately true. Little is known about the total value of these shares; this is true today and even more so for historical periods.

To settle on a proper valuation is crucial. For non-listed shares, this is often difficult since they are not associated with any easily observable market prices. To the extent that these shares are reported or estimated, they typically appear as their book or tax-assessed value. Shares in closely held firms are mostly held by families, and these have for most of the studied time period not even been recorded in the official economic statistical sources of Sweden. Unincorporated firms are not listed in any systematic manner and their value instead has to be estimated from information about turnover and assumptions about the relationship between the firms' capital stock and their recorded output ratios.

Adding to this difficulty is the fact that there have been almost no previous attempts to estimate the size or aggregate value of non-listed, closely held business equity or unincorporated businesses. This is unfortunate since the closely held firms

are numerous. In the present analysis, I make a rough estimation of the total value of shares, listed and non-listed, and unincorporated firms owned by Swedish households for the entire period. Figure B9.1 reports the value relative to national income of the listed and non-listed shares (including unincorporated businesses).

Figure B9.1: *The value of listed and unlisted corporate shares to national income.*
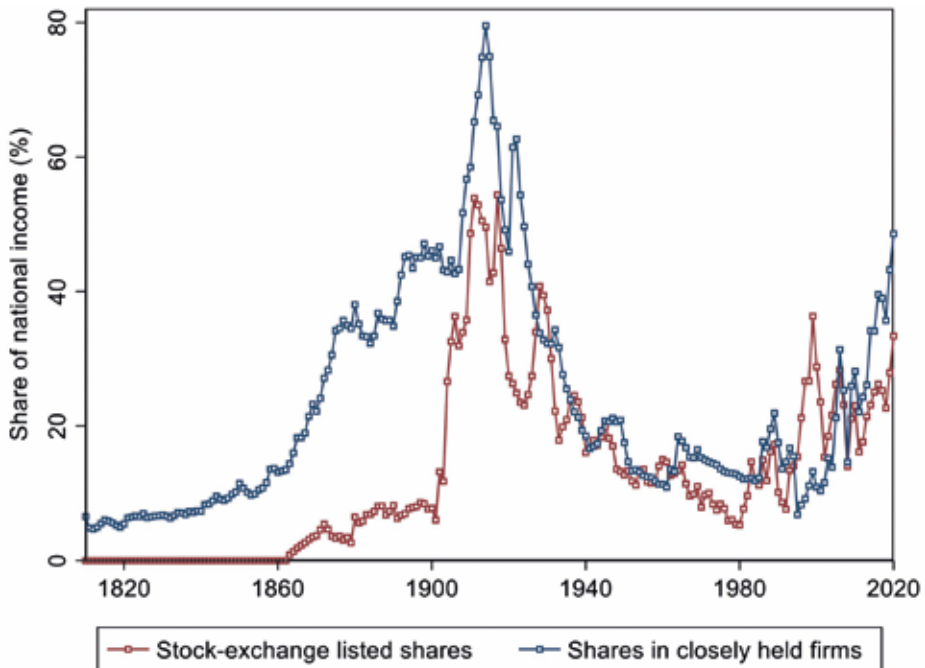
B2.1 Listed shares

The history of joint-stock companies in Sweden is not long. Even though Sweden may well have had the first joint-stock company in the world,[60] there were only a dozen or so companies in Sweden when the first join-stock law was enacted in 1848. Indebetou (1925) lists the number of newly started corporations in each year during 1848–1925, and in the first decade after the new law, less than a hundred new companies had been launched. The expansion of incorporation came instead during the first decades of the twentieth century, when several hundred new companies were founded annually. The stock of companies is not readily available in these early years, but assuming reasonable firm destruction rates, the total number of joint-stock com-

---

60   Stora Kopperberg's Mining Company, issued its first shares in 1347 (Broberg 2006, p. 61).

panies around 1900 was about 2,000 (Broberg, 2006). Secondary stock trading took place both on the country's prime market, the Stockholm Stock Exchange, and over the counter in banks or private brokerage firms.

The value of household-owned stocks and mutual funds is computed using a wide array of secondary sources. From 1970 onwards, the official, and highly reliable, series of the Financial Accounts is used.[61] Before that year, I construct the series using data on the market capitalization of the Stockholm Stock Exchange, Sweden's prime market place since its start in 1863.[62] As for the household share of the listed stocks, I use information on this for a few points in time during the study period. Before 1911, households are assumed to hold 80 percent of the value of all listed shares.[63] In 1911, a new law gave banks the right to hold shares on their balance sheets, and it is therefore reasonable that the household share of stock ownership declined gradually after that (Fritz, 1990). According to McLure and Norrman (1997) households held about 75 percent of all listed shares in 1950. In 1970, finally, the value of households' listed shares according to the Financial Accounts (14 billion SEK) represented about 57 percent of the stock exchange capitalization. As the exact progression of the household shares is unknown, I assume it to decline linearly in between these years. The final household stock of share ownership is fairly well in line with some previous estimates. It is lower than the handful of years presented by Spånt (1979), but then Spånt does not account for the fact that entities other than households held listed shares (his amounts are basically equal to the total stock market capitalization).

B2.2 Non-listed shares

The counting and valuation shares in closely held corporations and non-incorporated businesses, for example, partnerships or small family firms, constitute one of the most difficult challenges in this research. Not even today are there comprehensive estimates of their total number or current market value. For this reason, this asset class is often excluded (not explicitly, but effectively) from the compilation of most countries' balance sheet statistics.

---

61 Specifically, I use the data for 1970–1979 reported in a special report by Statistics Sweden, Bergman et al. (2010), and from 1980 onwards the series reported in Financial Accounts series Sparbarometern.

62 Market capitalization of the Stockholm Stock Exchange is reported in Waldenström (2014).

63 There are no data supporting the calculation of an exact share. From various historical sources, it appears that private individuals were the prime investors on the early Swedish stock market. From the firm-level microdata of all listed firms in 1901–1919 used by Waldenström, Gernandt and Palm (2012), it is however clear that non-financial firms also held other firms' shares on their balance sheets, representing about 10 percent of own equity. Since the majority of firms were not listed, the true share of non-household stock holdings must have been larger, and a fifth appears to be a reasonable estimate.

In this study, I present a tentative calculation based on four components: value of non-incorporated businesses owned by Swedish households, value of non-listed shares and value of foreign holdings. During the nineteenth century, two main categories make up non-listed company shares. This series relies on a combination of sources. There are a few point estimates made for single years, some series of the value of handicraft and home industry, and annual variations in firm creation, bankruptcy frequencies, and estimations of average market values of other small businesses. The final series seems plausible when compared to the rest of household assets and national income, but it is hardly fully correct. Hopefully there will be better data available in the future to improve upon this initial attempt to construct a homogenous series.

B2.2.1 Capitalized value of home industries, 1810–1969

As for the first category, home industries, the capital stock K is estimated using data on gross output Y and assumptions about the relationship between capital and output, K/Y. Schön (1988, table 15, p. 112ff) estimates the value of gross total output among handicraft and home industries during 1810–1930, using data on the number of employed people in these industries and wage series in these industries. These handicrafts and home industries were reported separately from the rest of the industry statistics, covering the larger industrial firms for "either organization and legal or quantitative grounds" (Schön, 1988, p. 90). Assuming a capital-output ratio of 2, the capital stock is then calculated by multiplying the output by this ratio. Since there are overlaps with the other category, non-listed corporations, the capital stock of home industries is halved. For the period 1931–1969, the value of home industries is estimated to be the same size as the market value of incorporated non-listed firms (see below) was in the 1920s, roughly one fifth.

B2.2.2 Market value of incorporated non-listed firms, 1810–1969

For the period between 1810 and 1850, it is clear that the number of incorporated companies in Sweden was small. Broberg (2006, p. 63) states that only 13 companies received an official charter for issuing shares with limited liability between 1793 and 1842. However, in addition to those, there were "several tens of companies" with some sort of limited liability, although not officially granted. I assume that there were ten joint-stock companies in 1810 and that the number increased to 40 in 1848. The average size of the equity capital of these companies is based on the presumption that their total market value in 1810 was equal to the value of the country-dominant canal shipping company Göta canal company.[64] For the period 1834–1848, the average size of equity capital is assumed to be equal to the average size of

---

64   Indebetou (1925, p. 9) reports that the Göta canal company's charter in 1810 was on a share
     value of 4.7 million Rdr Banco, or 7.1 million SEK.

the equity of commercial banks, which emerged at this time and whose balance sheets are available annually in Riksbanken (1931). The average capital during 1810 and 1834 is linearly interpolated.

From 1849 up to 1910, Indebetou (1925) reports both the annual number of charterings of new joint-stock firms and the total value of their book equity. I add an accumulated stock of new firms, net of a subtracted assumed bankruptcy rate of 10 percent of existing firms.[65] The total number of joint-stock companies is then multiplied by a ten-year moving average of the annual average capital size of newly founded companies, also reported by Indebetou. This gives the total book value of Swedish joint-stock firms. From 1943 onwards, the stock of joint-stock companies is reported in the Statistical Yearbook of Statistics Sweden. This constructed series of book values is then adjusted with respect to the market values for some reference years for which more comprehensive estimates of the total equity stock are reported. For 1880, Van Der Hagen and Cedershiöld (1881) reports that Sweden had 1,264 incorporated firms with a total value of equity of 455 million SEK. This value is 76 percent higher than the value of the above estimated series (that is, a market-to-book ratio of 1.76), and thus the estimated series is scaled up in this year. For the year 1908, (Flodström, 1912, p. 744–745) reports a total number of joint-stock companies of 5,014 having a total value of 1,255 million SEK, which is 78 percent higher than the estimated value.[66] A third reference period is 1970, or the 1970s, when information from the Financial Accounts and the National Wealth Statistics are used (see further below). At this point, the value of non-listed firms is about 3.7 times larger than the cumulated stock series, but in order to avoid inflating values in the interwar period, adjustments are made gradually in the 1940s and 1950s. Thus, the final estimated cumulative stock series is scaled, gradually descending from 100% of its original in 1849, to 176% in 1880, up to 178% between 1908 and 1943, up to 5.3 from 1957 onwards.

B2.2.3 Market value of incorporated non-listed firms, 1970–

For the period 1970–2010, finally, I combine information from two sources. First, data from the Financial Accounts are used. Specifically, the total book value of non-listed corporate shares held by all Swedish sectors, that is, not only households, is reported from 1980 onwards. For 1970–1980, there are only data on yearly transactions, but after adjustment for inflation and economic growth, these transactions can

---

65 The exact bankruptcy rate is unknown, but there is some historical evidence on reported bankruptcies between 1866 and 1950 reported in Statistics Sweden (1960, Table 169, p. 170). The annual number is on a fairly constant level up to the 1920s, and Gratzer (2002, Figure 1) reports a series since 1830 finding a relatively stable incidence of bankruptcies up until the 1970s.

66 The capital value in 1908 is the sum of all shares (including the reserve fund) and retained earnings, net of shares held by industrial firms and foreign owners.

be used to decumulate the 1980 stock back to a stock in 1970. Two additional adjustments are in place. First, all non-household holdings need to be subtracted. This is done using sector-wise ownership information of non-listed shares in the National Wealth project of Statistics Sweden (Statistics Sweden, 1994), resulting in a household share of on average 52 percent between 1970 and 1990. This share decreased thereafter, to about 30 percent in the 1990s and 20 percent in the 2000s, reflecting an increase in cross-ownership among firms as reflected in the Financial Accounts. Second, the shares need to be converted into market values. This is done using information from a special study of the size and value of non-listed household equity capital in 1985 by Rylander and Bergman (1988), finding an approximate market-to-book ratio of 1.6.

B2.2.4 Super-large, non-listed firm assets

Although the estimated stock of non-listed corporate shares should in principle cover all such firms in Sweden, there is reason to believe that it may be imprecise when it comes to the extremely large family firms held by a small number of super-rich Swedes. In the absence of objective information on these fortunes, journalists have at times created alternative estimates of the wealth of these super-rich families, based on subjective valuations. Examples of such listings are the Forbes 400 in the U.S. and the Sunday Times Rich List for the U.K. Because of their subjectivity in the valuation of the fortunes, one must treat these numbers with great caution. For example, their methods comprise a subjective and typically undisclosed selection of valuation techniques and comparisons with similar companies for which financial information is more openly disclosed. Journalists collect most of their information from publicly available sources such as newspapers, company reports and financial market prices, but at times also interviews with the rich themselves are used. See further the discussions in Davies and Shorrocks (2000) and Atkinson (2008).

In Sweden, the business magazines Affärsvärlden, Månadens Affärer and Veckans Affärer have compiled lists of wealthy individuals and families since 1983. Using these listings, it is possible to calculate the value of non-listed companies (family firms) held by super-rich Swedes living in Sweden. The named residents owning non-listed wealth were between 100 and 300 in the 1980s and 1990s with fortunes averaging about half a billion SEK. In the 2000s, the lists only included between 40 and 60 of this group, having an average wealth of 2-3 billion SEK.

The interesting question in this study is whether these numbers are large in relation to the rest of non-listed corporate wealth. Relating data on these fortunes in domestic family firms listed in Roine and Waldenström (2009) to the main series of this study, it is found that the fortunes of the super-rich are about a fifth of the total value of non-listed firms. This share has been almost constant throughout the period from the 1980s to today. In other words, disregarding this pool of fortunes from the analysis is not unproblematic. However, given the highly imprecise nature of the

estimations of this extreme wealth, which typically grossly underestimates the indebt-edness of the super-rich, it would probably be even more problematic to include them.

B2.3 Non-residents' ownership of Swedish shares

Foreign direct investments in Sweden were relatively limited over most of the period. During most of the nineteenth and twentieth centuries, foreign ownership was harshly regulated and documented. Still detailed information about foreign owner-ship is scarce.[67] Up until the 1870s, there seem have been quite limited foreign pur-chases of Swedish assets. As regards property ownership, an analysis performed in 1874 showed that there were 304 foreign property owners, of which 274 resided in Sweden. Their real estate properties amounted to 23 million SEK, or about one per-cent of all real assets (Gårdlund 1942, p. 188).

In the national wealth study of 1908, the total foreign ownership of Swedish industry was estimated to be about 80 million SEK (Flodström, 1912, p. 222), rep-resenting about 6.3 percent of the stock exchange listed market capitalization. For-eign ownership was restricted in the 1910s due to political tensions in Europe and the need for a stricter Swedish neutrality policy (Samuelsson, 1977, pp. 21f). Cross-border portfolio and direct investments were thereafter scarce. In an study of foreign ownership in Sweden during the postwar period, Samuelsson (1977) finds that about three percent of Swedish industrial companies were foreign subsidiaries, and the share of foreign-owned capital of total Swedish incorporated business equity should therefore have been much smaller.

In the present study, one specific adjustment is made for foreign ownership of Swedish business firms for the period up to 1970. Using the 1908 evidence, it is assumed that foreigners held 6.3 percent of the exchange-listed shares from the opening of the Stockholm Stock Exchange in the early 1860s. From the mid-twenti-eth century, direct estimates of household ownership have been used and therefore no extra adjustment for foreign ownership is necessary.

B.3 Tobin's Q and the valuation of corporate wealth

A proper valuation of corporate wealth is important for the estimation of private wealth. The SNWD reports privately owned corporate net wealth in the form of the value of corporate equity owned by households. Specifically, this is the sum of listed shares on the Stockholm Stock Exchange and non-listed corporate shares in closely held companies (see also Piketty and Zucman, 2014, 2015).

---

67 In some cases, the distinction between financial and real asset ownership is difficult to make. The foreign purchase of the Klotenverken company in 1872 included "a complex of forests, mines, blast furnaces and iron ores" (Gårdlund 1942, p. 188).

One issue in corporate valuation in the context of national accounting concerns the relationship between the market value of corporate wealth and the replacement value of the assets in corporate balance sheets, that is, the size of Tobin's Q. The SNWD does not contain aggregate data on corporate balance sheets and thus does not provide full scrutiny of this questions. However, it is possible to use the national accounts in which national wealth D_N can be expressed as the sum of domestic national capital K_N and net foreign assets NFA. From this relation we can express domestic capital as

$$K_N = W_N - NFA$$

Domestic capital can, in turn, be decomposed into private and public capital stocks and the sums of household, corporate and government capital as follows: $K_N = K_P + K_G = K_H + K_C + K_G$. Using this in equation (2) we can express corporate capital as follows:

$$K_C = W_N - NFA - K_H = K_G$$

Empirically, the new database contains information about the market value of non-financial assets of households (Appendix A), K_H, and of the public sector (Appendix D), K_G, in addition to values of national wealth and net foreign assets. We can therefore solve residually for the market value of corporate capital, K_C, using equation (3). The replacement value of corporate capital is more difficult to defined, but one estimate is the corporate capital stock computed in Statistics Sweden (1995) and later versions of the national accounts using perpetual inventory method (PIM)-calculations of accumulated investments.[68] Tobin's Q, or a version of it, is then the ratio of the residual-based market value of corporate capital, K_C, to the replacement (or book) value of corporate non-financial assets, A_C^N, that is, $Q = K_C/A_C^N$. In Table B9.1, I use these numbers to compute Tobin's Q during 1980−2010 which is the period for which we have information about A_C^N. The ratio is relatively low during the 1980s and 1990s, between 1/3 and 2/3, with no clear trend. In the 2000s, the ratio increases and reaches 100 percent at several occasions, especially in years when net foreign assets become positive.

   An alternative expression of the relationship between market-valued and book-val-

---

68   Statistics Sweden (1995, table 3:7) lists the stock of produce and non-produced non-financial assets of both non-financial and financial corporations at year-end during the period 1980−1994 (or actually January 1 in 1981−1995). Since 1995, Statistics Sweden reports the produced stocks in the quarterly and annual national accounts. I estimate the stock of non-produced non-financial assets (that is, land and timber tracts) assuming the average relation as in 1980−1994.

ued corporate equity is Tobin's Equity Q, defined as the ratio of the market value of corporate equity E_C to total assets less non-equity liabilities, $L_C - E_C$. This ratio is shown in Table B9.1 and it is similar to the other version of Tobin's Q, but it remains at the relatively low level also during the 2000s.[69]

Comparing the results for Tobin's Q in Sweden with the levels found by Piketty and Zucman (2014) suggests that Sweden is similar to Germany in having a relatively low Q. As discussed by Piketty and Zucman, the exact reasons for the low level in Germany is not clear, but one possible explanation is the corporate ownership structures, being largely dominated by holding companies for which corporate values are often discounted. Sweden has a similar bank-based governance system (in contrast to the Anglo-Saxon market-based corporate governance) with a traditionally large representation of holding companies as dominant company owners (maintaining influence through differentiated voting rights). That this governance structure has generated substantial discounts of market values of these holding companies is well-known (Henrekson and Jakobsson, 2012).

Table B9.1: *Tobin's Q calculations.*

	K	K_G	K_H	K_C	A_C^N	A_C^F	$L_C - E_C$	Tobin's Q	Market value of corporate shares	Tobin's equity Q
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1980	1,663	664	722	278	1,015	1,291	1,361	27%	186	20%
1981	1,799	747	757	295	1,117	1,531	1,561	26%	243	22%
1982	1,905	804	784	316	1,205	1,783	1,768	26%	296	24%
1983	2,092	887	832	372	1,316	2,105	2,008	28%	406	29%
1984	2,262	983	888	390	1,445	2,382	2,281	27%	418	27%
1985	2,440	1,062	943	436	1,602	2,681	2,521	27%	484	27%
1986	2,747	1,100	1,089	558	1,755	3,280	2,987	32%	717	35%
1987	3,129	1,211	1,299	619	1,990	3,698	3,417	31%	737	32%
1988	3,721	1,387	1,539	795	2,277	4,539	4,123	35%	994	37%
1989	4,481	1,623	1,797	1,062	2,684	5,377	4,974	40%	1,222	40%
1990	4,591	1,619	1,861	1,112	2,826	5,966	5,834	39%	1,058	36%
1991	4,363	1,526	1,721	1,115	2,782	6,129	5,955	40%	1,131	38%
1992	4,226	1,497	1,583	1,146	2,645	6,394	6,234	43%	1,181	42%
1993	4,590	1,531	1,676	1,382	2,752	6,655	6,251	50%	1,557	49%
1994	4,569	1,594	1,660	1,314	2,809	6,842	6,256	47%	1,623	48%

69 Note that the number for includes the total value of market capitalization of the Stockholm Stock Exchange and not only the share of listed stocks held by households, the reason being that it is not possible to single out household-owned corporate assets from the national accounts.

1995	4,813	1,660	1,728	1,425	3,047	7,522	6,556	47%	2,182	54%
1996	5,277	1,705	1,817	1,756	3,185	8,092	6,752	55%	2,678	59%
1997	6,127	1,782	1,990	2,355	3,465	9,360	7,573	68%	3,442	66%
1998	6,639	1,844	2,118	2,677	3,750	10,300	8,367	71%	3,788	67%
1999	7,606	1,927	2,272	3,407	4,108	12,800	8,971	83%	6,075	76%
2000	7,998	1,971	2,588	3,439	4,401	13,600	10,200	78%	5,733	73%
2001	7,856	2,064	2,784	3,008	4,610	13,900	10,600	65%	5,802	73%
2002	7,930	2,159	2,922	2,849	4,883	13,400	10,800	58%	4,991	67%
2003	8,904	2,240	3,367	3,296	4,949	14,900	10,900	67%	6,672	74%
2004	9,948	2,480	3,755	3,713	5,395	16,400	11,600	69%	7,422	73%
2005	11,400	2,612	4,228	4,536	5,771	19,900	13,200	79%	9,914	80%
2006	12,800	2,774	4,730	5,342	6,152	22,400	14,300	87%	11,800	83%
2007	13,300	2,800	5,222	5,289	7,011	23,400	16,200	75%	11,000	77%
2008	13,300	2,951	5,522	4,829	7,490	23,700	19,700	64%	8,193	72%
2009	14,400	3,030	5,818	5,569	7,689	26,100	19,600	72%	10,800	76%
2010	15,800	3,182	6,179	6,414	7,974	27,300	19,600	80%	12,100	77%
2011	15,700	3,297	6,311	6,069	8,352	27,200	20,600	73%	10,900	72%
2012	16,300	3,351	6,346	6,616	8,456	28,600	21,100	78%	11,700	73%
2013	17,400	3,519	6,563	7,348	9,145	31,500	22,200	80%	13,600	73%
2014	18,700	3,618	6,903	8,170	9,541	34,200	24,100	86%	14,600	74%
2015	20,500	3,692	7,673	9,095	10,300	36,100	24,800	89%	15,700	73%
2016	22,500	3,925	8,470	10,100	11,200	39,300	26,500	90%	17,500	73%
2017	23,900	4,132	9,183	10,600	11,800	42,100	28,300	90%	18,400	72%
2018	24,300	4,381	9,901	10,100	12,800	42,100	28,600	79%	18,000	68%
2019	26,300	4,670	9,792	11,800	13,600	47,200	30,900	87%	21,300	72%
2020	28,500	4,860	10,800	12,900	14,400	52,000	33,400	90%	24,100	73%

Note: (1): $K = W_N - NFA$; (2) and (3) show market values of produced and non-produced non-financial assets of government and household sectors, (4): $K_C - K - K_G - K_H$ is the value of corporate non-financial assets, computed on a residual basis; (5) shows estimated non-financial assets of the corporate sector (non-financial and financial firms) based on accumulated investments (perpetual inventory method) reported by Statistics Sweden; (6) and (7) show financial assets and liabilities of the corporate sector according to the Financial Accounts, Statistics Sweden; (8) = (4)/(5) shows the deducted Tobin's Q for market-valued corporate capital to corporate capital in the investment-based series of Statistics Sweden; (9): total market capitalization of the Stockholm Stock Exchange plus total estimated value of closely held corporations; (10): (9)/[(5)+(6)-(7)]. Values in billon SEK, current prices.

B4. Bonds

The estimation of the value of fixed-interest securities in the household balance sheet is based on different sources, and also described in Waldenström (2023). A basic assertion is that fixed-interest securities, that is, bonds issued by local mortgage institutions, corporations (mainly during the nineteenth century) or the government, are held in the same proportion as long-term bank deposits. In Spånt (1979), data on household amounts of bonds are presented in a handful of years. The bonds' share of bank deposits and banknotes was about five percent in 1935, a share that I assume was true back to 1880. Back to 1835, I assume that bonds were held at a share of three percent of bank deposits. Before 1835, the share is zero since there bonds were not issued to Swedish households in this early era; mortgage institutions and corporations hardly existed, and the Swedish government only issued loans to foreign markets (Nygren 1985, pp. 44f).

In 1945, the ratio of bonds to bank deposits was according to Spånt (1979) as high as ten percent, but this was an outlier due to the large expansion of war-related government loans, especially so-called premium lottery bonds (*premieobligationer*) and tax-exempt savings bonds (*sparobligationer*).[70] Using the Spånt shares of bank holdings, in 1951 the share of bonds was again down to about five percent, but this yields a markedly lower amount of bond holding than is implied by the actual outstanding lottery and savings bonds that year (whose share of bank holdings was eight percent). Moreover, even this eight percent is too low as we know households held other types of bonds (in 1970, lottery and savings loans only represented two thirds of households' bonds). Therefore, I assume that the household bond-bank deposits ratio in 1970 also held true during the period 1950–1969. In practice, this means that the large floatings of government bonds during the Second World War also remained in household portfolios. For this reason, the bond amounts in this study are markedly higher than those in Spånt (1979) but still at about the same level as in Berg (1983, 2000), whose approach is similar to mine.

From 1970 onwards, data on fixed-interest securities are compiled by and collected from the Financial Accounts. Note that also mutual funds in money market funds and fixed-interest securities are included in this subseries.

B5. Other claims

Informal credit markets dominated Swedish household finance during most of the nineteenth century. When needing money, households mainly lent money from each other, and therefore household financial assets contained a large share of informal claims in addition to bank holdings and financial securities. These claims were bills of exchange (*växlar*), promissory notes (*reverser*) and other kinds of financial claims on others. Prior to Sweden's credit market deregulation of the mid-1980s, the

---

70 Premium lottery bonds are a kind of government bond where coupon payments are collected and distributed to bondholders through a lottery.

formal channels for bank lending were highly rigid. Thus alternative channels for credit were relatively popular because they were more flexible. Whenever there were time gaps between delivery and payment, for example, when purchasing a house, people wrote promissory notes. Among small businesses, contained within the household, trade credit is another form of such claim.

Several economic historians have tried to estimate the size of the informal credit market in nineteenth century Sweden in comparison to the formal market. Lindgren (2002) studies probate records in the town of Kalmar, finding that the share of interpersonal unpaid loans among the deceased was 80 percent around 1845, 75 percent around 1875 and 45 percent around 1905. Lilja (2004, pp. 82f) studies another small town, finding equally high shares of interpersonal debt up the 1870s, but thereafter a more rapid decline to about ten percent in 1900.[71] Translating these estimates to the national level poses some challenges, as it is likely that the shares of the informal credits were higher in agricultural regions and lower in large cities. On balance, I decided to assume the informal financial assets to be four times the size of bank deposits and currency in 1820 and 1840, 2.3 times in 1860, 1.5 times in 1880 and 0.22 times in 1900.

For the twentieth century, Spånt (1979) has estimated the informal debt claims in household assets for the period 1935–1970. In 1935, he finds them to be as large as 25 percent of bank holdings, and I assume that this was the case also for earlier years. Possibly this underestimates the share for the nineteenth century since the formal financial system was heavily underdeveloped at this time (Lindgren, 2002). Spånt's data suggest 14 percent in 1966.

For the period from 1970 onwards, there is information about household loans in the Financial Accounts of Statistics Sweden. The series is essentially the residual between total household liabilities and the sum of financial sector and public credits. During this period, the ratio of miscellaneous claims to bank deposits shrinks from around ten percent in the beginning to less than one percent at the end.

B6. Pension entitlements

Pension entitlements represent a large and heterogeneous class of assets. They include individual and collective pension and insurance savings, some that are funded and some that are unfunded and instead being claims on future income streams. According to the definition of private sector wealth established in the 1980s, funded pension entitlements count as private wealth, including individual pension savings (sometimes called technical insurance reserves) and funded occupational pensions. In the Swedish Financial Accounts, these items have been officially counted since 1995. In the most recent version of the System of National Accounts from 2008,

---

71 Perlinge (2005) estimates informal and formal claims in a small agricultural society between 1840 and 1900, finding somewhat higher shares of informal claims than Lindgren (2002) and Lilja (2004).

however, unfunded pension claims are treated as a memorandum category in a discussion about including all kinds of pension entitlements in private wealth (United Nations, 2008, chapter 17). In other words, there is an opening to treat not only individual private pensions savings (previously part of the category technical insurance reserves) but also less tangible entitlements in public and employment-related pension schemes as private assets.

Ambiguity remains, however, concerning how to treat pension wealth in relation to marketable wealth. On the one hand, it makes sense to include pension assets as it is well-known that pension savings tend to crowd out private financial savings and thus the structure of tangible household assets (Feldstein, 1974; Berg, 1983; Gale, 1998). On the other hand, these claims do not meet the standard requirements for an asset to be defined as "personal wealth". The property rights of pension assets are restricted, and individuals are not allowed to readily use them at will.

Another, more practical, reason for why unfunded (and maybe some funded) pension assets should be treated separately from other marketable private wealth is that they are neither easily defined nor easily valued. There are two different types of pension systems. In "defined benefit" schemes, the individual's future pensions derive from a mixture of fees paid in by the working population and capital returns from securities funds. In "defined contribution" schemes, the individual's future pension is drawn from a fund in which money comes from past contributions from the individual or her employer. Calculating the net present value of pensions in defined contribution schemes is relatively simple: it is simply the current value of the individual's pension fund. In the case of pensions in defined benefit schemes, however, the net present pension wealth is calculated using more or less complex formulas based on assumptions about individuals' expected remaining lifetime, size of future payments, discount rates and assumed capital returns from pension funds.

In Sweden there are many variants of pension schemes, both defined benefit and defined contribution, some publicly run and others organized privately as either collective (occupational) schemes or individual savings. Within each of these schemes, there are also different components that need to be taken into account. For example, public pensions were early on intertwined with poverty alleviation, but have gradually turned into a combination of an income guarantee for all old-aged or invalidated citizens and a function of the size of earned incomes during working life, and in the last decade also with a defined contribution component.

When estimating the historical evolution of pension wealth, there are several challenges, especially regarding the nineteenth century and first half of the twentieth century. First and foremost, there are no statistical sources in Sweden with comprehensive information about coverage in the population, pension amounts or the full array of different pension schemes available. Having said this, there is some information that still allows for quantitative assessments, though with larger error bands. Second, in this early era, the boundary between old-age pensions and social assistance to the poor and elderly was not clear cut. Before the substantial increases in public pension amounts in 1948, old-age pensioners could not live off their public

pension. Edebalk (1996) describes how old people were instead forced to make a living based on help from their children, prepare for a life at a local "poor house" (financed by local charities) or simply continue working. Local poverty alleviation money topped up the low public pensions, suggesting a relationship between public pensions and social assistance (Elmér, 1960). However, in the calculations of the value of pension assets I exclude all non-pension social transfers. Third, some employment-related pension schemes included in-kind parts that are difficult to assess quantitatively together with the cash pensions (Harrysson, 2000, p. 56). I disregard such in-kind pension components throughout.

   In the following subsections, I present new long-run estimations of the value of funded and unfunded pension entitlements in three main categories: Funded individual pension and insurance savings, Funded collective (occupational) pension savings, Unfunded occupational pension assets (memorandum) and Unfunded public pension assets (memorandum).

B6.1 Funded individual pension savings and life insurance savings

In this category, a number of individual pension and life insurance entitlements as well as prepayments of premiums and reserves against outstanding claims are included. Claims on the public pension system or collective employment-related schemes are not included.

   Data on this kind of personal savings actually exist back to 1860. Prior to 1860, they are assumed to be zero (which they also actually were by 1860). For the period 1860–1950, data were reported by private insurance companies and trade unions and published in Statistics Sweden (1960).[72] For the period since 1950, data come from official statistical sources of Statistics Sweden. Specifically, for the 1950s and 1960s SOS Försäkringarna report individual savings schemes and from 1970 onwards the official series in the Financial Accounts.[73]

   There is a break in the series in 1996, when an additional insurance category – object insurances – was included in the ESA95 official definition of individual insurance savings (or "technical insurance reserves"). These object insurance schemes represent roughly a quarter of all individual insurance savings, with life insurance and other private pension savings representing the other three quarters.

   Another concern about the official series is that it may be on the low side. Ståhlberg (1995, p. 44) estimates the total value of private insurance savings in the 1980s and early 1990s, finding 50–90 percent larger amounts than the Financial Accounts.

---

72 See Statistics Sweden (1960), tab. 87. *Svenska bolags livförsäkringsverksamhet 1860–1950*, p. 106.

73 The Financial Accounts do not report stocks prior to 1980, but they do report annual transactions from 1970 and I use these to calculate the stocks. The same method was used by Berg (2000). For the period 1970–1994, item FA6110 (in ENS 1995) is used and from 1995 onwards (in ENS 2010) item FA6200 is used.

It is not clear, however, how this discrepancy can be explained, and for consistency reasons I use the official series of the Financial Accounts.

B6.2 Funded collective pension savings (Occupational pensions)

Occupational pension arrangements have existed during the entire study period, but their structure and scope have changed profoundly. There is a general lack of information about employment-related pension systems in Sweden. Olofsson (1993) offers a broad characterization of the evolution of the pension system and Harrysson (2000, ch. 4) sketches a broad picture of the late nineteenth century up to the pension reform of 1948. During this period, most employees did not enjoy any occupational pension benefits whatsoever, but over time the share that did increased gradually. The most common arrangement was employee- or employer-run pension thrifts (*pensionskassor*), that is, funded collective pension savings. These thrifts differed, with some offering members fixed payment after retirement while others were less transparent concerning the benefits associated with membership. The postwar period saw increased ambition in setting up these employment-related pension schemes, and blue- and white-collar workers have had general schemes on top of public pensions.

Sources for funded occupational pension schemes are not as problematic as they are for public pensions (see below), but they still pose a number of challenges. The major reason for why occupational pension wealth is easier to estimate is that the schemes were mostly set up as defined contribution schemes (although there were also examples of defined benefit schemes, such as in the case of state employees as mentioned above). This means that in order to calculate their net present value, it suffices to acquire information about the total value of the different pension funds at year-end. However, there are no comprehensive sources where all of these funds are listed and there are thus gaps in the series.

Data on nineteenth century employer- or employee-run occupational pension funds are not rich. Sundbärg (1901, pp. 996f) describes the history of Swedish pension thrifts and presents a table with values for ten categories and their total fund value in 1895. Furthermore, Harrysson (2000, p. 43) lists the number of thrifts once or twice each decade back to the 1840s. Based on Harrysson's and Sundbärg's descriptions of the evolution of the number of thrifts during the nineteenth century and their average fund value in 1895, a rough calculation of the value back to 1810 is conducted.[74] In the first half of the twentieth century, the total fund value of state-run occupational pension thrifts was published in Statistical Yearbook by Statistics

---

74 Specifically, Sundbärg states on p. 996 that twenty thrifts existed in the 18th century, that an additional 38 were founded in the period 1801–1850 and that yet another 115 emerged during 1850–1895. Harrysson (2000, p. 43), citing a previous study by Günther Sollinger, lists the number of thrifts each decade between the 1840s and 1895. Assuming the number of thrifts to be 20 in 1810, I then interpolate linearly between the other years for which data exist to derive an annual series. To obtain values, I first use the average fund value in 1895 (0.52 million SEK) and deflate it back to 1810 using CPI (landing at an average value in 1810 of 0.32 million SEK). Finally I then multiply the number of thrifts by their estimated average value.

Sweden. To this I add an estimated value of non-state thrifts using their observed share of the total value in 1948.

For the postwar period, the point of departure is the official post-1980 series of the Financial Accounts. These are available at a disaggregated level for collective private pensions, that is, occupation pensions, from 1980 onward. Note that the official series at the Financial Accounts includes the premium pension savings in the public system (PPM) from 1996, but here they are removed since they actually belong to (and are also already included in) the public pension series as described in the previous section. During 1950–1979, there is thus no official series for the stock of occupational pensions in the Financial Accounts. Instead I use the annual transactions for collective pension savings collected by Berg (2000).

It would be valuable to check the robustness of the stocks estimated. There is no public authority responsible for compiling and reporting stocks of the collective private pension system as is done for public pensions by the Swedish Pensions Agency. For single years, however, there are estimates, which include both funded and unfunded (in net present value) pension assets. Sjögren Lindquist and Wadensjö (2007) estimate the stock to be about 887 billion SEK in 2004, which is about 30 percent higher than the estimate of 688 billion SEK in the Financial Accounts. For 1999, Andersson, Berg and Klevmarken (2002) calculated the net present value of occupational and public pensions for middle-aged and retired Swedes, finding that occupational pensions represented a smaller share of total pensions. For 1991, Olofsson (1993) arrives at an estimate of 355 billion SEK which is almost 40 percent larger than the official estimate of 259 billion SEK. Even more problematic, in 1980 Olofsson (1993) assesses the stock to be 158 billion SEK and Ståhlberg (1981) estimates it to be 110 billion SEK in 1978, estimates that are about three times larger than the Financial Accounts-based series. For 1985, Johansson and Johansson (1987) present estimates of the total pension wealth in the funded and unfunded ITP and STP occupational pension schemes, arriving at a value of 277 billion SEK, which is more than twice as large.

A final remark on occupational pensions concerns the extent to which they are to be considered inheritable assets (that is, transferrable to relatives upon death). There is little data on this issue for long historical periods. The default for most funded pension systems seems to be that unpaid pension assets of the deceased are reinvested in the fund and not transferred to family members. In some cases the insured party has been offered the possibility to purchase an arrangement (*återbetalningsskydd*) where remaining assets are inherited by the family. In the occupational pension scheme for white-collar workers (ITP), about one fifth of all newly signed pension schemes during 2007–2010 had this additional arrangement and were thus inheritable (Collectum, 2010). Unfortunately there are no comprehensive statistics on the total stock of occupational pensions, but the share of inheritable schemes should be considerably higher than the one fifth observed in newly signed ITP pension schemes since these were signed by predominantly young workers who perhaps lack a family and who have not started to think actively about their own death.

B6.3 Unfunded private pensions (memorandum)

Employees in Sweden have at times also received pensions in the form of unfunded, defined-benefit (*förmånsbestämda*) pensions paid out by employers from running expenses. There is little information in general about these schemes as they were typically decentralized, often firm-specific, and with the final claims on behalf of the employees generally highly uncertain. For a few employees in public administration during the nineteenth and early twentieth centuries, the employer (the state) guaranteed a continued salary payment after a certain age (for example, 70) for those who had been employed for at least a certain time (for example, 30 years).[75] After the First World War, employers started offering their employees some sort of pension after retirement, partly as a way to reward longevity in firms but also due to bargaining agreements with labor unions. In general, these employment-based pensions were small, ranging between a tenth and almost a full average worker salary (Harrysson, 2000, pp. 47f).

The extent of these unfunded employment-based private pensions in net present value terms is quite uncertain and has to my knowledge not been documented before for almost any time period in Sweden. Harrysson (2000, p. 58) and SOU 1950:33 present some evidence on the extent of the occupational pension schemes, of which some were unfunded. As already noted above, private employers started in the 1920s signing collective insurance contracts with Sveriges Privatanställdas Pensionskassa, SPP, which were partly related to funded pensions but also a way to accumulated insurance funds to back up future pension benefit payments. Harrysson (2000) presents different kinds of evidence on the extent of these unfunded occupational pensions. To begin with, the installment of SPP in the 1920s marks the beginning of occupational pensions in Sweden, with the number of active members rising from a few dozen firms in the early 1920s to almost 5,000 in the late 1940s (typically representing large numbers of employees). Some survey material from the 1940s concerning the structure of Swedish pensions, and their conclusion indicates that these unfunded defined benefit pensions were not significant compared to the funded amounts in the thrifts and pension associations run by firms or trade unions. However, Berg (1983) estimates stocks of total occupational pensions, including both the value of pension thrifts and the net present value of future pension payments in the unfunded system. Specifically, these were the white-collar occupation pension scheme (ITP) that came into existence in 1960 and the blue-collar occupational pension (STP) started in 1973. Berg's series suggests that the unfunded pension assets in the 1950s were almost twice the funded assets. As reported above, later estimates by Ståhlberg (1981) for 1978 and Johansson and Johansson (1987) for 1985 suggest similar levels.

Based on these sources, unfunded private pensions are estimated. In the absence

---

75 See, for example, the encyclopedic entry *Pension* in Nordisk Familjebok from 1888, pp. 1001f, available at http://runeberg.org/nfal/0507.html (February 5, 2022).

of direct observations of the value of of occupational pension schemes, the approach is to use the above-mentioned estimates of total occupational pension wealth and subtract the recorded value of funded pensions in order to arrive at an estimate of unfunded occupational pensions. Naturally, this indirect estimation approach is uncertain and will underestimate the values in some periods and overestimate them in others. Until better information is available, these are the amounts used in the database.

B6.4 Unfunded public pension entitlements (memorandum)

The national Swedish old-age pension scheme has historically consisted of three parts: income pension (*inkomstpension*, previously *allmän tillägspension och ATP*), guarantee pension (*garantipension*, previously equivalent to *folkpension*) and premium pension (*premiepension, PPM*). The Swedish public pension system has largely been a defined benefit system, giving people a specified pension financed by a combination of pension fees paid by the working population, capital returns from pension funds and taxes.

Over the past century, the public pension system has undergone several reforms to both its structure and composition.[76] The first important reform was the introduction of the guarantee pension system in 1913. This was actually the world's first universal public pension insurance system, which included all old-age pensioners and physically disabled persons, but at very low amounts that were far below the subsistence level.[77] A major reform of this system was conducted in 1948 when pension amounts were substantially raised and for the first time allowed people to live only off their pension. There were also extra allowances for widows and compensation for people living in expensive areas (*dyrortstillägg*). The next major reform came in 1960, when the income pension was introduced and an additional amount, related to earnings during working life, was added. Income pensions started being paid out for the first time in 1963. In 1995, a new major pension reform was decided in Parliament. This reform changed the funding principles of the system, making it more robust with respect to economic downturns. However, a new pension type was introduced: the premium pension, a funded pension of the defined contribution type.

Data on the net present value of Swedish public pension entitlements are scarce. From the year 2001 onwards, the Swedish Pensions Agency has published annual estimations of the current value of future pension claims of Swedish households for both income and premium pensions. For 1978 Ståhlberg (1981) made a careful estimation of the public pension wealth, and this estimate was adjusted to 1985 by Jansson and Johansson (1988). Berg (1983) made estimations for the period 1950–

---

76   See Olofsson (1996) for a useful survey of the Swedish pension system between 1913 and 1993.

77   Elmér (1960, pp. 261f) reports that the guarantee pensions were between a third and half of the official minimum living standard defined by social authorities in the first half of the 20th century.

1978, including both public pension wealth and also employment-related pension entitlements (see next section). Berg's series arrives at a somewhat lower figure than Ståhlberg's, and I therefore adjust Berg's series upwards. I use all of these values as reported, but subtract a latent tax debt (since pension income is taxed) of 25 percent. Point estimates for the years in between are linearly interpolated.

For the period 1914–1950, estimations are very crude. The main source of information is Elmér (1960) who reports pension amounts and eligibility rules. The guarantee pension was at this time divided into one basic component and one means-tested component. Elmér (1960, pp. 532ff) reports the pension amounts and number of individuals in each class. I compute pension amounts in each class assuming that people live eleven years after retirement age (67 years), based on demographic statistics about remaining life expectancy rates (Statistics Sweden, 2010, p. 281).

B7. Net foreign assets

Net foreign assets are the difference between claims on foreigners held by Swedes and the claims on Swedes held by foreigners. These are included in the country's national wealth in addition to the domestic capital stock. There is a long-standing debate in Swedish economic history research about the role of foreign capital in the initial industrial era, with some parties arguing that it mattered little as most of observed firm credits came from domestic banks while others argue that these banks indeed capitalized themselves using these foreign funds.[78]

Calculating the foreign position of Swedes in past times is not trivial. There are different methods for estimating the net foreign asset position over historical periods. The so-called *indirect method* uses accumulated flow of capital accounts. Schön (1989) estimates a series of Swedish net capital imports from the 1820s, using a method based on comparing the net export and changes in the foreign exchange reserves at the Riksbank. Schön's (1989) estimates build on earlier efforts by Lindahl, Dahlgren and Kock (1937). Specifically, the method calculates net capital imports as the difference between the net export and changes in the foreign exchange reserves of the central bank. Schön adds the costs of the imported capital, using the interest on government bonds as a proxy for the cost of capital. The foreign debt stock is equal to accumulated capital imports. I present below an estimated series using precisely this indirect method, but still it differs somewhat from Schön's (1989) series despite using the exact same methodology. The difference lies mainly in the new standard in national accounting to handle transportation costs and insurance when valuing imports and exports.[79]

---

78   See, for example, Gårdlund (1942).

79   Statistics Sweden currently measure both imports and exports fob (*Free on board*), which means that the goods include transport and insurance costs when they arrive at the exporting country's frontier and enter the importing country. Previously, imports were calculated cif (*Costs of insurance and freight*), that is, before such costs.

An alternative measure is to compile the value of all outstanding bond (and bank) loans of Swedish public and private actors floated abroad and then subtract the holdings of Swedish investors of foreign loans floated in Sweden. This alternative approach is called the "direct method". Fahlbeck (1890) and Flodström (1912) apply this approach and find a series which is not all that different from the series of Schön. Altogether, there is a relatively robust basis for estimating Swedish capital imports during industrialization. There is also a series based on Flodström (1912) on the total value of outstanding Swedish bond loans.

Figure B9.2: *Net foreign wealth, indirect and direct methods, 1810–1930.*
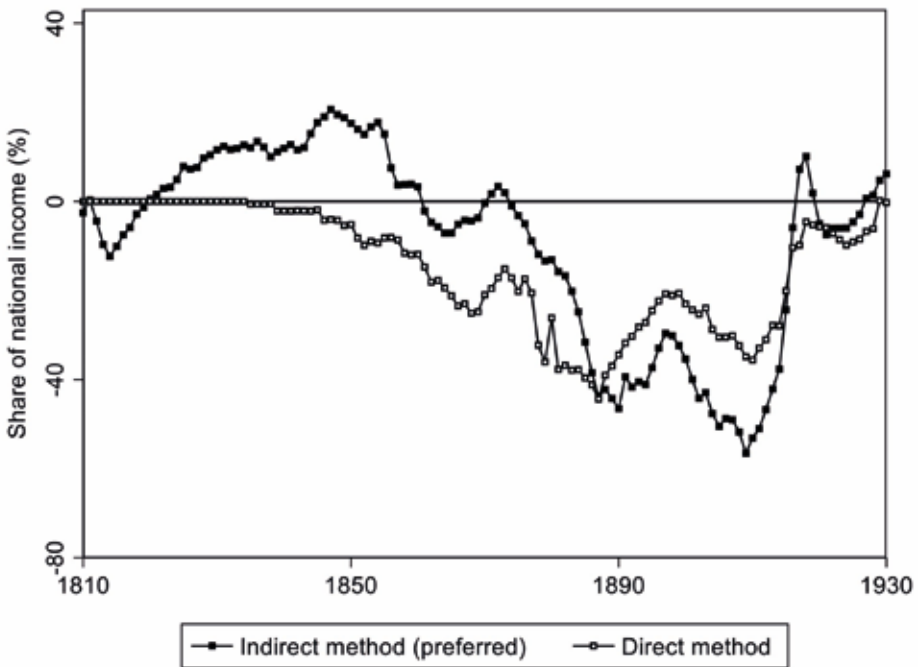
Figure B9.2 shows the evolution of net foreign assets as a share of national income using the preferred indirect method and the complementary direct method. As can be seen, they match each other fairly well in levels as well as in time trends. Their message, moreover, is fascinating: they show that Sweden was importing capital from the middle of the nineteenth century and that this import peaked around the turn of the century. Later, when Sweden had become industrialized and also gained from staying outside the First World War, the country was rich enough to start repurchasing its external debt and Sweden turned from net debtor to net creditor in less than a decade. Although this episode is well-known to economists and historians, less

known is the relative importance of the stock of Swedish capital imports in terms of the country's available domestic and national endowment. At their peak, the capital imports reached about six months of national income or one tenth of national wealth. While this is indeed economically significant, and on a par with the total outstanding lending by commercial banks, it represented only about one fourth of the country's total corporate (and incorporated) business equity, about a third of household deposits in banks, or the same level as either total private agricultural land or total privately owned timber tracts. In other words, while these new wealth data may not settle the long-standing debate about the role of foreign capital in Swedish industrialization, they do indeed provide perspective and help to temper some of the arguments raised.

B8. Memorandum category: Illegal offshore holdings

Offshore assets held in other jurisdictions, possibly for tax purposes, represent a potentially important but still difficult component in Swedish wealth portfolios. The importance of tax havens for personal wealth management in traditionally high-tax countries such as Sweden is a debated topic, and the nature of these flows make it difficult to properly assess the scope of off-shore assets. Historically, Swedish households have not owned notable assets or liabilities issued by or to foreign counterparties. Sweden as a country was a net debtor up until World War I, issuing mainly government and mortgage bonds to continental investors from the 1830s onwards. During the 1910s, the country repurchased basically all of its foreign debt, and instead turned into a net creditor vis-à-vis the rest of the world. At the household level, however, holdings were always small. Flodström (1912, pp. 219ff) reports that for the year 1908, little is known about foreign shares owned by Swedish individuals, but indicates that their size is of little significance. The censuses of the twentieth century do not contain specific information about foreign shares or bonds held by Swedish households.

During the 1970s and 1980s, indications of tax-driven capital flight become more common in the Swedish economic debate. In 1989, Sweden removed its capital controls barring capital flows in and out of the country but kept its internationally high taxes on wealth and inheritance intact. This could easily have led to a situation where the rich move their capital overseas for tax avoidance reasons, and if so domestic wealth inequality could have been severely underestimated. Roine and Waldenström (2009) present standard estimates of foreign household wealth based on residuals between observed balance sheet entries in the Balance of Payments and the Financial Accounts. In the case of the Balance of Payments, real sector savings (in the current and capital accounts) should equal net financial flows (in the financial account) each year. This was also the case up until the late 1980s. At that point, the residual, called *net errors and omissions*, started growing negative year after year, signaling continuing unaccounted net capital outflows. About a third of these outflows are not actual

outflows but rather accounting and valuation errors when compiling the current, capital or financial accounts. For this reason, we use only 65 percent of the observed net errors and omissions as our estimate of foreign household wealth.[80] In the case of the Financial Accounts, the residual is called *unexplained financial savings* and is derived from comparing financial savings in the National Accounts (the difference between disposable income and the sum of private consumption and investment) and financial savings in the Financial Accounts (the aggregate value of bank deposits, securities portfolios, cash, etc.).[81]

In their analysis of trends in Swedish wealth inequality, Roine and Waldenström (2009) made some calculations of foreign wealth of Swedish (wealthy) households based on annual flow residuals in the Balance of Payments and Financial Accounts statistics. They found that in the mid-2000s, Swedish households may have possessed fortunes outside of Sweden of between 200 and 700 billion SEK depending on assumptions about rates of return. Taken at face value, this would imply that between three and seven percent of Swedish gross household wealth is placed abroad and thus not accounted for this study. But again, these estimates emanate from highly uncertain calculations and we will probably never arrive at a precise number. In fact, Waldenström (2011) showed that new statistical definitions and reassessment of historical data made by Statistics Sweden changed the previous estimates of substantial foreign holdings to basically no foreign holdings at all, but recent updates of this series up to 2014 indicated positive numbers for offshore capital of between 500 and 1,300 billion SEK.[82] Figure B9.3 shows that these two estimates generate fairly different levels and trends between 1970 and 2020. Considering the large uncertainties of these estimates, they are not included in the main analysis.

---

80   This particular figure has been reached through discussions with those who compile these data. Blomberg et al. (2003) are able to attribute about 14 percent of the net errors and omissions to known valuation errors in the export statistics. In addition, the authors believe that there are other errors in the amounts. We decide to remove 35 percent of the observed sums for our estimated household share.

81   Bergman and Rylander (1984), SOU 2002 (p. 298) and Swedish National Tax Board (2008) all use the unexplained savings in the F.A. for analyzing the size of foreign household wealth. We use the newly revised figures for the financial savings in the National Accounts.

82   Zucman (2013) estimates undisclosed foreign wealth using gaps in countries' portfolio investment positions and found it to be substantial. The Swedish position does not, however, seem to deviate much from what is officially reported.

Figure B9.3: *Estimated offshore wealth, 1970–2020.*
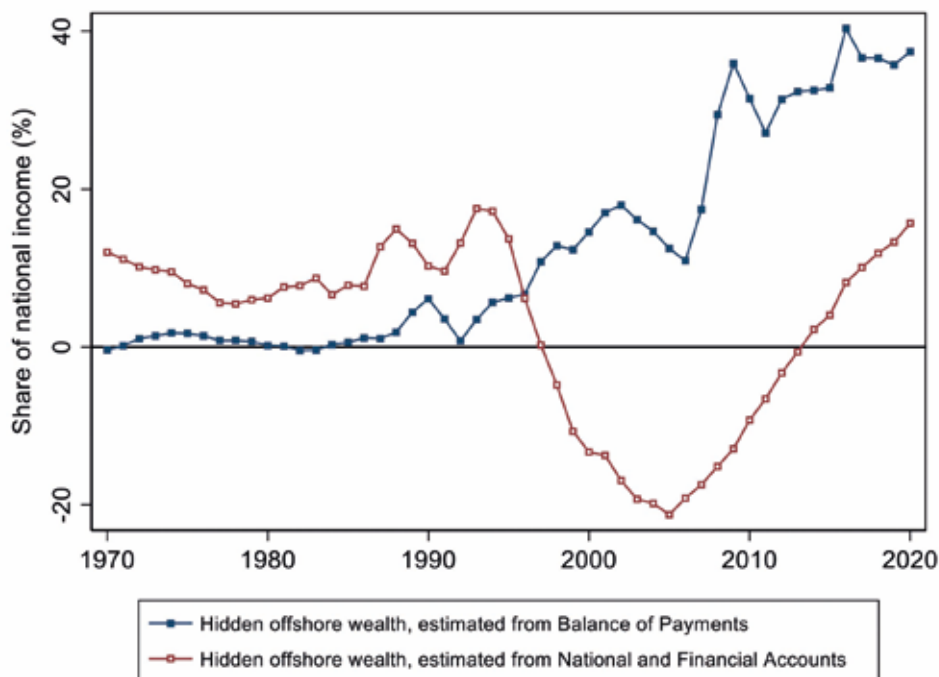
Note: "Balance of Payments" denotes offshore wealth estimated based on accumulated net errors and omissions in the Balance of Payment. "National and Financial Accounts" denotes the unexplained savings in the National Accounts, based on accumulating the difference in its net saving (b8n in household sector S14 and S15) and the transactions of net financial position (bf90) in the Financial Accounts.

Appendix C Household sector: Liabilities

In this section, I describe the reconstruction of the liabilities of Swedish households over the past two centuries. Estimating these liabilities has been associated with a number of challenges and difficulties. Most importantly, many of the historical statistical sources on bank lending are not based on the same sectoral decomposition of liabilities as is used today. In particular, households are not treated as a separate sector. Before the 1960s, banks reported the amount of credits extended to "the public", which included both households and (most) private businesses.

Another problem concerning sectoral definitions in the historical credit market statistics is the so-called "housing sector", which was a separate sector reported in both bank and official public statistical records. A closer look at this sector shows, however, that it includes not only construction firms and home-owning households, but also public entities such as municipalities and counties. During the postwar period up until the 1980s, the Swedish credit market was heavily regulated and building and construction of housing represented a large and growing debtor during this period (Jonung, 1993). Some of these housing credits went to public and private construction companies, often called "construction credits" (*byggnadskreditiv*). Other credits went to the construction or purchase of commercial real estate. I exclude all such debts as detailed below. The majority of housing credits, however, ended up with households and must therefore be included.

The main approach has been to calculate household liabilities from the lender side, that is, using banking statistics on lending. The advantage is that this information is available annually over the whole period. The alternative source, to use household borrowing statistics based on tax returns, is not readily available for most of the period.

In addition to formal borrowing, this study also presents estimates of informal liabilities of households. In the case of informal assets (discussed above), these liabilities are bills or promissory notes marking typically short-term loans granted from other households or companies. Today, these loans make up little more than one percent or so of total borrowing. Two hundred years ago, however, there were almost no formal creditors in society so basically all borrowing had to be in the form of informal contracts. Therefore, for a long-run historical perspective, one cannot escape paying explicit attention to the informal sector when assessing the size of aggregate liabilities.

Concerning the formal sector, households have borrowed from both the financial (corporate) and public sectors, and within these sectors, there are different organizational types that have borrowed funds. The section is structured around these different borrower types.

Previously, Hagström (1968) studied the Swedish credit market and its sectoral composition of borrowers and lenders during 1919–1964. Werin (1993) reports annual estimates from the period 1945–1990, mainly based on the Financial Accounts and an early reassessment of the years before 1970 by Olsson (1993). While being roughly plausible, the early numbers are estimates and extrapolations and therefore not directly linked to credit market statistics. Spånt (1979) reports

debts for a handful of years before 1970, drawing largely on tax assessment surveys and, thus, including debts as they were reported on personal tax returns. The estimated amounts are, however, quite uncertain especially for early years when they are considerably larger than all other estimates encountered.[83] Berg (1983) reports annual debt data from 1950 onwards, but draws entirely on Spånt (1979) for years before 1970. The period after 1970 uses household borrowing data from the Financial Accounts and discussed by Bergman, Djerf and Lindström (2010).[84]

C1. Financial sector debt

The financial sector actors lending funds to households in Sweden have traditionally been savings banks, commercial banks and some other, less significant, institutional lenders including credit associations and insurance companies. The composition of household borrowing across type of financial institution is shown in Figure C9.1. Note that I distinguish between Riksbank lending and other commercial bank lending in the nineteenth century even though both categories were essentially commercial banks.

Figure C9.1: *Financial institutions lending to households*

---
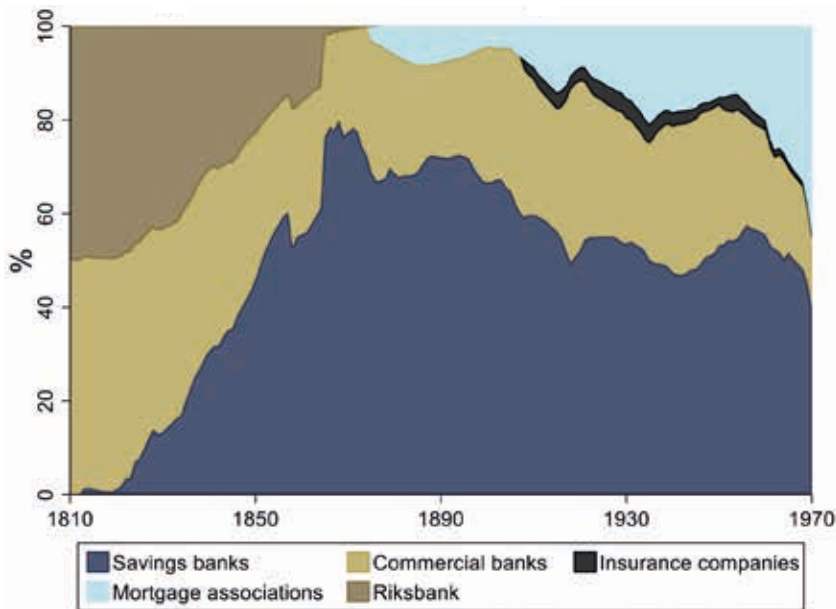
83 For example, Spånt reports an aggregate debt of households in 1935 of 7,600 million SEK, about 88 percent of GDP. In that same years, I find the ratio to be 56 percent. For 1945, Spånt reports a total debt of 13,100 million SEK (78 percent). For that year, Werin (1993, Fig. 4.1, p. 55) finds a level of about 35 percent while our estimate is 43 percent.
84 Olsson (1993) reports a household-specific debt during 1962–1969.

C1.1 Commercial bank debt

The first Swedish commercial banks were a handful of Discount Banks. They were active in the beginning of the nineteenth century but all disappeared due to a political crisis in 1818. They lent money to households, but on quite a limited scale (Kärrlander, 2011). The first modern commercial bank appeared in 1834. Until the 1860s, all commercial banks were note-issuing, unlimited partnerships and not focused on deposit banking or extending credits to ordinary households. From 1860s, a new banking legislation allowed commercial banks to be joint-stock companies, and the number of banks and especially branch offices increased steadily. Still, it was not until the twentieth century postwar period that Swedish commercial banks started to be oriented towards household customers.

I construct a series of commercial bank lending to households using yearly publications of national totals of commercial bank statistics.[85] The majority of lending was in the form of loans against fixed collateral, while the rest was mainly discounted bills of exchange and some lending in checking accounts. For 1908, additional information is available about the household share of commercial bank lending. Flodström (1912) reports that commercial banks expanded credit to the public (firms and households) of an amount of 2,198 million SEK while firms (limited and unlimited companies) owed 2,010 million SEK to these banks. The difference, 187 million SEK (2,198 minus 2,010) must be credits granted to private individuals, which represents about 8.7 percent of total credits.[86] I use this share for all years up to 1929.

From 1929 to 1955, Hagström (1968) reports detailed estimates of household lending in commercial banks. Based on contemporary reports and assessments by bankers, he concludes that the household share of total credit was ten percent during the 1920s and 1930s, that is, about the same as I find for 1908.[87] For the more recent years, he uses different evidence to compile his series but the share hovers around ten percent throughout.[88]

---

85 See Sveriges Riksbank (1931), pp. 172ff (balance sheets of the commercial banks) and, for example, Statistical Yearbook (1917), Table 158 "Bankernas [Riksbanken inräknad] viktigaste inländska ut- och inlåningsräkningar vid slutet av åren 1875–1916", p. 190. Note that also Riksbank, that is, central bank, lending is included in the lending series up until 1930. Since the Riksbank was initially a hybrid between a commercial and central bank, owned by Parliament but at the same time competing with commercial banks, it is correct to include its private lending in our series.

86 See Flodström (1912), pp. 726–727 for data on the debt of commercial banks (*Kredit- och fondhandelsbolag samt solidariska bankbolag*) to the public and pp. 740–741, 744–745 for data on debts of joint-stock companies (*Samtliga aktiebolag och soldariska bankbolag*) and limited partnerships (*Vissa enkla bolag (handelsbolag) och föreningar*), respectively.

87 See Hagström (1968, pp. 345–348).

88 Note that Hagström only provides numbers every five years during the period 1929–1949 and every two-three years thereafter, why I linearly interpolate in order to get annual estimates.

C1.2 Savings bank debt

Savings banks started appearing in Sweden in the 1810s, and their number grew quickly. The main objective of savings banks was initially to offer deposit accounts to households and thereby stimulate saving and a prudential lifestyle. Direct credits to households were limited, and instead savings banks mainly lent money through purchases of bonds issued by domestic mortgage associations, which in practice meant agrarian finance. Since the loan amounts were fairly small, and the fact that family farms are included in the household sector, I regard savings bank lending as having ultimately gone to households.[89]

Data on savings bank credits come from various sources. They include different loan types and both the large community of geographically dispersed savings banks and the larger, state-owned Postal Bank (*Postbanken*). Direct data on lending do not exist before 1835. For the period between 1813 (when the first savings bank, Bromö glasarbetares sparbank, was founded) and 1834, I instead use the product between the total number of active savings banks (BiSOS, 1893, p. IV) and the average lending amount in 1835. For 1835–1875, I use data on savings bank lending in Nygren (1985, p. 140), corroborated with more detailed information for 1860 reported in Finanskommittén (1863, p. CIV-CV). For the period 1880–1935, savings bank credits are reported in Statistical Yearbook, Statistics Sweden for loans across different collateral types: tangible (*fast egendom* and "annat hypotek") and personal guarantees ("borgen").[90] For the period 1935–1970, data also come from the Riksbank's Statistical Yearbook. Over the entire period 1919–1955, I compare the series with numbers presented by Hagström (1968) and the differences are small.

C1.3 Other credit institute debt

In addition to loans at commercial and savings banks, households borrowed from other credit market institutions throughout the study period. These institutions were: mortgage associations, credit associations, and insurance companies.

Mortgage associations started appearing in Sweden in the 1830s, created to cater for the financial needs of factories and large farms. The business focused on issuing bond loans to predominately foreign investors and channeling the funds to association members (Nygren 1985, pp. 44f). I have not regarded any of these credits as

---

89 The question is still open concerning how much savings bank lending went to households. Flodström (1912) reports that in 1908 savings banks lent 641 million SEK (pp. 690–691) to "the public", that is, private firms and households, and 164 million SEK to insurance companies (pp. 726–727). At the same time, the firm sector, that is, joint-stock companies (pp. 740–741) and limited partnerships (pp. 744–745), had borrowed 685 million SEK and 5 million SEK, respectively, from the joint group of savings banks and insurance companies. The difference, 115 million SEK, or 18.8 percent in 1908, was borrowed by households. I assume this to be the share of households of total savings bank lending.

90 See, for example, for 1880–1915 Statistical Yearbook 1917, p. 193.

going to households. By contrast, in the 1870s, urban mortgage companies (*stadshy-poteksföreningar*) emerged and they were more focused on lending to households. I include all lending to city mortgage associations that was issued by the State Mortgage Association (*Konungariket Sveriges stadshypotekskassa*), which is reported in Statistics Sweden (1960) during 1875–1950 and in the Statistical Yearbook of the Riksbank between 1950 and 1970.[91] From 1970 onward, mortgage association lending is included in the Financial Accounts.

Insurance companies were another major lender to households. Early in the twentieth century, they offered their customers special loans against their life insurance policies (*lån och förskott mot livförsäkringsbrev*). I collect data on these loans in 1908 from Flodström (1912), various years during 1919–1962 from Hagström (1968, p. 361), and from the Statistical Yearbook of Statistics Sweden up until 1970.[92]

C2. Loans from the public sector

C2.1 State housing credit

The housing sector attracted enormous attention among Swedish politicians from the 1930s onward. The ambitious postwar credit market regulations were largely motivated by the need to channel funds to the construction of housing. In this way, a complex and extensive system for private and public housing credits was built up.[93]

Another credit form was the state-run Owner-occupied housing credit fund (*Statens egnahemslånefond*), created in 1904 with the ambition to extend housing credit to low-income working class households, initially in the countryside but soon also in urban areas. The loans were intermediated by certain local housing associations (*hushållningssällskap*) and all credits were applied for at the Ministry of Agriculture.[94] I include the accumulated debt to the fund between its start in 1904 and its end in 1948.

In the 1930s, additional funds were installed by the state authorities aimed at specific areas in the housing sector. In 1932 came the State Fund for Housing (*Statens Bolånefond*), in 1936 the State Fund for Low-Income Families with Many Children (*Statens lånefond för mindre bemedlade, barnrika familjer*) and in 1938 the State Fund for Inventory Purchases (*Statens bosättningslånefond*). Annual data on out-

---

91 See Statistics Sweden (1960, Tab. 82 Hypoteksinrättningar 1870–1950, s 101).

92 See Statistics Sweden, Statistical Yearbook, table "Svenska försäkringsbolag, Livförsäkringslån" (1970 p. 204; 1978 p. 222).

93 For further details on the Swedish postwar housing credit market, see, for example, SOU 1978:11, ch. 6, Andersson (1979), Nygren (1985) or Bladh (2002).

94 See *Lantmannens uppslagsbok* (1923), "Egnahem" (at http://runeberg.org/lantuppsl/ 2010-12-30).

standing loans at these funds during the 1930s and 1940s are reported in the Statistical Yearbooks of Statistics Sweden and the Riksbank.[95]

From the 1950s, data on these and similar housing loans to households has come directly from the archival sources of the forerunners to the present public agency, Swedish National Board of Housing, Building and Planning.[96] Specifically, data on housing loans to households come from Bostadsstyrelsen's archive. Its annual reports (*petitor*) to the central government declare both stocks and flows of these different loans. As a supplementary source, I have used the annual reports (*huvudböcker*) published since 1951. In these documents, mainly two types of loans are included. First, direct loans to multi-family buildings (*Tertiär- och bostadslån till flerfamiljshus (inkl. räntebärande tvätterilån)*), of which I assume that half went to households and half to construction firms. Second, direct loans to one- and two-family houses (*Egnahemslån, bostadslån och förbättringslån till en- och tvåfamiljshus, räntebärande*), of which I assume that the full amount went to households.

From 1970 onwards, the series on state loans to households in the Financial Accounts has been used. There is a break in the series in 2001, when the Financial Accounts started including additional debts to the state, mainly unpaid taxes. This component is roughly of equal size as the other state loans, but since it is not available for earlier years, I exclude it from the series for consistency reasons.

C2.2 Student loans

The system of state-funded higher education in Sweden has been largely organized by way of subsidized student loans. These loans were introduced in the 1960s and are still used on a large scale, but in a slightly altered form.[97]

To date, there has been no homogenous series on the aggregate value of the stock of outstanding student loans from the 1960s until present day, but thanks to efforts at the Swedish Board for Study Support, CSN, such evidence is now available for this database.[98] The Financial Accounts include all public loans to households after 1970, but before this year, one needs to supplement the housing loans (see previous section) with the student loans.

---

95 Statistics Sweden tables "Statens egnahemslånerörelse, 1906-", and Riksbank tables "Utestående egnahems- m fl lån vid årets slut".

96 I am grateful to archivist Maria Nilsson for helping me to acquire these sources.

97 Over the years, the degree of subsidization has decreased, making the loans more market-oriented.

98 I am grateful to Lars Hillerström at CSN for assembling data on the stock of outstanding student loans.

C3. Interpersonal (informal) debt

Informal borrowing has played an important role in household portfolios. During most of the nineteenth century, this form of indebtedness represented roughly three quarters of all liabilities and even in 1930, it amounted to as much as a fifth of all debt. These loans were typically written promissory notes or bills of exchange issued by either other households or corporate lenders in relation to, for example, a house or car transaction. In these cases, a financial claim would also arise on the asset side of household balance sheets (see our discussion about this kind of financial asset above).

Although we know little about its precise extent, estimates by economic historians suggest that the informal credit market was significantly larger than the formal, bank-based market up until the end of the nineteenth century. Lindgren (2002) used probate records showing peoples' debts at death in the city of Kalmar over the period 1830–1900. He found that informal credits in 1830 were about five to six times the debts in the organized credit market (primarily bank loans) while they were roughly the same size in 1900. Other studies finding similar levels for different Swedish regions are Hellgren (2002), Lilja (2004) and Perlinge (2005).

Appendix D Public sector wealth

This study presents a preliminary balance sheet of the Swedish public sector annually during the period 1870–2010. Previous estimates of public sector wealth are available for the years 1980–1994 in Statistics Sweden (1995) (see also Tengblad, 1992) and the Financial Accounts have reported financial public sector assets and liabilities since 1950.

The Swedish public sector is traditionally divided between central government and local government. Central government is effectively the state and, since the 1950s, also the public pension system, or the social insurance system (*socialförsäkrings-systemet*). Local government was restructured in the early 1860s, divided into two administrative levels: counties (*landsting*) and municipalities ("kommuner").[99] The number of counties was historically around 25 but is today down to 20 after a series of mergers. The prime policy responsibilities of counties have been health care and public transport. The number of municipalities has decreased drastically over time. A century ago they were about 2,500, but after waves of mergers in the 1950s and 1970s, they are today down to 290. The main responsibilities of municipalities are the provision of childcare, schooling, sanitation and other local public amenities.

The estimation of public assets and liabilities follows to a large extent the same approach used to estimate the value of private sector wealth reported above. Public wealth consists of reported stocks of non-financial and financial assets and liabilities, retrieved from yearly tax assessments and from official accounting statements. For details, see the following subsections.

However, the reliability of the values of these public sector balance sheets is quite difficult to assess in the absence of a marketplace for most public assets. Except for the most recent years in the late twentieth century, there are few sources of which accounting standards that have been used. Several items are valued on a running cost-basis, which is arguably the most motivated approach in many cases but it still suffers from a number of well-known problems. The most important problem is the implication that expensive activities are deemed more valuable despite the fact that they may merely be run inefficiently and therefore should not be worth as much.

Consistency checks, and in particular the benchmark values of 1980, have resulted in a number of adjustments of the series with respect to the reported balance sheet figures. most importantly, non-financial assets are adjusted for the period between 1950 and 1980. A comparison between the reported balance sheets and those calculated by Statistics Sweden shows notable deviations. Therefore, the database contains adjustments of the value of non-financial assets for the post-1950 era. The adjustments are similar for central and local governments.

---

99 Historically, municipalities were up until 1970 divided into two categories: rural municipalities (*landskommuner* and *muncipalsamhällen*) and urban municipalities (*städer* and *köpingar*). These are combined into one single category in the present study.

D1. Central government wealth

Between 1870 and 1949, central government assets are valued based on tax-assessed value of state-owned land and forestry and the official state balance sheet statements published annually in the Statistical Yearbook of Statistics Sweden and its forerunner in the nineteenth century.[100] The tax-assessed land values are transformed into market values through the multiplication of a sales price ratio.[101] The other state assets consist mainly of the equivalent equity capital in the state-owned companies and public utilities such as the railway company (and the railway infrastructure), water power plants, telegraph and telephone lines and buildings.[102] That is, for each of these utilities, the equity is estimated as the capitalized value of yearly net income or by subtracting non-equity liabilities from gross assets.[103] An adjustment was made in the land value series before 1875 to overcome a time series break between 1875 and 1878, when the value more than doubled due to changed reporting standards.

From 1950 onwards, financial assets are reported annually in the Financial Accounts at market values for the whole of central government, including the social insurance sector.

Non-financial assets after 1950 are retrieved from different sources. From 1980 onwards, the official national wealth series of Statistics Sweden have been used (see, for example, Statistics Sweden, 1995, 2016). For the period 1950–1979, no systematic reporting of state balance sheets has been found. The state budget was during this period divided into a current budget ("driftsbudget") and a capital budget ("kapitalbudget"), where the latter included the flow of incomes and costs adhering to the state assets and liabilities, and therefore no separate balance sheet was reported in the yearly budget. Instead, I use a combination of reported annual stocks of buildings

---

100 The State balance sheet is reported for many years in the Statistical Yearbook of Statistics Sweden, for example, in 1880: "Öfversikt af Statens finansiella ställning", ""Behållningar i fonder; Statens jernvägar med materiel", or in 1950, tab. 280, "Statens tillgångar och skulder". Tax-assessed land values of the state are reported in the same sources "Taxeringarna till bevillning eller kommunal inkomst- och förmögenhetsskatt samt kommunal progressivskatt" under "Bevillningsfri fastighet".

101 We set this ratio to 1.6 for the whole period, based on the average level of the sales price ratios for land and timber tracts of the private sector (the average for the period 1810–1950 was 1.56). The reason for not using the actual yearly ratios is that there are annual fluctuations reflecting tax reassessments of private property when publicly owned land was not reassessed.

102 The main state companies are reported as the value of the "funds" in each of these. The most important were the railway company (*Statens Järnvägar*, SJ), Post Office (*Postverket*), Telegraph Office (*Televerket*), Water power plant (*Statens vattenfallsverk*) and Timber tract authority (*Domänverket*).

103 The total value of the state railways was calculated by contemporaries using the capitalization method, that is, dividing the net income by a percentage rate of return, which was mostly between three and four percent. In 1870–1875, no capitalized value is reported directly but can be computed using the net income statements and reported "rates of return in relation to the construction value of the railways" that are available annually in the Statistical Yearbooks ("Sveriges officiella statistik i sammandrag", published in the periodical *Statistisk Tidskrift*).

and constructions and machinery, reported in Statistics Sweden (1975, 1985), and
the tax-assessed non-agrarian and agrarian property held by the state.

   Central government liabilities, or central government debt, are taken from Fre-
gert and Gustavsson (2014) for the period 1810–1949 and from the Financial
Accounts for the period 1950 onwards.

D2. Local government wealth

During the entire historical period, local government balance sheets are published in
the official publications of Statistics Sweden separately for municipalities and coun-
ties. Before 1950, assets and liabilities for counties and municipalities combined are
available in Statistics Sweden (1960, table 250).[104] These tables report typically both
the value of total assets and the value of real estate and inventories and the value of
all liabilities.[105] Note that municipalities have changed profoundly in structure, both
in terms of their number (they were over 1,000 in 1900 down to 290 in 1980) and
economic structure between urban ("stadskommuner" or "städer") and rural ("lands-
kommuner", also including "köpingar" and "municipalsamhällen").

   From 1950 onwards, the Financial Accounts report the total value of financial
assets and liabilities in all municipalities and counties each year. Non-financial assets
between 1950 and 1980 are estimated using a similar approach as for central govern-
ment, that is, a combination of reported annual stocks of buildings and construc-
tions and machinery, reported in Statistics Sweden (1975, 1985), and the tax-as-
sessed non-agrarian and agrarian property held by the state. In addition, I use infor-
mation from the balance sheet statements in the official statistics of the municipal
and county administrations. However, deviations in the valuation of property in
official accounting statements and tax-assessments usually result in an under-valua-
tion of public non-financial assets in the balance sheets.

---

104 For years 1870–1873 only total assets are reported, and I assume that the relationship with lia-
    bilities these years are the same as in 1874.
105 Separate accounts are also available. For counties 1880–1917 in Statistics Sweden (1960, tab.
    243, p. 231) and 1918–1950 in Statistics Sweden (1960, tab. 245, p. 232). For municipalities
    1880–1917 in Statistics Sweden (1960, tab. 243, p. 231) and 1918–1950 in Statistics Sweden
    (1960, tab. 249, p. 238). After 1950, balance sheet data are available in Statistical Yearbook of
    Statistics Sweden, Municipal finances (Kommunernas finanser). The municipal series are not
    fully comparable before and after 1918 due to differing reporting standards.

Appendix E Income and savings

E1. National income

Let Y_d denote gross national product, GDP, which is the total value of the produced goods and services of a country during one calendar year. GDP can be decomposed into domestic consumption C, gross investments I^G, government investment and consumption G, and net exports $NX = X = IM$. This yields the classical GDP identity: $Y_d = C + I^G + G + X - IM$.

We use national income, or net national income, Y as income denominator in our analysis. This concept captures total incomes net of capital depreciation as well as the net of foreign income flows. In other words, not only do we consider incomes to Swedes that appear within the domestic economy but also those occurring abroad. Likewise, we subtract domestic incomes that accrue to foreigners. Denote the consumption of fixed capital δK, where δ is the rate of depreciation of the capital stock, and net foreign income NFI, then national income is defined as

$$Y = Y_d - \delta K + FI$$

Equation (4) states that national income equals gross domestic product (GDP) minus capital depreciation and plus net foreign incomes (which can be either positive or negative).

There are several versions of Swedish historical GDP. This variety is due to two main factors. First, there has been a development in the international standards for national accounts. The 1993 national accounts of the System of National Accounts was replaced by the 2008 SNA. Similarly, the European System of National Accounts, ESA 2010, has been adopted by the EU countries. Statistics Sweden has followed this development but also made several changes of its own (since 2000, official Swedish GDP has been revised over 50 times). Second, there has been a gradual development in the research on Swedish historical national accounts, with important contributions made by Krantz and Schön (2007), Schön and Krantz (2012, 2015) and Edvinsson (2005, 2014).

Our main national income series is based on the historical GDP *by expenditure*, that is, as the sum of all expenditures on private and public consumption, investment and net exports. This is the official series used by Statistics Sweden and also the definition used by Piketty and Zucman (2014). Edvinsson (2005, 2012, 2014) presents several series of GDP by expenditure using different adjustments with respect to the

various generations of System of National Accounts.[106] In the most recent version using ESA 2010, GDP includes new items such as investments in research and development (R&D) and some outlays on military equipment. I disregard these new series in my database since they are still not available over the historical period.

In addition, GDP is also commonly measured by activity as in Edvinsson (2012, 2014). As Edvinsson explains, this is his most reliable historical GDP series, derived from the production side, summing the gross value added in all sectors and subtracting the cost of intermediate inputs.

Net foreign income, *NFI*, or net current transfers from abroad, is reported annually in Statistics Sweden's Statistical Yearbook back to 1964. For years before that, I compute it by multiplying a fixed interest rate (assumed at five percent) paid on the stock of net foreign assets, that is, $NFI = r \cdot NFA$. Naturally, we would have preferred using the gross stocks of foreign-owned capital in Sweden K_F times the interest rate paid on that, r, and of Swedish-owned capital abroad, K^* time some interest rate r^*, that is, $NFI = r \cdot K_F - r^* \cdot K^*$. But there are presently not enough data on the gross stocks and different interest rates in order to make such computations.

E2. Disposable household income

While relating the household portfolio to national income is relevant, a number of economic questions address the importance of household assets and liabilities to the actual income flow that households dispose of at any point in time. Disposable household income Y_H^d is defined in a standard manner. First, gross factor income Y_H^g is computed by adding the sum of wages and salaries and gross private surplus. Then from this we subtract direct taxes T and add transfers Z such that we obtain the following equation for disposable household income:

$$Y_H^d = Y_H^g - T + Z$$

From 1950 onwards, the Swedish National Accounts reported by Statistics Sweden include disposable household income.[107] Between 1850 and 1949, gross factor income comes from Edvinsson (2005), series U ("Wages and salaries (including social benefits)") and W ("Gross surplus"). Taxes are direct income taxes used for

---

106 Once again, Krantz and Schön (2007, 2012) have produced several generations of Swedish historical national accounts, largely similar to the ones used by Edvinsson but still different in some important respects. The differences between Edvinsson and Krantz and Schön lie mainly in how they treat various subsectors, for example, investments in real estate, calculation of trade values and so forth.

107 We use a series supplied in Berg (2010) from 1950 up to 1979 and from 1980 we use the series "II.4.1.B6n Disponibel inkomst, netto" for households and NPISH (sectors S14+S15) in Statistics Sweden's Statistikdatabasen, table "Inkomster och utgifter samt kapitaltransaktioner (ENS2010), löpande priser, mnkr efter sektor, transaktionspost och år" (2015-09).

Chapter 1 in Henrekson and Stenkula (2015) available since 1862. While other direct taxes, primarily property taxes, should in principle also be excluded as the availability of these is somewhat more problematic for the early periods. Furthermore, the level in the 1950s of computed disposable income is quite close (about two percent difference) to the level reported in the official National Accounts series. Benefits are reported annually since 1930 in a public study of the Swedish pension system (Pettersson, Pettersson and Westerberg, 2006). There are thus gaps in the latter half of the 1850s as regards coverage of taxes and benefits, but since taxes and benefits represented a tiny fraction of gross incomes (less than three percent), this matters little for the overall income series. Before 1850, disposable household income is assumed to be at the same level relative to national income as it was during the period 1850–1859 (which was 65 percent).

Figure E9.1: *Ratio of disposable household income to national income.*
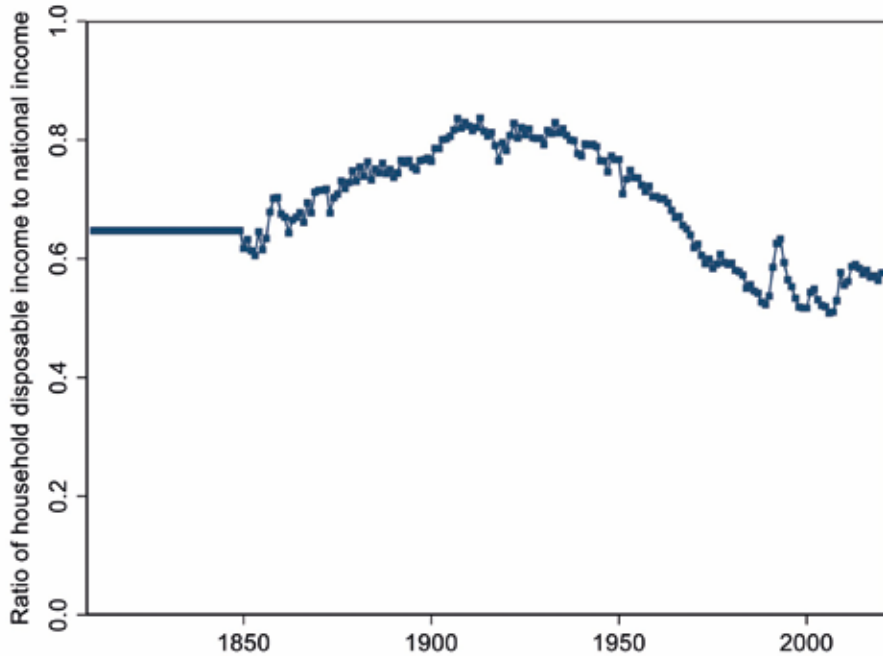

Figure E9.1 shows the ratio between disposable household income and national income over the full study period. As explained above, in the initial four decades the ratio is constant, but thereafter it is related to historically observed series. There is an interesting hump shape in the evolution, with the share of household income to national income increasing up to the early twentieth century and then falling rapidly in the 1960s down to historically low levels in the 1980s. While this pattern reflects

many things, it mirrors the relative importance of private income to public income in Sweden. As personal incomes and profits increased during industrialization, the ratio rose. Later, as the public sector started expanding, the relative size of private incomes fell. There are also interesting episodes such as the 1990s spike, reflecting the fall in GDP (the denominator) while personal incomes were largely maintained due to the transfer system.

A final note on the relationship to disposable household income is the relative importance of household indebtedness. In recent years, the role of household liabilities and their long-run effects on fiscal and economic stability in the rest of the economy have attracted enormous attention among researchers and in the policy debate. Figure E9.2 shows the ratio of liabilities to three different denominators: disposable income of households, national income and total assets. There is a clear rise in ratio in both series using income denominators, and the levels of the twenty-first century is of historic proportions. However, when dividing by the sum of non-financial and financial assets, the increase in the relative size of household debt is muted substantially.

Figure E9.2: *Ratio of household liabilities to different income denominators.*
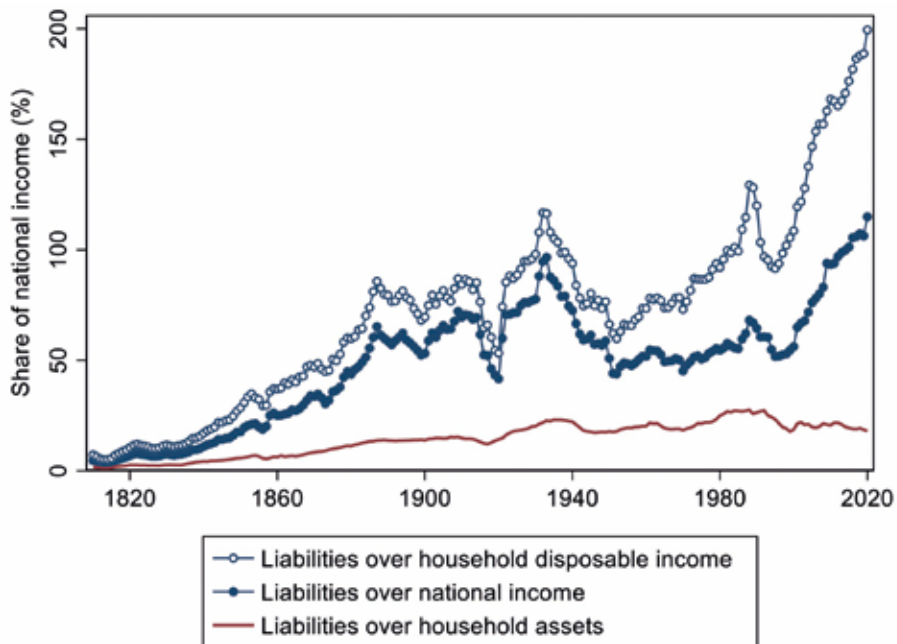
E3. Saving

A new series for private and public savings in Sweden is presented for the period since 1810. Sweden's official National Accounts series begin in 1950 and from this year onwards there is relatively good information about annual gross and net savings in the private and public sectors. For the period before 1850, savings rates are estimated from historical data on investments, capital depreciation and net exports. Sector-specific saving rates are also reported for the full period, using detailed information since 1950 and rough estimates before that.

E3.1 Saving 1950–2010

Data on national, private and public savings in Sweden since 1950 are available in the National Accounts. It should be noted that these series have been revised by Statistics Sweden a number of times over the years, so it is important to be clear about the generation of evidence being used. For the period 1980–2010, the most recent version of the National Accounts tables (*Kvartalstabeller*) of Statistics Sweden published on February 28, 2014 (Statistics Sweden, 2014) are used.[108] For the period 1950–1979, data compiled and published by Berg (1988, 2000) are used.

   Net household saving is calculated in the standard way, which means subtracting household consumption from disposable household income. For corporations, including both non-financial and financial corporations, net saving is computed as the sum of operating surplus, property income and current transfers net of household collective insurance savings (change in net equity of households in pension funds reserves). For the public sector, finally, net saving is computed in the same way as in the household sector, subtracting final consumption expenditure (and the change in net equity of households in pension funds reserves) from disposable income which is the sum of primary incomes (taxes less subsidies and net property income) and net current transfers.

---

108 This is the quarterly national accounts tables (*Kvartalstabeller*) published on Statistics Sweden's website. I use annual data on the sheet "GDP by income components and distribution by sector of income, transfers and saving".

E3.2 Saving 1810–1949

Before 1950, Sweden had no official series on private or public saving. Therefore I estimate a new series from existing evidence on historical national accounts compiled by other authors.[109] Specifically, it is noted that in an open economy, private savings can be defined as the sum of private investments, net exports and net foreign income. Letting S^g be the flow gross savings measured in current prices gives that

$$S^g = I^g + CA$$

where I^g is gross investments and $CA = X - IM + NFI$ is the current account, that is, the difference between exports X and imports IM plus net foreign income NFI. Net savings S^n is computed by subtracting the consumption of private fixed capital δK where δ is the rate of depreciation, from gross investments as follows:

$$S^n = (I^g - \delta K) + CA$$

Saving rates are computed by dividing the saving flows by national income Y:

$$s^n = S^n/Y$$

Data on private sector gross investment I^g are available in Edvinsson (2005, appendix series I) back to 1800. These are the nominal value of gross investment (in purchasers' prices, million SEK) of various types of activities and total gross investment. Data on the consumption of fixed assets δK are also available back to 1800 in Edvinsson (2005, appendix series J). The private sectors for which investments were made are "Agriculture and ancillaries", "Manufacturing and handicrafts", "Building and construction", "Transport and communication"," Other private services" and "Services of dwellings". We use the data in Edvinsson (2005) for the period 1810–1980 after which we switch to the newest series of Statistics Sweden (Statistics Sweden, 2014), which are at a notably higher level than Edvinsson's series because of recent major revisions by Statistics Sweden.

Data on the current account balance CA are based on the net export of goods and services collected from the most recent historical estimates available in Edvinsson (2014) and on the net foreign income reported above. Figure E9.3 shows national net and gross saving rates over the full period 1810–2010.

---

109 The Swedish Institute of Economic Research has compiled preliminary national accounts including some savings estimations in the 1940s. In Östen Johansson's influential historical statistics (Johansson, 1965), there are savings rates based on similar estimations to ours, and Lundberg (1969) also provides a series of investment and saving, including estimates of the shares of the public, corporate and household sectors. Similarly, Schön (2000) refers to unpublished saving rates from the nineteenth and twentieth centuries.

Figure E9.3: *National net and gross saving rates.*
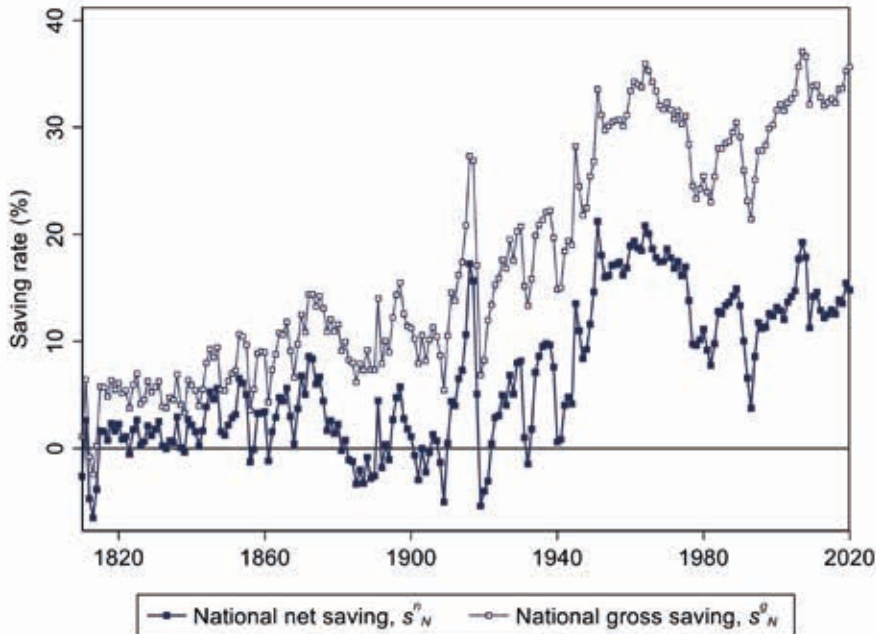
E3.3 Sectoral saving rates

For the entire period, sectoral decomposition of saving is reported. Before 1950, this is based on applying approximate – and unfortunately highly uncertain – shares of national saving reported in Lindberger (1956) and Lundberg (1970). Shares of national saving adhering to households, corporations and the government are reported by Lundberg (1970, pp. 92f) for the period 1923–1962 and Lindberger (1956, ch. 4) for 1945–1951. The shares before 1923 are assumed to be at the same level as in the 1920s.

Some corporations in Sweden are owned by non-Swedish citizens (currently about forty percent of all stock exchange-listed equity) and the public sector, and in neither of these cases should the savings emanating from these corporations be included in . In the case of foreign-owned corporations, the National Accounts automatically account for this since both gross surplus and property income of corporations are computed in net terms with respect to cross-country flows.[110] Central and

---

110 This means that the surplus and property incomes of foreign-owned corporations active in Sweden will be registered as outflows to the owners' respective countries. Analogously, profits and incomes of Swedish citizens coming from their corporations situated abroad will be registered as inflows. In the National Accounts, the net profit and income flows are registered and thus the foreign ownership of firms in Sweden is accounted for.

local government corporations are not treated separately in the National Accounts which means that some of the reported corporate net savings are in fact not private but public. The current structure of the national accounts does not allow for computation of savings across ownership categories, and a crude assumption is made that the share of public sector-owned corporate savings is equal to the share of publicly owned corporate shares, listed and closely held, of all corporate shares according to the Financial Accounts.[111]

Private gross and net saving rates are the sum of personal and corporate saving rates: $S_{Pt}^g = (S_{Ht}^g + S_{Ct}^g)/Y_t = S_{Pt}^g/Y_t$ and $s_{Pt}^n = S_{Pt}^n/Y_t$, respectively. National net savings rate s_N^n is computed by adding the public net savings rates s_G^n to the private net savings rate such that $s_N^n = s_P^n + s_G^n$.

Figure E9.4 shows the private net savings rates for corporations and households, where the early series based on investments and net exports up to 1950 are combined with the national accounts-based series for the period since 1950.

Figure E9.4: *Private net saving rates: Corporations and households.*

---
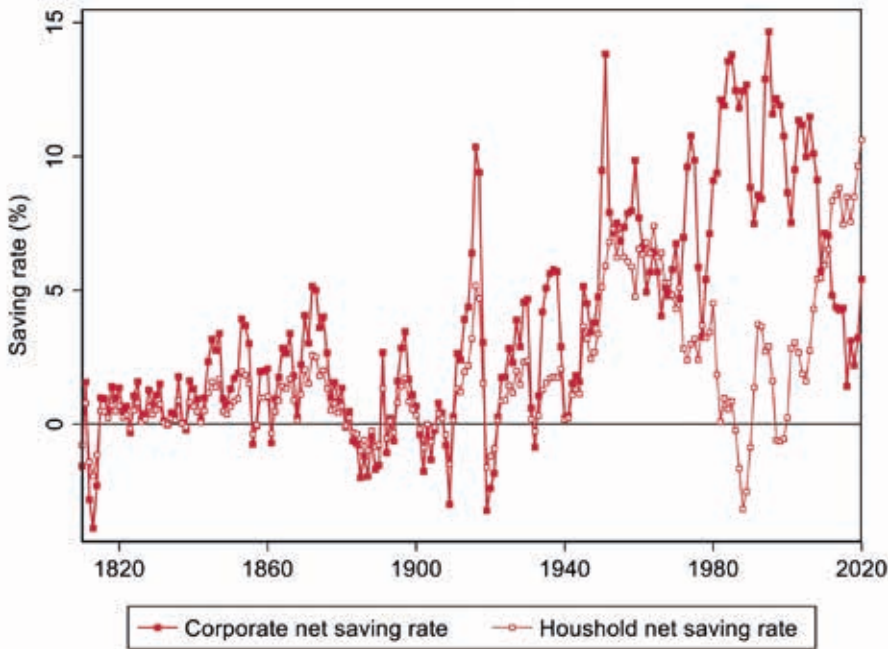
111 Specifically, for each year, we sum the total value of listed shares (series FA5110 in the Financial Accounts) and non-listed shares (series FA5120) held by the public sector (S13) and the Swedish Riksbank (S121) and divide this by the total value of all listed and non-listed shares owned by domestic sectors (S1).

In Figure E9.5, the private and government net saving rates are shown over the full period. Note that the level in the period up to the 1920s is determined by an assumed fixed share of national saving attributed to the two sectors. But interestingly, the difference in saving intensity between the public and private sectors is relatively similar over the entire two-century period, which offers some support for the attributed shares in the old era.

Figure E9.5: *Private and government net saving rates.*
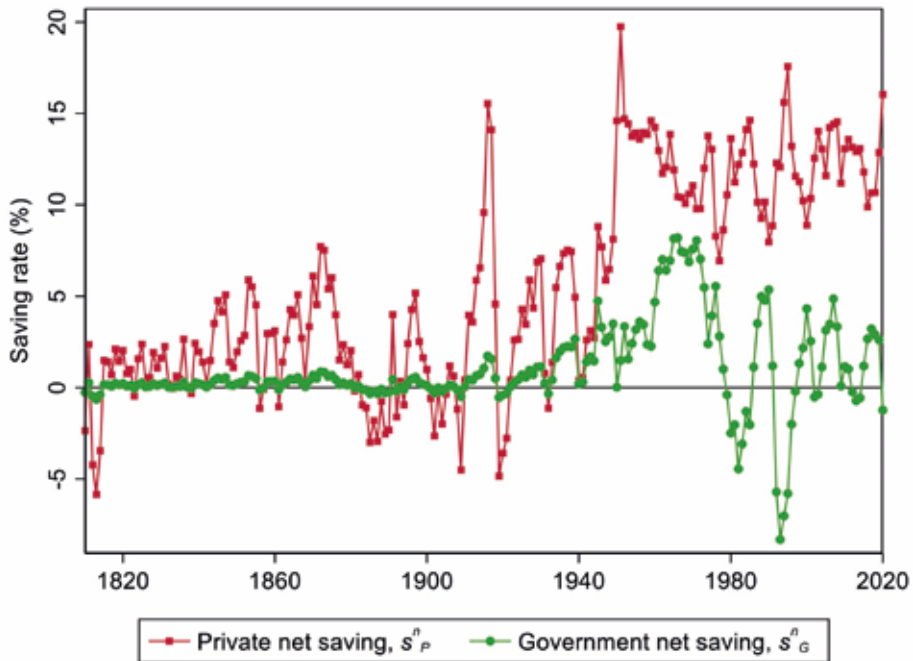
References

Adamsson, R. (1966). *Järnavsättning och bruksfinansiering 1800–1860*, Meddelanden från ekonomisk-historiska institutionen vid Göteborgs universitet, Göteborg.

Åkerman, S. (1967). *Skattereformen 1810. Ett experiment med progressiv inkomstskatt*, Västerås: Vestmanlands läns tidnings AB tryckeri.

Albers, T., Bartels, C., and Schularik, M. (2021). "The Distribution of Wealth in Germany, 1895–2018", Mimeo, University of Bonn.

Andersson, S. (1979). *Svensk kreditmarknad*, Stockholm: Sparfrämjandet.

Andersson, B. (1985). "Malmö Diskont 1803–1818", Ekonomisk-historiska institutionen, Göteborgs universitet.

Artola Blanco, M., Bauluz, L., and Martínez-Toledano, C. (2020). "Wealh in Spain, 1900–2017: A Country of Two Lands". *Economic Journal*.

Atkinson, A.B. and Harrison, A. (1978). *The Distribution of Personal Wealth in Britain*, Cambridge University Press, Cambridge.

Bentzel, R., K. Eklöf, G. Albinsson, B. Bröms, J. Ekström, O. Gulbrandsen, Å. Sanell, K.-O. Samuelsson (1957). *Den privata konsumtionen i Sverige 1931–65*, Industriens Utredningsinstitut, Stockholm.

Berg, L. (1983). *Konsumtion och sparande – en studie av hushållens beteende*. Ph. D. Dissertation, Department of Economics, Uppsala University.

Berg, L. (1988). Hushållssparandet i Sverige. Hushållens sparande och konsumtion, Expertrapport till Spardelegationen, Stockholm: Allmänna förlaget.

Berg, L. (2000). "Sparande, investeringar och förmögenhet – en analys med inriktning på sammansättning och förändring av hushållens sparande och förmögenhet", Bilaga 7, SOU 2000:11 *Finansmarknadsutredningen*, Stockholm: Fritzes.

Bergman, B., O. Djerf and A. Lindström (2010). *Tillgångar, skulder och kapitalvinster. balansräkningarnas roll underskattas i statistik och analys*, Statistics Sweden, Stockholm.

Bladh, M. (2002). "Stadshypotek och bostadsfinansieringspolitiken", in H. Sjögren (Ed.). *I takt och otakt med tiden. Stadshypotek mellan stat och marknad*, Stockholm: Ekerlids Förlag.

Bollfras, K. D. (1878). *Försök till uppskattning af svenska nationalförmögenheten af B-s*, Ivar Häggströms tryckeri: Stockholm.

Bollfras, K. D. (1885). "Svenska nationalförmögenheten vid 1880 års slut", *Svensk trävarutidning* December, no. 15: 3–4.

Broberg, O. (2006). *Konsten att skapa pengar. Aktiebolagens genombrott och finansiell modernisering kring sekelskiftet 1900*, Ph.D. Dissertation, Department of Economic History, Göteborg University.

Campbell, J. Y. and J. F. Cocco (2007). "How Do House Prices Affect Consumption? Evidence from Micro Data", *Journal of Monetary Economics* 54 (2007): 591–621.

Christensen, J. P., R. Hjerppe, O. Krantz, C.-A. Nilsson (1995) "Nordic historical national accounts since the 1880s", *Scandinavian Economic History Review* 43(1): 30–52.

Collectum (2010). "ITP 1 Valstatistik", Report at https://www.collectum.se/sv/Om-Collectum/Statistik/2010/ (2012-02-17).

Dahlman, C. J. and A. Klevmarken (1971). *Den privata konsumtionen 1931–1975,* Industriens Utredningsinstitut, Stockholm.

Davies, J. B. and Shorrocks, A. F. (2000). "The Distribution of Wealth", in A. B. Atkinson and F. Bourguignon (eds.). *Handbook of Income Distribution*, North-Holland, Amsterdam.

Davies, J, R. Lluberas and A. Shorrocks (2011). *Credit Suisse Global Wealth Databook*, Zurich: Credit Suisse.

Edebalk, L.G. (1996). *Välfärdsstaten växer fram: Svensk socialförsäkring 1884–1955*. Lund: Arkiv.

Edvinsson, R. (2005). *Growth, Accumulation, Crisis: With New Macroeconomic Data for Sweden 1800–2000*, Ph.D. Dissertation, Stockholm: Almqvist & Wiksell International.

Edvinsson, R. (2014). "The Gross Domestic Product of Sweden within Present Borders, 1620–2012", in: R Edvinsson, T Jacobson and D Waldenström (eds.). *Historical Monetary and Financial Statistics for Sweden, vol. 2*, Stockholm: Sveriges Riksbank and Ekerlids förlag.

Edvinsson, R. and J. Söderberg (2010). "Consumer Price Index for Sweden, 1290–2006", in Edvinsson, R., T. Jacobson and D. Waldenström (Eds.). *Exchange Rates, Prices and Wages, 1277–2008. Historical Monetary and Financial Statistics for Sweden*, Stockholm: Ekerlids Förlag and Sveriges Riksbank.

Elmér, Å. (1960). *Folkpensioneringen i Sverige*. Malmö: Gleerups.

Endrédi, G. (1967). *Resekonsumtionen 1950–1975*. Stockholm: IUI och Almqvist & Wiksell

Englund, K. (1956). "Försök till en uppskattning av Sveriges nationalförmögenhet omkring år 1952", *Statistisk Tidskrift,* häfte 10, 493–518.

Eurostat (2013). *European System of Accounts. ESA 2010*, Luxembourg: Publications Office of the European Union.

Fahlbeck, P (1890). *Sveriges Nationalförmögenhet, dess storlek och tillväxt*, Stockholm, P. A, Norstedts & Söner.

Fahlbeck, P. (1901). "Öfversikt av Sveriges näringar", in G. Sundbärg, *Sveriges land och folk. Historisk-statistisk handbok*, Stockholm: P. A. Norstedt och söner.

Feldstein, M. (1974). "Social Security, Induced Retirement, and Aggregate Capital Accumulation", *Journal of Political Economy* 82(5): 905–926.

Feldstein, M. (1976), "Social Security and the Distribution of Wealth", *Journal of the American Statistical Association* 71, 800–807.

Finanskommittén (1863), *Underdånigt betänkande angående Sveriges ekonomiska och finansiella utveckling under åren 1864–1860*, Stockholm: Norstedt & Söner.

Flodström, I. (1912), *Sveriges nationalförmögenhet omkring år 1908 och dess utveckling sedan mitten av 1880-talet. Finansstatistiska utredningar V*. Stockholm: Finansdepartementet.

Fritz, S. (1990), *Affärsbankernas aktieförvärvsrätt under 1900-talets första decennier*, Stockholm.

Gale, W. G. (1998). "The Effects of Pensions on Household Wealth: A Reevaluation of Theory and Evidence", *Journal of Political Economy* 106(4): 706–723.

Gale, W. G. and J. K. Scholz, (1994). "Intergenerational Transfer and the Accumulation of Wealth", *Journal of Economic Perspectives* 8, 145–160.

Garbinti, B., Goupille-Lebret, J., and Piketty, T. (2020). "Accounting for Wealth Inequality Dynamics: Methods, Estimates and Simulations for France". Journal of the European Economic Association.

Gårdlund, T. (1942). *Industrialismens samhälle*, Stockholm: Tiden.

Goldsmith, R. W. (1962). *The National Wealth of the United States in the Postwar Period*, NBER, Princeton University Press, Princeton.

Goldsmith, R. W. (1985). *Comparative National Balance Sheets; A Study of Twenty Countries, 1688–1978*, University of Chicago Press, Chicago.

Goldsmith, R. W. (1987). *Premodern Financial Systemes. A Historical Comparative Study*, Cambridge University Press, Cambridge, UK.

Gratzer, K. (2002). "Konkursinstitutet som finansiell institution", in D. Johansson and N. Karlson (Eds.). Den svenska tillväxtskolan: om den ekonomiska utvecklingens kreativa förstörelse, Stockholm: Ratio.

Grytten, O. H. (2004). "The gross domestic product for Norway 1830–2003", in: Ø. Eitrheim, J.T. Klovland, and J. F. Qvigstad (eds.), *Historical monetary statistics for Norway 1819–2003*, Oslo: Norges Bank.

Guiso, L., M. Haliassos and T. Jappelli (Eds.) (2002). *Household Portfolios*, Cambridge, MA: MIT Press.

Hagström, T. (1968). *Kreditmarknadens struktur och funktionssätt*, Koncentrationsutredningen 2, SOU 1968:3, Stockholm, Fritzes.

Hansen, S. A. (1974). Økonomisk *vækst i Danmark, Bind 1–II*, Copenhagen: C.E.C. Gads Forlag and Akademisk Forlag.

Harrysson, L. (2000). *Arbetsgivare och pensioner. Industriarbetsgivarna och tjänstepensioneringen i Sverige 1900 – 1948*, Lund: Värplinge Ord &Text.

Henrekson, M., U. Jakobsson (2012). "The Swedish Corporate Control Model: Convergence, Persistence or Decline?", Corporate Governance: An International Review 20(2): 212−227.

Henrekson, M., M. Stenkula (2015). *Swedish Taxation: Developments since 1862*. Palgrave Macmillan, New York.

Hjerppe, R. (1996). *Finland's historical national accounts 1860–1994: calculation methods and statistical tables*, Jyväskylä.

Hodne, F. and O. H. Grytten (2000). *Norsk økonomi det nittende århundre*, Bergen: Fagbokforlaget.

Hyckert, J. F. (1815). *Sveriges folkmängd, styrka och tillgångar, deras förhållande till rikets vidd, jordbruk, handel och näringar*, Stockholm.

Indebetou, G. (1925). *Svenska aktiebrev före år 1880*, Stockholm: Föreningen för svensk kulturhistoria.

Jansson, K. and Johansson, S. (1988). *Förmögenhetsfördelningen 1975–1987*, Statistics Sweden, Stockholm.

Johansen, H.C. (1986). *The Danish Economy in the Twentieth Century*. London: Croom Helm.

Jonsson, G. (1999). "The gross domestic product of Iceland, 1870–1945", in O. H. Grytten (ed.), *Nordic historical national accounts: proceedings of workshop IV, Solstrand, 13–15 November 1998*, Bergen.

Jonung, L. (1993). "The Rise and Fall of Credit Controls: the Case of Sweden 1939–89", in M. D. Bordo and F. Capie (Eds.). *Monetary Regimes in Transition*, Cambridge University Press.

Jörberg, L. (1972). *A History of Prices in Sweden 1732–1914*, Lund: CWK Gleerup.

Kapitalmarknadsutredningen (1978). *Kapitalmarknaden i svensk ekonomi. Huvudbetänkande*, SOU 1978:11, Stockholm: Fritzes.

Kessler, D. and A. Masson, (1989). "Bequest and Wealth Accumulation: Are Some Pieces of the Puzzle Missing?", *Journal of Economic Perspectives* 3: 141–152.

Krantz, O. and L. Schön (2007). *Swedish Historical National Accounts, 1800–2000*. Lund: Almqvist and Wiksell International.

Kuuse, J. (1969). *Varaktiga konsumtionsvarors spridning 1910–1965*, Akademiförlaget, Göteborg.

Kärrlander, T. (2008). *Malmö diskont: en krisanatomi*, Licentiate dissertation, Royal Institute of Technology, Stockholm.

Kärrlander, T. (2011). *Malmö diskont: en institutionell analys av en bankkris*, Ph.D. dissertation, Royal Institute of Technology, Stockholm.

Lilja, K. (2004). *Marknads och hushåll. Sparande och krediter i Falun 1820–1910 utifrån ett livscykelperspektiv*, Ph.D. Dissertation, Department of Economic History, Uppsala University.

Lindahl E., E. Dahlgren and K. Kock (1937). *National Income of Sweden 1861–1930*, I–II, London.

Lindberger, L. (1956). *Penningvärdeundersökningen. D. 3, Investeringsverksamhet och sparande : balansproblem på lång och kort sikt*. SOU 1956:10, Stockholm: Fritzes.

Lindgren, E. (2010). *Samhällsförändring på väg. Perspektiv på den svenska bilismens utvecklingmellan 1950 och 2007*, Dissertation, Department of Economic History, Umeå University. http://umu.diva-portal.org/smash/get/diva2:313358/FULLTEXT01

Lindgren, H. (2002). "The Modernization of Swedish Credit Markets, 1840–1905: Evidence from Probate Records", *Journal of Economic History* 62(3): 810–832.

Lindmark, M., F. Andersson (2014). "Where Was the Wealth of the Nation? Measuring Swedish Capital for the 19th and 20th Centuries". CERE Working Paper, 2014:1.

Lundberg, L. (1969). *Kapitalbildningen i Sverige 1861–1965*, Stockholm: IUI.

Magnusson, L. (1983). *Kapitalbildningen i Sverige: Godsen*. Acta Universitatis Upsaliensis. Uppsala.

Martinius, S. (1970). *Agrar kapitalbildning och finansiering 1833–1892*, Meddelanden från ekonomisk-historiska institutionen vid Göteborgs universitet, Göteborg.

McLure, C E, Jr and Norrman, E, (1997). "Tax Policy in Sweden", i Freeman, R B, Swedenborg, B & Topel, R (ed). *The Welfare State in Transition*, University of Chicago Press, Chicago.

Nordin, M, H Olsson and B Wickman-Parak (1992). "Nationalförmögenhet: Begrepp och mätmöjligheter (del I)", in *Nationalförmögenheten. Bilaga 11 till Långtidsutredningen LU 92*, Stockholm, Allmänna förlaget.

Nygren, I. (1985). *Från Stockholms Banco till Citibank: Svensk kreditmarknad under 325 år*, Stockholm, SNS.

Olofsson, G. (1993). "Det svenska pensionssystemet 1913–1993: historia, struktur och konflikter", *Arkiv för studier i arbetarrörelsens historia* No. 58–59: 29–84.

Olsson, A. (1993). "Finansiella tillgångar och skulder i Sverige, 1945–1990", Mimeo, Stockholm University.

Perlinge, A. (2005). *Sockenbankirerna. Kreditrelationer och tidig bankverksamhet. Vånga socken i Skåne 1840–1900*, Stockholm: Nordiska muséets förlag.

Pettersson, L. (1987). *Byggnads och anläggningsverksamhet, 1800–1980, Historiska nationalräkenskaper för Sverige*, Department of economic history, Lund University.

Pettersson, T., T. Pettersson and A. Westerberg (2006), *Generationsanalyser – omfördelning mellan generationer i en växande välfärdsstat'*, ESS 2006:6, Stockholm: Fritzes.

Piketty, T. (2011). "On the Long-Run Evolution of Inheritance: France 1820–2050", *Quarterly Journal of Economics* 126(3): 1071–1131.

Piketty, T. (2014). *Capital in the 21st century*, Belknap, Cambridge, MA.

Piketty, T., G. Zucman (2014). "Capital is Back: Wealth-Income Ratios in Rich Countries, 1700–2010". *Quarterly Journal of Economics* 129(3): 1255–1310.

Piketty, T., G. Zucman (2015). "Wealth and inheritance in the long run", in: A.B. Atkinson and F. Bourguignon (eds.). *Handbook of Income Distribution, vol.2B*, Amsterdam: North-Holland.

Roine, J. and D. Waldenström (2008). "The Evolution of Top Incomes in an Egalitarian Society: Sweden, 1903–2004", *Journal of Public Economics* 92, 366–387.

Roine, J. and D. Waldenström (2009). "Wealth Concentration over the Path of Development: Sweden, 1873–2006", *Scandinavian Journal of Economics* 111(1): 151–187.

Rylander, G. and B. Bergman (1989). *Hushållens finansiella sparande och förmögenhet – en utvärdering av statistiken och kompletterande beräkningar*, Expertrapport till Spardelegationen, Stockholm, Allmänna förlaget.

Samuelsson, H.-F. (1977). *Utländska direktinvesteringar i Sverige. En ekonometrisk analys av bestämningsfaktorerna*, Stockholm: Almqvist & Wiksell International.

Sandelin, B. (1977). Prisutveckling och kapitalvinster på bostadsfastigheter. Gothenburg: Nationalekonomiska institutionen, Göteborgs universitet, Memorandum 66

Seth, K. (1863). "Allmänna Bevillningen åren 1813–1861", *Statistisk tidskrift* II: 16–43.

Scheve, K. and D. Stasavage (2010). "The Conscription of Wealth: Mass Warfare and the Demand for Progressive Taxation", *International Organization* 64: 529–561.

Scheve, K. and D. Stasavage (2012). "Democracy, War, and Wealth: Lessons from Two Centuries of Inheritance Taxation." *American Political Science Review* 106(1): 82–102.

Schön. L. (2000). *En modern svensk ekonomisk historia*. Stockholm: SNS.

Schön. L. (2012). *An Economic History of Modern Sweden*. Abingdon: Routledge.

Schön, L. and O. Krantz (2012). "Swedish Historical National Accounts 1560–2010", Lund Papers in Economic History 123, Lund University.

Schön, L. and O. Krantz (2015). "New Swedish Historical National Accounts since the 16th Century in Constant and Current Prices", Lund Papers in Economic History 140.

Sidenbladh, E. (1878). "Om taxeringsvärdet af Sveriges jord", *Statistisk tidskrift* 52: 85–117.

Soltow, L. (1985). "The Swedish Census of Wealth at the Beginning of the 19th Century", *Scandinavian Economic History Review* 33: 1–24.

Spånt, R. (1979). *Löntagarna och kapitaltillväxten. 2, Tre expertrapporter från Utredningen om löntagarna och kapitaltillväxten*, Utredningen om löntagarna och kapitaltillväxten, Stockholm, Allmänna förlaget.

Statistics Sweden (1863). *Kongl. Maj:ts befallningshafvandes femårserättelser* för åren 1856–1860, Bidrag till Sveriges Officiella Statistik (BiSOS), Stockholm, P. A. Norstedt & Söner.

Statistics Sweden (1868). *Kongl. Maj:ts befallningshafvandes femårserättelser. Sammandrag, 1861–1865*, Bidrag till Sveriges Officiella Statistik (BiSOS), Stockholm, P. A. Norstedt & Söner.

Statistics Sweden (1945). *Priser och taxeringsvärden å jordbruksfastigheter 1/1 1938–30/6 1944*, Statistiska Meddelanden Ser. A. Band VI:I, Stockholm, Statistiska Centralbyrån.

Statistics Sweden (1959). *Historical Statistics of Sweden. II. Climate, Land Suveying, Agriculture, Forestry, Fisheries –1955*, Stockholm, Statistics Sweden.

Statistics Sweden (1960). *Historical Statistics of Sweden. Statistical Survey. Tables Not Published in Volumes I and II*, Stockholm, Statistics Sweden.

Statistics Sweden (1975). *Capital formation, repair and maintenance and stocks of fixed capital*, SM N 1975:98, Appendix 2.

Statistics Sweden (1985). *Capital formation and stocks of fixed capital*, SM N 1984:5.5, Appendix 2-3, Tab. 2:13.

Statistics Sweden (1995). *Realkapitalstock och förmögenhet 1980–1995*, Statistiskt Meddelande N10SM9501, Stockholm: Statistiska Centralbyrån.

Statistics Sweden (2010). *Tabeller över Sveriges befolkning 2009* [Tables on the population in Sweden 2009], Stockholm: Statistiska Centralbyrån.

Statistics Sweden (2016). "Nationalförmögenheten och Nationella Balansräkningar", Dokumentation 2016-05-30, Stockholm.

Statskontoret, various years, *General-Sammandrag öfver Bevillningen.*

Stiglitz, J., A. Sen and J.-P. Fitoussi (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress*, Paris: OECD.

Ståhlberg, A.-C. (1981). "Pensionstillgångarna i Sverige och deras fördelning", *Statistisk Tidskrift* 1, 438–447.

Ståhlberg, A.-C. (1995). *Våra pensionssystem*, Stockholm: SNS Förlag.

Swedish Board of Agriculture, *Jordbruksekonomiska undersökningen* [Farm Economic Survey], various years, Jordbruksverket, Jönköping.

Swedish Board of Agriculture (2011). *Jordbruksföretag och företagare 2010* [Agricultural holdings and holders in 2010], JO 34 SM 1101, Statistics Sweden, Örebro.

Swedish Parliament (1930). "Särskilda utskottets utlåtande nr 2", Stockholm, Riksdagstryck.

Tengblad, Å. (1992). "Nationalförmögenhet i Sverige: Beräkningar för 1980-talet samt redovisning av principer och statistikunderlag (del II)", in *Nationalförmögenheten. Bilaga 11 till Långtidsutredningen LU 92*, Stockholm, Allmänna förlaget.

Thunholm, L.-E. (1969). *Svenskt kreditväsen*, Stockholm: Rabén & Sjögren.

United Nations (2003). *National Accounts: A Practical Introduction*, Statistics Division, New York, United Nations.

United Nations (2009). *System of National Accounts 2008*, New York, United Nations.

Van Der Hagen, A. L. and S. Cederschiöld (1881). *Svenska Aktiebolag med begränsad ansvarighet (1848–1881)*, Stockholm: Beijer.

Waldenström, D. (2014). "Swedish stock and bond returns, 1856–2012", in: R Edvinsson, T Jacobson and D Waldenström (eds.). *Historical Monetary and Financial Statistics for Sweden, vol. 2*, Stockholm: Sveriges Riksbank and Ekerlids förlag.

Waldenström, D. (2016). "The National Wealth of Sweden, 1810–2014". *Scandinavian Economic History Review*, 64(1):36–54.

Waldenström, D. (2017). "Wealth-Income Ratios in a Small, Developing Economy: Sweden, 1810–2010". *Journal of Economic History*, 77(1):285–313.

Waldenström, D. (2023). "The Swedish Bond Market, 1835-2020". In: Edvinsson, R., Jacobson, T., Waldenström, D. (Eds.), *Banking, Bonds, National Wealth, and Stockholm House Prices 1420–2020. Historical Monetary and Financial Statistics for Sweden, vol. 3*, Stockholm: Sveriges Riksbank and Ekerlids förlag.

Werin, L. (1993). "Det finansiella systemet i omvandling", in L. Werin (Ed.). *Från räntereglering till inflationsnorm. Det finansiella systemet och riksbankens politik 1945–1990*, Stockholm, SNS Förlag.

Wolff, E. N. (1989). "Trends in Aggregate Household Wealth in the U.S., 1900–83", *Review of Income and Wealth* 3, 1–29.

Wolff, E. N. (2007). "The Retirement Wealth of the Baby Boom Generation", *Journal of Monetary Economics* 54, 1–40.

Wolff, E. N. (2011). *The Transformation of the American Pension System. Was It Bene-*

ficial for Workers?, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Zucman, G. (2013). "The Missing Wealth of Nations, Are Europe and the U.S. net Debtors or net Creditors?". *Quarterly Journal of Economics* 128(3): 1321–1364.

This book is the third volume published in the research project run by Sveriges Riksbank concerning Historical Monetary and Financial Statistics for Sweden. The current volume includes chapters on the evolution of Swedish banking, historical house prices for Stockholm, the Swedish bond market, and Sweden's national wealth.

Sveriges Riksbank is one of the oldest central banks in the world, if not the oldest. In its infancy, in the 17th century, the Riksbank was also the only bank in Sweden. But many more banks, of varying orientation and organisation, emerged in the following centuries. In two chapters, covering an early period from 1770 to 1870 and a modern banking period from 1870 onwards, a broad description of the scope of the Swedish banking industry over time is provided.

In four chapters, a new house price index is presented for Stockholm from the Middle Ages to the present. The index shows that the increase in real house prices in the last few decades is matched by similar-sized increases occurring in the 17th and 19th centuries. These two historic episodes were followed by periods of secular stagnation, or even decline. Long upturns in house prices can be related to periods of strong urbanisation. Sharp downturns have occurred due to various macroeconomic shocks, for example wars or financial crises. During these downturns, nominal prices have tended to decline less than real prices.

The Swedish bond market emerged almost two hundred years ago. During the 19th century, private-sector bond loans issued by mortgage institutions and corporations to foreign lenders dominated. In the 20th century, government borrowing has dominated the market and the role of domestic lenders has increased.

The national wealth of Sweden has transformed over the past two centuries. Private agrarian estates were the dominant assets in the 19th century, but the 20th century saw the emergence of financial assets and liabilities and also public-sector net wealth.

Ekerlids Förlag

SVERIGES
RIKSBANK