RESEARCH INSTITUTE OF
INDUSTRIAL ECONOMICS

IFN Working Paper No. 1267, 2019

Stock Market Impact of Cross-Border Acquisitions in Emerging Markets

Pehr-Johan Norbäck and Lars Persson

Research Institute of Industrial Economics
P.O. Box 55665
SE-102 15 Stockholm, Sweden
info@ifn.se
www.ifn.se

Stock Market Impact of Cross-Border Acquisitions in Emerging Markets

Pehr-Johan Norbäck*

Research Institute of Industrial Economics

Lars Persson

Research Institute of Industrial Economics and CEPR

February 27, 2019

Abstract

Entry by multinational enterprises (MNEs) into emerging markets has increased substantially over the last decades. Many of these MNE entries have taken place in concentrated markets. To capture these features, we construct a strategic interaction model of MNE cross-border acquisition and greenfield entry into an oligopolistic market. We provide an event study framework suitable to derive predictions for the stock market values of MNE entries. We show that share values of acquirers will increase when an acquisition is announced if and only if the domestic assets are not too strategically important. If there is risk associated with cross-border M&As, we show that such risks reduce the likelihood and the acquisition price of cross-border M&As. These mechanisms provide an explanation for why acquirers tend to overperform when acquiring in emerging markets but underperform when acquiring in developed markets. We also show that shareholders of targets firms in emerging markets may benefit from not selling their firms too early in the development phase.

Keywords: FDI, Cross-Border Mergers and Acquisitions, Stock Market Value, Emerging Markets.

JEL classification: F23, G34, L13

*We are grateful for helpful discussions with participants at seminars at IFN, European Institute, Nottingham University and Purdue University. Financial support from the Marianne and Marcus Wallenberg Foundation, and Jan Wallanders och Tom Hedelius stiftelse, is gratefully acknowledged. Email: lars.persson@ifn.se.

1. Introduction

In 2015, developing economies saw their FDI inflows reach a new high of $765 billion, 9 per cent higher than in 2014. Developing Asia, with FDI inflows surpassing half a trillion dollars, remained the largest FDI recipient region in the world. Most new investment policy measures continue to be geared towards investment liberalization and promotion. In 2015, 85 per cent of measures were favorable to investors. Emerging economies in Asia were most active in investment liberalization across a broad range of industries.[1]

This development is likely to have a profound effect on the profit flows of multinational enterprises (MNEs), on firms in emerging markets and, thereby, on these firms' stock market values. The purpose of this paper is to contribute to a better understanding of these effects. Our starting point is that there are two basic ways for MNEs to establish a business in these markets, either acquiring an established firm or setting up a new venture, a so-called greenfield investment. Several factors help explain why MNEs prefer to grow via M&As rather than through organic growth: the quest for strategic or complementary assets, such as brand names, and the possession of local permits, distribution networks or patents. The importance of domestic assets will depend on the strength of complementarity between the MNE's firm-specific assets and domestic assets. To capture these aspects, we consider the following model: a domestic firm is initially located in the domestic market in country H. There are also several symmetric MNEs located in the world market. The domestic market will now be exposed to international competition. The interaction takes place in three stages. In the first stage, MNEs might acquire the domestic firm's assets, which will be referred to as *domestic industry–specific assets*. The value of the domestic industry–specific assets will be allowed to vary, and *these domestic industry–specific assets will be said to be strategically valuable when combining an MNE's firm -specific assets with the domestic assets gives the acquirer a strong position in the product market relative to greenfield entrants.* In the second stage, MNEs have the option of investing in new assets in country H, where greenfield entry is assumed to be associated with a risk of failure. Finally, in the third stage, firms compete in an

[1] See World Investment Report (WIR) 2016.

oligopolistic fashion in country H given the investment pattern.

Our first result is that the high strategic value of domestic assets is conducive to acquisition entry. However, it is also shown that for the acquisition to take place; the MNE needs to be sufficiently efficient when using these domestic assets. The reason is that if the acquisition was made to increase concentration in the market, i.e., the domestic firm was mainly bought out, then rival firms would expand, which in turn, implies that the acquiring firm would not be able to pay the selling firm its reservation price.

However, we also show that while acquisition entry is associated with the high strategic value of domestic assets, in equilibrium, such acquisitions not necessarily have high expected profitability if there is bidding competition over the target firm. To see this, note that in equilibrium, the price of the assets is a non-acquiring MNE's willingness to pay for them, which consist of two profit terms: the expected product market profit for this firm if it were to instead obtain the domestic firm's assets net of the corresponding profit when not buying. It then follows that the first profit term increases to the same extent as that of the acquirer from an increase in the strategic value of the domestic assets and will thus off-set the acquirer's increase in profit. Moreover, the second profit term will decrease the more strategically valuable the domestic assets, since the non-acquirer will then face a stronger competitor in the product market. This implies that the willingness to pay further increases for the non-acquirer.

Consequently, the acquisition price may increase by more than the acquirer's product market profit when the domestic assets become more strategically valuable. On the other hand, if the assets are not too strategically important or if there are few potential acquirer present things looks different. The acquirer will then have a stronger position and will be able to acquirer the target firm at a low price. Thus in this case acquisition will have high expected profitability.

Next, we use our results for how expected profits are affected by an acquisition to derive stock market value implications for the different MNE entry modes and the target firm. To this end, we following the standard approach, the so-called event study, to examine M&A performance, assuming that the merger comes as a surprise to the financial market.

Our first empirical prediction is that the share-values of both the acquirer and the non-acquirer will decrease when a cross-border acquisition is announced if the domestic assets are sufficiently strategically valuable and if several potential acquirers are present. This is because the bidding competition is then so fierce that the firms involved would be better off not starting a bidding war. However, we also show that the share values of both the acquirer and the non-acquirer will increase when an acquisition is announced if the domestic assets are not too strategically important or when there are no rival bidders present. These results suggest that cross-border M&As in emerging markets will be more beneficial to the shareholders of the MNEs than cross-border M&As in developed countries because most target firms in emerging markets are not likely to have highly strategically valuable assets and the bidding competition over these target firms should be less intense.

Turning to the effects on the target firm, we find that strong bidding competition over the domestic target firm implies that the domestic firm will sell its assets at a price higher than its reservation price. The empirical implication is that the target firm's shareholders benefit from the acquisition. Moreover, the model implies that the shareholders of targets firms (in developing countries) may benefit more from not selling their firms until they have accumulated a sufficient amount of firm-specific strategic assets over which potential acquiring MNEs will compete. Extending the analysis to the case where there is risk associated with cross-border M&As, we show that such risks reduce the likelihood and the acquisition price of cross-border M&As.

An indication that the mechanisms identified here are empirically relevant can be found in the empirical event study literature on M&A performance. The underperformance of acquiring firms in U.S. mergers and acquisition (M&A) transactions is well documented (Andrade, Mitchell, and Stafford (2001 and Moeller, Schlingeman, and Stulz (2005)). However, when examining multinational firm acquisitions in emerging markets, Chari, Ouimet and Tesar (2010) find an economically large and statistically significant increase in the acquiring firm's stock price.[2] These findings seem consistent with the

[2] It has also been shown that there is a takeover premium in cross-border M&As and that the takeover

results of our model: when acquisitions take place in industries where assets are strategically important and where there is bidding competition, the acquisition price will be so high that the target firm benefit a lot while the acquirer would have been better of if the bidding war would not have taken place. These requirements are likely fulfilled in the U.S. market.[3] However, in emerging markets, there is less bidding competition over the target assets, and these assets are likely less strategically important. In these situations, our model shows that both the acquirer and the target benefit from a cross-border acquisition. Thus our model explains existing empirical results in the literature on stockmarket effects of cross-border M&As.

Ashraf, Herzer, and Nunnenkamp (2016) using panel data for up to 123 countries find that greenfield FDI and M&As both appear to be ineffective in increasing TFP in the subsample of developing countries. In contrast, M&As have a positive effect on TFP in the subsample of developed countries. Arnold and Javorcik (2009) who analyze Indonesian microdata find that M&As improves TFP in the acquired Indonesian firms by 13.5 percent. This evidence seems consistent with that the complementarity between the acquirer and target firm is on average high in developed countries but not in developing countries. Further, the result on cross-border M&As in Indonesia suggests that if successful cross-border M&A in developing countries could have substantial positive effects (while being risky).

We then turn to the long-run effects. Our starting point is the literature on MNEs, which has argued that one of the main benefits of acquiring a local competitor over greenfield investment is that acquisition helps the firm reduce risks due to a lack of knowledge of the specific characteristics of the local market. We can derive predictions about the relative long-run performance of different entry modes. To incorporate these aspects into the model, we assume that greenfield entry is associated with individual risk of failure. It then follows that due to this individual risk, firms also face market risk, as

premiums differ across industries. See, for instance, Dewenter (1995) and Harris and Ravenscraft (1991).

[3] Blonigen (1997) finds that the specificity of assets is important to the acquisition pattern. He finds support for the hypothesis that real dollar depreciations make Japanese acquisitions more likely in U.S. industries, particular of those that are likely to have firm-specific assets.

the realized product market profit of a firm may differ from expectations. The reason for this difference is that product market profits will depend on the number of successful greenfield entrants. It is then shown that if firms are sufficiently symmetric, the stock market value of the acquirer is reduced relative to that of a successful greenfield entrant since the market risk of both entry modes will be similar, and only the individual risks differ. However, if competition is sufficiently softer than expected and the strategic value is sufficiently high, the acquirer's stock market value will increase relative to that of a successful greenfield entrant.

Our paper is also related to the economics literature on cross-border M&As and greenfield investment that emphasizes that greenfield investments and cross-border acquisitions are not perfect substitutes and have both different determinants and varying welfare effects (see, for instance, Bjorvatn (2004); Girma et al (2015), Javorcik and Saggi (2010), Nocke and Yeaple (2007, 2008); Mattoo, Olarrega and Saggi (2004); Norbäck and Persson, (2007, 2008); or Raff, Ryan and Stähler (2009)). We add to this literature by constructing a model to determine stock market effects of cross-border acquisitions and greenfield entry in oligopolistic competition. Our model thus provides an explanation for why acquirers tend to underperform when acquiring in developed markets but overperform when acquiring in emerging markets. Moreover, the model generates detailed short- and long-run predictions of stock market values for the different entry modes and of stock market valuations for the target firms.

The model is detailed in Section 2. In Section 3, we derive the equilibrium market structure and the equilibrium net profits for different entry modes. Section 4 derives implications for stock market values for the different entry modes. In Section 5 we extend the analysis to incorporate risk of failure associated with a cross-border M&A. Section 6 concludes. Finally, most proofs appear in the Appendix.

2. The model

We consider a country H whose market will now be exposed to international competition. It has previously been served by a single domestic firm, denoted d, possessing one unit of domestic assets, denoted k_0. The internationalization of the market may be due to different reasons. For instance, the expansion might be a natural step in the life cycle of a product or stem from increasing local demand, or the administrative costs of cross-border acquisitions and greenfield entry may have been reduced in the globalization process.[4]

We assume that there are $M > 1$ symmetric MNEs in the world market. At the outset, the MNEs have no assets in Country H, but they might now invest. The interaction takes place in three stages. In the first stage, the MNEs might acquire the domestic firm's assets. In the second stage, MNEs have the option to invest greenfield in new assets in country H. Finally, in the third stage, firms engage in oligopolistic competition in country H.[5]

This model set-up builds on Norbäck and Persson (2008). The focus in Norbäck and Persson (2008) is to examine how the surplus generated by the globalization process is divided between MNEs and owners of domestic assets. This paper extend that analysis by including a stock market in the model. The extended model in this paper is then used to derive predictions of stock market effects of cross-border acquisitions and greenfield entry in oligopolistic competition.

The model will be solved by backward induction and the next sections describe the equilibrium in the product market interaction, the greenfield investment game, and the acquisition game.

2.1. Stage three: product market interaction

The product market profits in the industry will depend on the distribution of asset ownership. An asset ownership vector $\mathbf{k}$ is defined as $\mathbf{k} \equiv (k_d, k_1, k_2, .., k_M)$, where entry

[4] It should be noted that these developments are explanations for why international expansion has not already taken place. However, all of these different reasons will have the same effect on the relative profits of different entry modes that we study here.

[5] It should be noted that we can have Stage 1 and Stage 2 taking place simultaneously. However, we believe that acquisition entry should be faster and, therefore, we let it take place before greenfield entry. However, it should be noted that if we instead assumed that Greenfield entry takes place before the acquisition, the game would look different. The reason is that greenfield entry might then be used as a strategic investment to reduce the value of the domestic asset for sale.

one refers to firm d's asset holdings, entry two to MNE 1's asset holdings, and so on. To simplify the presentation, we will distinguish between two types of ownership structures: (i) one wherein the domestic assets are sold to one of the MNEs, denoted $\mathbf{k}^{\mathrm{m}}$, and (ii) one wherein the domestic assets remain in the hands of the domestic owner, denoted $\mathbf{k}^{\mathrm{d}}$.

Vectors $\mathbf{k}^{\mathrm{m}}$ and $\mathbf{k}^{\mathrm{d}}$ are defined as follows:

$$\mathbf{k}^{\mathrm{m}} \equiv \mathbf{k}^{\mathrm{m}}(\alpha, N^m, k_0, k_G) \equiv (0, \alpha k_0, \underbrace{k_G, k_{G,}..., k_{G,}}_{N^m} \underbrace{0, ..., 0}_{M-N^m-1}), \qquad \alpha > 0 \tag{2.1}$$

$$\mathbf{k}^{\mathrm{d}} \equiv \mathbf{k}^{\mathrm{d}}(N^d, k_0, k_G) \equiv (k_0, \underbrace{k_G, k_{G,}..., k_{G,}}_{N^d} \underbrace{0, ..., 0}_{M-N^d}). \tag{2.2}$$

The first entry of each vector shows the asset ownership of the domestic firm; the second entry, the asset ownership of the potentially acquiring MNE. The parameter $\alpha > 0$ captures a difference in how efficiently an MNE and the domestic firm can use the assets k_0. We shall discuss α in detail below. The remaining entries show the asset ownership of the non-acquiring MNEs, which can be either successful greenfield entrants (having assets k_G) or "exporters", i.e., MNEs that do not succeed in investing greenfield (having assets $k_E \equiv 0$). Under MNE ownership, there is one acquiring MNE, and N^m non-acquiring MNEs that invest greenfield, whereas $M - N^m - 1$ MNEs do not invest. Under domestic ownership, there are N^d MNEs successfully investing greenfield and $M - N^d$ MNEs that do not.

Under MNE ownership of the domestic assets k_0, we let $\pi_A(\mathbf{k}^{\mathrm{m}})$ denote the reduced-form product market profit for the acquiring MNE, $\pi_G(\mathbf{k}^{\mathrm{m}})$ the corresponding profit for a non-acquiring MNE as a greenfield entrant, and $\pi_E(\mathbf{k}^{\mathrm{m}})$ the corresponding profit for a non-acquiring MNE as an exporter (i.e., a non-investing MNE). Under domestic ownership of the assets k_0, MNEs are either greenfield entrants or exporters, with the product market profits $\pi_G(\mathbf{k}^{\mathrm{d}})$ and $\pi_E(\mathbf{k}^{\mathrm{d}})$, respectively. The profits for the domestic firm under the respective ownership structures are $\pi_d(\mathbf{k}^l)$, $l = \{\mathrm{d}, \mathrm{m}\}$.

We make the following assumptions about profits in the product market

A1: $\pi_h(\mathbf{k}^l(\cdot, N^l) > \pi_h(\mathbf{k}^l(\cdot, N^l + 1)$

Assumption A1 states that the product market profits for all types of firms decrease in the number of successful greenfield entrants, N^l.

A2: $\pi_h(\mathbf{k}^l) > \pi_E(\mathbf{k}^l) \equiv 0, \qquad h = \{A, G\},\ \pi_d(\mathbf{k}^{\mathrm{d}}) > \pi_d(\mathbf{k}^{\mathrm{m}}) \equiv 0$

Assumption A2 states that a firm's product market profit increases in its own capital stock in country H. This assumption forms the basic motive for FDI in terms of acquisition or greenfield entry and stems from trade cost avoidance or lower factor costs. To facilitate the readability, but with no loss of generality, we *normalize* such that $\pi_E(\mathbf{k}^l) \equiv 0$, i.e., the product market profit in exporting is set to zero. Moreover, we also assume that the domestic firm will not make any product market profit without its assets $\pi_d(\mathbf{k}^{\mathrm{m}}) = 0$.

Local assets k_0 may be used differently under domestic and foreign ownership.

A3: $\dfrac{\partial \pi_A(\mathbf{k}^{\mathrm{m}})}{\partial \alpha} > 0, \dfrac{\partial \pi_G(\mathbf{k}^{\mathrm{m}})}{\partial \alpha} < 0, \dfrac{\partial \pi_h(\mathbf{k}^d)}{\partial \alpha} \equiv 0, \qquad h = \{d, G\}$

Assumption 3 states that an increase in *the strategic value*, α, increases the acquirer's profit, whereas the market profit for a non-acquirer (i.e., a greenfield investor) decreases. The magnitudes of these effects depend on the strength of the complementarities between the MNEs' firm-specific assets and the domestic assets. For example, the combination of an MNE's strong brand name and the acquired firm's knowledge of the market or strength in distribution may provide the acquiring MNE with a strong market position. If the brand name of the domestic assets is locally very strong, the strategic value of the assets will also be high. If the domestic assets are sold at an early stage, the acquirer may gain a strong first-mover advantage in building on a dominant position in the product market.

2.2. Stage two: Greenfield investments

At this stage, MNEs that did not enter the market through the acquisition of firm d can enter by undertaking a greenfield investment at a fixed cost $\mathcal{G}$. To simplify the analysis, we assume that investments in greenfield assets k_G are "lumpy", i.e., they are discrete assets or plants, and the domestic firm does not find it profitable to invest at this stage due to, for instance, financial or managerial restrictions.

Assumption A2 states that MNEs obtain locational advantages for producing in country H. In the literature on MNEs, greenfield entry is considered risky due to a lack of knowledge about the specific characteristics of the local market. One of the main benefits of acquiring a local competitor instead of entering greenfield is the reduction of such risks. Moreover, greenfield investments involve large initial investments under uncertainty, which are highly likely to be sunk. This is due the fact that these assets are likely to be designed to fit the production of a particular industry, and the costs of restructuring them into assets suitable for other industries is assumed to be high.[6] To model this decision, we assume that each potential greenfield entrant enters successfully with probability p $\in [0, 1]$ and will not enter with probability $1 -$ p. N^l is then simply the MNEs drawn as successful in the greenfield stage.

Note that we abstract from the possibility that the number of greenfield entrants under domestic and foreign ownership of the domestic assets is affected by the strategic value α (i.e., we assume that p is independent of α). We will discuss the modelling of greenfield uncertainty in more detail of the end of Section 4.

2.3. Stage one: the acquisition game

The acquisition process is depicted as an auction wherein M MNEs simultaneously post bids and the domestic firm then either accepts or rejects these bids. Each MNE i places a bid, b_i, for the domestic firm. $\mathbf{b} = (b_1, b_2, ..., b_M) \in R^M$ is the vector of these bids. Following the announcement of $\mathbf{b}$, the domestic firm may be sold to one of the MNEs at the bid price or remain in the ownership of firm d.[7] We solve the acquisition auction for Nash equilibria in undominated pure strategies.[8]

[6] To the best of our knowledge, the only empirical paper studying sector-specific assets is Ramey and Shapiro (2001), which finds that capital is very sector specific.

[7] The bidder with the highest bid obtains the domestic assets. If there is more than one higest bids each such bidder obtains the assets with equal probability. Moreover, there is a small amount, ε, such that all inequalities are preserved if ε is added or subtracted.

[8] We assume that MNEs cannot bid on each other's firms. This assumption could be supported in two basic ways in a full merger model. One is to assume that the profits from a merged entity are sufficiently small to imply that no merger takes place between MNEs. The second is to assume that

We now turn to the firms' valuations of the domestic firm's assets, k_0. Note that when forming its valuation in stage one, a firm does not know the outcome of the greenfield game in stage two. Hence, since the number of successful greenfield entrants, N^l, is stochastic, it follows that the asset ownership structure is also stochastic at the acquisition stage. To capture this, define the *stochastic* variable (or function) $\mathbf{K}^{\mathrm{l}}(\cdot, N^l)$ with *realizations* in terms of asset ownership structures $\mathbf{k}^{\mathrm{l}}(\cdot, N^l)$. The expected product market profit for firm h when a firm of type l acquires the domestic assets k_0, $\bar{\pi}_h(\mathbf{K}^{\mathrm{l}})$, is then defined as:

$$\bar{\pi}_h(\mathbf{K}^{\mathrm{l}}) \equiv \mathrm{E}\left[\pi_h(\mathbf{K}^{\mathrm{l}})\right] \equiv \sum_{N^l=0}^{N^l_{\max}} \rho(N^l)\pi_h\left(\mathbf{k}^{\mathrm{l}}(\cdot, N^l)\right), \tag{2.3}$$

where $\pi_h\left(\mathbf{k}^{\mathrm{l}}(\cdot, N^l)\right)$ is the product market profit for firm h when N^l firms enter greenfield successfully, $\rho(N^l) = \binom{N^l_{\max}}{N^l}\mathrm{p}^{N^l}(1-\mathrm{p})^{N^l_{\max}-N^l}$ denotes the joint probability of observing N^l greenfield entrants, where $N^m_{\max} = M - 1$, $N^d_{\max} = M$, and $\binom{N^l_{\max}}{N^l}$ denotes the combinatorial function.

There are then *three* different valuations that need to be considered:

- $v_{m_i m_j}$ is the expected value to MNE i of obtaining k_0, when MNE j would otherwise obtain k_0. Using symmetry among MNEs, we will suppress the subindices and simply write v_{mm}. The first term shows the expected product market profit when possessing k_0. The second term is the expected product market profit when a rival MNE obtains k_0, in which case greenfield entry in stage 2 takes place with probability p.

$$v_{mm} = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right]. \tag{2.4}$$

- v_{md} is the expected value for MNE i of obtaining k_0 when the domestic firm would otherwise keep them. The expected product market profit for MNE i when not obtaining assets k_0 is different in this case, since the k_0 assets are in the hands of the domestic firm, they might be used differently from when in the hands of an MNE. This implies that the expected product market profits as a greenfield entrant

mergers between MNEs would not be permitted by competition authorities.

will typically be different.

$$v_{md} = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{d}}) - \mathcal{G}\right]. \tag{2.5}$$

- v_d is the expected value for the domestic firm of obtaining k_0. This is simply:

$$v_d = \bar{\pi}_d(\mathbf{K}^{\mathrm{d}}). \tag{2.6}$$

The firms' bidding behavior is dependent on the relation between their own valuation of obtaining the assets k_0 and all other firms' valuations of obtaining these assets. Since the MNEs are symmetric, valuations v_{mm}, v_{md} and v_d can be ordered in six different ways, as shown in table 3.1.

Note that we have simplified the analysis assuming that there is no costs of merging the local firm's assets with the MNE's assets? Without loss of generality we could add a merging cost T to capture this. This would reduce v_{mm} and v_{md} with an amount T while leaving v_d unaffected.

3. The equilibrium acquisition pattern

In this section, we derive the equilibrium ownership structure (EOS) and the acquisition price $\mathcal{A}$. We also determine how the level of the strategic value affects the acquisition pattern. Moreover, we study the profitability of the different entry modes after the acquisition and after greenfield investment have taken place. These findings will be instrumental in deriving the stock market predictions of an acquisition in Section 4.

The equilibrium ownership structure (EOS) and the acquisition price $\mathcal{A}$ are described in table 3.1, which shows that when one of the inequalities $I1$, $I2$, $I3$, or $I4$ holds, k_0 is obtained by one of the MNEs. Under $I1$, $I2$ or $I3$, the acquiring MNE pays the acquisition price $\mathcal{A} = v_{mm}$, and $\mathcal{A} = v_d$ under $I4$. When I_5 or I_6 holds, the domestic firm keeps its assets.[9]

[9] When $I2$ holds, there exist multiple equilibria. In one equilibrium, firm d keeps the assets and no MNE places a bid above v_d. There is also an equilibrium wherein one of the MNE´s obtains the assets at a price $v_{mm} - \varepsilon$ and another MNE places the second-highest bid at $v_{mm} - 2\varepsilon$.

Table 3.1: The equilibrium ownership structure and acquisition price.

Inequality:	Definition:	Ownership structure:	Acquisition price
$I1:$	$v_{mm} > v_{md} > v_d$	$\mathbf{K}^{\mathrm{m}}$	v_{mm}
$I2:$	$v_{mm} > v_d > v_{md}$	$\mathbf{K}^{\mathrm{m}}$ or $\mathbf{K}^{\mathrm{d}}$	v_{mm} (if $\mathbf{K}^{\mathrm{m}}$)
$I3:$	$v_{md} > v_{mm} > v_d$	$\mathbf{K}^{\mathrm{m}}$	v_{mm}
$I4:$	$v_{md} > v_d > v_{mm}$	$\mathbf{K}^{\mathrm{m}}$	v_d
$I5:$	$v_d > v_{mm} > v_{md}$	$\mathbf{K}^{\mathrm{d}}$	.
$I6:$	$v_d > v_{md} > v_{mm}$	$\mathbf{K}^{\mathrm{d}}$	.

3.1. Post-Acquisition Expected Profits

In this section, we examine how the MNEs' expected net profits are affected by the acquisition. These profits are described in Figure 3.1. As a point of *reference*, we first describe the expected net profit in the absence of an acquisition, $\bar{\Pi}_h(\mathbf{K}^{\mathrm{d}})$, which will be referred to as the *Pre-Acquisition Expected (Net) Profit* (depicted in Stage 0 in Figure 3.1), where in the following, we shall drop the net abbreviation. If no acquisition is expected to occur, the MNEs' expected profits are $\bar{\Pi}_h(\mathbf{K}^{\mathrm{d}}) = \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{d}}) - \mathcal{G}\right]$ for $h = \{A, NA\}$, whereas the domestic firm's expected profit is simply $\bar{\Pi}_d(\mathbf{K}^{\mathrm{d}}) = \bar{\pi}_d(\mathbf{K}^{\mathrm{d}})$.

We then proceed to examine the expected profits when an acquisition takes place, $\bar{\Pi}_h(\mathbf{K}^{\mathrm{m}})$. This is referred to as the *Post-Acquisition Expected Profit* (depicted in Stage 1 in Figure 3.1). The acquiring MNE's expected profit is $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathcal{A}$, whereas a non-acquiring MNE's expected profit is $\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) = \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right]$. The domestic firm collects the acquisition price, i.e., $\bar{\Pi}_d(\mathbf{K}^{\mathrm{m}}) = \mathcal{A}$.

We can then derive the following lemma:

Lemma 1. *The post-acquisition expected profit for an MNE will be (i) equal for the acquirer and the non-acquirer under I1, I2 or I3, (ii) lower for the acquirer than the non-acquirer when I4 holds, and (iii) lower compared to the pre-acquisition expected profit when the acquisition takes place under I1 and I2, and higher compared to the*

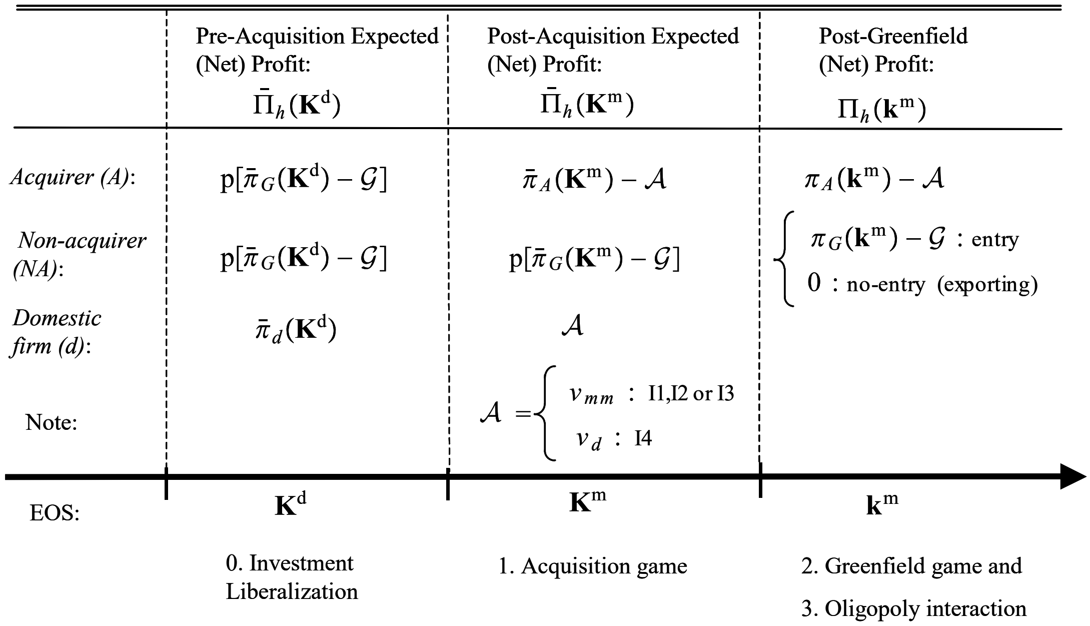

Figure 3.1: Defining profits in different stages of the game under I1, I2, I3 or I4.

pre-acquisition expected profit when the acquisition takes place under I3 and I4.

- Part (i) of the lemma shows that when several MNEs are potential buyers of the domestic firm's assets, the post-acquisition expected profit for the acquirer and the non-acquirer will be equal when I1-I3 holds, i.e., $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})$. The reason is that the MNE's willingness to pay is also driven by the desire to prevent other MNEs from obtaining the assets, as illustrated by $v_{mm} > v_d$ being fulfilled. Consequently, the acquisition price will be such that an MNE is indifferent between acquiring and not acquiring.

- Part (ii) shows that under I4, the acquirer's post-acquisition expected profit will be lower than that of the non-acquirer, i.e., $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) < \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})$, since the acquiring MNE in this case mainly pays to eliminate a rival (the domestic firm). However, non-acquirers will also benefit from this elimination, but they do not pay the price for it. There is thus a free rider problem associated with eliminating the domestic rival.

- Part (iii) shows that the post-acquisition expected profit for all MNEs will be lower compared to the corresponding pre-acquisition expected profit when the acquisition takes place under I1 and I2, that is, $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) < \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})$.

The latter situation is illustrated in Stages 0 and 1 in Figure 3.2. To explain this fall in expected profit, note that the acquisition price is $\mathcal{A} = v_{mm} > v_{md}$. This shows that the acquirer's valuation of the domestic assets when the domestic firm holds the assets k_0, v_{md}, is lower than the price the firm pays in the acquisition under I1 or I2, v_{mm}. Consequently, the acquirer's expected profits will be lower than the corresponding pre-acquisition value. It also follows that a non-acquiring MNE's expected profits must fall since this firm is indifferent between acquiring and not acquiring.

Under I3 or I4, however, the acquisition price is $\mathcal{A} = v_d < v_{md}$. The MNEs' expected profits then increase from an acquisition, since the acquisition price is now lower than their willingness to pay if firm d would otherwise keep its assets. Hence, we have $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) > \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})$ under I3 and $\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) > \bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) > \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})$ under I4.

3.1.1. Acquisition pattern, Post-Acquisition Expected Profits and strategic value

Let us now relate the above results to the level of the strategic value α. First, we examine when a foreign acquisition will take place. We obtain the following result:

Proposition 1. *A foreign acquisition will take place if and only if $\alpha > \alpha^*$.*

Proof. See the Appendix. ■

Proposition 1 thus shows that a high strategic value of the domestic assets is conducive to foreign acquisition. A high strategic value is, however, not necessarily associated with high expected profits. When there are several potential buyers of the domestic firm's assets, the post-acquisition expected profit of the acquirer, $\Pi_A(\mathbf{K}^{\mathrm{m}})$, will decrease in α when I1, I2 or I3 holds. To see this, first note that the acquisition price is a non-acquiring MNE's willingness to pay, i.e., $\mathcal{A} = v_{mm}$. Then, using (2.4) and Assumption A3, we have:

$$\frac{d\mathcal{A}}{d\alpha} = \underset{(+)}{\frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha}} - \mathrm{p}\times \underset{(-)}{\frac{d\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}{d\alpha}} > \frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} > 0. \tag{3.1}$$

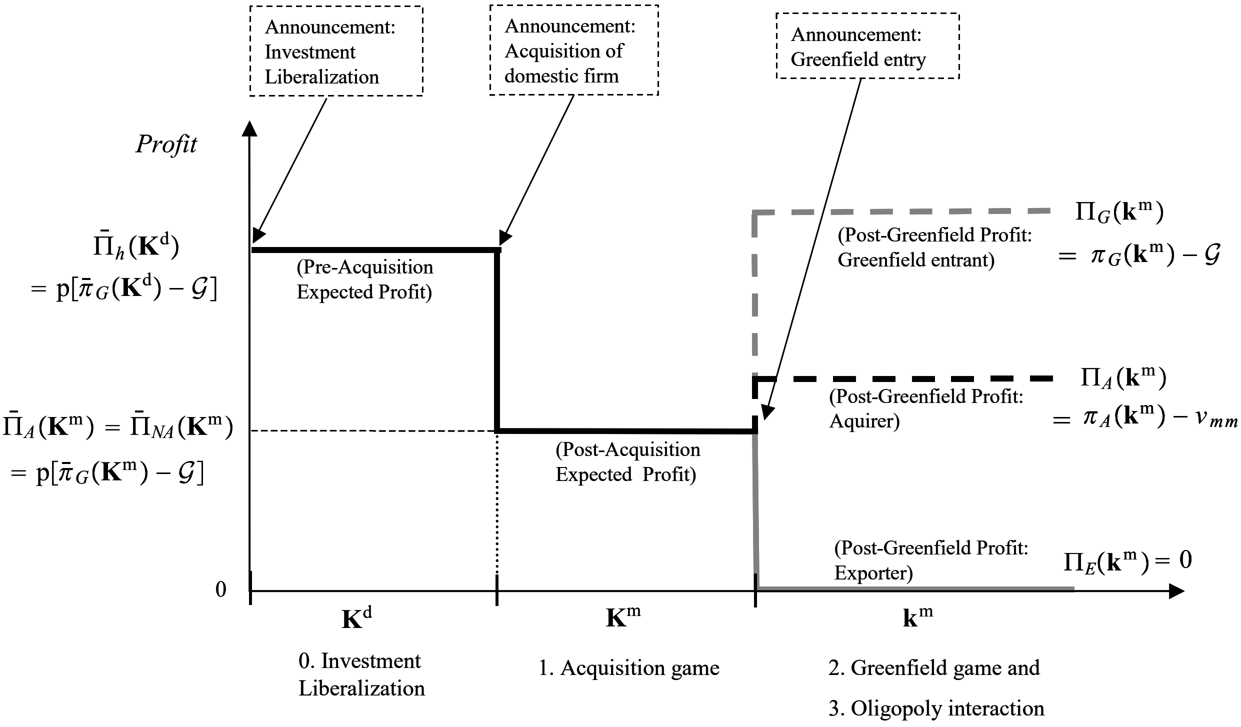

Figure 3.2: Illustrating the evolution of MNE profits under I1 or I2.

Expression (3.1) shows that when the strategic value α increases, the acquisition price $\mathcal{A}$ increases more than the acquirer's product market profit $\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})$. This follows directly from the fact that when the domestic assets have a larger strategic value, an MNE's valuation of the domestic assets k_0, v_{mm}, increases not only because its product market profit as an acquirer *increases* (i.e., $\frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} > 0$) but also because its product market profit as non-acquirer *decreases* (i.e., $\frac{d\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}{d\alpha} < 0$). Consequently, since $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathcal{A}$, we have:

$$\frac{d\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} = \frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} - \left[\frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} - \mathrm{p}\frac{d\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}{d\alpha}\right] = \mathrm{p}\frac{d\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}{d\alpha} < 0. \tag{3.2}$$

Moreover, the non-acquirer also faces an identical decline in expected profits, since:

$$\frac{d\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})}{d\alpha} = \mathrm{p}\frac{d\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}{d\alpha} < 0. \tag{3.3}$$

We can now summarize:

Proposition 2. *(i) Under I1, I2 or I3, the post-acquisition expected profits of all types of MNEs, including the acquirer, will decrease with the strategic value of the domestic assets. (ii) At a sufficiently high strategic value, $\alpha > \alpha^{**}$, the post-acquisition expected profits of the MNEs will fall below their corresponding pre-acquisition expected profits (i.e., I1 or I2 will hold). (iii) Under I4, the post-acquisition expected profits of non-acquiring MNEs will decrease with the strategic value of the domestic assets, while the post-acquisition expected profits of the acquiring MNE will increase with the strategic value of the domestic assets.*

Proof. See the Appendix. ■

Note that when no externalities are imposed on rivals in an acquisition, entry will become more profitable with the value of the domestic assets. Consequently, that there are several potential acquirers present and that the acquirer will use those domestic assets to compete against the other potential acquirers in oligopolistic interaction drives result (i) and (ii) in the proposition.

Under I4, however, the post-acquisition expected profits of non-acquiring MNEs will decrease with the strategic value of the domestic assets, since the acquirer will then become a tougher competitor. However, the post-acquisition expected profits of the acquirer will also increase in strategic value, since the acquirer will now be more efficient but must still pay the reservation price of the target firm, $v_d = \bar{\pi}_d(K^{\mathrm{d}})$, which is independent of the strategic value of the domestic assets:

$$\frac{d\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} = \frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} > 0 > \mathrm{p}\frac{d\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}{d\alpha}. \tag{3.4}$$

3.2. Post-greenfield profits

We now examine the profits for the different entry modes when the greenfield uncertainty is resolved, $\Pi_h(\mathbf{k}^{\mathrm{m}})$, where we may note that $\mathbf{k}^{\mathrm{m}}$ is a realization of $\mathbf{K}^{\mathrm{m}}$. This is referred to as the *Post-Greenfield Profit* (depicted as dotted lines in combined Stages 2 and 3 in Figure 3.2). An acquiring MNE's profit is then $\Pi_A(\mathbf{k}^{\mathrm{m}}) = \pi_A(\mathbf{k}^{\mathrm{m}}) - \mathcal{A}$, whereas a non-acquiring MNE's profit is $\Pi_G(\mathbf{k}^{\mathrm{m}}) = \pi_G(\mathbf{k}^{\mathrm{m}}) - \mathcal{G}$ if it succeeds in greenfield entry and $\Pi_E(\mathbf{k}^{\mathrm{m}}) = 0$ if not. We shall here compare the post-greenfield profits of the acquirer,

$\Pi_A(\mathbf{k}^{\mathrm{m}})$ to those of a successful greenfield entrant, $\Pi_G(\mathbf{k}^{\mathrm{m}})$. Under I1, I2 or I3, the acquisition price is $\mathcal{A} = v_{mm} = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})$ and thus:

$$\Pi_A(\mathbf{k}^{\mathrm{m}}) - \Pi_G(\mathbf{k}^{\mathrm{m}}) = [\pi_A(\mathbf{k}^{\mathrm{m}}) - \bar{\pi}_A(\mathbf{K}^{\mathrm{m}})] + \left[\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \Pi_G(\mathbf{k}^{\mathrm{m}})\right]. \qquad (3.5)$$

Note that a non-acquirer faces an *individual risk* of not being able to enter greenfield. An acquisition reduces this individual risk, but the value of avoiding this risk is incorporated into the acquisition price. Therefore, the post-greenfield profits of the acquirer tend to be lower than the post-greenfield profits of a successful greenfield entrant. However, both types of firms also face *market risk*, since the realized product market profit, $\pi_h(\mathbf{k}^{\mathrm{m}})$, is given from a particular realization of the number of successful greenfield entrants, N^m, and may therefore differ from the expected product market profit, $\bar{\pi}_h(\mathbf{K}^{\mathrm{m}})$. How sensitive a firm's product market profit is to changes in the number of competitors will then depend on its position in the product market, which is directly related to the strategic value of the domestic assets, α. This implies that the post-greenfield profits of the acquirer can be lower or higher than those of a successful greenfield entrant, depending on their respective product market positions and the outcomes of the greenfield entry stage.

Making use of symmetry, we can derive some analytical results. To see this, note that the market risk solely determines the first component of (3.5), which shows the difference in realized and expected product market profits for the acquirer, whereas the second term, which shows the difference in expected and realized product market profits for a successful non-acquirer, is jointly determined by the market risk and the individual risk faced in greenfield entry. However, note that if MNEs have symmetric market shares in the oligopoly interaction, i.e., if $k_A = \alpha k_0 = k_G$, we have $\pi_A(\mathbf{k}^{\mathrm{m}}) = \pi_G(\mathbf{k}^{\mathrm{m}})$, and $\pi_A(\mathbf{K}^{\mathrm{m}}) = \pi_G(\mathbf{K}^{\mathrm{m}})$. Then, the market risk is the same for both types of firms, and only the individual risk differs. Noting that $\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) = \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right]$ and $\Pi_G(\mathbf{k}^{\mathrm{m}}) = \pi_G(\mathbf{k}^{\mathrm{m}}) - \mathcal{G}$, (3.5) simplifies to:

$$\Pi_A(\mathbf{k}^{\mathrm{m}}) - \Pi_G(\mathbf{k}^{\mathrm{m}}) = -(1-\mathrm{p})\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right] \leq 0. \qquad (3.6)$$

We thus have the following result:

Proposition 3. *(i) If the market share of a successful greenfield entrant in the oligopoly interaction is the same as that of the MNE entering by acquisition, then the post-greenfield profit of an MNE entering greenfield is at least as high as the post-greenfield profit of an MNE entering by acquisition.*

4. Stockmarket value and entry mode

In this section, we will use the results derived in sections 3.1 and 3.2 to derive stock market value implications for the different entry modes of the MNE and for the target firm. More precisely, we will study how the stock market value is affected by the announcement of the acquisition and by outcome of the greenfield investment game. We assume that financial markets take all relevant information into account in their valuations. However, following the standard approach of event studies on M&A performance, we assume that the merger comes as a surprise to financial markets. We will discuss this assumption in subsection 4.3.[10]

4.1. Stockmarket effects when the acquisition is announced

We now compare the stock market value of the different types of firms at the time of the announcement to its pre-acquisition announcement value. This corresponds to comparing the pre-acquisition expected profits for a firm of type h, $\bar{\Pi}_h(\mathbf{K}^{\mathrm{d}})$ to its post-acquisition expected value, $\bar{\Pi}_h(\mathbf{K}^{\mathrm{m}})$.

It follows that the domestic seller's stock market value increases when the acquisition is announced, i.e., since $\bar{\Pi}_d(\mathbf{K}^{\mathrm{m}}) = \mathcal{A} > \bar{\pi}_d(\mathbf{K}^{\mathrm{d}}) = \bar{\Pi}_d(\mathbf{K}^{\mathrm{d}})$. Moreover, in Section 3.1.1, we showed in Proposition 2(i) that due to bidding competition among MNEs over the benefits of being an acquirer – as well as avoiding the negative externalities of being a non-acquirer – the acquisition price, $\mathcal{A}$, was increasing in the strategic value of the domestic assets, α. Consequently, we have the following result:

[10]It should be noted that our predictions on how profits are affected are valid both for firms that are listed on the stock market and for private firms. However, to test our predictions on stock market reactions the firms need to be listed.

Proposition 4. *When the acquisition is announced: (i) the stock market value of the selling domestic firm is unchanged under I4 but (ii) increases under I1, I2 or I3, and (iii) the stock market value of the selling domestic firm is increasing in the strategic value of the domestic assets under I1, I2 or I3.*

This proposition suggests that the shareholders of target firms' in emerging markets may benefit less than the shareholders of target firms in developed countries because target firms in emerging markets are less likely to have strategically valuable assets and are less likely to sell their assets under bidding competition. If cross-border acquisitions in developing countries are more likely to occur without bidding competition (that is, they occur under I4 rather than under I1, I2 or I3), the shareholders of targets firms in developing countries will benefit from not selling their firms until they have accumulated sufficient firm-specific strategic assets to generate bidding competition among potential acquirers.

Let us now turn to the MNEs. To infer the effect on the stock market value when the acquisition is announced, we once more compare the difference in the pre- to post-acquisition expected profit, i.e., we examine $\bar{\Pi}_h(\mathbf{K}^{\mathrm{d}}) - \bar{\Pi}_h(\mathbf{K}^{\mathrm{m}})$ for the acquiring and non-acquiring MNEs, $h = \{A, NA\}$. As illustrated in Figure 3.2, Proposition 1(iii) showed that under I1-I2, the pre-acquisition expected profits of both types of MNEs exceed their corresponding post-acquisition expected profit, i.e., $\bar{\Pi}_h(\mathbf{K}^{\mathrm{d}}) > \bar{\Pi}_h(\mathbf{K}^{\mathrm{m}})$, whereas the opposite is true under I3 or I4. Moreover, as shown in Proposition 2(ii), bidding competition among MNEs implies that a high strategic value of the domestic assets leads to an acquisition under inequalities I1 or I2. We thus have the following result:

Proposition 5. *(i) The respective stock market values for the acquiring and the non-acquiring MNE fall when the acquisition is announced under I1 and I2 and increase under I3 and I4. (ii) The stock market values for the acquiring and the non-acquiring MNE fall when the acquisition is announced if and only if the strategic value of the domestic assets is sufficiently high.*

Proposition 5 thus states that the stock market value of the acquiring and the non-acquiring MNE falls if and only if the strategic value of the domestic assets is sufficiently high. When would we then expect the strategic value of the domestic assets be high? This is more likely in more developed countries, since firms in those countries should have higher valued firm-specific assets. Put differently, it is more likely that the stock market value of the acquiring MNE will increase when the acquisition takes place in an emerging market.

What can then be said about different types of MNEs? It follows directly from Proposition 1(i) that no relative change in stock market value occurs between the acquiring and non-acquiring MNEs under I1,I2 or I3, since the bidding competition among MNEs implies that firms are indifferent between playing an acquirer and non-acquirer role, i.e., $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})$. However, under I4, we showed that non-acquiring MNEs could free ride, i.e., $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) < \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})$. Hence, we have the following results:

Proposition 6. *The stock market value of the acquiring MNE is unchanged at the time of the announcement compared to that of a non-acquiring MNE under I1, I2 and I3, but it decreases under I4.*

4.2. Stockmarket effects in the long run

Finally, let us examine the stock market value after greenfield entry uncertainty has been resolved for the acquirer and a successful greenfield entrant. This can be examined by investigating the MNEs' post-greenfield profits, $\Pi_h(\mathbf{k}^{\mathrm{m}})$, as illustrated in Figure 3.2. In Section 3.2, we showed in Proposition 3 that if the acquirer and a successful greenfield entrant are sufficiently symmetric in the oligopolistic interaction, the profits in greenfield entry always exceed those of an acquisition, i.e., $\Pi_G(\mathbf{k}^{\mathrm{m}}) > \Pi_A(\mathbf{k}^{\mathrm{m}})$. The intuition is that the acquisition price discounts the fact that an acquisition avoids the individual risk associated with greenfield entry. Hence, we have the following proposition:

Proposition 7. *The stock market value of an MNE successfully entering greenfield will in the long run, when the greenfield uncertainty has been resolved, increase relative to the stock market value of the acquirer if firms are sufficiently symmetric in market share.*

However, we also showed that firms also face a market risk, since the realized product market profit $\pi_h(\mathbf{k}^{\mathrm{m}})$ may differ from the expected product market profit $\bar{\pi}_h(\mathbf{K}^{\mathrm{m}})$. How the market risk affects a firm's stock market value will then depend on its expected market position in the oligopolistic interaction. To examine the impact of the market risk, we simulated a Cournot competition model with linear demand.[11] In Figure 4.1, the difference in post-greenfield profits from (3.5), $\Pi_A(\mathbf{k}^{\mathrm{m}}) - \Pi_G(\mathbf{k}^{\mathrm{m}})$, is shown, indicating that the relative change in stock market value between the acquirer and the successful greenfield entrant depends on the strategic value of the domestic assets, α, and the outcome in the greenfield game, N^m. Figure 4.1 shows that if firms are sufficiently symmetric in the product market, the stock market value of the acquirer is reduced relative to that of a successful greenfield entrant, i.e., $\Pi_A(\mathbf{k}^{\mathrm{m}}) < \Pi_G(\mathbf{k}^{\mathrm{m}})$. However, the simulation also illustrates that if competition becomes sufficiently softer than expected (i.e., $N^m < \bar{N}^m$, where $\bar{N}^m$ is the expected number of greenfield entrants) and the strategic value is sufficiently high, the acquirer's stock market value will increase relative to that of a successful greenfield entrant, i.e., $\Pi_A(\mathbf{k}^{\mathrm{m}}) > \Pi_G(\mathbf{k}^{\mathrm{m}})$. Intuitively, in such a case, the acquirer has a large expected market share and, therefore, gains more from a price increase associated with less-than-expected entry than does a smaller greenfield entrant.

4.3. How does a stockmarket evaluate the announcement of a merger?

Let us end this section on stockmarket effects with a discussion of the event study approach. In event studies, it is assumed that the acquisition comes as a surprise to the stock market. However, Fridolfsson and Stennek (2005) argue that if an efficient stock market anticipates the acquisition, the new information in the acquisition announcement is which firms are insiders and which are outsiders.[12] However, consider a situation wherein the stock market has difficulty evaluating the strategic value α of the domestic

[11] See Appendix A3.

[12] Under this assumption, they show that preemptive mergers could explain the empirical pattern that mergers reduce profits and raise share prices.

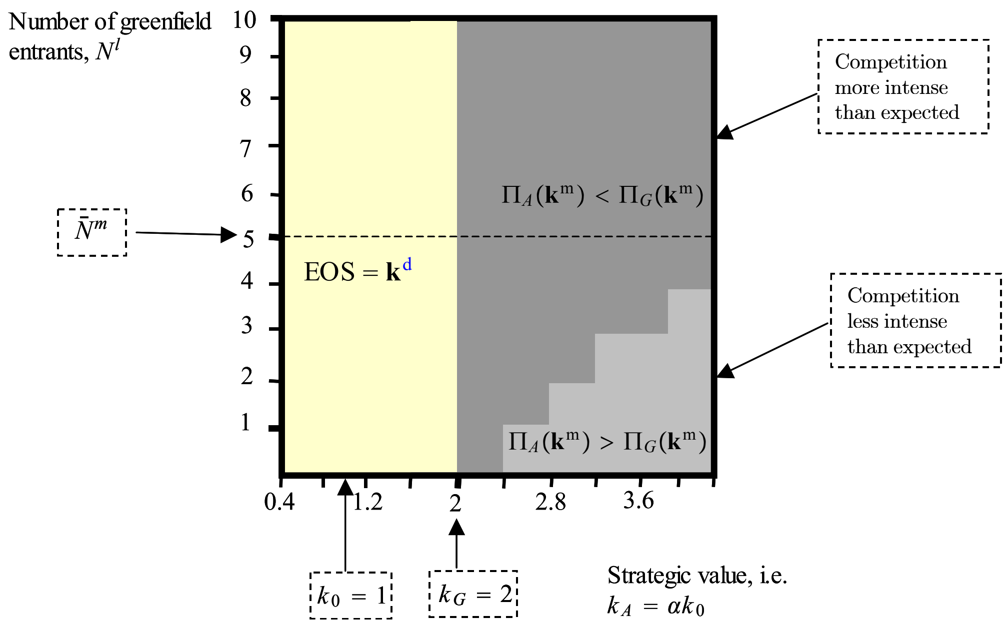

Figure 4.1: The linear Cournot model.

assets for the MNEs. Here, the merger should come as a partial surprise to the market. The stock market effects of the announcement will then be more involved, since the financial market must then update its beliefs about the entry game and the product market. The main effects should, however, still be valid.

If the stock market is instead assumed to be perfectly informed, the stock market effects when the merger is announced will look different. Stock market values should now change before the merger announcement, for instance, when the local market is liberalized, since the acquisition is anticipated by the financial market. Consequently, Propositions 4 and 5 (under I1-I3) should occur when liberalization occurs and not when the acquisition is announced. However, there will still be an effect at the announcement of the acquisition, namely, from learning which firm is the acquirer and which firms are non-acquirers. If we are in I4, it then follows that the acquirer's stock market value will decrease, and the non-acquiring MNEs' stock market values will increase.

4.4. Weaker bidding competition

Let us now turn to the case where no bidding competition exists, i.e. there is only one potential acquirer available. We could then solve the model for the case where only one MNE, say, MNE 1, makes a bid on the target firm. It then follows that inequality $I4$ and $I6$ are the only possible outcomes. This, in turn, implies that the analysis above applies under the restriction that only inequality $I4$ and $I6$ are possible outcomes. More generally, it follows that if MNEs are ex-ante asymmetric, a cross-border acquisition should lead to higher profits and share prices for the acquirer. The acquiring firm would then pay a lower price than its valuation of the target firm, thereby leading to a surplus for the acquirer. However, the non-acquirers' profits and share prices may increase even more.

5. Extension: risky acquisitions

To highlight the value of acquiring a domestic firm to reduce the risk in international expansion, we assumed that there is no risk associated with the acquisition. If a foreign firm mainly obtains distribution channels, permits or political influence, it is likely that the risk is lower in acquisition than in Greenfield entry. On the other hand, when investing Greenfield, the owner has more control over the technology that will be used and can, therefore, eliminate many production risks. Greenfield investment might also reduce the risk of losing sensitive technology or know-how to rivals.

This section introduces uncertainty in acquisitions in a simple fashion. Assume that the acquired target firm performs according to due diligence with probability $\gamma \in (0, 1)$, while it fails and is closed down with probability $1 - \gamma$. To simplify further, assume that the target firm never fails under domestic ownership. To keep the analysis tractable, furthermore, assume that the uncertainty about the performance of the acquired target firm is revealed at the same time as the uncertainty under greenfield entry. Thus, we abstract from the possibility that the number of greenfield entrants under domestic and foreign ownership of the domestic assets is affected by the risk of failure of the acquired target firm (i.e., we assume that p is independent of γ).

Introducing uncertainty in acquisitions, let $\tilde{v}_{mm}$ be the expected value to MNE i of obtaining k_0, when MNE j would otherwise obtain k_0,

$$\tilde{v}_{mm} = \gamma \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathrm{p}\left[\gamma \bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G}\right]. \tag{5.1}$$

If an MNE buys the target firm it will receive the expected product market profit $\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})$ with probability γ. When not buying the target, the MNEs succeeds as Greenfield entrant with probability p. Conditional on succeeding, this yields the expected profit $\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})$ if the rival acquisition succeeds (which occurs with probability γ), and the expected profit $\bar{\pi}_G(\mathbf{K}^{\mathrm{f}})$ if the rival acquisition fails and the target firm is closed down (which occurs with probability $1-\gamma$). Note that since synergies are absent under a failure—and that the market becomes more concentrated with the target firm exiting—the expected product market profit as non-acquirer is higher when a rival acquisition fails, i.e. $\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) > \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})$.

Likewise, let $\tilde{v}_{md}$ be the expected value for MNE i in Stage 1 of obtaining k_0, when the domestic firm would otherwise keep k_0

$$\tilde{v}_{md} = \gamma \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{d}}) - \mathcal{G}\right]. \tag{5.2}$$

How does the analysis then change under risk of failure in acquisitions? Below, we highlight some noteworthy results.

5.1. Synergies, acquisitions and bidding competition

Higher synergies will still induce cross-border acquisitions and bidding competition. To see this, use (2.6), (5.1) and (5.2) to get

$$\frac{d\tilde{v}_{mm}}{d\alpha} = \gamma \times \underbrace{\left[\frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha} - \mathrm{p}\frac{\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}{d\alpha}\right]}_{\frac{dv_{mm}}{d\alpha}} > \frac{d\tilde{v}_{md}}{d\alpha} = \gamma \times \underbrace{\frac{d\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})}{d\alpha}}_{\frac{dv_{md}}{d\alpha}} > 0 = \frac{dv_d}{d\alpha}. \tag{5.3}$$

However, while (5.3) reveals that incumbents' valuations still increase in synergies when acquisitions are uncertain, this expression also reveals that uncertainty in acquisitions makes the MNE's valuations less responsive in synergies, $\frac{d\tilde{v}_{ml}}{d\alpha} < \frac{dv_{ml}}{d\alpha}$. Hence, higher synergies will be required to induce cross-border acquisitions in general—but also to induce bidding competition. In the case without uncertainty in acquisitions, Proposition 1 derived α^* as the minimum synergy to induce an acquisition, while Proposition 2 derived $\alpha^{**} > \alpha^*$ as the threshold synergy needed to induce bidding competition. Equation (5.3) implies that Propositions 1 and 2 still hold, albeit under higher threshold synergies

$$\tilde{\alpha}^* > \alpha^*, \ \tilde{\alpha}^{**} > \alpha^{**}. \tag{5.4}$$

where $\tilde{\alpha}^*$ and $\tilde{\alpha}^{**}$ are the corresponding thresholds under uncertain acquisitions.

The result that uncertainty in acquisitions requires higher synergies to have cross-border acquisition emerging in equilibrium also implies a positive selection effect. The empirical prediction from this result suggests that in countries with greater uncertainty in acquisitions, we would observe fewer but more successful acquisitions in terms of performance.

Finally, we note that introducing uncertainty in acquisitions will also reduce the acquisition price when bidding competition arises. From (2.4) to (5.1), we show in Appendix B.2 that

$$\tilde{v}_{mm} - v_{mm} = -(1-\gamma)\mathrm{p}\left[\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) + \underbrace{\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})}_{>0}\right] < 0. \tag{5.5}$$

We can summarize our findings in the following proposition:

Proposition 8. *Suppose that the risk associated with acquiring the domestic target firm increases (i.e. γ decreases). Then: (i) fewer foreign acquisitions will take place, and (ii) the sales price of the domestic firm will decrease.*

5.2. Stockmarket effects when acquisitions are uncertain

We here explore the stockmarket effects when an acquisition is announced. In Appendix B.1, we first show that Lemma 1 holds when introducing uncertainty in acquisitions. It then directly follows that Propositions 4, 5 and 6 also hold under uncertain acquisitions. While introducing risk in acquisitions does not have a major impact on our previous results, we will highlight some new results for how the risk of failure associated with cross-border M&As affects stock market performance.

First, the initial reaction of the stock market of a proposed cross-border M&A will be less negative under interval I1-I3 when introducing risky acquisitions. Why? As shown in Appendix B.3.1, the reason is simply that the bidding competition is weakened when an acquisition is less likely to create negative externalities on rivals. However, on the other hand, if we are in interval I4, the stock market will now react more negatively with respect to the acquiring firm. Why? As shown in Appendix B.3.2, the reason is that the acquirer then pays the reservation price of the target which is not affected by the increased risk of failure. For a non-acquirer, however, the stock market reaction will be less negative in the uncertain regime also under I4, since the failure of the acquired firm will benefit a non-acquirer.

We can also derive predictions on what will happen when the uncertainty about the synergies associated with the acquisition is revealed. To highlight the effect on the revelation of the uncertainty of the synergy, let us first assume the market learns about the synergy uncertainty before the uncertainty about the greenfield outcome is revealed. The expected profit for the acquiring firm before the uncertainty about the target firm is revealed is $\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})$. The expected profit for the acquiring firm in case of a successful acquisition is $\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})$, and zero in case of a failure. Thus, the increase in expected profit from a verified successful acquisition, labeled D, can be written $D = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}})$. It then follows that D captures the change in the stockmarket value of the acquirer. Since D is declining in γ, it follows that the increase in stock market value for a successful acquisition is greater the higher is the uncertainty in the acquisition (i.e. the lower is γ). Thus, a higher risk of failure is associated with a larger increase in stock market value when the acquisition is revealed to be successful. In Appendix B.4, we show that this result also extends into the setting where the uncertainty over the synergy and greenfield entry is revealed simultaneously

We can then state the following corollary:

Corollary 1. *The increase in stock market value of the acquiring firm when an acquisition turns out to be successful (i.e., when the target firm is verified to be a successful firm) is larger, the higher is the risk of failure associated with the acquisition.*

6. Concluding discussion

In this paper, it has been shown that bidding competition over the domestic target firm implies that the domestic firm will sell its assets at a (possibly substantially) higher price than its reservation price. The empirical implication is then that the target firm's shareholders benefit from the acquisition. The predictions about the acquirer's performance are more involved. However, an interesting finding is that the share-values of both the acquirer and the non-acquirers will increase when an acquisition is announced if the domestic assets are not too strategically important or when bidding competition is not too stiff. These mechanisms explain why acquirers tend to overperform when acquiring in emerging markets but underperform when acquiring in developed markets. Our results also explain why the shareholders of targets firms in emerging markets may benefit from not selling their firms too early in the development phase.

If there is risk associated with greenfield entry, our empirical prediction is that in the long run, when the greenfield uncertainty has been resolved, the share value of a successful greenfield entrant should perform better than the share value of the acquirer if the firms are sufficiently symmetric in the product market. Extending the analysis to the case where there is risk associated with cross-border M&As, we show that such risks reduce the likelihood of and price of cross-border M&As. To test this hypothesis, we need to be able to distinguish between successful and unsuccessful acquirers and non-acquirers. One possibility would be to use data from markets that were opened up to investment with liberalization. It should then be possible to identify the MNEs active in the industry: acquiring firms, greenfield entrants, exporters and firms not active in the market.

This article is subject to several extensions and limitations that provide opportunities for future research. The main results in the paper would hold if the acquisition and greenfield decisions were taken simultaneously. To see this, note that as long as the domestic assets are scarce and their use by an MNE shifts profits from greenfield investors to the acquiring MNE the preemptive value is then high and increase in the strategic value of the domestic assets. Thus, the results in Section 3.1 hold. Moreover, the results in Section 3.2 would hold since acquisition entry is still certain and greenfield entry uncertain. However, if greenfield investment were to take place first and acquisition afterward, the implications would be different. First, the argument that an acquisition is preferable since it allows for early entry would naturally disappear. Moreover, if "overinvestment" in greenfield entry could be used as an entry deterring (predatory) strategy, the domestic assets might be worthless in the acquisition game. However, if the domestic assets are sufficiently unique and such overinvestments are not profitable, the domestic assets might increase in value. To see this, note that the unsuccessful greenfield entrant's outside option is now export profits, which amount to less than the expected profits of a potential greenfield entrant. Consequently, their willingness to pay may increase, thus increasing the acquisition price in such situations.

A. Appendix:

A.1. Deriving table 3.1

First, note that $b_i \geq \max v_{ml}$, $l = \{\mathrm{d}, \mathrm{m}\}$ is a weakly dominated strategy, since no MNE will place a bid equal to or above its maximum value of obtaining the assets, and firm d will accept a bid in stage 2 iff $b_i > v_d$.

A.1.1. Inequality $I1$:

Consider the equilibrium candidate $\mathbf{b}^* = (b_1^*, b_2^*, ..., yes)$. Let us assume that MNE $w \neq d$ is the MNE that has placed the highest bid and obtains the assets. Firm $s \neq d$ is the MNE with the second-highest bid.

Then, $b_w^* \geq v_{mm}$ is a weakly dominated strategy. $b_w^* < v_{mm} - \varepsilon$ is not an equilibrium since firm $j \neq w, d$ then benefits from deviating to $b_j = b_w^* + \varepsilon$, to obtain the assets and pay a price lower than its valuation. If $b_w^* = v_{mm} - \varepsilon$ and $b_s^* \in [v_{mm} - \varepsilon, v_{mm} - 2\varepsilon]$, then no MNE has an incentive to deviate. By deviating to no, firm d's payoff decreases, since it foregoes a selling price exceeding its valuation, v_d. Accordingly, firm d has no incentive to deviate. Thus, $\mathbf{b}^*$ is a Nash equilibrium.

Let $\mathbf{b} = (b_1, , , b_m, no)$ be a Nash equilibrium. Let MNE h be the MNE with the highest bid. Firm d will then say *no* iff $b_h \leq v_d$, but MNE $j \neq d$ will have an incentive to deviate to $b' = v_d + \varepsilon$ in period 1, since $v_{md} > v_d$. This contradicts the assumption that $\mathbf{b}$ is a Nash equilibrium.

A.1.2. Inequality $I2$:

Consider the equilibrium candidate $\mathbf{b}^* = (b_1^*, b_2^*, ..., y)$. Then, $b_w^* \geq v_{ij}$ is a weakly dominated strategy, and $b_w^* < v_{ij} - \varepsilon$ is not an equilibrium since firm $j \neq w, d$ then benefits from deviating to $b_j = b_w^* + \varepsilon$ to obtain the assets and pay a price lower than its valuation of obtaining them. If $b_w^* = v_{mm} - \varepsilon$ and $b_s^* \in [v_{mm} - \varepsilon, v_{mm} - 2\varepsilon]$, then no MNE has an incentive to deviate. By deviating to *no*, firm d's payoff decreases since it foregoes a selling price exceeding its valuation, v_d. Accordingly, firm d has no incentive to deviate. Thus, $\mathbf{b}^*$ is a Nash equilibrium.

Consider the equilibrium candidate $\mathbf{b}^{**} = (b_1^{**}, b_2^{**}, ..., no)$. Then, $b_w^* \geq v_{md}$ is not an equilibrium since firm d would benefit by deviating to *yes*. If $b_w^* \leq v_d$, then no MNE has an incentive to deviate. By deviating to *yes*, firm d's payoff decreases since it then sells its assets at a price below its valuation, v_d. Firm d has no incentive to deviate. Thus, $\mathbf{b}^{**}$ is a Nash equilibrium.

A.1.3. Inequality $I3$:

Consider the equilibrium candidate $\mathbf{b}^* = (b_1^*, b_2^*, ..., yes)$. Then, $b_w^* \geq v_{mm}$ is a weakly dominated strategy, and $b_w^* < v_{mm} - \varepsilon$ is not an equilibrium, since firm $j \neq w, d$ then benefits from deviating to $b_j = b_w^* + \varepsilon$ to obtain the assets and pay a price lower than its valuation of obtaining them. If $b_w^* = v_{mm} - \varepsilon$ and $b_s^* \in [v_{mm} - \varepsilon, v_{mm} - 2\varepsilon]$, then no MNE has an incentive to deviate. By deviating to *no*, firm d's payoff decreases since it foregoes a selling price exceeding its valuation, v_d. Accordingly, firm d has no incentive to deviate. Thus, $\mathbf{b}^*$ is a Nash equilibrium.

Let $\mathbf{b} = (b_1, ..., b_M, no)$ be a Nash equilibrium. Firm d will then say *no* iff $b_h \leq v_d$, but MNE $j \neq d$ will have an incentive to deviate to $b' = v_d + \varepsilon$ in stage 1, since $v_{md} > v_d$.

This contradicts the assumption that $\mathbf{b}$ is a Nash equilibrium.

A.1.4. Inequality $I4$:

Consider the equilibrium candidate $\mathbf{b}^* = (b_1^*, b_2^*, ..., yes)$. Then, $b_w^* > v_d$ is not an equilibrium since firm w would then benefit by deviating to $b_w = v_d$. $b_w^* < v_d$ is not an equilibrium since firm d would then not accept any bid. If $b_w^* = v_d - \varepsilon$, then firm w has no incentive to deviate. By deviating to $b_j' \leq b_w^*$, firm j's, $j \neq w, d$, payoff does not change. By deviating to $b_j' > b_w^*$, firm j's payoff decreases since it has to pay a price above its willingness to pay v_{mm}. Accordingly, firm j has no incentive to deviate. By deviating to no, firm d's payoff decreases since it foregoes a selling price above its valuation, v_d. Accordingly, firm d has no incentive to deviate. Thus, $\mathbf{b}^*$ is a Nash equilibrium.

Let $\mathbf{b} = (b_1, , , b_m, yes)$ be a Nash equilibrium. If $b_w \geq v_{mm}$, then firm w will have the incentive to deviate to $b' = b_w - \varepsilon$. If $b_w < v_{mm}$, then firm d will have the incentive to deviate to no. This contradicts the assumption that $\mathbf{b}$ is a Nash equilibrium.

Let $\mathbf{b} = (b_1, ..., b_m, no)$ be a Nash equilibrium. Firm d will then say no iff $b_h \leq v_d$, but MNE $j \neq d$ will have the incentive to deviate to $b' = v_d + \varepsilon$ in stage 1, since $v_{md} > v_d$. This contradicts the assumption that $\mathbf{b}$ is a Nash equilibrium.

A.1.5. Inequalities $I5$ or $I6$:

Consider the equilibrium candidate $\mathbf{b}^* = (b_1^*, b_2^*, ..., no)$, where $b_i^* < v_d$ $\forall i \in M$. It then follows directly that no firm has an incentive to deviate. Thus, $\mathbf{b}^*$ is a Nash equilibrium.

Then, note that firm d will accept a bid iff $b_i \geq v_d$, but $b_i \geq v_d$ is a weakly dominating bid in these intervals, since $v_d > \max\{v_{mm}, v_{md}\}$. Thus, the assets will not be sold in these intervals.

A.2. Proof of Propositions 1 and 2(ii)

We need to show that for a sufficiently high value of complementarity α, the equilibrium market structure is always $\mathbf{K}^{\mathrm{m}}$. Note that the equilibrium market structure $\mathbf{K}^{\mathrm{d}}$ arises under inequalities I5 and I6. Inspecting these inequalities reveals that they have in common that $v_{md} < v_d$. Note that $v_d = \bar{\pi}_d(\mathbf{K}^{\mathrm{d}})$ is not dependent on α. Moreover, note that $v_{md} = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathrm{P}^{\mathrm{d}}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{d}}) - \mathcal{G}\right]$. From Assumption 3, the first term in this expression is increasing in α, whereas the second term is independent of α. Moreover, note that $v_{mm} = \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathrm{P}^{\mathrm{d}}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right]$. Once more, from Assumption 3, the second term in v_{mm} is decreasing in α. It must then be that $\frac{dv_{mm}}{d\alpha} > \frac{dv_{md}}{d\alpha} > \frac{v_d}{d\alpha} = 0$. Hence, there exists an α^* such that for any $\alpha > \alpha^*$ and $v_{md} > v_d$; consequently, the equilibrium market structure is $\mathbf{K}^{\mathrm{m}}$. It also follows that there exists an α^{**} such that for any $\alpha > \alpha^{**}$ and $v_{mm} > v_{md}$ only I1 or I2 arise.

A.3. The Linear Cournot model

For illustration and to prove some of the some results, we use a linear Cournot model. Suppose that demand is linear, $P = a - Q$, where Q is the total quantity. Moreover, suppose that the marginal cost for a firm of type h takes the form:[13]

$$c_h = \begin{cases} c_A = c - \alpha k_0 \\ c_G = c - k_G \\ c_d = c - k_0 \end{cases} \tag{A.1}$$

Due to linear demand, it follows that the product market profits of the firms will be quadratic functions of their optimal quantity choices, i.e., $\pi_h = q_h^2$. Assuming that marginal costs and firm quantities are always positive (i.e., $c_h > 0$ and $q_h > 0$ hold), the profits of the different types of firms as a function of the ownership structure are given in table A.1 below.

Finally, in generating the simulation in Figure 4.1, we have used $M = 10$, $\mathcal{G} = 1$, $k_G = 2$, $k_0 = 1$, $\Lambda = a - c = 15$ and $\mathrm{p} = 0.6$. Note that we can write $\Pi_A(\mathbf{k}^{\mathrm{m}}) - \Pi_G(\mathbf{k}^{\mathrm{m}}) = \pi_A(\mathbf{k}^{\mathrm{m}}) - \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) + \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right] - \left[\pi_G(\mathbf{k}^{\mathrm{m}}) - \mathcal{G}\right]$ under I1, I2 or I3 and $\Pi_A(\mathbf{k}^{\mathrm{m}}) - \Pi_G(\mathbf{k}^{\mathrm{m}}) = \pi_A(\mathbf{k}^{\mathrm{m}}) - \bar{\pi}_d(\mathbf{K}^{\mathrm{d}}) - \left[\pi_G(\mathbf{k}^{\mathrm{m}}) - \mathcal{G}\right]$ under I4. Then, $\bar{\pi}_h(\mathbf{K}^{\mathrm{l}})$ is calculated by making use of (2.3). Similarly, we have $\bar{N}^l \equiv \mathrm{E}\left[N^l\right] \equiv \sum_{N^l=0}^{N^l_{\max}} \rho(N^l)N^l$.

[13] We tested a wide range of parameter values and alternative specifications of both cost and demand without any qualitative changes in results.

Table A.1: Profits for the different types of firms in the linear Cournot model.

	Domestic ownership, $\mathbf{k}^{\mathrm{d}}$	*Foreign ownership,* $\mathbf{k}^{\mathrm{m}}$
π_A :	$\bullet$	$\left(\frac{\Lambda+N^m\alpha k_0-(N^m-1)k_G}{N^m+1}\right)^2$
π_G :	$\left(\frac{\Lambda+2k_G-k_0}{N^d+2}\right)^2-\mathcal{G}$	$\left(\frac{\Lambda-\alpha k_0+2k_G}{N^m+1}\right)^2-\mathcal{G}$
π_d :	$\left(\frac{\Lambda+\left(N^d+1\right)k_0-N^dk_G}{N^d+2}\right)^2$	$\bullet$

B. Uncertainty in acquisitions

B.1. Proving Lemma 1

Making use of the valuations in (5.1) and (5.2) and making use of the proof in Section A.1, the equilibrium ownership structure under uncertainty in acquisitions, is given in Table B.1.

Table B.1: The equilibrium ownership structure and acquisition price under uncertainty in acquisitions.

Inequality:	Definition:	Ownership structure:	Acquisition price
$I1$:	$\tilde{v}_{mm} > \tilde{v}_{md} > v_d$	$\mathbf{K}^{\mathrm{m}}$	$\tilde{v}_{mm}$
$I2$:	$\tilde{v}_{mm} > v_d > \tilde{v}_{md}$	$\mathbf{K}^{\mathrm{m}}$ or $\mathbf{K}^{\mathrm{d}}$	$\tilde{v}_{mm}$ (if $\mathbf{K}^{\mathrm{m}}$)
$I3$:	$\tilde{v}_{md} > \tilde{v}_{mm} > v_d$	$\mathbf{K}^{\mathrm{m}}$	$\tilde{v}_{mm}$
$I4$:	$\tilde{v}_{md} > v_d > \tilde{v}_{mm}$	$\mathbf{K}^{\mathrm{m}}$	v_d
$I5$:	$v_d > \tilde{v}_{mm} > \tilde{v}_{md}$	$\mathbf{K}^{\mathrm{d}}$	.
$I6$:	$v_d > \tilde{v}_{md} > \tilde{v}_{mm}$	$\mathbf{K}^{\mathrm{d}}$	.

We now proceed to prove that each part of Lemma 1 also holds under uncertainty in acquisitions.

B.1.1. Part (i):

Under I1, I2 or I3 in Table B.1 the acquisition price is $\mathcal{A} = \tilde{v}_{mm}$. The post-acquisition expected profit for the acquiring MNE is then

$$\begin{aligned} \tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathcal{A}, \\ &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{v}_{mm}. \end{aligned} \tag{B.1}$$

The valuation $\tilde{v}_{mm}$ can be written

$$\tilde{v}_{mm} = \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}), \tag{B.2}$$

where $\tilde{\Pi}_G(\mathbf{K}^{\mathrm{m}})$ is the post-acquisition expected profit for a non-acquiring MNE

$$\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) = \mathrm{p}\left[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G})\right]. \tag{B.3}$$

Combining (B.1)-(B.3), we finally get

$$\begin{aligned} \tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{v}_{mm} - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}), \\ &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \left[\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})\right] - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}), \\ &= 0. \end{aligned} \tag{B.4}$$

B.1.2. Part (ii)

Under I4 in Table B.1 the acquisition price is $\mathcal{A} = v_d$. The post-acquisition expected profit for the acquiring MNE is then

$$\begin{aligned} \tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathcal{A} \\ &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - v_d. \end{aligned} \tag{B.5}$$

Using (B.5), we get

$$\begin{aligned} \tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - v_d - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}), \\ &= \underbrace{\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})}_{\tilde{v}_{mm}} - v_d, \\ &= \tilde{v}_{mm} - v_d < 0, \end{aligned} \tag{B.6}$$

where the last line stems from I4 in Table B.1.

B.1.3. Part (iii)

Making use of (5.1) and (5.2), we have

$$\begin{aligned}
\underbrace{\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})}_{=\tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}})} - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) &= \mathrm{p}[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G}] - \mathrm{p}[\bar{\pi}_G(\mathbf{K}^{\mathrm{d}}) - \mathcal{G}], \\
&= -\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) + \mathrm{p}[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G}] + \\
&\quad \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathrm{p}[\bar{\pi}_G(\mathbf{K}^{\mathrm{d}}) - \mathcal{G}], \\
&= -\tilde{v}_{mm} + \tilde{v}_{md}, \\
&= -\left(\tilde{v}_{mm} - \tilde{v}_{md}\right) < 0, \qquad \text{(B.7)}
\end{aligned}$$

where the last line holds under I1 or I2 in Table B.1.

Under I3 in Table B.1, we then get

$$\underbrace{\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})}_{=\tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}})} - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) = -\left(\tilde{v}_{mm} - \tilde{v}_{md}\right) > 0. \qquad \text{(B.8)}$$

Under I4 in Table B.1, the acquisition price is $\mathcal{A} = v_d$. We then get

$$\begin{aligned}
\tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathcal{A} - \bar{\Pi}_G(\mathbf{K}^{\mathrm{d}}) \\
&= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - v_d - \bar{\Pi}_G(\mathbf{K}^{\mathrm{d}}) \\
&= \underbrace{\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})}_{\tilde{v}_{md}} - v_d \\
&= \tilde{v}_{md} - v_d > 0, \qquad \text{(B.9)}
\end{aligned}$$

where the last part stems from I4 in Table B.1.

B.2. The sales price under I1 or I3

Absent uncertainty in acquisitions, the sales price is $\mathcal{A} = v_{mm}$. With uncertainty in acquisitions the sales price is $A = \tilde{v}_{mm}$. We then have[14]

$$\begin{aligned}
\tilde{v}_{mm} - v_{mm} &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \left[\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})\right], \\
&= -\left(1-\gamma\right)\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) + \left[\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})\right] \qquad \text{(B.10)}
\end{aligned}$$

[14] In this section we compare the sales price with uncertainty in acquisitions to the sales price without uncertainty in acquisitions, holding constant the equilibrium ownership structure (as represented by the inequalities I1-I6 in Table 3.1 and Table B.1. We proceed in the same way in Section B.3.

We can rewrite the second term as follows

$$\begin{aligned}
\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) &= \underbrace{\mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right]}_{\bar{\Pi}_G(\mathbf{K}^{\mathrm{m}})} - \underbrace{\mathrm{p}\left[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G}\right]}_{\tilde{\Pi}_G(\mathbf{K}^{\mathrm{m}})}. \\
&= \mathrm{p}\left[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}})\right] \\
&= -(1-\gamma)\,\mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})\right] < 0 \qquad \text{(B.11)}
\end{aligned}$$

where we have $\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) < \bar{\pi}_G(\mathbf{K}^{\mathrm{f}})$.

Combining (B.10) and (B.11), we thus get

$$\tilde{v}_{mm} - v_{mm} = -(1-\gamma)\left\{\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) + \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})\right]\right\} < 0. \qquad \text{(B.12)}$$

B.3. Uncertainty and stockmarket effects when the acquisition is announced

In this section, we explore how the uncertainty in acquisitions influence the stockmarket effects when the acquisition is announced.

B.3.1. Inequality I1, I2 or I3

Under I1, I2 or I3 in Table B.1, bidding competition implies $\tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})$ and $\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) = \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}})$, respectively. We can now compare the stockmarket effects with and without uncertainty. Using (5.1), (5.2) and (B.3), the stock market effect with uncertainty in acquisitions, is

$$\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) = \tilde{v}_{md} - \tilde{v}_{mm} < 0. \qquad \text{(B.13)}$$

Likewise, using $\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) = \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}\right]$ and $\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) = \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{d}}) - \mathcal{G}\right]$ together with (2.4) and (2.5), the change in stockmarket value without uncertainty in acquisitions, is

$$\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) = v_{md} - v_{mm} < 0. \qquad \text{(B.14)}$$

From (B.13) and (B.14), it then follows that

$$\underbrace{\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})}_{\text{Stockmarket effect: uncertainty in acq.}} \quad - \quad \underbrace{\left[\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})\right]}_{\text{Stockmarket effect: no uncertainty in acq.}} \quad = \tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}). \tag{B.15}$$

Note that the right-hand-side of (B.15) can be rewritten as follows

$$\begin{aligned}
\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) &= \mathrm{p}[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G}] - \mathrm{p}[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \mathcal{G}], \\
&= \mathrm{p}\left[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})\right], \\
&= \mathrm{p}\left[\gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \gamma\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{m}})\right], \\
&= \mathrm{p}\,(1-\gamma)\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})\right] > 0. \qquad \text{(B.16)}
\end{aligned}$$

Thus, from (B.15) and (B.16), we have

$$\underbrace{\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})}_{\tilde{v}_{md}-\tilde{v}_{mm}<0} - \underbrace{\left[\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})\right]}_{v_{md}-v_{mm}<0} > 0.$$

B.3.2. Inequality I4

We start with the acquiring MNE. Proceeding as above, we get

$$\tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) - \left[\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})\right] = \tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}). \tag{B.17}$$

We can rewrite the right-hand-side in (B.17), as follows

$$\begin{aligned}
\tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) &= \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - v_d - [\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - v_d], \\
&= -(1-\gamma)\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) < 0. \qquad \text{(B.18)}
\end{aligned}$$

From (B.17) and (B.18), it then follows that

$$\tilde{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}}) - \left[\bar{\Pi}_A(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})\right] = -(1-\gamma)\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) < 0. \tag{B.19}$$

For a non-acquiring MNE under I4, we can again use (B.16), from which it follows that

$$\underbrace{\tilde{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})}_{\tilde{v}_{md}-\tilde{v}_{mm}<0} - \underbrace{\left[\bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{m}}) - \bar{\Pi}_{NA}(\mathbf{K}^{\mathrm{d}})\right]}_{v_{md}-v_{mm}<0} > 0.$$

B.4. Post-acquisition stockmarket value

B.4.1. Acquirer

Let us first examine the change in stock market value for the acquirer when uncertainty is resolved.

Acquisition fails Intuitively, if the acquisition fails, the stockmarket value will decline for the acquiring MNE.

$$\Delta_A(\mathbf{k}^{\mathrm{f}}) = \underbrace{-\mathcal{A}}_{\text{Realized loss}} - \underbrace{[\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathcal{A}]}_{\text{Expected profit}} = -\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}).$$

Then:

$$\frac{d\Delta_A(\mathbf{k}^{\mathrm{f}})}{d\gamma} = -\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) < 0.$$

Acquisition succeeds The change in stockmarket value when the uncertainty is resolved for a successful acquisition is

$$\Delta_A(\mathbf{k}^{\mathrm{m}}) = \underbrace{[\pi_A(\mathbf{k}^{\mathrm{m}}) - \mathcal{A}]}_{\text{Realized profit}} - \underbrace{[\gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \mathcal{A}]}_{\text{Expected profit}} = \pi_A(\mathbf{k}^{\mathrm{m}}) - \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}). \tag{B.20}$$

Rewrite the right-hand side of (B.20) as follows:

$$\begin{aligned} \pi_A(\mathbf{k}^{\mathrm{m}}) - \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) &= \pi_A(\mathbf{k}^{\mathrm{m}}) - \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) - \gamma\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) + \bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) \\ &= \underbrace{[\pi_A(\mathbf{k}^{\mathrm{m}}) - \bar{\pi}_A(\mathbf{K}^{\mathrm{m}})]}_{\lesseqgtr 0} + (1-\gamma)\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) \lesseqgtr 0. \end{aligned} \tag{B.21}$$

Thus, the sign of the change in the stockmarket value cannot be predicted since it depends on the outcome of the greenfield investments.

However, we can still evaluate what happens to the change in stockmarket value when the risk in an acquisition decreases. Differentiating (B.20) in γ

$$\frac{d\Delta_A(\mathbf{k}^{\mathrm{m}})}{d\gamma} = -\bar{\pi}_A(\mathbf{K}^{\mathrm{m}}) < 0.$$

Thus, less uncertainty in the acquisition gives a smaller increase (if the stock market value increases)—or a stronger decline (if the stockmarket value declines)— when the uncertainty is resolved.

B.4.2. Non-acquirer

Now turn to non-acquiring MNEs

Acquisition is successful If a rival acquisition succeeds, we have

$$\Delta_G(\mathbf{k}^{\mathrm{m}}) = \underbrace{\left[\pi_G(\mathbf{k}^{\mathrm{m}}) - \mathcal{G}\right]}_{\text{Realized profit}} - \underbrace{\mathrm{p}\left[\gamma \bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G}\right]}_{\text{Expected profit}} \lesseqqgtr 0.$$

We then get

$$\begin{aligned}
\frac{d\Delta_G(\mathbf{k}^{\mathrm{m}})}{d\gamma} &= -\mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{f}})\right] \\
&= \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})\right] > 0.
\end{aligned}$$

Acquisition fails If a rival acquisition fails, we have

$$\Delta_G(\mathbf{k}^{\mathrm{f}}) = \underbrace{\left[\pi_G(\mathbf{k}^{\mathrm{f}}) - \mathcal{G}\right]}_{\text{Realized profit}} - \underbrace{\mathrm{p}\left[\gamma \bar{\pi}_G(\mathbf{K}^{\mathrm{m}}) + (1-\gamma)\,\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \mathcal{G}\right]}_{\text{Expected profit}} \lesseqqgtr 0.$$

$$\frac{d\Delta_G(\mathbf{k}^{\mathrm{f}})}{d\gamma} = \mathrm{p}\left[\bar{\pi}_G(\mathbf{K}^{\mathrm{f}}) - \bar{\pi}_G(\mathbf{K}^{\mathrm{m}})\right] > 0.$$

References

[1] Andrade, G., Mitchell, M. L., & Stafford, E. 2001. New evidence and perspectives on mergers. *Journal of Economic Perspectives*, 15(2): 103–20.

[2] Ashraf, A., Herzer, D., & Nunnenkamp, P. (2016). The effects of greenfield FDI and cross-border M&As on total factor productivity. *World Economy*, 39, 1728–1755.

[3] Arnold, J.M. and B.S. Javorcik (2009), Gifted Kids or Pushy Parents? Foreign Direct Investment and Plant Productivity in Indonesia. *Journal of International Economics*, 79, 1, 42–53.

[4] Bjorvatn, K. 2004. Economic integration and the profitability of cross-border mergers and acquisitions. *European Economic Review*, 48(6): 1211–1126.

[5] Blonigen, B. A. 1997. Firm-specific assets and the link between exchange rates and foreign direct investment. *American Economic Review*, 87(3): 447–465.

[6] Chari, A., Ouimet, P. P., & Tesar, L. L. 2010. The value of control in emerging markets. *Review of Financial Studies*, 23(4): 1741–1770.

[7] Dewenter, K. L. 1995. Does the market react differently to domestic and foreign takeover announcements? Evidence from the U.S. chemical and retail industries. *Journal of Financial Economics*, 37(3): 421–441.

[8] Fridolfsson, S.-O., & Stennek, J. 2005. Why mergers reduce profits and raise share prices – a theory of preemptive mergers. *Journal of the European Economic Association*, 3(5): 1083–1104.

[9] Girma, S., Gong, Y., Görg, H., Lancheros, S. 2015. Investment liberalisation, technology take-off and export markets entry: Does foreign ownership structure matter? *Journal of Economic Behavior & Organization,* 116: 254–269.

[10] Harris, R. S., & Ravenscraft, D. 1991. The role of acquistions in foreign direct investment: Evidence from the U.S. stock market. *Journal of Finance*, 46(3): 825–845.

[11] Javorcik, B., & Saggi, K. 2010. Technological asymmetry among foreign investors and mode of entry. *Economic Inquiry*, 48(2): 415–433.

[12] Mattoo, A., Olarrega, M., & Saggi, K. 2004. Mode of foreign entry, technology transfers, and FDI policy. *Journal of Development Economics* 75(1), 95–111.

[13] Moeller, S., Schlingeman, F., & Stulz, R. 2005. Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. *Journal of Finance*, 60(2): 757–782

[14] Nocke, V., & Yeaple, S. 2007. Cross-border mergers and acquisitions versus greenfield foreign direct investment: The role of firm heterogeneity. *Journal of International Economics*, 72(2): 336–365.

[15] Nocke, V., & Yeaple, S. 2008. An assignment theory of foreign direct investment. *Review of Economic Studies*, 75(2): 529–557.

[16] Norbäck, P.-J., & Persson, L. 2007. Investment liberalization - why a restrictive cross-border merger policy can be counterproductive. *Journal of International Economics*, 72(2): 366–380.

[17] Norbäck, P.-J., & Persson, L. 2008. Globalization and profitability of cross-border mergers and acquisitions. *Economic Theory*, 35(2): 241–266.

[18] Raff, H., Ryan, M., & Stähler, F. 2009. The choice of market entry mode: Greenfield investment, M&A and joint venture. *International Review of Economics and Finance*, 18(1): 3–10.

[19] Ramey, V. A., & Shapiro, M. D. 2001. Displaced capital: A study of aerospace plant closing. *Journal of Political Economy*, 109(5): 958–999.

[20] UNCTAD. 2016. World Investment Report 2016. United Nations Conference on Trade and Development, Geneva.