In-group Bias and (Un)Ethical Investment: Evidence from Professional Investors*

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Abstract

Ethical investments are gaining popularity among investors, with some preferring to completely avoid companies supplying what are perceived to be unethical goods or behaving in an unethical manner. We conduct an experiment in which one implicitly more ethical, and one less ethical, business ideas are proposed via pitches to a sample of Swedish professional investors. Half of the proposals are presented by a team of entrepreneurs graduating from a competing university and half from the same university as the investors. From questionnaire responses, we find an overall strong disapproval for the less ethical business proposal among investors, regardless of the university background of the entrepreneurs. However, we also find that if the proposal was made by entrepreneurs graduating from the same university, the unethical proposal is perceived substantially more favorably. Additionally, we propose a simple search model with in-group bias to analyze the potential welfare aspects and policy implications of such biases in investment situations.

Key words: behavioral finance, ethical investment, in-group bias, experimental economics
JEL Classification Codes: C92, C93, D81, D83, G3, K4

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Introduction

In the last two decades, investment ethicality has become another important factor in investment decisions with one potential definition of "ethical investment" being "the integration of personal values, social considerations and economic factors into the investment decision." Michelson, Wailes, van der Laan and Frost (2004).

There is increasing evidence that funds which adhere to more strict environmental, social and governance (ESG) standards in their investments, perform better than those that don't; Mallin, Saadouni and Briston (1995) show that ethical funds outperformed non-ethical funds in the United Kingdom during 1986-1993. More recently, the Financial Times noted that "the MSCI Emerging Markets Leaders index, which includes 417 companies that score highly on ESG, has been outstripping the dominant MSCI Emerging Markets benchmark since the 2008-09 financial crisis...".

Some would question whether it is rational, from the point of view of neo-classical economics, to restrict investments based on their ethicality (e.g. Carswell, 2002); modern portfolio theory recognizes that investors should only be compensated for the systemic risk that cannot be diversified away by combining many different assets together (Markowitz, 1952). As such, restricting the types of assets one can invest in can only make it more difficult to adequately diversify away risk, potentially leaving the investor exposed to risk which is not compensated.

With the growing importance of ethicality in investment decisions, a natural question becomes whether the ethicality of business proposals influence entrepreneurs chances of securing financing for their ventures. While it is considered that the fundamentals of the business proposal and entrepreneurial experience are key factors in investors' investment decisions (Amit, Glosten and Muller (1990), Fried and Hisrich (1994)), it is starting to emerge that other factors also influence whether entrepreneurs are able to secure financing; Brooks, Huang, Kearney and Murray (2014) show for instance that gender and physical appearance influence investment decisions, with attractive men being particularly successful in securing financing for their ventures. Consequently, if less ethical or unethical, but nonetheless legal, ventures find it harder to secure financing, perfectly viable ventures that generate positive returns may never be undertaken. With establishments less than one year old accounting annually for roughly 10% of new jobs in the U.S. between 2007 and 2015 (U.S. Bureau of Labor Statistics), this could have a potentially large impact on economic growth and job creation.

However, ethicality or morality are not simple, well-defined concepts; both are fluid, developing throughout an individual's life, with a prominent theory of the different developmental stages having been proposed by Kohlberg (1981). It has also been shown that ethical thinking can be taught; for instance, Green and Weber (1997) show that there was a significant relationship between senior students' levels of ethical development and the choice of an ethical versus unethical action following enrollment in American Institute of Certified Public Accountants (AICPA) Code of Professional Conduct courses aimed at improving code of conduct among accountants.

Additionally, experiments have shown there is an interaction between ethical decision-making and in-group bias. Gino, Ayal and Ariely (2009) show in an experimental setting that the level of unethical behavior in participants increased when a student assigned by the experimenters to cheat was an in-group member, but decreased when the cheater was an out-group member. Bram Cadsby, Du and Song (2016) examine if people cheat for an in-group member at the expense of a non-member and find evidence of dishonesty to benefit not only oneself but also one's in-group. Fosgaard , Hansen and Piovesan (2013) show that men cheat more when they become aware that their peers cheat. Chen and Xin Li (2009) show that that participants in their experiment tended to be more altruistic toward an in-group members. Therefore, even if some investors may judge some ventures to be unethical, this disadvantage may be offset by investors that in one way or another belong to the same in-group as the entrepreneurs.

In this paper, we study the interaction between in-group bias and ethicality, focusing on the interaction between the ethicality/unethicality of business ventures proposed by entrepreneurs and in-group bias shown by investors towards entrepreneurs of the same in-group. Specifically, we conduct an experiment in which one implicitly more ethical, and one less ethical, business ideas are proposed via pitches to a sample of 39 Swedish professional investors that all graduated from one of Sweden's leading business schools - the Stockholm School of Economics (SSE). Half of the proposals are presented by a fictional team of entrepreneurs graduating from a competing university and half from the SSE. After each presentation, each respondent fills out questionnaires, grading their propensity to invest, their confidence in the presenting team, the uniqueness of the business idea and long term idea sustainability on a seven point scale.

We find an overall strong disapproval for the less ethical business proposal among investors, regardless of the university background of the entrepreneurs. For instance, the probability of choosing 5 across all aspects of the proposal after the unethical business proposal falls by roughly 40% on average whereas that of choosing 2 increases by 46% on average, relative to the scores given by the investors after seeing the ethical business proposal. We believe this may be due to the nature of the business proposal signaling the ethicality of the team, with investors believing that only more unethically inclined individuals present more unethical business ideas. If this is the case,

how investors perceive the entrepreneurial ethicality may affect their perception of the riskiness of the business proposal and potentially influence the likelihood that a venture secures financing.

Perhaps more importantly, we find that if the proposal was made by entrepreneurs graduating from the SSE, the unethical proposal is perceived more favorably by investors relative to when it is presented by entrepreneurs graduating from a different university. We find that roughly half of the difference in probabilities of choosing high or low scores when grading the unethical as compared to ethical business proposal is offset if the unethical business idea was presented by a team of entrepreneurs from the SSE. That is, if the probability of choosing 5 across all aspects of the proposal after the unethical business presentation falls by roughly 40% on average, the probability of an in-group investor choosing a 5 falls only by roughly 20% on average. In line with previous literature (e.g. Gino, Ayal and Ariely (2009), Bram Cadsby, Du and Song (2016), Fosgaard, Hansen and Piovesan (2013)), we conclude that individuals' sense of ethicality differs between in-group and out-group members with out-group members being held to a higher standard of ethicality than in-group members.[1]

To be able to say something about broader welfare implications of such in-group biases in investment situations, we present and analyze a model of entrepreneurial behavior in which two types of entrepreneurs try to search for and match with in-group investors. If the entrepreneurs are successful, they can take advantage of an in-group bias whereas if they are not, they match with out-group investors and receive less than fair value for their projects. We show that decreasing search costs, thereby making it easier to find an investor of the same type, increases total expected value of projects that are successfully undertaken regardless of the composition of entrepreneurs. Further, we show that if there are an equal number of entrepreneurs in the market, total expected investment is maximized and each entrepreneur receives the same expected payoff, if both types of investors are equally represented. However, it is not necessarily optimal that the proportion of group one and group two investors is the same as group one and two entrepreneurs, nor is it necessarily optimal to break the monopoly of a group of investors, even when there are two types of entrepreneurs in the market. Although decreasing search costs for entrepreneurs seems like a sensible policy alternative, we find that changing the composition of investor types may actually lead to a loss in overall investment into new entrepreneurial ventures.

Experimental Design and Data

Our experiment was designed to capture whether business venture ethicality influences the chances of entrepreneurs to secure financing and whether this is influenced by the in-group affiliation between the investors and the entrepreneurs. In this section, we describe in details the experiment participants and procedure, the business ventures that the entrepreneurs pitched to participating investors, the ways in which we make university affiliation more salient throughout the experiment, and present some descriptive statistics of the data collected during the course of the experiment.

Experiment Participants and Procedure Potential participants for the experiment were identified through the university alumni network, focusing on anyone that currently worked as a professional investor. Out of roughly 200 directly contacted candidates, 39 chose to participate in the experiment. Each confirmed participant chose a suitable time to conduct the experiment and was called beforehand with standardized instructions. Each respondent was asked to read through online presentations for two business proposals and answer a follow-up online questionnaire after each proposal.[2] Each proposal was put forth in the presentation by fictitious entrepreneurs that had graduated from either the same university as the investors or a competing university. During the call each participant was asked three questions just before the experiment began;

1. What year did you graduate from university?
2. Do you remember your university ID number and if yes, what was it?

[1] Given an increase in the popularity of ethical investments and investment funds, ethicality is becoming an important dimension in investors' investment decisions aside from the typical financial risk and return characteristics. Whereas ethicality may be a dimension for which certain investors have preferences, this dimension does not make implications for the legality of the investment or behavior of the entrepreneurs or investors. Investing in less ethical ideas in no way makes implications for the legality of an investor's behavior; what is perceived as unethical need not be judged to be illegal in a court of law. It does however imply that in-group members may adjust their tolerance for what they perceive to be unethical behavior, being more lenient in their perception of ethicality for other members of an in-group.

[2] Originally, the idea was to film the business pitches and send them to the participants. After a pilot test with a small group of investors, it was evident that the participants focused excessively on the personal characteristics of the actors in the films, such as energy and passion, which was not relevant to the current study. As a result, we chose to provide only the presentation slides. We found that this approach was more effective in making the investors focus more on the value of the business proposal than the personal impressions of the presenting entrepreneurs.

3. Do you live in Stockholm?

The participants were also told that the content was fictional but that they should treat the proposals as they would in the course of their work. Finally, a section with some brief descriptive questions was filled in by each participant at the end of the experiment. All investors were provided with the same information about the context of the experiment. More specifically, the participants were informed that the study was about investment behavior, but they were not given information that would have indicated that university affiliation or investment ethicality would play a central part.

Business Proposals "Hedvig" and "Monkey" Each participant was asked to evaluate two separate business proposals - both constructed to be as realistic as possible and identical in terms of their financial payoffs. The proposals were designed to have a clear distinction in terms of ethicality; to help increase this contrast, both proposed products were targeting children. Although individuals may differ in their individual definitions of what constitutes ethical or unethical, we have tried to create the two business proposals in such a way as to make the difference in the ethicality of the two proposals quite large, without making it obviously so. As we will present in the results, the responses of the participating investors suggest the difference was indeed noticeable.

The more ethical business idea, known as "Hedvig", a mobile study application using artificial intelligence for more effective learning. The more unethical business proposal was for an augmented reality game called "Monkey" aiming to be highly addictive and to capitalize on the latest research regarding addictiveness of video games. Monkey's revenue is generated through selling user data to third parties as well as in-game gambling machines that require in-app purchases and is addictive for children. Which proposal was seen first by each participant was randomized to avoid biased results (Epley and Gilovich, 2006). In other words, half of the participants saw the ethical pitch first and the other half first saw the unethical pitch first. Both proposals, as seen by the participants are detailed in the appendix.

Survey Design The post-presentation survey was designed to capture investors' general attitudes towards each business proposal. They were each asked to grade

1. General investment propensity
2. Confidence in the team
3. Idea uniqueness and
4. Long term idea sustainability

using a seven-point scale. They were also given the opportunity to motivate their scores in free text sections.[3] Finally, before submitting the form, participants were asked to grade how important SSE was to their identity and if they currently work with other SSE alumni. The survey is provided in whole in the appendix.

Salience of University Affiliation The overall experiment is designed to capture whether an in-group bias, where the in-group is defined by university affiliation, impacts investment decisions. Therefore, a number of triggers were used to make university affiliation more salient without making it an explicit feature of the experiment. Firstly, as mentioned above, three questions were asked during the instructive telephone conversation that related to university affiliation. In addition to these, the proposal included

1. A proposal design with heterogeneous characteristics;
   (a) The team communicating the proposal consisted only of alumni (in-group member) or non-alumni graduates (out-group member)
   (b) The companies making the proposals were incubated at the respective university's business incubator
   (c) University logos were visible throughout the presentations
   (d) The investors were told that other in-group or out-group members had already invested
2. The survey was primarily in each respective university's main color in order to reinforce university affiliation

[3]One question was also included asking how much they would be willing to invest in order to attempt to quantify a potential bias. However, as responses were free text, they turned out to be very noisy and often given as a range or indicator value. We have therefore chosen not to use the exact numbers but will instead analyze whether an investor chose to invest at all, that is invest a sum greater than 0.

3. Each participant was asked to participate in the experiment by current university students as a result of their business achievements

Summary of Data Looking at a summary of the raw data in Table 1, we can see a number of differences in how respondents score the four aspects of each business proposal; for instance, respondents tend to give higher scores to the presentations presented by in-group members.

[Table 1 Here]

Further, there appears to be a difference between how the unethical idea is perceived when it is presented by an in-group member. The average response for the stated propensity to invest in the unethical idea is 2.45 when presented by an in-group member and 1.40 when presented by an out-group member. The same large difference can be seen when the respondents scored idea sustainability, with an average score of 2.95 when presented by the in-group and 2.00 when presented by the out-group. Reassuringly, there appears to be no substantial difference in how important university identity is to the respondent, nor how many respondents work with other alumni between the respondents that saw presentations made by in-group or out-group members.

Model and Estimation

Ordered Probit Model To model how investors' responses to questions depend on different characteristics, we will employ an ordered probit model;

Let investor $i's$ taste for an aspect of business proposal j captured by question k as a function of observed proposal and individual investor characteristics x_{ik} be given by a latent variable model

$$y^*_{ijk} = x_{ik}\beta_k + \epsilon_{ijk}$$

where $\epsilon_{ijk} \sim N(0,1)$. Further, let the observed choice y out of m possible be given by

$$y = \begin{cases} 1 & if \quad a_0 < y^*_{ijk} \leq a_2 \\ 2 & if \quad a_1 < y^*_{ijk} \leq a_2 \\ \vdots & \\ m & if \quad a_m < y^*_{ijk} < a_{m+1} \end{cases}$$

where $a_0 = -\infty$ and $a_{m+1} = \infty$. Then the probability of choosing j is given by

$$\begin{aligned} \Pr[y=j] &= \Pr\left[a_{j-1} < y^*_{ijk} \leq a_j\right] \\ &= \Pr\left[a_{j-1} < x_{ik}\beta_k + \epsilon_{ijk} \leq a_j\right] \\ &= \Pr\left[a_{j-1} - x_{ik}\beta_k < \epsilon_{ijk} \leq a_j - x_{ik}\beta_k\right] \\ &= F(a_j - x_{ik}\beta_k) - F(a_{j-1} - x_{ik}\beta_k) \end{aligned}$$

where $F(.)$ is the cumulative distribution function of ϵ_{ijk}.[4]

Parameter Estimation and Controls Model parameters are jointly estimated using Maximum Likelihood for each of the four questions with standard errors being corrected for heteroskedasticity and cross-question correlation in the error terms. We employ three different specifications for each of our four question; each specification contains an "Unethical" indicator variable taking value 1 if the proposal was for the unethical business idea and "In-Group x Unethical" an indicator for the interaction of the "Unethical" and "In-Group" indicator variables. The "In-Group" indicator variable taking value 1 if the proposal was for the proposals presented by graduates from the same university as the respondent and is included in all specifications which do not include individual fixed effects.[5] Additional specifications contain individual respondent controls, including a score of how important university identity is and whether other alumni work in the same workplace as the respondent.[6]

[4] As a robustness check we also estimate an Ordered Logit model. The results are very similar to the ordered probit model results although in one case the coefficients become insignificant at the 10% significance level going from a p-value of roughly 0.09 to a p-value of roughly 0.11.

[5] The "In-group" parameter cannot be separately identified from the individual fixed effects as half the individuals only evaluated the proposals made by an in-group member. However, the interaction between "Unethical" and "In-Group" can still be identified as each individual saw both the ethical and unethical pitches.

[6] In order to comply with the General Data Protection Regulation (GDPR), we conducted the surveys so that the responses were anonymous and could not be connected with a given individual after the experiment took place. Therefore, we were not able to collect demographic characteristics such as age or gender as these would have made it easy to reconstruct the identity of the respondents.

Results

The estimated model parameters suggest that both the ethicality and in/out-group dimensions of the experiment influence how the investors perceive the business proposals they were presented with; ethicality is an important aspect, with the proposal perceived as less ethical being viewed negatively - regardless of the affiliation of the presenting team. The investors are more likely to choose a lower score for all aspects of the more unethical business proposal. One concern with this type of experiment is whether the investors simply view the profitability of the two business ideas differently and we are simply capturing this. While this may indeed be the case, the proposals were constructed to be absolutely identical from a financial point of view, at least partially helping to control for such an effect. Further, six investors explicitly stated that "Monkey" was an unethical idea in the free comments. One investor even stated that "[The idea] is totally unethical. 7-12 year-olds are to be turned into gambling addicts. And the data is going to be sold to a third party. A completely ice cold idea." Given such strong opinions from some of the investors, we do not believe that the ethicality effect is completely driven by a difference in the perception of future profitability.

[Table 2 Here]

From Table 2 we see that for the less ethical business idea, both the stated propensity to invest and confidence in the team receive a lower score. Not only does the ethicality of the proposal affect the propensity to invest, it also influences the investors general perception of the team making the proposal. Perhaps the nature of the business proposal signals the ethicality of the team with investors believing that only more unethically inclined individuals, and thus perhaps more risky, would propose more unethical business ideas. However, if the business proposal was presented by a team of alumni, the investors are much more positive to the business proposal, all else equal.

Although one could argue that in-group bias driven by university affiliation could provide investors with a credible signal about the quality of entrepreneurs, it is much harder to imagine that university affiliation is related to the underlying ethicality of individuals. That is, whereas it is plausible that having graduated from a specific business school may say something about an individual's overall quality, it is harder to justify that one business school has more ethical students or alumni than another. Therefore, we believe this result is in line with a bias rather than fundamental difference in the level of ethicality of individuals graduating from one university vis a vis another university.[7]

[Table 3 Here]

A similar pattern emerges for the less ethical business idea in terms of idea uniqueness and idea sustainability; both aspects of the more unethical proposal receive a lower score in relation to the more ethical idea. For idea sustainability we see from Table 3 that if the proposal was made by the in-group team, investors are more positive than if the proposal had been presented by the out-group team. One aspect for which we do not see a clear result, is idea uniqueness; this may be due to the fact that the ideas presented to the investors are not unique for this group of investors. Both proposals are for mobile applications with a well-known revenue generating model.

[Table 4 Here]

We can look at the marginal effects for each question to see just how big an impact ethicality and in-group belonging have on the probabilities of choosing a specific score on the scale; from Table 4, across all questions, we see that there are substantial and statistically significant drops in the probabilities that investors will choose higher scores (4-6) and a substantial increase in the probabilities that they will instead choose lower scores (2-3). The probability that the stated propensity to invest is chosen to be four or five drops by almost 50% with the probability to chose a 5 for idea sustainability falling by almost 70% for the unethical business proposal.

Additionally, we see that if the unethical business proposal was presented by the in-group team, almost half of the negative effect from the unethicality is offset; if an in-group member presented the unethical proposal then the probability to choose a four for propensity to invest is only 30% lower, and five is only 25% lower compared to a 52% and 43%. The differences between these drops are both statistically significant at the 5% significance level. Although these effects are insignificant for the confidence in the team and idea uniqueness, we again see a similar result for idea sustainability, with roughly half of the negative effect from the unethicality of the proposal being offset if the presentation was conducted by an in-group member. Overall, this suggests that although investors perceive the unethical proposal negatively, roughly half of the effect is offset if the proposal was made by an in-group member.

[7] There could however be a difference in the ethicality of students between different business schools if for instance one business school offers mandatory ethics classes and the other does not. To our knowledge, both the SSE and Lund University have had mandatory ethics courses in the past as well as presently.

[Table 5 Here]

Given that we have few observations and some aspects benefit from an in-group bias, we test the joint-significance of the parameters across all four questions. The results are presented in Table 5 from which we can conclude that the "Unethical" and "In-Group x Unethical" indicators are not jointly zero in all specifications, although the p-value for the specifications with no controls is roughly 0.21.

[Table 6 Here]

Finally, we can also study how "revealed" propensity to invest is affected by proposal ethicality and potential in-group bias. After each presentation, in addition to the questions described above, investors were asked to provide an amount between 0 and 1,000,000 SEK which they would be willing to invest in the project, given that fellow alumni had already contributed 4,000,000 SEK. Although the numbers provided were very noisy, we analyze whether an individual investor pledged to invest or not. The results are presented in Table 6 and are consistent with the results we obtain for the stated propensity to invest in Table 1, with the effects being larger in the revealed propensity case.

Discussion

Investment Efficiency and Social Welfare

It is unclear at first glance whether the in-group bias we observe in the survey responses is good or bad for overall investment; on one hand, the in-group members may be more likely to invest in the entrepreneurial ventures of other in-group members leading to increased investment. On the other hand, this may be to the detriment of the out-group entrepreneurs or lead to over-investment into poor quality projects. In order to be able to draw clearer conclusions regarding whether an in-group bias in this context is good or bad from a welfare point of view, we present a simple model of entrepreneurial and investor behavior;

Let there be M risk neutral entrepreneurs that draw a project with fair value θ_e and group affiliation γ_e at time t_0. Let there be N investors that draw an investment cutoff $\underline{\theta}_i$ and group affiliation γ_i at time t_0. That is, let entrepreneur and investor type be given by (θ_j, γ_j) for $j = e, i$. Without loss of generality, let some fixed and known share w_1 of entrepreneurs be of group type $\gamma_e = 1$ and share $1 - w_1 = w_2$ of type $\gamma_e = 2$. In period t_1, let the entrepreneurs choose search effort s with which to look for an investor of type $\gamma_i = 1, 2$ so as to maximize expected payoff. Search effort is costly, with cost increasing in search effort s. Let some fixed and known share σ_1 of investors be of group type $\gamma_i = 1$ and share $1 - \sigma_1 = \sigma_2$ of type $\gamma_i = 2$. The number of type γ investors is given by n_γ and the opposite type by $n_{-\gamma}$.[8]

In period t_2, let each entrepreneur be randomly matched to a single investor of type γ_i.[9] Let the probability of being matched to an investor of the same type be a function of search effort s, given by $\Pr(\gamma_e = \gamma_i | s, \sigma)$. If entrepreneur and investor types match - that is, both entrepreneur and investor belong to the in-group - and the entrepreneur has a project of higher or equal value than the investor's investment cutoff, $\theta_e \geq \underline{\theta}_i$, the investor acquires the project for fair value θ_e. If on the other hand entrepreneur and investor types don't match, the investor penalizes the entrepreneur's project by some commonly known discount $0 < d < 1$.[10] That is, the investor acquires the project for value $\theta_e(1-d)$ if the discounted project is above the investor's investment cutoff $\theta_e(1-d) \geq \underline{\theta}_i$.[11] If the project fails to reach the investors' cutoff in any of the cases, the project fails and perishes. Investors are assumed to have bottomless pockets, are risk neutral and can perfectly (and costlessly) observe the entrepreneur's type. The timeline of the model is depicted in Figure 1 below.

[8] Alternatively, one can view entrepreneurs and investors as being drawn from a binomial distribution with some known probabilities.

[9] This implicitly assumes that there is an investor drawn for every entrepreneur. Alternatively, we could assume that there are a smaller number of investors, with for instance a fixed supply of capital, but this would complicate the model without adding any additional insights.

[10] We will assume that the in-group bias cannot be influenced by policy makers in a meaningful way. This is not to say that we take a stand as to whether in-group bias can or cannot be influenced for instance by education. It has been shown that more educated individuals express fewer stereotypes and prejudices (as in e.g. Rudman, Ashmore and Gary (2001) or Sidanius, Sinclair and Pratto (2006)). However, we believe this to be a broader issue which is beyond the scope of this paper.

[11] Implicit in these assumptions is that entrepreneurs have no bargaining power and have to accept the investor's decision, both with regards to price and whether to not invest. Although the most successful entrepreneurs and the ones with the most promising projects may have bargaining power, we believe this is the exception rather than the rule in real life fundraising situations.

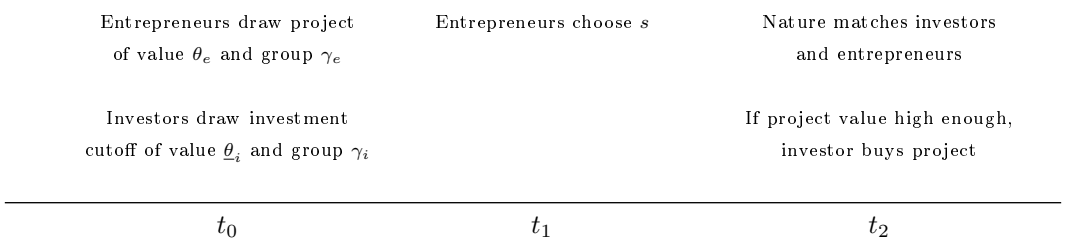

Figure 1: Depiction of timing of the theoretical model of entrepreneurial behavior in which entrepreneurs choose search effort s in order to maximize their chances of being matched with an investor of the same type.

Additionally,

Assumption A1 Let the probability of an entrepreneur finding an investor of matching type be given by a simple linear probability model;

$$\Pr(\gamma_e = \gamma_i | s_\gamma, \sigma_\gamma) = n^\gamma (1 - \sigma_\gamma) s_\gamma + \sigma_\gamma \text{ with } s_\gamma \in [0, \bar{s_\gamma}], n_\gamma \geq 0, \gamma = 1, 2$$

This function has a few desirable properties; firstly, if effort is zero, $s_\gamma = 0$, there is still a chance that the entrepreneur is matched to an investor of the same type. However, the probability will depend on the share of the correct investor type in the economy. Effectively, if an entrepreneur makes no effort, an investor is drawn randomly. If there are very few investors of the same type as the entrepreneur, the probability the entrepreneur will find a good match without making effort is very low. Secondly, if search effort is high enough, the probability an entrepreneur will find an investor of the same type is one, regardless of how few investors of a given type there are - as long as there are strictly more than zero investors of that type.[12]

Assumption A2 Let the cost of search effort be given by

$$c(s) = \kappa s^2 \text{ with } \kappa \geq 0$$

The assumed cost function is increasing in the search effort and has an increasing marginal cost of effort. Although a simplification, it does allow us to analyze our model analytically.

Assumption A3 Let entrepreneur project value and investor investment cutoff both be uniformly distributed

$$\theta_e, \underline{\theta}_i \overset{iid}{\sim} U(0, 1)$$

Random entrepreneur and investor types increase the uncertainty faced by the entrepreneurs and helps us parsimoniously incorporate heterogeneity in entrepreneurs and investors; real-life investors are heterogeneous, being interested in different projects, having different capital constraints and possibly having different information. Therefore, even if an entrepreneur finds a sympathetic investor (that is, of the same type) the entrepreneur will only be able to sell the project if it is of a good enough quality for that particular investor.

Proposition 1 Under assumptions A1-A3, an entrepreneur's optimal search effort s^* is

i. Increasing in project value θ_e
ii. Increasing in discount d
iii. Holding n_γ constant, decreasing in the number of out-group investors $n_{-\gamma}$
iv. Decreasing in cost κ

The proposition is intuitive; if project value is increasing then the entrepreneurs have more potential profit with which to finance the costs of searching for a suitable investor. Perhaps surprisingly, optimal search effort is increasing in the discount value d. However, whereas project value impacts expected profits regardless of which type of investor an entrepreneur is matched with, the discount only affects expected profits if an entrepreneur matches with an investor of the opposite type. Therefore, as discount increases the entrepreneurs have a higher incentive to try to avoid matching with investors of the wrong type and therefore increase their search effort. Increasing the number of out-group investors decreases optimal search effort for the same reason, with more out-group investors effort becomes

[12] In order for the probability to be well-defined (that is bounded between zero and one) the optimal level of search effort s has to be bounded, $s_\gamma \in [0, \bar{s_\gamma}]$. Although we do not do this explicitly here one can ensure this is the case by scaling the term n^γ and setting costs high enough for the maximum effort $\bar{s_\gamma}$ to be optimal for any of the entrepreneur types.

effectively more costly. Increasing cost decreases effort as more effort leaves less profits for the entrepreneur. Costs can make a big impact on the amount of total investment as becomes clear in Corollary 1;

Corollary 1 If search cost parameter κ is zero (or near zero), and there is at least one out-group investor in the market $n_{-\gamma} > 0$, the market achieves its first best outcome.

This result clearly raises the impact that search costs have on the efficiency of investments; if there are no search costs, each entrepreneurs can exert maximum effort and find a perfect match, avoiding a poor match. However, whereas Corollary 1 is intuitive, it does not guarantee that decreasing costs will always increase total expected investment. This however is shown in the next proposition.

Proposition 2 If there are two types of investors, decreasing search costs increases the expected value of successful projects regardless of the composition of entrepreneurs.

Intuitively, reducing search costs should benefit everyone. Proposition 2 states that this is true regardless of the number of entrepreneurs of each type; all entrepreneurs may be of type one, type two or a mixture and reducing costs will still increase total expected investment. However, it is important to point out that if there is only one type of investor, be it type one or type two, this no longer holds. When there is only one investor type, searching makes no difference - entrepreneurs have to make do with the type of investor that is available and choose not to exert effort.

Intuitively, it is not clear

Proposition 3 Holding the number of investors N constant, the proportion of investors σ of a given type that maximizes the expected value of successful projects, is the root of a third degree polynomial given by

$$c_1\sigma^3 + c_2\sigma^2 + c_3\sigma + c_4 = 0$$

where

$$\begin{aligned} c_1 &= \frac{(2-d)\,d^3}{5\kappa N^3} \\ c_2 &= -\frac{3(2-d)d^3}{10\kappa N^2} \\ c_3 &= \frac{(2-d)\,d^3}{10\kappa N} \\ c_4 &= \frac{d\,(2w_1-1)}{3N^2} \end{aligned}$$

The a solution to the polynomial in Proposition 3 exists and is quite complicated.[13][14] Although it would have been better to say something about the optimal composition of investors, this proves difficult. We can still say a number of things however; firstly, having the same proportions of investor types as entrepreneur types is not always optimal. That is, proportional representation of entrepreneurs within the population of investors is not always optimal and will depend on the model parameters. The intuition is that by introducing a second investor type, both types of entrepreneurs now have to exert effort, however minimal, to avoid matching with investors of the opposite type. Additionally, a group of entrepreneurs that didn't face a bias now risk being matched with a biased investor. This extra cost, if faced by many formerly in-group entrepreneurs, may outweigh the benefit to a potentially very small fraction of entrepreneurs. We provide some examples of how the optimal composition of investors changes with the composition of the entrepreneurs in Figure 2 below.

Further, the composition of entrepreneurs greatly matters for the optimal composition of investors; if entrepreneurs are of only one type then it is optimal for investors to also only be of the same type. If the proportion of entrepreneurial types in the market is equal, $w_1 = w_2 = 0.5$ we can quite easily find the optimal proportion of investors:

Corollary 2 If there are an equal number of entrepreneurs in the market,$w_1 = w_2 = 0.5$, the expected value of successful projects is maximized if there is no dominant investor type, $\sigma_1 = \sigma_2 = 0.5$.

[13] The xxx states that a general polynomial of third degree will have at least one real-valued root.

[14] We choose to use the expected value of successful projects as our measure of welfare because this captures the fair value of the projects that were successful rather than just the transfer from investors to entrepreneurs.

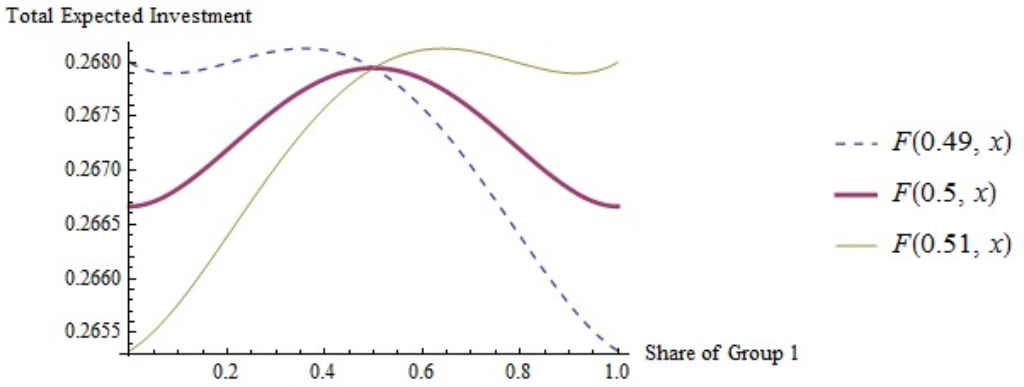

Figure 2: Expected value of successful projects as a function of the share of group one investors and group one entrepreneurs for different composition of group 1 investors: for $w_1 = 0.49$ (dashed line), $w_1 = 0.5$ (solid thick line) and $w_1 = 0.51$ (solid thin line). Remaining model parameters are set to $d = 0.4$, $\kappa = 0.25$, and $N = 1$.

When the proportion of entrepreneur types in the economy is equal, it is best to have an equal proportion of investor types regardless of any other model parameters. Having an equal proportion of investor types leads to entrepreneurs having the same expected payoffs, regardless of their own type. This is because, when the investors are split equally between types any advantage one type of entrepreneur may have had over another is no longer present, with every entrepreneur being equally discriminated against. This does not mean that the equal payoff outcome is only optimal in this case. It is however only optimal under fairly strict conditions;

Corollary 3 Equal expected payoff to all entrepreneurs maximizes expected value of successful projects only if $\sigma_1^* = \sigma_2^* = 0.5$.

This is a direct consequence of the in-group bias the entrepreneurs face. Only when the investor base is fully diverse, in that the proportion of type one and type two investors is the same, are the expected payoffs to entrepreneurs the same. Therefore, for the equal outcome to be optimal, the optimal proportion of investors has to be $\sigma_1^* = \sigma_2^* = 0.5$.

Policy Implications From an overall welfare perspective, it is clear that if we believe that universities produce roughly the same number of entrepreneurs, then the expected value of successfully undertaken projects could be maximized by a more diverse investor base. That is, if there is a disproportionate number of investors coming from one university compared to the population of entrepreneurs, policy makers could provide tax incentives to get a broader investor base, encouraging, for instance, higher stock market participation or alternative investment platforms such as crowdfunding. Additionally, reducing search costs for entrepreneurs substantially helps reduce mismatches between entrepreneurs and investors, helping mitigate the negative effects in-group bias. However, our theoretical model also highlights the potential problems with for instance affirmative action, if the out-group members which are helped, start to favor their own in-group members at the expense of the old incumbent in-group.

Entrepreneur Today, Investor Tomorrow One of the aspects that we do not discuss in our model and cannot capture with our experiment is the dynamic nature of in-group bias in investment situations. It is not unlikely that in-group biased investors substantially hamper the out-group from becoming successful entrepreneurs, either if the in-group investor type has a very dominant role in the market or if the bias is very large. This may have follow-on effects for future investor composition as successful entrepreneurs often go on to invest in other entrepreneurial ventures. If one group of entrepreneurs is crowded out, this may lead to a continuing dominance of in-group investors also into the future. We believe that how in-group favoritism today may affect investment outcomes in the future is an important avenue for future research.

Conclusion

Ethical investments are gaining popularity among investors, with some preferring to completely avoid companies supplying what are perceived to be unethical goods or behaving in an unethical manner. However, would investors

be more likely to invest in such a company if it were founded by a member of a group with which the investor feels a close belonging, a so-called in-group? We conduct an experiment in which one implicitly more ethical, and one less ethical, business ideas are proposed via pitches to a sample of Swedish professional investors. Half of the proposals are presented by a team of entrepreneurs graduating from a competing university and half from the same university as the investors. After each presentation, each respondent fills out questionnaires, grading their propensity to invest, their confidence in the presenting team, the uniqueness of the business idea and long term idea sustainability on a seven point scale.

Using an ordered probit model, we find an overall strong disapproval for the less ethical business proposal among investors, regardless of the university background of the entrepreneurs. The probability that investors choose high scores when grading the presentation of the unethical business idea falls relative to that of the ethical business idea, whereas the probability of choosing lower scores instead increases. For instance, the probability of choosing 5 on a 7-point scale across all aspects of the proposal after the unethical business presentation falls by roughly 40% on average whereas that of choosing 2 increases by 46% on average, relative to the scores given after seeing the ethical business proposal. We believe this may be due to the nature of the business proposal signaling the ethicality of the team with investors believing that only more unethically inclined individuals present more unethical business ideas. If this is the case, how investors perceive the entrepreneurial ethicality may affect their perception of the riskiness of the business proposal.

Perhaps more importantly, we find that if the proposal was made by entrepreneurs graduating from the same university, the unethical proposal is perceived more favorably by investors relative to when it is presented by entrepreneurs graduating from a different university. We find that roughly half of the difference in probabilities of choosing high or low scores when grading the unethical as compared to ethical business proposal is offset if the unethical business idea was presented by a team of entrepreneurs from the same university as investors. That is, if the probability of choosing 5 across all aspects of the proposal after the unethical business presentation falls by roughly 40% on average, the probability of an in-group investor choosing a 5 falls only by roughly 20% on average. In line with the results of e.g. Gino et al. (2009), we conclude that individuals' sense of ethicality differs between in-group and out-group members with out-group members being held to a higher standard of ethicality than in-group members.

To be able to say something about broader welfare implications of such in-group biases in investment situations, we present and analyze a model of entrepreneurial behavior in which two types of entrepreneurs try to search for and match with in-group investors. If the entrepreneurs are successful, they can take advantage of an in-group bias whereas if they are not, they match with out-group investors and receive less than fair value for their projects. We show that decreasing search costs, thereby making it easier to find an investor of the same type, increases total expected value of projects that are successfully undertaken regardless of the composition of entrepreneurs. Further, we show that if there are an equal number of entrepreneurs in the market, the total expected value of projects that are successfully undertaken is maximized and each entrepreneur receives the same expected payoff, if both types of investors are equally represented. However, it is not necessarily optimal that the proportion of group one and group two investors is the same as group one and two entrepreneurs, nor is it necessarily optimal to break the monopoly of a group of investors, even when there are two types of entrepreneurs in the market. Although decreasing search costs for entrepreneurs seems like a sensible policy alternative, changing the composition of investors may lead to a loss in overall investment into new entrepreneurial ventures.

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Appendix

Proofs

Proof of Proposition 1
Let us begin by deriving the optimal value of s^*. Each entrepreneur maximizes expected profits, given by

$$\mathbb{E}\left[\Pi(s_\gamma)|\theta_e, s_\gamma\right] = \Pr(\gamma_e = \gamma_i|s_\gamma, \sigma_\gamma)\Pr(\theta_e \geq \underline{\theta}_i)\theta_e + \left[1 - \Pr(\gamma_e = \gamma_i|s_\gamma, \sigma_\gamma)\right]\Pr(\theta_e(1-d) \geq \underline{\theta}_i)\theta_e\,(1-d) - c(s)$$

where we suppress the conditioning on the variables d, κ, n_γ, N which are all assumed to be known constants.

Under assumption A3, $\Pr(\theta_e \geq \underline{\theta}_i) = \theta_e$. Further, under assumptions A1-A3 we have that expected profits are given by

$$\mathbb{E}\left[\Pi(s_\gamma)|\theta_e, s_\gamma\right] = \left[n_\gamma(1-\sigma_\gamma)s_\gamma + \sigma_\gamma\right]\theta_e^2 + \left[1 - n_\gamma(1-\sigma_\gamma)s_\gamma - \sigma_\gamma\right]\left(\theta_e(1-d)\right)^2 - \kappa s_\gamma^2$$

Differentiating this expression with respect to s we have

$$\frac{\partial\mathbb{E}\left[\Pi(s_\gamma)|\theta_e, s_\gamma\right]}{\partial s} = n_\gamma(1-\sigma_\gamma)\theta_e^2 - n_\gamma(1-\sigma_\gamma)\theta_e^2(1-d)^2 - 2\kappa s_\gamma$$

Setting the first order condition equal to zero and solving for s we find that

$$s_\gamma^* = \frac{n_\gamma(1-\sigma_\gamma)\theta_e^2\left[1-(1-d)^2\right]}{2\kappa}$$

It is easy to very this is a maximum as

$$\frac{\partial\mathbb{E}\left[\Pi(s_\gamma)|\theta_e\right]}{\partial s^2} = -2\kappa \leq 0$$

Let us now in turn prove each of the statements i. to iv.;
i. For an entrepreneur of any type γ

$$\frac{\partial s_\gamma^*}{\partial\theta_e} = \frac{n_\gamma(1-\sigma_\gamma)\theta_e\left[1-(1-d)^2\right]}{\kappa} \geq 0$$

as $n^\gamma(1-\sigma_\gamma) \geq 0$,$\theta_e \geq 0$,$\left[1-(1-d)^2\right] \geq 0$ and $\kappa \geq 0$.
ii. An increased discount d increases optimal effort s_γ^* as

$$\frac{\partial s_\gamma^*}{\partial d} = \frac{n_\gamma(1-\sigma_\gamma)\theta_e^2(1-d)}{\kappa} \geq 0$$

iii. We have that

$$s_\gamma^* = \frac{\frac{n_\gamma n_{-\gamma}}{n_\gamma+n_{-\gamma}}\theta_e^2\left[1-(1-d)^2\right]}{2\kappa}$$

which gives

$$\frac{\partial s_\gamma^*}{\partial n_{-\gamma}} = -\frac{n_\gamma^2\theta_e^2\left[1-(1-d)^2\right]}{2\kappa N^2} \leq 0$$

iv. We have that by increasing cost κ, optimal search effort s_γ^* is decreasing;

$$\frac{\partial s_\gamma^*}{\partial\kappa} = -\frac{n_\gamma(1-\sigma_\gamma)\theta_e^2\left[1-(1-d)^2\right]}{2\kappa^2} \leq 0$$

Proof of Corollary 1
If search cost parameter κ is zero (or low enough) and there exists an out-group investor, that is $n_{-\gamma} > 0$, $s_\gamma^* = \bar{s_\gamma}$ by Proposition 1.iv, leading to $\Pr(\gamma_e = \gamma_i|s_\gamma^* = \bar{s_\gamma}, \sigma_\gamma) = 1$. Each entrepreneur, regardless of their group affiliation exerts maximal effort, are perfectly able to match with an in-group investor and receive the fair value θ_e for their projects.

Proof of Proposition 2

We have that the total expected payoff to the entrepreneurs is given by

$$\begin{aligned}\mathbb{E}\left[\Pi(s^*)\right] &= w_1\left(\Pr(\gamma_e=\gamma_i|s_1^*,\sigma_1)\Pr(\theta_e\geq\underline{\theta}_i)\theta_e+\left[1-\Pr(\gamma_e=\gamma_i|s_1^*,\sigma_1)\right]\Pr(\theta_e(1-d)\geq\underline{\theta}_i)\theta_e-c(s_1^*)\right)+\\ &\quad (1-w_1)\left(\Pr(\gamma_e=\gamma_i|s_2^*,\sigma_2)\Pr(\theta_e\geq\underline{\theta}_i)\theta_e+\left[1-\Pr(\gamma_e=\gamma_i|s_2^*,\sigma_2)\right]\Pr(\theta_e(1-d)\geq\underline{\theta}_i)\theta_e-c(s_2^*)\right)\\ &= \frac{(2-d)d^3n_1^2\mathbb{E}\left[\theta_e^4\right]n_2^2+4\kappa N\mathbb{E}\left[\theta_e^2\right](n_1(1-d)+dn_1w_1+n_2-dw_1n_2)}{4\kappa N^2}\end{aligned}$$

where it is worth noting that we calculate this as if investors receive fair value for their project, even if matched with a biased investor. This is because we are interested in the value of successful projects rather than the amount of money invested, or paid, for the projects. Therefore,

$$\frac{\partial\mathbb{E}\left[\Pi(s^*)\right]}{\partial\kappa} = -\mathbb{E}\left[\theta_e^4\right]\frac{(2-d)d^3n_1^2n_2^2}{4\kappa^2N^2}\leq 0$$

Proof of Proposition 3 We have, from before, that the expected total of successful investment is given by

$$\mathbb{E}\left[\Pi(s^*)\right] = \frac{(2-d)d^3n_1^2\mathbb{E}\left[\theta_e^4\right](N-n_1)^2+4\kappa N\mathbb{E}\left[\theta_e^2\right](n_1(1-d)+dn_1w_1+(N-n_1)-dw_1(N-n_1))}{4\kappa N^2}$$

in which we have replaced n_2 with $N-n_1$. Differentiating this expression with respect to $n_1$we have

$$\frac{\partial\mathbb{E}\left[\Pi(s^*)\right]}{\partial n_1} = an_1^3+bn_1^2+cn_1+e$$

where

$$\begin{aligned}a &= \frac{(2-d)\,d^3\mathbb{E}\left[\theta_e^4\right]}{\kappa N^2}\\ b &= -\frac{3(2-d)d^3\mathbb{E}\left[\theta_e^4\right]}{2\kappa N}\\ c &= \frac{(2-d)\,d^3\mathbb{E}\left[\theta_e^4\right]}{2\kappa}\\ e &= \frac{d\mathbb{E}\left[\theta_e^2\right](2w_1-1)}{N}\end{aligned}$$

where we can replace $\mathbb{E}\left[\theta_e^2\right]=\frac{1}{3}$ and $\mathbb{E}\left[\theta_e^4\right]=\frac{1}{5}$ given the fact that fair value follow a standard uniform distribution. Further, we can divide the first order condition $\frac{\partial\mathbb{E}[\Pi(s^*)]}{\partial n_1}=0$ by N to get the solutions as shares of type one investors in the economy$\sigma=\frac{n_1}{N}$. This can analogously be found for type two investors by replacing $n_1=N-n_2$.

Proof of Corollary 2
We have from Proposition 3 that n_1^* has to satisfy$an_1^3+bn_1^2+cn_1+e=0$, where

$$\begin{aligned}a &= \frac{(2-d)\,d^3\mathbb{E}\left[\theta_e^4\right]}{\kappa N^2}\\ b &= -\frac{3(2-d)d^3\mathbb{E}\left[\theta_e^4\right]}{2\kappa N}\\ c &= \frac{(2-d)\,d^3\mathbb{E}\left[\theta_e^4\right]}{2\kappa}\\ e &= \frac{d\mathbb{E}\left[\theta_e^2\right](2w_1-1)}{N}\end{aligned}$$

If $w_1=w_2$then $w_1=0.5$. This means that the third degree polynomial collapses to $an_1^3+bn_1^2+cn_1=0$, which has the solutions $n_1^*=\{0,\frac{N}{2},N\}$. We can see from the expression for $\mathbb{E}\left[\Pi(s^*)\right]$ that when the first order condition holds, the numerator collapses to $(2-d)d^3n_1^{*2}\mathbb{E}\left[\theta_e^4\right](N-n_1^*)^2+4\kappa N\mathbb{E}\left[\theta_e^2\right]$. Therefore, if $n_2\neq\frac{I}{2}$ then the expression $\mathbb{E}\left[\theta_e^4\right](d-2)^2d^2n_1^2(N-n_1)^2=0$. Therefore, the maximum is found at $n_1^*=\frac{N}{2}$.

Proof of Corollary 3

We have that the difference in total expected payoff for both types of entrepreneurs is given by

$$\mathbb{E}\left[\Pi(s_1^*)|\gamma_e = 1\right] - \mathbb{E}\left[\Pi(s_2^*)|\gamma_e = 2\right] \quad = - \quad \frac{(d-2)d\mathbb{E}\left[\theta_e^2\right](n_1 - n_2)}{N}$$

Equal payoff implies that

$$\frac{(2-d)d\mathbb{E}\left[\theta_e^2\right](n_1^* - n_2^*)}{N} \quad = \quad 0$$

which, given the assumptions that $0 < d < 1$, and $\mathbb{E}\left[\theta_e^2\right] > 0$ can only be achieved when $n_1^* = n_2^*$.

Tables

		In-Group				Out-Group			
Question	Ethicality	Mean	Std.	Min.	Max.	Mean	Std.	Min.	Max.
Propensity to Invest, Stated	Ethical	4.55	1.23	3	7	4.20	1.77	2	7
	Unethical	2.45	1.43	1	5	1.40	0.82	1	4
Confidence in Team	Ethical	4.65	1.23	2	6	4.70	1.56	1	7
	Unethical	3.80	1.32	1	6	3.20	1.36	1	6
Idea Uniqueness	Ethical	3.50	1.50	1	7	3.70	1.13	2	6
	Unethical	2.55	1.36	1	5	2.60	1.23	1	5
Idea Sustainability	Ethical	4.60	1.19	2	7	4.50	1.85	1	7
	Unethical	2.95	1.40	1	5	2.00	1.17	1	5
Identity Importance		5.25	1.01	3	7	5.40	1.80	1	7
Workplace		0.85	0.36	0	1	0.95	0.22	0	1
Nr. Obs.		39				39			

Table 1: Descriptive statistics for survey taken by respondents that were presented with two business proposals, one more and one less ethical. The respondents were split into two groups, with each group having the business proposals presented by either a team of alumni (in-group members) or graduates from a competing university (out-group members).

Ind. variable	Propensity to Invest, Stated			Confidence in Team		
	(1)	(2)	(3)	(4)	(5)	(6)
in-group	0.19	-0.10		-0.07	-0.04	
	(0.33)	(0.41)		(0.33)	(0.40)	
unethical	-2.47 ***	-3.13***	-6.07***	-1.16***	-1.63***	-3.01***
	(0.41)	(0.47)	(0.81)	(0.34)	(0.36)	(0.51)
in-group & unethical	1.01**	1.31**	2.96***	0.49	0.67	1.28 **
	(0.50)	(0.54)	(0.71)	(0.46)	(0.48)	(0.56)
Ind. Controls		X			X	
Date Fixed Effects		X			X	
Ind. Fixed Effects			X			X
Nr Obs	78	78	78	78	78	78
Pseudo R^2	0.19	0.30	0.53	0.06	0.24	0.51

Table 2: Coefficient estimates from Ordered Probit model where dependent variable is given by each participant's stated score, increasing from 1 to 7 for questions (1) "How prone are you to invest in the proposed business idea?" and (2) "How confident are you about the team?". Independent variables are given by i. "In-group" - an indicator variable taking value 1 if proposal was presented by in-group member ii. "Unethical" - an indicator variable taking value 1 if the proposal was for the unethical business idea and iii. an interaction of the two previous indicator variables. Individual controls include how important univcan be found in the online appendixersity identity is and whether workplace includes other alumni. Parameters are estimated jointly for all questions and standard errors are robust. Significance is given at the 10% (*), 5% (**) and 1% (***).

Ind. variable	Idea Uniqueness			Idea Sustainability		
	(7)	(8)	(9)	(10)	(11)	(12)
in-group	-0.16	-0.14		0.02	-0.10	
	(0.33)	(0.39)		(0.33)	(0.41)	
unethical	-0.88	-1.05***	-1.74***	-1.89***	-2.52***	-5.00***
	(0.34)	(0.35)	(0.40)	(0.37)	(0.41)	(0.69)
in-group & unethical	0.04	0.02	0.09	0.77	1.05**	2.36***
	(0.47)	(0.48)	(0.52)	(0.48)	(0.50)	(0.63)
Ind. Controls		X			X	
Date Fixed Effects		X			X	
Ind. Fixed Effects			X			X
Nr. Obs.	78	78	78	78	78	78
Pseudo R^2	0.05	0.15	0.41	0.13		0.52

Table 3: Coefficient estimates from Ordered Probit model where dependent variable is given by each participant's stated score, increasing from 1 to 7 for questions (1) "How unique is the proposed business idea?" and (2) "How sustainable is the proposed business idea in the long term?". Independent variables are given by i. "In-group" - an indicator variable taking value 1 if proposal was presented by in-group member ii. "Unethical" - an indicator variable taking value 1 if the proposal was for the unethical business idea and iii. an interaction of the two previous indicator variables. Individual controls include how important university identity is and whether workplace includes other alumni. Parameters are estimated jointly for all questions and standard errors are robust. Significance is given at the 10% (*), 5% (**) and 1% (***).

Ind. variable	At Outcome	Marginal Effects				
		(1)	(2)	(3)	(4)	Average of (1)-(4)
unethical	2	0.62***	0.23***	0.27***	0.70***	0.46
	3	-0.11	0.25***	0.00	0.11	0.06
	4	-0.52***	0.13	-0.20***	-0.16*	-0.19
	5	-0.43***	-0.40***	-0.18***	-0.68***	-0.42
	6	-0.19**	-0.20***	-0.01	-0.15**	-0.14
in-group & unethical	2	-0.26**	-0.10	0.00	-0.29*	-0.16
	3	0.05	-0.10	0.00	-0.05	-0.03
	4	0.22**	-0.05	0.00	0.07	0.06
	5	0.18**	0.17	0.00	0.28***	0.16
	6	0.08*	0.08	0.00	0.06	0.06

Table 4: Marginal effects for independent indicator variables i. "In-group" - an indicator variable taking value 1 if proposal was presented by in-group member and ii. "Unethical" - an indicator variable taking value 1 if the proposal was for the unethical business idea and for each of the questions (1) "How prone are you to invest in the proposed business idea?", (2) "How confident are you about the team?", (3) "How unique is the proposed business idea?" and (4) "How sustainable is the proposed business idea in the long term?". Results based on baseline Ordered Probit specifications for each question including individual level controls and date fixed effects and calculated for outcomes 2-6 at the mean values of remaining variables. Significance is given at the 10% (*), 5% (**) and 1% (***).

Ind. variable	Joint Significance of Coefficients Across Questions		
	(1)	(2)	(3)
in-group	1.25	0.17	
	(0.87)	(0.99)	
unethical	41.63***	50.95***	128.17***
	(0.00)	(0.00)	(0.00)
in-group & unethical	5.91	9.06*	29.55***
	(0.21)	(0.06)	(0.00)

Table 5: Joint significance tests of estimated Ordered Probit model coefficients where dependent variable is given by each participant's stated score, increasing from 1 to 7 for questions (1) "How prone are you to invest in the proposed business idea?", (2) "How confident are you about the team?", (3) "How unique is the proposed business idea?" and (4) "How sustainable is the proposed business idea in the long term?". Independent variables are given by i. "In-group" - an indicator variable taking value 1 if proposal was presented by in-group member ii. "Unethical" - an indicator variable taking value 1 if the proposal was for the unethical business idea and iii. an interaction of the two previous indicator variables. Individual controls include how important university identity is and whether workplace includes other alumni. Chi-square test statistic is given for (1) model with no controls, (2) model with individual level controls and date fixed effect and (3) model with individual fixed effects. P-values are given in parenthesis. Significance is given at the 10% (*), 5% (**) and 1% (***).

Ind. variable	Propensity to Invest, Revealed		
	(1)	(2)	(3)
in-group	0.55	-0.06	
	(0.42)	(0.58)	
unethical	-1.77***	-2.41***	-11.47***
	(0.55)	(0.64)	(0.08)
in-group & unethical	0.71	1.10	8.90***
	(0.70)	(0.72)	(0.78)
Ind. Controls		X	
Date Fixed Effects		X	
Ind. Fixed Effects			X
Nr Obs	78	64	39
PseudoR^2	0.23	0.34	0.78

Table 6: Coefficient estimates from Probit model where dependent variable is given by each participant's revealed propensity to invest, given by an indicator variable taking the value 1 if participant chose to invest a sum greater than 0 in the proposed business idea. Independent variables are given by i. "In-group" - an indicator variable taking value 1 if proposal was presented by in-group member ii. "Unethical" - an indicator variable taking value 1 if the proposal was for the unethical business idea and iii. an interaction of the two previous indicator variables. Individual controls include how important university identity is and whether the investor's workplace includes other alumni.