

A RIGGED PATH TO SUCCESS?

A STUDY OF GENDER BIAS IN VENTURE FUNDING

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Abstract:

In order for a startup to grow and prosper, access to venture funding is crucial. Throughout recent years, it has become evident that male-led ventures receive a significantly larger share of the total amount of capital allocated to startups than female-led ventures. Since the quality and potential of business ideas vary markedly between different ventures, it has been difficult to determine why female entrepreneurs are at a disadvantage in raising capital. In this thesis, an experiment has been conducted to control for the quality of the startup. Two identical pitch decks have been put together, but one is presented by a male team and the other by a female team, in order to investigate whether investors are gender biased or not. The results show that investors are biased in their investment decisions, and that the entrepreneurs' gender affect how much capital the startup raises. Unlike previous research, this study suggests that investors are not biased in favour of male entrepreneurs. Instead, the investors funded the female team more frequently than the male team, and the female team raised more capital on average. Furthermore, the results indicate that female investors are more gender biased than male investors. We argue that the female entrepreneurs' sudden success in raising capital can be explained by overcompensation as the investors are not investing real money, but also that the Swedish venture funding landscape might be changing for the better, with equal opportunities to succeed, regardless of gender.

Keywords: Venture Capital, Startup Funding, Gender Bias, Gender Stereotypes

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1. Introduction and Background

“Life is not fair” is a saying often told to children when they experience something in life as unfair. This quote is to a great extent applicable to the concept of venture funding, where male entrepreneurs raise significantly more startup capital than female entrepreneurs. Female-led companies only received 2,2% of the total amount of capital allocated to startups in the United States in 2018, which is \$10 billion less than one single male-led e-cigarette company, Juul, raised on its own (Hinchliffe, 2019). So why do women raise less capital than men, are all female business ideas worse, or are investors gender biased? It is challenging to answer this question since most studies within the field have compared different teams with different business ideas. This study aims to solve this problem through conducting an experiment with one, identical, business idea, presented by two teams, one male and one female, in order to investigate the causal effect that the gender of the entrepreneurs has on the amount of capital raised by the startup.

We live in a world with substantial inequalities, where men and women are treated differently with contrasting privileges; wage gaps, career disadvantages, and gender norms that are not only descriptive but also prescriptive as to how a man or a woman should behave. As a result, this has influenced the Finance Industry in general, and the venture funding environment in particular.

A startup, a newly established business, is in many cases in need of external funding in order to achieve growth, expansion and stable cash flows to reach break-even. Angel or venture funding can eventually be the determinant of a startup’s success story or shutting the idea down. However, it might not only be the potential of the startup that determines whether it will receive funding or not, the gender of the entrepreneurs behind the startup also seem to have been playing a major role in recent years’ capital raises. According to a study conducted in the US, investors prefer venture pitches presented by men (Brooks, A.W. et al, 2014). In the study, investors were presented with identical recorded business ideas, pitched by either a man or a woman. The startup presented by a male voice was funded by 69% of the participants in the study, and only 31% of the participants chose to invest in the venture pitched by a woman. In addition, the pitch presented by a male voice was perceived as more logical, fact-based and persuasive than the exact same pitch narrated by a female voice.

Moreover, it is not only the amount of capital allocated to startups that is subject to gender bias, also the type of questions that are asked to the entrepreneurs are significantly different for male versus female founders. As Dana Kanze et al. (2017) state, the Venture Capital firms tend to ask soft ball questions to men and more hostile questions to women. As a result, it becomes a rigged game with larger obstacles for

female founders to overcome, and a rougher path towards creating a successful business.

Some may argue that the uneven distribution of capital depends on the ratio of female-to-male entrepreneurs. However, in 2017, one third of all Swedish startups were led by women, but in the same year, female-led startups only received 13% of the total capital allocated to startups (Malmström et al, 2017).

Women seem to be at a systematic disadvantage in many aspects of their professional lives, and this is also the case in venture funding. Therefore, we find it of utmost importance to further investigate the potential impact gender bias has on the venture funding landscape and access to startup funding in Sweden. As proven earlier, quite an extensive amount of research has been put into the field, mostly focusing on the US and the gender of the entrepreneur, but more can be done, especially in the Nordic countries. More specifically, almost no studies have investigated how the gender of the individual investor affects the allocation of capital to startups either managed by men or women. In order to create a greater depth and understanding, this study takes into consideration the potential difference in gender of the investor as well as examine whether gender stereotypes affects investment decisions.

By shedding light on this current issue in venture funding, we believe that we can be a small catalyst to change in the right direction. This thesis will investigate the potential difference today in venture funding for male- and female-led startups in Sweden. It will be done through an experiment using two identical pitch decks for a theoretical venture called Instant Tutor, but where the team of entrepreneurs is either solely male or solely female. Since the participating investors will evaluate the exact same business idea, but with two different teams, it will be possible to examine how the gender of the entrepreneurs affect the amount of capital raised accurately. Hence, other factors that could influence the investment decision, such as the quality of different business ideas, are eliminated. As a result, we will analyse the difference in amount of funding the two projects receive, and also look into whether there is a difference in the amount of capital male and female investors allocate to the two different, but still identical, startups. Thus, this study is aiming to answer the following research questions:

Is access to venture funding in Sweden affected by gender bias in favour of male entrepreneurs? Are male and female investors equally biased?

2. Previous Literature

Several studies have been carried out within the topic of venture funding. Throughout the following section, the previous research which is found to be the most applicable to this study is covered and discussed in order to lay the groundwork for the analysis.

Firstly, in order to investigate whether a potential gender bias exists in venture funding, it is important to understand the origin for the bias - gender discrimination and gender stereotypes. This is covered by Hebert (2018) in her paper “Mind the Gap: Gender Stereotypes and Entrepreneurs’ Financing”, where she investigates whether female founders are systematically at a disadvantage when it comes to raising startup capital. According to Hebert, in France, 90% of the venture capitalists are men, and female entrepreneurs are 25-35% less likely to receive external funding than male entrepreneurs. However, the context and industry have to be taken into consideration as this difference does not exist in a female dominated industry, for instance the Beauty Industry. In this case, female entrepreneurs in female-dominated sectors are 8% more likely to receive funding than male entrepreneurs. Moreover, men are significantly more likely to receive funding than female entrepreneurs in male-dominated industries. This proves that both male and female entrepreneurs benefit from operating in an industry which fits their gender, which results in context-dependent stereotypes.

Secondly, adding to the theory of female founders systematically being at a disadvantage can be done through analysing another paper on how male and female entrepreneurs are asked different types of questions by investors (Kanze et al, 2017). The paper examines question-and-answer sessions during the TechCrunch Disrupt in New York City between 2010 and 2016. The study was able to conclude that male entrepreneurs are asked to win and women not to lose. This is done by asking male founders promotional questions and female founders more hostile questions. For instance, a male entrepreneur might be asked how much revenue his company is expected to generate in the next three years, while a female entrepreneur might get a question regarding how she intends to keep her customer base. As a result, founders that get asked promotion-focused questions raise more capital than founders that get asked prevention- and hostile-focused questions. Hence, prevention-focused questions significantly hinder the entrepreneur from receiving funding.

Thirdly, it is not only the type of questions asked to the entrepreneurs during a pitching event that affects whether a startup receives funding or not, also, the entrepreneur’s physical appearance is taken into consideration (Brooks et al, 2014). This study was able to conclude that men who were seen as attractive raised more capital. However, the opposite pattern was spotted for female founders. In this case, female entrepreneurs who were perceived as less attractive were able to raise a slightly higher amount of money in comparison to the more attractive female founders.

Moreover, another aspect which brings useful insight into the investors' decision-making process is covered by Lee and Huang (2018), focusing on the impact of the mission that the startup is looking to fulfil. Their study evaluated how investment decisions are affected by business pitches with a social mission. The results showed that women receive a larger amount of capital when they have a social mission incorporated in their startup in comparison to when they do not. However, including a clear social mission does not affect how much funding a man receives. The authors refer this behaviour to social norms. Gender norms state that women are supposed to be kind and sympathetic, where a social mission fulfils this expectation, resulting in a greater amount of capital being allocated to female startups with a social mission.

Lastly, the future performance of a startup also depends on the gender of the investor. A paper by Raina (2017) examined the performance gap between male- and female-led startups and was able to conclude that the gender performance gap is greater among startups financed by Venture Capital firms with male general partners than with female general partners. Furthermore, this gender performance gap can be explained through male and female investors' different abilities to evaluate and contribute to the development of female-led startups. Similar results were presented by Ewens and Townsend (2017), which concluded that female-led ventures end up being more successful with female investors than with male investors. These results conclude that the industry is either in need of more female investors and female General Partners, or an improved ability of men evaluating women-led startups, in order to reduce the gender performance gap.

This paper aims to contribute to previous research through broadening the understanding of the venture funding landscape in Sweden. Furthermore, it aims to investigate whether there is gender bias in favour of male or female entrepreneurs and how the gender of the investor impacts the allocation of capital. Only focusing on the amount of capital that men and women receive is a quite extensively covered topic, but not as much in Sweden, and most importantly, no previous studies have controlled for the quality of the business ideas or background of the entrepreneurs. Moreover, no earlier studies have evaluated the potential impact of male to male, female to male, male to female or female to female investments and their impact on the overall distribution of capital.

3. Theoretical Framework

3.1. The Concept of Venture Capital and Angel Investing

The Venture Capital Industry is seen as the engine to economic growth throughout the world (Cremades, 2018). It is the muscle behind innovation, as venture capitalists work to support startups to grow, and eventually exit through, for instance, an Initial Public Offering (IPO). There are different stages at which Venture Capital firms can choose to be involved and invest capital (Deeb, 2016). The earliest is the Seed Round, where the startup has limited traction and the Venture Capital firm contributes to get the business off the ground. The second stage is the Early Stage, where the company has proven its business model to be successful and the Venture Capital Firm helps to, for instance, increase the sales and marketing effort. The third stage is the Growth Stage where the Venture Capital firm “pours kerosene on a company that is already on fire” (Deeb, 2016). Venture Capital investments are the riskiest types of investments as the Venture Capital firm invests in the management and their idea. Venture Capital firms make money through something called carried interest, which is a percentage of sales of the startup. However, the Venture Capital firm’s best opportunity to make large profits and cash out, is through an exit, meaning that the venture is either sold to another corporation or made available to the open market through an IPO. The average length of reaching an exit is five to seven years.

When an entrepreneur receives external funding from a Venture Capital firm, it is usually in exchange for a stake in the company. Even if the venture capitalists want to receive the largest stake possible in order to make the greatest return, it is still important to leave the entrepreneurs with enough incentive to make the venture as successful as possible.

Another type of investor is an Angel Investor, which is a high net worth individual that is seeking to invest their capital in startups (Cremades 2018). The Angel Investor typically invests in the early rounds in order to be able to capture a larger stake in the startup. In later rounds it is less common with angel investments as the valuation of the startup is usually higher, and therefore requires more capital to capture the same share in the company. The main difference between a Venture Capital firm and an Angel Investor is the size of their available investment fund.

From a startup’s perspective, the entrepreneur starts to seek funding when the venture is in need of expanding in order to reach the next stage. It can be in the form of developing a new product, increasing their marketing efforts, or improving their infrastructure. Furthermore, even if receiving external funding usually results in losing a stake in the company, it still brings additional advantages as it can attract talented people to get on board on the lottery ride (Zider, 2014).

3.2. Gender Stereotypes

Stereotypes exist in all social and professional contexts. The Cambridge Dictionary defines a stereotype as “a fixed idea that people have about what someone or something is like, especially an idea that is wrong”. Stereotypes are often based on representativeness, meaning that the most representative attributes of a group come to mind first and are too heavily emphasised when forming an opinion about a group of people (Bordalo et al. 2015). Examples of such representativeness-based stereotypes are that all Swedes are blond, and that the majority of Florida’s residents are elderly, both of which are incorrect. Bordalo et al. claims that representativeness generates rather accurate stereotypes. However, their research amplifies that stereotypes are context-dependent, meaning that stereotypes depend on the specific reference group that the target group is compared to. Moreover, stereotypes highlight differences between groups and portray unproportional differences between groups that are in fact quite similar to each other.

Stereotypes are especially visible when it comes to gender. Perceptions about male and female attributes are widespread and widely shared. Women are characterised as sympathetic, kind and concerned about others while men are portrayed as decisive, forceful and aggressive. Male and female gender stereotypes are often oppositional, which means that men are perceived as lacking the attributes that are the most prevailing in women, and vice versa (Heilman 2001). However, gender stereotypes are not only descriptive of how men and women behave, but they are also prescriptive, meaning that they define norms about how men and women should behave. These norms depict “dos” and “don’ts” for male and female behaviour. For instance, women should be kind and men should be forceful. But when looking at the “don’ts”, the normative prescription prevents behaviour that is associated with the opposite gender. That is, the attributes that men are valued for, such as being decisive, are prohibited for women.

How an entrepreneur is perceived by investors is a critical component when trying to raise capital, and gender stereotypes play a great part in how entrepreneurs are evaluated. A study by Malmström, Johansson and Wincent (2017) describes how differently venture capitalists talk about male and female entrepreneurs. In the study, conversations held by venture capitalists evaluating different startups in Sweden were recorded and analysed. The results of the study showed that the investors questioned the knowledge, experience and trustworthiness of the female entrepreneurs and produced a stereotypical image of female entrepreneurs as having the opposite attributes of those considered to be needed to be a good entrepreneur. When evaluating the male entrepreneurs on the other hand, the venture capitalists described them as having all the qualities needed to be a good entrepreneur. The venture capitalists highlighted the entrepreneurial potential of the men, while the potential of the female entrepreneurs was

diminished. While male entrepreneurs were described as “young and promising”, the women were described as “young, but inexperienced”. Gender stereotypes have proven to affect if and how much funding an entrepreneur receives, and female entrepreneurs seem to be at a systematic disadvantage.

3.3. The Concept of Gender Bias

A consequence of gender stereotypes is the “glass ceiling” that most women encounter at some point in their career. This barrier hinders women from accelerating to the higher levels of an organisation. Gender stereotypes create expectations about how women should behave and what qualities they should possess, and they result in gender bias in social and professional evaluation contexts (Heilman, 2001). Hence, being competent does not ensure that a woman will rise to the same professional level as an equally qualified man. The “glass ceiling” can to a large extent be explained by the fact that most executive and management positions are considered to require what is seen as male attributes, such as decisiveness and a goal-oriented aggressiveness. There is a lot of empirical evidence that support this view, where consistent studies have concluded that a good manager is described mainly by male attributes. Heilman’s (2001) study concludes that the scarcity of women at higher organisational levels is due to gender bias in evaluations and to the fact that gender stereotypes result in devaluation of female performance.

In the article “Women & the Leadership Labyrinth Heidi vs Howard”, Maria Katsarou (2019) writes about a woman who became the subject of a Columbia Business School case study. Her name is Heidi Roizen and she is a successful venture capitalist in Silicon Valley. Half of the students in the study received the case study with Heidi’s name on it, and the other half received an identical case study except for one detail, the gender of the venture capitalist was now a male called Howard. Heidi and Howard were rated as equally competent by the business students, but the students preferred Howard over Heidi. In fact, they perceived Heidi as selfish and less worthy of being hired than Howard. The study found that the more decisive Heidi was perceived as, the more the students rejected her. To conclude, the case study found a negative relationship for women between power and success. For men, this correlation is positive. The fundamental problem lies in gender stereotypes and gender bias, where qualities that are consistent with being a good leader are seen as unattractive when found in women.

As previously seen, consistent findings show that men are favoured in leadership and executive positions. Such results imply that men in leadership positions prefer to promote and hire other men. However, women’s in-group bias is proven to be stronger than men’s (Rudman & Goodwin, 2004). In-group bias is a concept where people of one homogenous group prefer other people of that same group over others. In all aspects of society, people who belong to the more socially valued groups automatically prefer

and favour their own peers. The only exception is gender, where automatic in-group bias is stronger for women than for men. Women strongly prefer the female gender while men seem to be relatively gender-neutral.

4. Hypotheses

When referring to capital in this study, it is hypothetical capital within the context and purpose of this experiment. Based on previous studies, research papers and literature, we expect to see a significantly larger amount of capital being invested in the startup consisting of only men in comparison to the one with only women. Furthermore, we expect the participating investors to see greater potential in the business idea and also the entrepreneurs when given the male pitch deck. As a result, the following hypotheses have been formulated:

4.1. Hypothesis 1

Previous research shows that investors consistently favour male entrepreneurs over female entrepreneurs in investment decisions. As such, this study is expected to generate a similar result where the male pitch deck will raise more capital than the female one, and the investors will fund the male team more frequently.

H1: The startup with an all-male team will on average raise more capital than the all-female team, and the probability of receiving funding will be greater for the all-male team than for the all-female team.

4.2. Hypothesis 2

Homogenous groups have an automatic in-group bias, meaning that they favour members of their own group over others. Female in-group bias has been proven to be stronger than male in-group bias. Hence, female investors are expected to invest more capital in the all-female team than the male investors. However, even if we predict the female investors to invest relatively more than male investors in the female entrepreneurs, we still believe that overall, both the male and female investors will invest more in the male team.

H2: The female investors will on average allocate a relatively larger amount of capital to the female entrepreneurs than male investors. However, both men and women will invest a larger amount of capital on average in the male entrepreneurs.

4.3. Hypothesis 3

Investors' decisions are influenced by gender norms and stereotypes which create biases in evaluation situations. A good entrepreneur is, according to gender stereotypes, someone who possesses male attributes. Thus, the participants in this study are expected to rate the male team as more competent than the female team.

H3: Both the male and female investors will see larger potential in Instant Tutor and its team when the entrepreneurs are male than when they are female.

If these three hypotheses are true, it means that female entrepreneurs are at a systematic disadvantage in raising startup capital.

5. Data and Methodology

5.1. Empirical Method

In the conducted experiment, professional investors were asked to evaluate the pitch decks of two identical startups, where one startup is run by men and the other by women. The material received by the participating investors emphasised that the pitch decks were created solely for the purpose of the study. Also, whether an investor received the male or female pitch deck was randomised. The purpose of the study was to investigate whether or not a gender bias exists in startup funding in Sweden. It is difficult to measure the causal effect that the entrepreneurs' gender has on the amount of capital raised by a startup in the real world as the quality of the business ideas and experience of the entrepreneurs differs among companies. However, through this experiment, it was made possible to control for the quality and experience, and compare two identical startups, with the exact same business idea, where the only difference was the gender of the entrepreneurs.

5.1.1. Conducting the Experiment

In the experiment, the respondents were presented with one of the two versions of a pitch deck from a company called Instant Tutor. The business idea was put together to replicate an average company in the Swedish startup landscape, and thus only exists in the context of this experiment. The only difference between the two pitch decks was the "Meet the team" slide, see Appendix 7, where either a team of only men or a team of only women was presented.

The names and pictures of the three male and female founders were carefully chosen to resemble each other in order to eliminate the risk of bias in regard to age, nationality or ethnicity. Also, the background and education of the entrepreneurs were identical for the male and female version of the pitch deck.

Instant Tutor is an app for home tutoring that connects students with a suitable tutor, see Appendix 7. The Digital Education Industry was chosen when designing the pitch deck as it is considered to be a relatively gender-neutral industry. This was done in order to avoid male- or female-dominated industries, such as the Fintech or Beauty Industry, influencing the survey responses.

The most important aspect of the experiment was to find a subtle way to make the investor notice the gender of the entrepreneur when evaluating the pitch deck, without making the purpose behind the experiment too obvious. The initial idea was to record one male and one female voice pitching Instant Tutor in order to remind the investor of the gender of the entrepreneurs throughout the pitch. However, after consideration and feedback from several investors pointing out the inconvenience of having to open a

pitch deck containing a background voice, it was decided to use pictures of three women and three men of the same age and ethnic background instead. Furthermore, the names of the corresponding team members were mentioned twice in the survey in order to once again subtly remind the investor of the gender of the entrepreneurs. As a result of only using the names and pictures rather than a background voice, it contributed to eliminate the risk of having the investors being influenced in their decision by the accent, pitch or level of engagement of either the male or female voice. A test round where 20 investors were contacted was conducted to test the pitch decks and survey questions. After reviewing the investors' feedback and making a few minor changes to the material, the experiment was sent to all final participants.

After having examined the pitch deck, the participating investors were asked to evaluate the business idea, the entrepreneurs and to fill out a questionnaire. The first three questions in the questionnaire addressed how likely the investor was to fund Instant Tutor and the amount the respondent would be willing to invest. These questions were formulated to test hypotheses number one and two. The following four questions in the questionnaire were formulated to test hypothesis three and asked the investor to grade Instant Tutor and its team of entrepreneurs.

5.1.2. Participants

In total, 394 investors were asked to take part in the experiment out of which 81 respondents chose to participate. Regarding the number of participants, the aim was to contact every Venture Capital firm in Sweden, and also a Sweden based Angel Investor network, to receive the largest possible sample in order to gain statistical power. Through personalised emails and follow-up reminders, a response rate of 20% was reached. The 81 responses were manually analysed in order to only include relevant data. In total, four responses were excluded from the analysis as a result of not meeting the criteria for participation. These were responses where the participant did not actually work with investments or when the respondent indicated that Instant Tutor was a startup too small to suit his or her employer's investment fund. Consequently, there were 77 answers left, with all remaining participants being professional investors who work as either a venture capitalist or an Angel Investor, in Sweden. The distribution of the participants was the following: 60 men and 17 women. The investors live and work all over Sweden and their ages range from 20 to 70 years in order to give an accurate representation of the Swedish venture funding landscape. The ratio of participating women is rather low but is yet a fair representation of the venture funding landscape, which is still a male-dominated industry.

5.1.3. Execution of the Experiment

The participants received the pitch deck and survey via email and completed the experiment at a time and place most convenient to them. Each participant received one of the two versions of the pitch deck and were neither told the motive behind the experiment, nor did they know that there was another version of the pitch deck. In total, 41 investors completed the female version of the pitch deck and 36 investors reviewed the male pitch deck and completed the corresponding survey. Clear instructions about the experiment were included in the email, see Appendix 6, and the participants were asked to only use the information provided in the pitch deck when answering the questions in the survey. The participants were also instructed to disregard personal economic constraints when answering the question about how much they would be willing to invest in the startup Instant Tutor. This was done in order to exclude the factor of the investors' current financial situations, and capital already tied up in other projects, influencing the responses.

5.1.4. Survey Design

The survey was divided into two parts, see Appendix 5. The first part consisted of seven questions where each investor was asked how likely he or she would be to invest in the startup, how much he or she would be willing to invest and then to evaluate the potential of the business idea and the team of entrepreneurs. The first question in the survey was "How likely are you to invest in Instant Tutor?", followed by the amount the investor would be willing to invest. This was done in order to receive an honest answer from the participants before they started to elaborate regarding the hidden purpose of the experiment. The investor rated the pitch decks using a Likert Scale ranging from 1 to 7, where 1 was the lowest score and 7 was the highest.

In the second part of the survey, the investor was asked to answer some personal questions regarding age, gender and experience in startup funding. This was done in order to divide the participants into groups used to compare their decisions.

5.2. Data

After having collected the data through the study described above, the data was divided into subgroups and statistical tests were run in order to test the hypotheses and answer the research questions. The statistical tests and analysis were carried out using the statistical tools SPSS and STATA. The statistical method is described further in the section below.

5.2.1. Statistical Method

A sample size of 77 participants was used in this study. The sample was divided into subgroups based on the male and female pitch deck as well as the gender of the investor, either male or female. This was done in order to compare the differences between female to female, female to male, male to female and male to male investments.

Five linear regressions were run in order to analyse how the invested amounts were affected by both the gender of the team of entrepreneurs as well as the gender of the investor. The first linear regression was run to compare how much capital the all-male and all-female team raised on average. The second linear regression was used to compare whether Instant Tutor's probability of being funded increased or decreased when the team was all-male instead of all-female. The third linear regression that was run excluded the projects that had received zero funding, in order to analyse if the male and female projects that were financed raised different amounts of capital. Finally, two separate regressions were set up for the male and female team, to examine by how much the invested amounts varied depending on whether the investors were male or female.

Furthermore, in order to analyse the differences between female to female, female to male, male to female and male to male investments, a Mann-Whitney U test was used. The Mann-Whitney U test was selected as a result of the small samples in the four subgroups and since normally distributed data could not be assumed, see distribution of responses in Appendix 4. The Mann-Whitney U test was done on all dependent variables, see Appendix 3, on the 1%, 5%, 10% and 20%, level of significance. This test was run using the following null hypothesis:

H₀: *There is no statistically significant difference in median scores between the male and female pitch deck when the investor is either a male or a female*

H₁: *There is a statistically significant difference in median scores between the male and female pitch deck when the investor is either a male or a female*

Lastly, a qualitative analysis was done in order to further investigate the difference in perception of the male and female team by the investors. This was done using the only qualitative response, question 3, where the investors could freely motivate the rationale behind their investment decision. The frequency of different factors, such as comments about diversity, risk, and experience, was gathered and compared between the two teams.

5.2.2. Variables

Dependent Variables

The following dependent variables were measured in this experiment:

- 1) Likelihood to invest in Instant Tutor
- 2) Amount invested in Instant Tutor in SEK
- 3) Perceived persuasiveness of the entrepreneurs
- 4) Potential seen in the entrepreneurs
- 5) Potential seen in the business idea
- 6) Perceived logic and intuitiveness of the pitch deck

The variable “Amount invested in Instant Tutor in SEK” was the most important variable in this experiment since it compares how successful the all-male and all-female team were in raising capital. This dependent variable was also of the highest importance when examining and understanding whether male and female investors are equally biased. The dependent variables focusing on persuasiveness, potential and logic were used to find explanations for a potential difference in how successful the two teams were in raising capital.

Treatment Variable

The treatment variable in this experiment was:

- 1) If the founders of Instant Tutor were an all-male or all-female team

Covariate Variable

The covariate variable in this experiment was:

- 1) If the investor was a man or a woman

A covariate is the characteristics of the participants of a study that can affect the dependent variables, in this case gender (Fan, 2012). Since the gender of the participating investors were not randomly assigned, the gender of the investor becomes a covariate instead of a treatment variable in this study.

Dummy Variables

The following dummy variables were created and used when analysing the data:

- 1) Financed
- 2) GenderTeam
- 3) GenderInvestor

The dummy variable Financed takes the value of 0 if 0 SEK was invested in Instant Tutor and 1 if the investor chose to invest any amount greater than 0 SEK. GenderTeam is 0 for the all-female team and 1 for the all-male team and GenderInvestor is 0 if the investor is a woman and 1 if the investor is a man.

5.2.3. Limitations in the Data

There are four main limitations in the collected data, which possibly influences the results in this study. Firstly, in absolute terms, a sample of 77 participants is rather small, which could affect the statistical power of the results of the study. Moreover, roughly 25% of the respondents were women, which potentially affects how significant the results are when comparing male and female investor decisions. With more time at hand, a larger sample could have been collected through an increased response rate. However, since Venture Capital is a male-dominated industry, it would still have been difficult to increase the ratio of female-to-male investors.

Secondly, even though the respondents were asked to fill out the survey independently and only consider the information received together with the pitch deck, many of the participants work for Venture Capital firms and their responses might have been influenced by their companies' investment guidelines.

Thirdly, the knowledge and experience of the investors within the sample differs quite drastically. For instance, the experience ranged from two months up to more than 30 years. Also, the position within the Venture Capital firm varied between a first-year associate up to CEO and Partners. This could also have had an impact on the outcome as investors with different length of experience observe risk as well as opportunities differently. Yet, it is still representable for the Swedish venture funding landscape.

Lastly, the pitch deck and survey were sent out via email, and the investors could freely choose when and where to complete the experiment. Hence, they might have been disturbed or stressed out when completing the study and not have been able to examine the opportunity as thoroughly as they usually do.

6. Results and Analysis

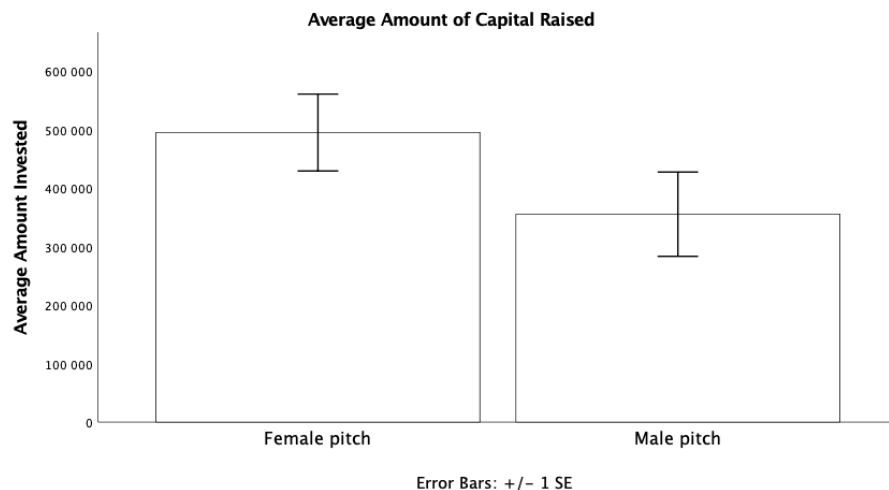
As previously mentioned in the Statistical Method section, there were a total of 81 participants, whereof 77 answers were applicable after having excluded the answers that did not meet the criteria to participate. The dependent variables in the survey were based on the 7-step Likert scale, except amount invested which ranged from 0 to 1 000 000 SEK, with 100 000 SEK intervals. On the Likert scale, a score of 1 was the lowest and least positive, and a 7 was the highest and most positive. In this section, the data has been divided into different types of subgroups, either based on the gender of the entrepreneur, the gender of the investor, or both, in order to test the different hypotheses. The Mann-Whitney U test has been tested on four different levels of significance, 1%, 5%, 10% and 20%.

6.1. Results: Hypothesis 1

H1: The startup with an all-male team will on average raise more capital than the all-female team, and the probability of receiving funding will be greater for the all-male team than for the all-female team.

Figure 1: Average Amount Invested in the Different Pitch Decks

The following figure examines the average amount invested in the female pitch deck and the male pitch deck, regardless of the gender of the investor.



The figure above clearly proves part of the first hypothesis wrong, as the all-female team behind Instant Tutor raised a significantly larger amount of capital on average than the identical pitch deck with all-male entrepreneurs. To be more precise, the female team received an average investment of 495 122 SEK, while the male team only raised 355 556 SEK on average, and this difference of 139 566 SEK is statistically significant at the 20% level, see Appendix 1.

In order to examine this phenomenon in greater depth, the following table, which analyses the distribution of capital among the male and female team of entrepreneurs and the number of projects that have been financed, is used.

Table 1: Frequencies of Financed Projects

The table shows the percentage of projects that were financed for the male and female team, where Financed is a dummy variable where 0=0 SEK and 1= investment > 0 SEK and GenderTeam is a dummy variable where 0=female team and 1=male team.

Financed	GenderTeam		Total
	0	1	
0	24,39	47,22	35,1
1	75,61	52,78	64,9
Total	100	100	100

Looking at the number of projects that received zero funding, it becomes evident that 47% of the investors decided not to finance the male team while only 24% of the investors chose not to finance the female team. Thus, the probability of receiving funding is greater for the female team than for the male team. The regression below looks further into the male and female teams' probability of being financed.

Table 2: Regression of Projects Financed and Gender of Entrepreneurs

Linear regression of dummy variables Financed, where 0=0 SEK and 1= investment > 0 SEK, and GenderTeam, where 0=female team and 1=male team.

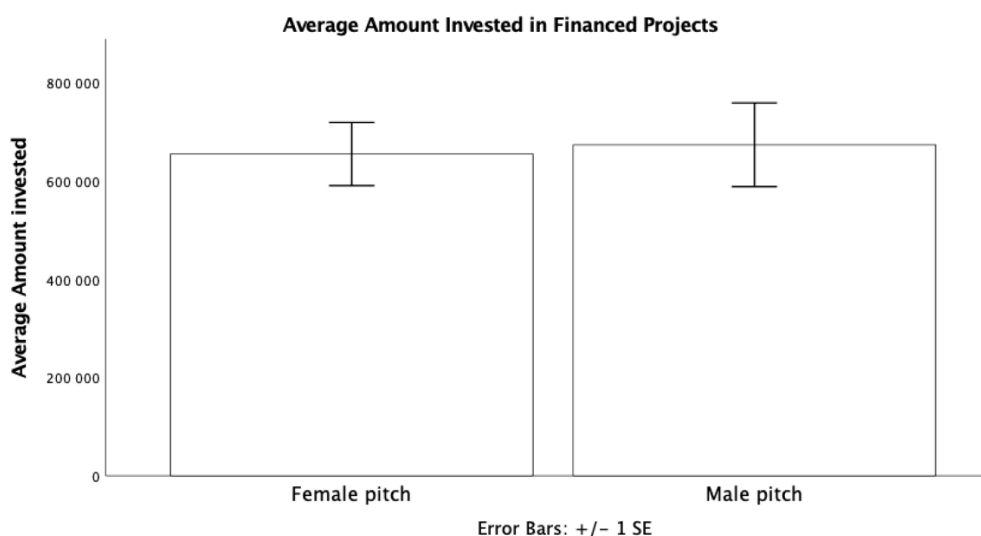
	Coefficient	P-value
GenderTeam	-0,228	0,037
Constant	0,756	0,000
<hr/>		
N	77	
adj R-squared	0,044	

Table 2 shows a linear regression of the dummy variables Financed (0=0 SEK and 1= investment > 0 SEK) and GenderTeam (0=female team and 1=male team). The constant 0,756 indicates that almost 76% of the investors that received the female pitch deck decided to invest an amount between 100 000 SEK and 1 000 000 SEK. The coefficient for GenderTeam of -0,228 means that, when the team is all-male, the proportion of projects that are financed is reduced by 0,228, and thus only about 53% of the investors that received the male pitch deck chose to invest an amount between 100 000 SEK and 1 000 000 SEK. Hence, the probability of being financed is 22,8 percentage points lower for the male team than for the female team and this difference is statistically significant at the 5% level.

As previously observed, the female team is more likely to be financed than the male team. In the figure below, all projects that were denied funding have been excluded from the analysis in order to analyse whether the projects that did receive funding have raised equal amounts of capital or not.

Figure 2: Average Amount Invested in the Financed Projects

The following figure examines the average amount invested in the male and female projects that did receive funding.



Looking at the figure above, it can be observed that when the projects that did not receive financing are excluded from the analysis, the difference in capital raised between the male and female team is reduced. Out of the projects that did receive funding, the male team received slightly more capital on average than the female team. In the regression below, the difference in capital raised by the financed projects is analysed further.

Table 3: Regression of Amount Invested and Gender of Entrepreneurs for Financed Projects

Linear regression of amount invested and dummy variable GenderTeam, where 0=female team and 1=male team, for the projects that did receive funding.

	Coefficient	P-value
GenderTeam	18845,5	0,859
Constant	654838,7	0,000
<hr/>		
N	50	
adj R-squared	-0,020	

In the regression in Table 3, the projects, both male and female, that did not receive any funding has been excluded. As a result, the sample now consists of 50 projects that have received an amount between 100 000 SEK and 1 000 000 SEK. When the team is all-female, the project receives an average of 654 839 SEK in funding. When the team is all-male, the project receives 18 846 SEK more, which is equal to 2,9% more funding than the female team. However, this difference is not statistically significant. Hence, the projects that are in fact financed have received an almost equal amount of capital on average regardless of gender.

In conclusion, hypothesis 1 is false. This is partly due to the female entrepreneurs having raised a larger amount of capital on average, as observed in Figure 1, and partly a result of the probability of receiving funding being 22,8 percentage points higher for the female team than the male team, as analysed in Table 2. However, the absolute difference in amount of capital raised depends on the probability of getting funded, rather than a difference in amount of capital received when funded.

6.2. Analysis: So Why Does the Female Team Raise More Capital?

According to the theory of Traditional Finance, investors are rational and should not show any sort of bias in their decision-making process. With this in mind, both teams should in theory raise an equal amount of capital. However, this is not the case. The results show that female entrepreneurs raise more capital on average than male entrepreneurs, as they are more likely to receive funding. In fact, the gender of the team explains 4,4% of the variance in the projects' probability of being financed, see Table 2. This value of adjusted R-Squared is quite high in the context, as both the adjusted R-Squared and coefficient should be zero in the absence of gender bias.

Venture funding is seen as the engine to economic growth, and all entrepreneurs should have an equal chance of succeeding, regardless of gender. However, this is not the case. Previous studies have shown that investors are biased in favour of male entrepreneurs who raise significantly larger amounts of capital than female entrepreneurs. This experiment also sheds light on gender bias, but in the opposite direction. So, why this sudden change in subject of gender bias?

When analysing this phenomenon, several recent events could potentially have had an impact on the investors' final decision. In late 2017, the Metoo movement shed light on gender bias in general and sexual harassment and assault in the workplace in particular. In the aftermath of this movement, both the media and large corporations have emphasised how prevalent the issue of gender bias and gender discrimination is. Sweden in particular has tried to adjust and change for the better, which could potentially have resulted in overcompensation, and in this context, it refers to investing more frequently in female entrepreneurs.

Furthermore, would the findings be the same if it was real capital from the investors' own pockets rather than hypothetical capital? For instance, take the refugee crisis, where a majority of the Swedish population wanted to help the people in need, act responsibly and help the less fortunate. However, once it became a reality and refugee homes and shelters were built next door, some people completely turned and changed their mind. Could a similar example explain this sudden change in gender bias, where the investors publicly support the female entrepreneurs, but when it comes down to a real money investment, it may show similar results to the previous studies, where the male entrepreneurs receive significantly more capital.

In addition, Sweden is a more gender equal country than the United States, where many of the previous studies have been carried out, which could explain why female entrepreneurs are doing better in Sweden than in the US in general. Moreover, even if these recent events and the usage of hypothetical capital could explain female entrepreneurs' sudden success in raising capital, the ideal outcome and explanation would be that Sweden, as a country, is changing for the better, eliminating gender bias in the long-run.

6.3. Results: Hypothesis 2

H2: The female investors will on average allocate a relatively larger amount of capital to the female entrepreneurs than male investors. However, both men and women will invest a larger amount of capital on average in the male entrepreneurs.

In section 6.1, it was observed that the female entrepreneurs on average raised more capital than the male entrepreneurs. In this section, the analysis focuses on if, and how, male and female investors invest differently.

Figure 3: Average Respondent Scores for Male and Female Investors

The figure below shows the average respondent scores to the question “How much would you be willing to invest?”.

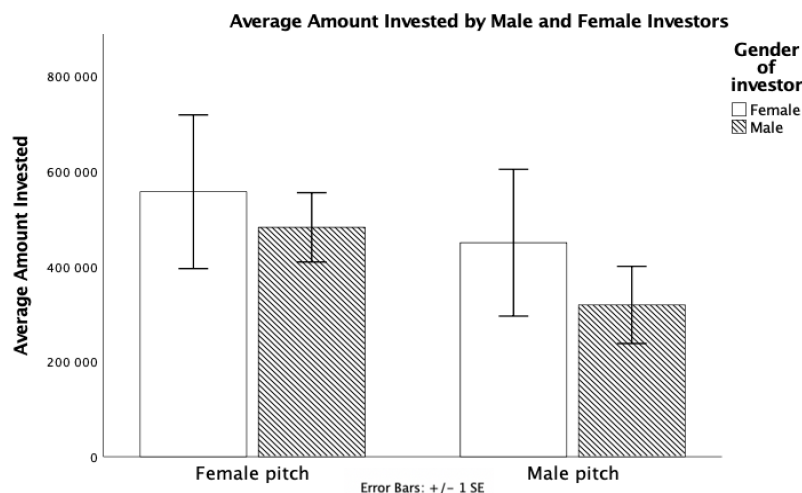


Figure 3 partly supports the statement in hypothesis 2. Female investors have on average allocated a larger amount of capital to the all-female team of entrepreneurs than male investors. However, the figure also shows that both male and female investors have invested more capital in the female team than in the male team. Consequently, the second part of the hypothesis is false. Not only have the female investors allocated a larger amount of capital to the female entrepreneurs than the male investors, the female investors have also allocated a larger amount of capital to the all-male team than the male investors. Hence, the female investors have on average invested larger amounts of capital than the male investors.

The linear regressions in Table 4 further investigate female to female, male to female, female to male and male to male investments.

Table 4: Regression of Amount Invested and Gender of Investor for the Male and Female Team

Linear regressions for amount invested and gender of investor, if dummy variable GenderTeam=0 (left table) and GenderTeam=1 (right table). GenderInvestor is a dummy variable where 0= female investor and 1= male investor.

Female Team (GenderTeam = 0)			Male Team (GenderTeam = 1)		
	Coefficient	P-value		Coefficient	P-value
GenderInvestor	-74789,9	0,674	GenderInvestor	-130769,2	0,424
Constant	557142,9	0,001	Constant	450000,0	0,002
<hr/>			<hr/>		
N	41		N	36	
adj R-squared	-0,021		adj R-squared	-0,010	

The linear regressions above show how the gender of the investor affects the amount invested in the male and female team. The average female to female investment is 557 143 SEK. For male to female investments, this amount decreases by 74 790 SEK to 482 353 SEK as seen in the first regression above. Consequently, the first part of the hypothesis is true, as female investors do invest more in female entrepreneurs than male investors do. The average female to male investment is 450 000 SEK and the average male to male investment is 319 231 SEK, which is 130 769 SEK less, as seen in the second regression above. Hence, as previously mentioned, the second part of the hypothesis is false as both male and female investors have invested more in the all-female team than in the all-male team. Even though both the male and female investors have invested numerically more in the all-female team, these differences in invested amounts are not statistically significant. A larger sample of participating investors, especially more female investors, would be necessary to find statistically significant differences between male and female investment decisions.

6.4. Analysis: In-Group Bias and Gender of Investor

The study has so far concluded that the female investors have invested a larger amount of capital in the female entrepreneurs than the male investors have. In addition, the female to female investment was on average 557 143 SEK while the male to male investment was on average 319 231 SEK. Hence, this result is in accordance with Rudman and Goodwin's (2004) findings that women's in-group bias is stronger than men's in-group bias.

Furthermore, female investors not only invest more in female entrepreneurs than male investors, but they also invest more in the male entrepreneurs, despite the fact that women are seen as more risk averse than men. An interpretation of this is that female investors are more positive, and male investors are more pessimistic and reluctant to invest. This investor behaviour is to some extent in line with classical gender stereotypes, where women are perceived as kind and men are perceived as aggressive.

6.5. Results: Hypothesis 3

H3: Both the male and female investors will see larger potential in Instant Tutor and its team when the entrepreneurs are male than when they are female.

As previously mentioned, both male and female investor have invested more capital in the all-female team than in the all-male team. In this section, the possible explanations to why the female team has raised more capital than the male team will be further analysed.

Table 5: Median Data for Differences for Female to Female, Female to Male, Male to Female and Male to Male Investments

*The table contains median data for the respondents' answers to the survey questions. Statistical significance of Mann-Whitney U test is at 1% (***), 5% (**), 10% (*) and 20% (*) significance levels for no difference in median score.*

	Female Investor- Female Pitch Deck	Female Investor- Male Pitch Deck	Difference	Male Investor- Female Pitch Deck	Male Investor-Male Pitch Deck	Difference
Likelihood to invest	3,00	4,00	-1,00	4,00	2,00	2,00***
Amount invested	300 000 kr	250 000 kr	50 000 kr	500 000 kr	50 000 kr	450 000 kr**
Persuasiveness of entrepreneurs	6,00	4,00	2,00*	5,00	4,00	1,00*
Potential of entrepreneurs	6,00	4,50	1,50*	5,50	4,00	1,50**
Potential of business idea	5,00	6,00	-1,00**	4,00	3,00	1,00*
Logic and intuitive - pitch deck	6,00	5,50	0,50	5,00	5,00	0,00

Table 5 first examines the difference in median scores between investments made by the female investors for both pitch decks, followed by the same comparison for the male investor in the three last columns. However, since the median does not tell the whole

truth, the mean differences between female to female, female to male, male to female and male to male investments are presented in Appendix 2, in order to give a fairer representation, and provide a point of reference, for the differences in all gender groups. The median table is presented in order to be able to run the Mann-Whitney U test and investigate whether the differences in scores are of statistical significance or not, see Appendix 3.

First of all, examining the female investors, they saw a higher potential in the entrepreneurs when they were solely female in comparison to when they were solely male. However, the opposite was observed when looking at the potential in the business idea, where the female investors preferred the male business idea, and the difference in preference was statistically significant at the 10% level according to the Mann-Whitney U test. This proves part of the hypothesis to be true as the female investor see higher potential in the business idea when the team consists of only men.

Second of all, looking at the male investors, it can be observed that, on average, they ranked the potential in the entrepreneurs as well as a potential in the business idea higher when the team was solely female. The mean difference was 0,59 and 0,94 respectively in advantage of the female team, see Appendix 2. The median showed similar results with a higher score for the female team in both the potential in the entrepreneurs and business idea, with a higher score of 1,5 and 1 respectively. The median difference of 1,5 was statistically significant at the 5% level and the difference of 1 for the potential in the business idea at a level of 10%. Hence, the null hypothesis that there will be no statistically significant difference in median scores for the potential seen in the entrepreneurs and the business idea can be rejected at the 5% and 10% level respectively. However, this proves part of the hypothesis wrong as it predicted that male investors would see a higher overall potential in Instant Tutor when the entrepreneurs were male.

In order to further investigate the difference in perception of the male and female team, the qualitative responses completed by all the investors as part of the survey are examined in the following table.

Table 6: Qualitative Responses

The table contains data for all investors' qualitative survey answers. The far-right column shows the difference in qualitative responses in percentage points.

	Female Pitch Deck	Male Pitch Deck	Difference
Comment about diversity	0,00%	5,56%	-5,56
Comment about risk	4,88%	11,11%	-6,23
Comment about founders lacking relevant experience	2,44%	5,56%	-3,12
Comment about founders having relevant experience	7,32%	2,78%	4,54
Negative comment about the business idea	12,20%	22,22%	-10,03
Positive comment about the business idea	12,20%	5,56%	6,64
Investing participants	75,61%	52,78%	22,83

The table above contains qualitative responses regarding the male and female pitch decks. When the founding team consisted of only men, 5,56% of the respondents made a comment about the lack of diversity in the team. However, not one single investor made a comment regarding diversity for the all-female team.

In general, investors were more negatively inclined towards the male team than the female team. More comments about risk were made when the founders were male, and the male team also received more comments about lacking relevant experience as well as negative comments about the business idea than the female team. Looking at the positive comments about the male and female team, the investors were more positive when evaluating the female pitch deck than when commenting on the male pitch deck. The investors were more positively inclined towards the experience of the female team members and the female team's business idea than they were towards the male team, even though the entrepreneurs' backgrounds as well as the business idea were identical in the two pitch decks.

To conclude, both the Mann-Whitney U test and the qualitative responses indicate that the investors, regardless of gender, saw higher potential in the female team, with one exception being that the female investors preferred the business idea when the team was all-male. Hence, hypothesis 3 is partially not supported.

6.6. Analysis: Why is Instant Tutor a More Attractive Startup When it is Run by Women?

Instant Tutor, the solution for quick access tutoring just when you need it, is a business idea put together with two different teams behind it, who are perceived very differently by the investors. The entire startup, and pitch deck that the investors received, is exactly the same, except for the first name and picture of the three entrepreneurs. How is it then possible that the two startups and teams are perceived so differently by the investors?

According to Malmström, Johansson and Wincent (2017), Swedish venture capitalists have produced a stereotypical image of female entrepreneurs as having the opposite characteristics than those required to be a good entrepreneur. Furthermore, the venture capitalists rated male entrepreneurs as promising and with great potential, while the female entrepreneurs were perceived as inexperienced, and with less potential. Two years later, this experiment has generated the exact opposite result, where the participating venture capitalists and Angel Investors have rated the female team of entrepreneurs significantly higher than the male team.

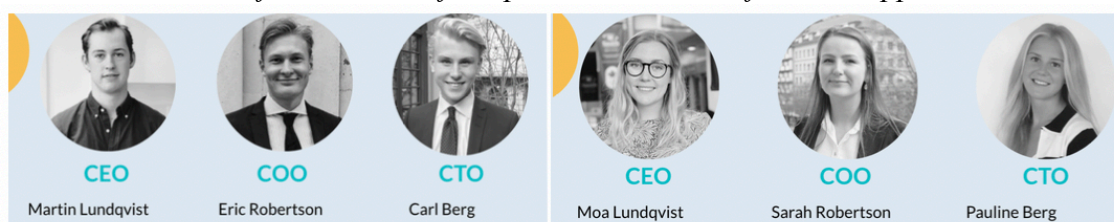
Instant Tutor is an education and tech company. The combination of education and tech was chosen because this industry is considered to be rather gender neutral. However, because of the focus on education, there is still a risk that the participating investors have perceived the industry as female-dominated, which could explain why the female

entrepreneurs were preferred over the male entrepreneurs. This is in line with Hebert's (2018) findings, where female entrepreneurs raise more capital than male entrepreneurs in an industry dominated by female-led ventures.

Another study that contradicts the results in this thesis, is the Columbia Business School Case Study Heidi vs. Howard. In the study, students strongly preferred Howard over Heidi even though they had rated them as equally competent. In our conducted experiment, both the male and female investors rated the female team higher than the male team even though they had identical backgrounds and experience. What can explain this sudden change in investor preference? As discussed in section 6.2, one possible explanation is that investors are becoming more and more aware of the uneven distribution of capital between male- and female-led startups, and as a result, investors react more positively towards female entrepreneurs. For instance, in the experiment, it was only the male team that received comments about lack of diversity in the team even though the female team was as homogenous as the male one. Investors might be looking for investment opportunities where the team is different from the predominate all-male team, which could explain why the female team was more successful.

Figure 4: The Two Teams Behind Instant Tutor

The figure shows the two different teams presented on slide 3 in the pitch decks. These pictures and first names are the only difference between the two, 11 slides long, pitch decks. The full versions of the pitch decks can be found in Appendix 7.



Above is a visual representation of the only difference between the two pitch decks. The names and pictures have been chosen to reduce the risk of the investors being influenced by any kind of bias except gender bias. However, there is still a risk that the pictures might have influenced the outcome of the study. Even if the age and ethnicity are very similar between the two teams, one explanation to why the teams are perceived differently by the investors could be the difference in apparel. In the female team, it is only Sarah that wears a suit, but it is not too evident. In the male team, both Eric and Carl wear a suit, along with a tie. A more casual dress code is sometimes preferred by venture capitalists as it shows that the entrepreneurs do not hide behind their fancy clothes, which could also explain why the male team received more negative comments, for instance, they were called "Wantrepreneurs" by one investor. A more casual way of dressing could further express a more entrepreneurial spirit, take for instance Steve Jobs launching the iPhone back in 2007.

7. Implications and Conclusion

7.1. Implications of the Findings

According to the results from this study, female entrepreneurs raise more capital than male entrepreneurs, and investors rate female entrepreneurs as having more potential than male entrepreneurs. As previously mentioned, these results point in a different direction than the consistent findings of previous studies and reports, where male entrepreneurs are favoured. In other words, the results of this study do not comply with what the industry has looked like in the past. There are two possible explanations for our findings. The first explanation being that investors are overcompensating and investing more capital in the female entrepreneurs than they would do in a real-life scenario where they would be investing real money. The second explanation being that the results of this study are an indication of the future of the Swedish venture funding landscape. If the latter is true, this means that gender bias in startup funding is not as prevalent today as it has been in the past. This is something for investors to constantly keep in mind, to not overcompensate for previous wrongdoing and biased decision making, but rather work towards a fairer funding landscape with equal opportunities to succeed, regardless of gender.

7.2. Future Research

This study has examined whether gender bias exists in favour of male entrepreneurs in Swedish venture funding. Furthermore, it has investigated the potential impact the gender of the investor has on the allocation of capital between ventures. With more time at hand, it would have been possible to collect data from a larger sample of investors. The outcome of a larger study could have resulted in greater explanatory effect as to why investors favour female entrepreneurs, and the results would to a larger extent be representative of the Swedish venture funding landscape. Moreover, it would be interesting to conduct a similar experiment focusing on a different industry or sector to further investigate whether gender bias is more prevalent in specific industries that are male- or female-dominated.

Furthermore, future studies could have the investor evaluate more than just one pitch deck. For instance, one pitch deck with an all-male team, one with a mixed team and one with an all-female team, to see how the investors allocate capital among several projects. However, it would then be important to take into consideration the danger of having the investor realise the motive behind the experiment. Though, being able to conduct such a study would result in an even clearer picture of how the investors rank investment opportunities in regards to the gender of the entrepreneur.

Lastly, it would be highly interesting to conduct research where the factor of using hypothetical capital is eliminated. Would it be possible to have the investor believe that it was an actual investment with real capital? If so, it might produce an even more accurate picture of what the current venture funding landscape in Sweden looks like, and, at the same time, exclude the possible overcompensation effect.

7.3. Conclusion

Access to venture funding is essential for startups in order to grow and prosper. Research shows that the allocation of startup capital is significantly skewed in favour of male entrepreneurs. “Life is not fair” as discussed in the introduction of this thesis, has been highly applicable to the venture funding landscape in Sweden. Female entrepreneurs have constantly been at a disadvantage, and only received a small portion of the total capital allocated to startups. Neither Traditional Finance theories, nor the quality of the business idea or superior performance, can accurately explain the uneven distribution of startup capital. Instead, it seems like investors’ bias is the answer to why the allocation of capital is skewed. According to previous studies, gender stereotypes have influenced investors to see female entrepreneurs as less qualified than male entrepreneurs, as women are perceived as lacking the most relevant qualities needed in order to succeed as an entrepreneur. A significant amount of attention has been paid to gender inequalities in the last couple of years, which has shed light on female entrepreneurs’ disadvantage in raising startup capital.

To investigate what the venture funding landscape looks like today in Sweden, and whether entrepreneurs struggle with gender bias, we asked the following research questions in the beginning of this thesis:

Is access to venture funding in Sweden affected by gender bias in favour of male entrepreneurs? Are male and female investors equally biased?

The results of this study show that there is no gender bias in Swedish venture funding that is in favour of male entrepreneurs. Instead, the outcome of this experiment indicates that investors are biased in favour of women. The female team of entrepreneurs was more successful in raising capital than the male team as they raised more capital on average, where the difference between the two teams was statistically significant at the 20% level. The reason why the female team raised more capital was because they had a 22,8 percentage points higher probability of being funded in the first place. In addition, both the male and female investors preferred the female team over the male team. However, just like the theory of in-group gender bias states, the female investors had a stronger preference for the female team than the male investors had for the male team. Thus, female investors seem to be more gender biased than male investors. However, due to the small sample of female respondents, this result is not statistically significant.

Moreover, it is important to remember that the participants in this study were investing hypothetical capital.

In conclusion, even though our study contradicts previous research, gender bias still appears to exist in the Swedish venture funding landscape. This is something for investors to constantly keep in mind when making investment decisions. To not overcompensate for previous gender bias favouring men, but instead work towards a fairer funding landscape with equal opportunities to succeed, regardless of gender.

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9. Appendices

Appendix 1: Linear Regression

Linear Regression of Amount Invested and Gender of Entrepreneurs

Linear regression of amount invested and GenderTeam, where 0=female team and 1=male team.

	Coefficient	P-value
GenderTeam	-139566,4	0,156
Constant	495122,0	0,000
<hr/>		
N	77	
adj R-squared	0,014	

Appendix 2: Mean Differences for Female to Female, Female to Male, Male to Female and Male to Male Investments

Mean Data for Differences for Female to Female, Female to Male, Male to Female and Male to Male Investments

The table contains mean data for the respondents' answers to the survey questions, used for comparison and reference to the median scores in the Mann-Whitney U test in Table 5 in the thesis.

	Female investor- Female Pitch Deck	Female investor- Male Pitch Deck	Difference	Male Investor- Female Pitch Deck	Male Investor-Male Pitch Deck	Difference
Likelihood to invest	3,43	4,00	0,3	3,71	2,77	0,94
Amount invested	557 143 kr	450 000 kr	162 500 kr	482 353 kr	319 231 kr	163 122 kr
Persuasiveness of entrepreneurs	4,86	4,50	0,5	4,71	4,12	0,59
Potential of entrepreneurs	5,57	4,60	1,03	5,32	4,38	0,94
Potential of business idea	4,57	5,30	-0,8	4,00	3,42	0,58
Logic and intuitive - pitch deck	5,71	4,90	0,85	4,97	4,58	0,39

Appendix 3: Mann-Whitney U tests

Below is the SPSS output for the Mann-Whitney U tests for all dependent variables.

Table 1: Amount Invested

Ranks				
Gender of investor	GenderTeam	N	Mean Rank	Sum of Ranks
Female	Amount invested	0	7	9,86
		1	10	8,40
	Total	17		
Male	Amount invested	0	34	33,66
		1	26	26,37
	Total	60		

Test Statistics ^a		
Gender of investor		Amount invested
Female	Mann-Whitney U	29,000
	Wilcoxon W	84,000
	Z	-,617
	Asymp. Sig. (2-tailed)	,538
	Exact Sig. [2*(1-tailed Sig.)]	,601 ^b
Male	Mann-Whitney U	334,500
	Wilcoxon W	685,500
	Z	-1,670
	Asymp. Sig. (2-tailed)	,095

a. Grouping Variable: GenderTeam
b. Not corrected for ties.

Table 2: Persuasiveness of Entrepreneurs

Ranks				
Gender of investor	GenderTeam	N	Mean Rank	Sum of Ranks
Female	Persuasiveness of entrepreneurs	0	7	9,93
		1	10	8,35
	Total	17		
Male	Persuasiveness of entrepreneurs	0	34	33,57
		1	26	26,48
	Total	60		

Test Statistics ^a		
Gender of investor		Persuasiveness of entrepreneurs
Female	Mann-Whitney U	28,500
	Wilcoxon W	83,500
	Z	-,667
	Asymp. Sig. (2-tailed)	,505
	Exact Sig. [2*(1-tailed Sig.)]	,536 ^b
Male	Mann-Whitney U	337,500
	Wilcoxon W	688,500
	Z	-1,595
	Asymp. Sig. (2-tailed)	,111

a. Grouping Variable: GenderTeam
b. Not corrected for ties.

Table 3: Likelihood to Invest

Ranks				
Gender of investor	GenderTeam	N	Mean Rank	Sum of Ranks
Female	Likelihood to invest	,00	7	7,86
		1,00	10	9,80
	Total	17		
Male	Likelihood to invest	,00	34	34,84
		1,00	26	24,83
	Total	60		

Test Statistics ^a		
Gender of investor		Likelihood to invest
Female	Mann-Whitney U	27,000
	Wilcoxon W	55,000
	Z	-,806
	Asymp. Sig. (2-tailed)	,420
	Exact Sig. [2*(1-tailed Sig.)]	,475 ^b
Male	Mann-Whitney U	294,500
	Wilcoxon W	645,500
	Z	-2,242
	Asymp. Sig. (2-tailed)	,025

a. Grouping Variable: GenderTeam
b. Not corrected for ties.

Table 4: Potential in Business Idea

Ranks				
Gender of investor	GenderTeam	N	Mean Rank	Sum of Ranks
Female	Potential in business idea	0	7	6,93
		1	10	10,45
	Total	17		
Male	Potential in business idea	0	34	33,37
		1	26	26,75
	Total	60		

Test Statistics ^a		
Gender of investor		Potential in business idea
Female	Mann-Whitney U	20,500
	Wilcoxon W	48,500
	Z	-1,470
	Asymp. Sig. (2-tailed)	,142
	Exact Sig. [2*(1-tailed Sig.)]	,161 ^b
Male	Mann-Whitney U	344,500
	Wilcoxon W	695,500
	Z	-1,487
	Asymp. Sig. (2-tailed)	,137

a. Grouping Variable: GenderTeam
b. Not corrected for ties.

Table 5: Logic and Intuitiveness

Ranks				
Gender of investor	GenderTeam	N	Mean Rank	Sum of Ranks
Female	Logic and intuitiveness of the pitch deck	0	7	10,71
		1	10	7,80
	Total	17		
Male	Logic and intuitiveness of the pitch deck	0	34	31,40
		1	26	29,33
	Total	60		

Test Statistics^a

Gender of investor	Logic and intuitiveness of the pitch deck
Female	Mann-Whitney U
	Wilcoxon W
	Z
	Asymp. Sig. (2-tailed)
	Exact Sig. [2*(1-tailed Sig.)]
Male	Mann-Whitney U
	Wilcoxon W
	Z
	Asymp. Sig. (2-tailed)

a. Grouping Variable: GenderTeam

b. Not corrected for ties.

Table 6: Potential of Entrepreneurs

Ranks				
Gender of investor	GenderTeam	N	Mean Rank	Sum of Ranks
Female	Potential of entrepreneurs	0	7	11,29
		1	10	7,40
	Total	17		
Male	Potential of entrepreneurs	0	34	35,79
		1	26	23,58
	Total	60		

Test Statistics^a

Gender of investor	Potential of entrepreneurs
Female	Mann-Whitney U
	Wilcoxon W
	Z
	Asymp. Sig. (2-tailed)
	Exact Sig. [2*(1-tailed Sig.)]
Male	Mann-Whitney U
	Wilcoxon W
	Z
	Asymp. Sig. (2-tailed)

a. Grouping Variable: GenderTeam

b. Not corrected for ties.

Appendix 4: Frequency of Responses for Dependent Variables

Figure 1: Likelihood to Invest

The figure contains the frequencies for the investors' likelihood to invest in the male and female pitch deck. The X-axis shows the respondents' score on the 7-step Likert scale, and the Y-axis shows the number of responses for each score.

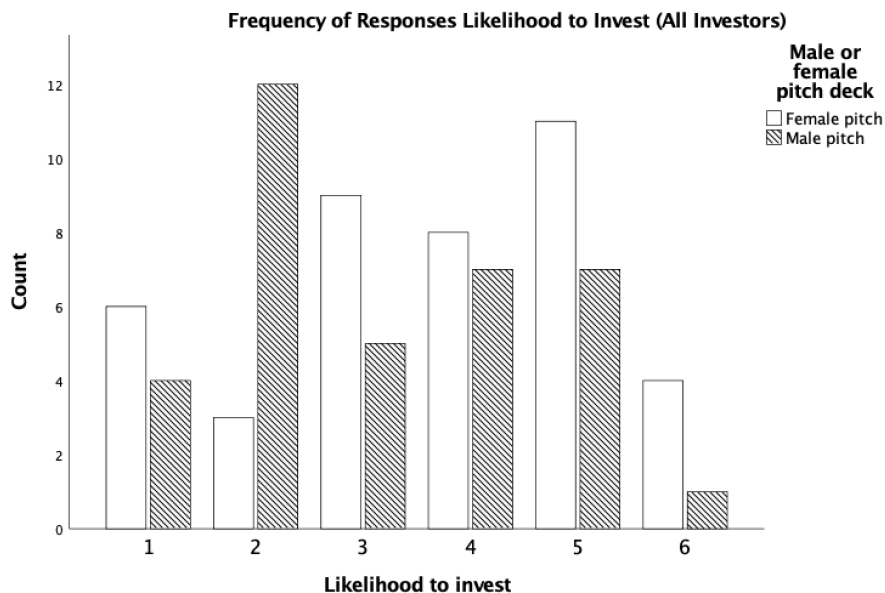


Figure 2: Amount Invested

The figure contains the frequencies for the amount invested in the male and female pitch deck. The X-axis shows the respondents' investment, and the Y-axis shows the number of responses for each 100 000 SEK interval.

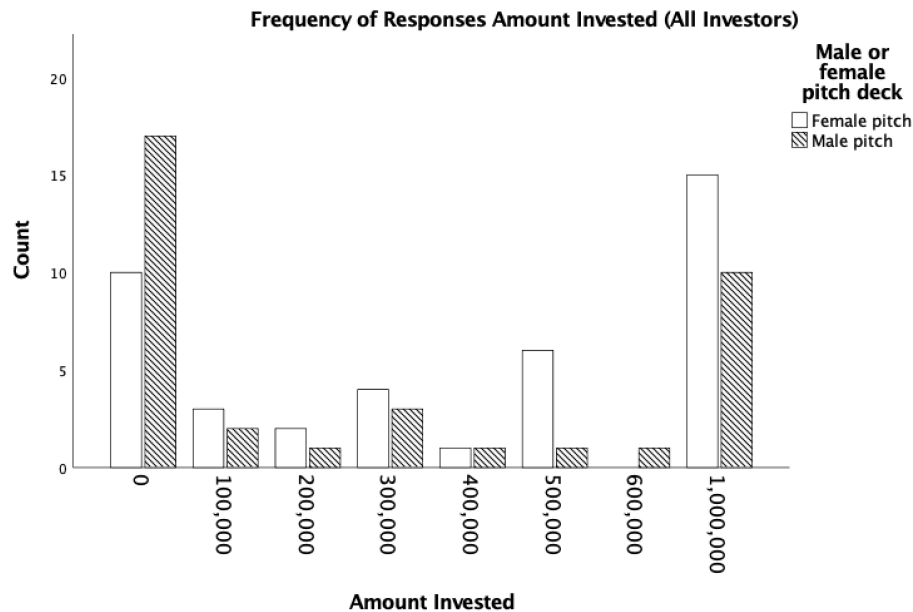


Figure 3: Persuasiveness of the Entrepreneurs

The figure contains the frequencies for the investors' perception of the persuasiveness of the entrepreneurs behind the male and female pitch deck. The X-axis shows the respondents' score on the 7-step Likert scale, and the Y-axis shows the number of responses for each score.

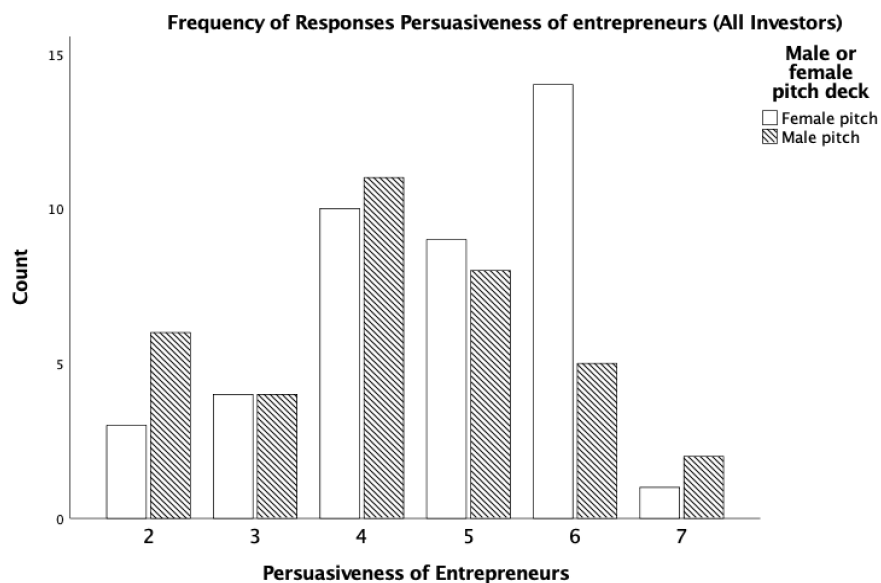


Figure 4: Potential of the Entrepreneurs

The figure contains the frequencies for the investors' perception of the potential of the entrepreneurs behind the male and female pitch deck. The X-axis shows the respondents' score on the 7-step Likert scale, and the Y-axis shows the number of responses for each score.

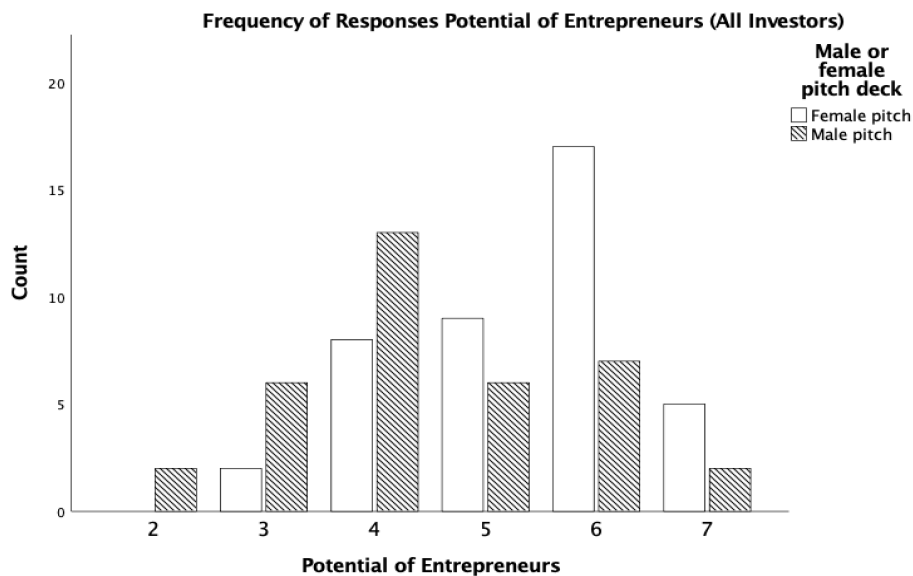


Figure 5: Potential of Business Idea

The figure contains the frequencies for the investors' perception of the potential of the business idea in the male and female pitch deck. The X-axis shows the respondents' score on the 7-step Likert scale, and the Y-axis shows the number of responses for each score.

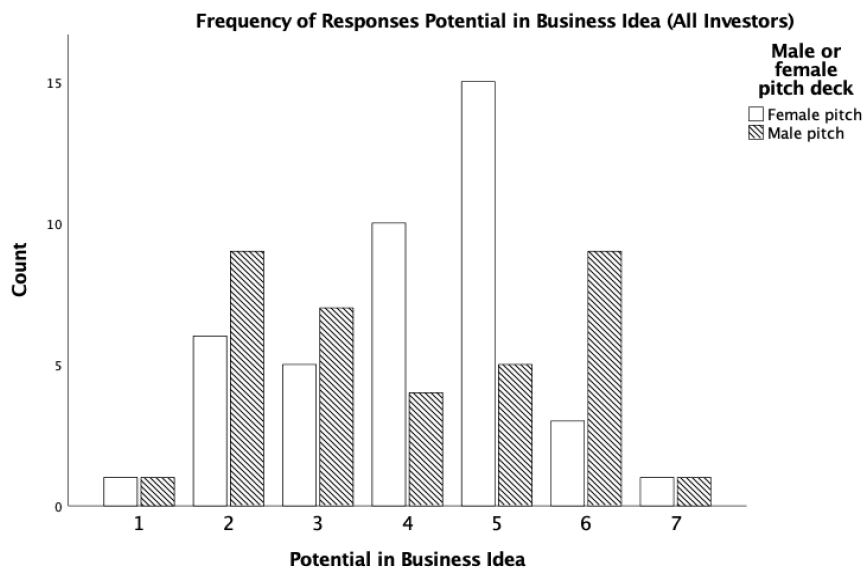
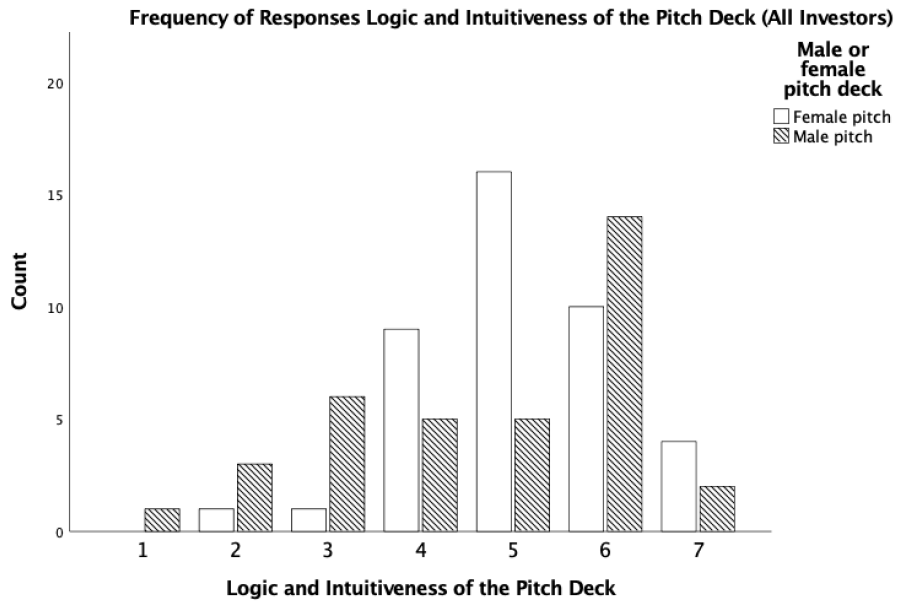


Figure 6: Logic and Intuitiveness of Pitch Deck

The figure contains the frequencies for the investors' perception of the logic and intuitiveness of the male and female pitch deck. The X-axis shows the respondents' score on the 7-step Likert scale, and the Y-axis shows the number of responses for each score.



Appendix 5: Survey Questions

The instructions and questions below were included in the questionnaire sent out to all participating investors. In questions 2 and 5 in Part 1 of the questionnaire the names of the entrepreneurs depended on which version of the pitch deck, male or female, the respondent had received.

Instructions:

- We understand that you normally base your investment decisions on more information than just the company pitch deck, but remember that this is just an experiment
- Only base your answers to the questionnaire on the information included in the pitch deck
- Assume that you have no personal economic constraints keeping you from investing in Instant Tutor

Part 1:

- 1) How likely are you to invest in Instant Tutor? (Likert Scale 1-7)
- 2) Martin, Erik and Carl (Moa, Sarah and Pauline) at Instant Tutor are looking to raise 3 MSEK, of which 2 MSEK has been raised so far. How much would you be willing to invest? (0 - 1 000 000 SEK with 100 000 SEK intervals)
- 3) What did you base your answer on in the previous question? (Free text)
- 4) How persuasive did you find the entrepreneurs to be? (Likert Scale 1-7)
- 5) How much potential do you see in the entrepreneurs Martin, Erik and Carl (Moa, Sarah and Pauline)? (Likert Scale 1-7)
- 6) How much potential do you see in the business idea? (Likert Scale 1-7)
- 7) How logic and intuitive did you find the pitch deck to be? (Likert Scale 1-7)

Part 2:

- 1) How old are you? (20 years old to +70 years old in ten-year intervals)
- 2) Are you a man or a woman? (Man/Woman/Other)
- 3) For how long have you been investing in startups and/or private companies? (Free Text)

Appendix 6: Email Template (in Swedish)

The following email was sent out to all participants that were asked to participate in the experiment, along with the pitch deck and questionnaire. In the email, we emphasised that the pitch deck was put together for the purpose of the experiment.

Hej,

Vi är två studenter på Handelshögskolan i Stockholm som skriver vår kandidatuppsats inom finans. Inom ramen för vårt arbete kommer vi att genomföra ett experiment för att undersöka hur tillgången till startkapital för entreprenörer ser ut i Sverige. Mer detaljer kan vi tyvärr inte ge för att undvika att avslöja syftet med experimentet.

Anledningen till att vi kontaktar dig är för på bästa sätt lyckas återskapa det svenska investerarlandskapet. Vi hoppas att du vill delta i vår undersökning och hjälpa till att skapa en tydligare bild av svenska startups tillgång till extern finansiering. Vi skulle verkligen uppskatta din hjälp.

Undersökningen består av ett Pitch Deck och ett frågeformulär med 10 frågor. Det tar 4–5 minuter att delta i undersökningen. Då det här är ett experiment är beslutsunderlaget för dig som investerare komprimerat till endast en Pitch, och vi hoppas att du har överseende för detta.

Du hittar vår Pitch Deck bifogad som PDF. När du har gått igenom underlaget följer du länken nedan för att besvara frågorna i det korta formuläret:

Om du är nyfiken på syftet med vår undersökning så kan du som sista del i formuläret fylla i din mailadress för att få ta del av resultatet senare i vår. Stort tack för all din hjälp och att du tar dig tid!

Hoppas du får en fortsatt härlig dag!

Med vänliga hälsningar,

Jacob Cederberg och Hanna Louise Forsman

Appendix 7: Instant Tutor Pitch Deck

The following pitch deck was sent out to the participating investors. There are two different versions of slide 3 of the pitch deck containing one male and one female team of entrepreneurs.

Instant Tutor
-Läxhjälp i mobilen när du behöver det
"Som över last för läxhjälp"

VISION
Alla elever ska ha tillgång till snabb och effektiv läxhjälp

Meet the team

CEO
Martin Lundqvist
Utbildning: MSc Finance från Handelshögskolan i Stockholm.
Erfarenhet: 2 års erfarenhet inom Fintech som konsult på BCG.

COO
Eric Robertsson
Utbildning: MBA från Stanford University.
Erfarenhet: tidigare delägare i ett amerikanskt företag som fokuserar på läxhjälp för högstadeelever.

CTO
Carl Berg
Utbildning: Industriell Ekonomi från Lunds Universitet.
Erfarenhet: tidigare varit med och grundat flertalet mobiltjänster vid sidan av studierna.

CEO
Moa Lundqvist
Utbildning: MSc Finance från Handelshögskolan i Stockholm.
Erfarenhet: 2 års erfarenhet inom Fintech som konsult på BCG.

COO
Sarah Robertsson
Utbildning: MBA från Stanford University.
Erfarenhet: tidigare delägare i ett amerikanskt företag som fokuserar på läxhjälp för högstadeelever.

CTO
Pauline Berg
Utbildning: Industriell Ekonomi från Lunds Universitet.
Erfarenhet: tidigare varit med och grundat flertalet mobiltjänster vid sidan av studierna.

Above are the two different versions of slide three which show the two different teams behind Instant Tutor.

Marknaden för läxhjälp

PROBLEM
Bästa studieresultat 25 % av eleverna som gick ut årskurs 9 år 2018 uppnådde inte godkända betyg i ett eller flera ämnen och saknar därför fullständiga grundskolebetyg. 1 av 5 gymnasieelever går ut gymnasiet utan fullständiga betyg och möjlighet att söka in till universitet eller högskola. Alla föräldrar har inte tid och kunskap till läxhjälp. Skolverket rapporterar att dagens föräldrar har mindre tid än tidigare att hjälpa sina barn med läxor.

MARKNADEN
22 % av Sveriges grundskoleelever har läxhjälp hemma. Vilka barn som har läxhjälp eller ej är en ekonomisk fråga. Efterfrågan på läxhjälp är stor men alla barn har inte råd. Detta vill Instant Tutor ändra på. Marknaden växer med 18% per år. Marknaden för utbildning växer snabbt, men endast 3 % av marknaden har digitaliserats. 98 % av barn över 11 år har egen smartphone. Nästan alla barn och ungdomar har en egen smartphone. Svenska barn är duktiga på teknik och digital inlämning blir allt vanligare i skolan.

Vad vi erbjuder

Läxhjälp från kvalificerade studenter
På minuten
Efter dina behov

