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Master Thesis

Are female-led start-ups in Norway at disadvantage of receiving external finance: A capital structure analysis

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Abstract

Gender discrimination has gained a lot of attention more recently when it comes to receiving external finance. Despite Norway ranking third in closing the gender gap, statistics from Nordic countries find that male founded firms receive most of the capital allocated to start-ups. Thus, the motivation for this thesis is to explore whether female-led start-ups in Norway are at a disadvantage of receiving external finance according to their capital structure. Firms with similar expected risk and return should be equally appealing to investors. However, previous research has shown that this is not the case, suggesting that gender may explain why we observe this funding gap. By using accounting data from the time period 2010-2020 obtained from The Centre for Corporate Governance (CCGR), this thesis aims to examine how gender affect a start-ups ability to receive external funding. This will be accomplished by examining how male- and female-led start-ups differ in their capital structure in terms of total leverage and short-term leverage, as well as how gender-dominated industries may reverse the relationship. This thesis find that gender does not appear to be an important factor in explaining funding differences. However, contrary to our predictions, we observe that female-led start-ups have a minor advantage in acquiring external funding. Despite this, we cannot draw any definite conclusions from these findings since we do not know if it is a result of discrimination or a self-made decision.

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1.0 Introduction

According to the World Economic Forum (2021), Norway is listed in third place for closing the gender gap globally, having closed at least 80% of their gap. The gender gap is measured by four dimensions, economic participation and opportunity, educational attainment, health and survival, and political empowerment. Despite being one of the leading countries in gender inequality, numbers from Statistics Norway (2021) show a clear male dominance among founders of both private and listed companies. In 2020 only 38% of private companies were female-founded, while for listed companies, the share decreased to 21% (Statistics Norway, 2021).

Another recent report about Nordic start-up funding by Unconventional Ventures (UV) shows that only 0.1% of all funding is invested into all-women start-ups (Bavey et al., 2021). By comparing these results with the 2019 report, funding allocated to all-women start-ups has decreased from 1% to 0.1% (Bavey et al., 2021; Micajokox et al., 2019). The low funding for women start-ups shows to have replicated for years. Despite Norway being ranked highly in closing the gender gap, numbers suggest that this funding gap is not included in the ranking. This raises the question of whether there is discrimination in the funding of start-ups. However, when investing in start-ups, gender should be irrelevant for profit-maximizations. Start-ups with the same risk and presumed future return should be equally attractive to invest in.

The gender funding gap for entrepreneurs is studied by academics worldwide, who have various perspectives. Whether it is discrimination that creates the funding gap or other factors that can explain the gap are common discussions. Discrimination occurs when members of a minority group, in this case, females, are treated less favorably than members of the majority group, men, who have identical characteristics. There are several explanations of how a funding gap can arise. According to findings, people are biased toward their own gender (Bapna & Ganco, 2021; Ewens & Townsend, 2020; P. Gompers & Wang, 2017). As a result, the investor is more inclined to favor their own gender of those requesting finance (Guzman & Kacperczyk, 2019). Consequently, the funding gap may be because men are the majority of investors (Balachandra, 2020; P. Gompers & Wang, 2017). If more women were employed in these positions, the gap might not be as significant.

Findings could also reflect that there is gender discrimination by looking at performance differences. The increase in the percentage of women on the board has shown to have a positive effect on firm performance (Christiansen et al., 2016; Đặng et al., 2020; Gordini & Rancati, 2017; Simionescu et al., 2021), no effect (Carter et al., 2010; Francoeur et al., 2008; Gregory-Smith et al., 2014), and negative effect (Bøhren & Strøm, 2010; Matsa & Miller, 2013; Yang et al., 2019). Although results are inconclusive based on different performance measures, there is a trend of females outperforming males despite getting less funding (Abouzahr et al., 2018). According to these findings, female-led start-ups could be a better investment decision for investors. As a result, more investment should be directed to female-led start-ups since this seems to be the most profit-maximizing decision. This contradictory behavior of investors could therefore indicate discrimination in funding.

The funding gap could also be a consequence of females having a different risk level than men (Borghans et al., 2009; Byrnes et al., 1999; Croson & Gneezy, 2009; Jianakoplos & Bernasek, 1998; von Gaudecker et al., 2011; Shava, 2018). Women are shown to be more risk-averse; thus, they may seek less funding. Therefore, female-led start-ups may want to have a different capital structure than men, as a high level of external capital could indicate more risk. The perceived funding gap may result from the risk females take and the control they are willing to give away.

Lastly, studies find a relationship between female- and male-dominated industries and the funding gap. Females and males tend to operate in different industries where the requirement for funding might differ. Typically, female-dominated industries may demand less funding; consequently, this could be a plausible explanation for the funding gap (Geiger, 2020). Further, investors have a stereotypical view of female- and male-dominated industries and tend to overestimate the dominant gender's ability to perform. Findings suggest that females operating in male-dominated industries might be at a disadvantage in receiving funding due to stereotypical traits and vice versa (Balachandra, 2020). Therefore, female and male founders may be discriminated against depending on which industry they operate in (Hebert, 2020). Additionally, male-dominated industries tend to be characterized by high growth, thus being more attractive to investors (Guzman & Kacperczyk, 2019). Consequently, males receive more funding as this will be the value-maximizing decision for the investor. Thus, the

gender of the founder might not be the primary explanation for the observed funding gap.

Based on previous literature and approaches to studying the topic of the gender funding gap in entrepreneurship, it is interesting to investigate further into this topic in Norway. More precisely, if female-led start-ups are at a disadvantage in receiving funding and how this is related to different gender-dominated industries. Hence, the thesis question is: *Are female-led start-ups in Norway at disadvantage in receiving external finance when looking at capital structure?*

Because Norway ranks high on the list of closing the gender gap, this thesis may provide insight into why we see a funding discrepancy in start-ups. The difficulties for females in obtaining external finance may also enlarge the gap in the number of female start-ups. In Norway, only 38% of private companies were founded by females in 2020 (Statistics Norway, 2021). Moreover, only 37% of all Norwegian firms has a female leader (Statistic Norway, 2021), whereas for "large firms," the number is even smaller, 6.6% respectively (Revfem, 2019). Thus, gaining more insight into this topic is important to make people aware of the existing funding gap in Norway.

By including industries in our research, it is possible to understand how the funding gap may be related to female- and male-dominant industries. Hebert (2020) finds that the discrimination against female-led start-ups in France tends to reverse in female-dominated industries. Hence entrepreneurs will have a higher probability of being granted funding in their own gender-dominated industry. Based on this, it is interesting to investigate whether this replicates in Norway. In industries that account for the same risk, the funding allocated may indicate discriminatory behavior if not given the same amount. According to Geiger (2020), female-dominated industries may require less funding and hence suggest that females get less. The Unconventional Ventures report shows that the industries in the Nordics given the most funding are fintech, health, and food, where those with at least one female founder are 13.36%, 23.08%, and 23.75% of the industry start-ups (Bavey et al., 2021). Accordingly, females seem to be underrepresented in all industries that are given the most funding.

By using accounting data from the Centre for Corporate Governance Research (CCGR), we have drawn some conclusions on whether females in Norwegian start-ups are at a disadvantage in receiving external funding. This has been done using a timeslot of ten years, from 2010 to 2020, where the research

question has been examined using three hypotheses; i) Male-led start-ups have more external capital in terms of leverage than female-led start-ups, ii) Females rely on more short-term debt compared to men, indicating that it is more difficult for females to get funding, and iii) It is easier for females to gain external capital in female-dominated industries, and opposite for men.

In short, our findings are that the gender of the founder does not appear to make a firm more or less likely to receive funding. As a result, it may not seem that women are discriminated against because of their gender. In contrast to our expectations, we find a minor positive relationship between female-led start-ups and leverage, implying that women have an advantage in securing funding. Even so, we cannot find any evidence that women have an advantage in female-dominated industries and a disadvantage in male-dominated industries, as gender may appear to have no significant impact on funding disparities. Unfortunately, our data limits our ability to examine how the funding gap may be caused by other factors such as the gender of the investor or the characteristics of the founder. Accordingly, further research is needed to understand what may cause these perceived differences.

This thesis is organized in the following way: *section 2* contains the problem formulation and the three proposed hypotheses belonging to the research question. Further, *section 3* will give an overview of background information on the topic. All variables used in this thesis will be described in *section 4*, in addition to some descriptive statistics on our data. In *section 5,* our model will be proposed, whereas an analysis of our results will be conducted in *section 6*, in addition to some limitations of this study and suggestions for future research on the topic. Lastly, *section 7* contains a conclusion based on our results.

2.0 Problem formulation

Based on the comprehensive research and relevance of the topic globally, gender discrimination in finance and funding is an interesting topic to research further for Norwegian firms. Hence, the research question for this thesis is:

Are female-led start-ups in Norway at disadvantage in receiving external finance when looking at capital structure?

To answer this question, accounting data will be collected on all start-ups in Norway

from 2010 to 2020 from the Centre for Corporate Governance Research (CCGR). By looking at different measures of capital structure, it is possible to investigate whether there are any observed trends based on gender. This can further indicate if there is gender discrimination based on capital structure differences.

Due to space limitations, some aspects of this topic will not be considered in this thesis. Some studies concentrate on a single type of external finance (e.g., venture capital, crowdfunding, and angel investment); however, this thesis will not be able to divide external finance into such categories. This is because the data source used in this thesis does not have access to this information. Further, studies have also investigated how the gender of the investor might cause them to be biased. This is a topic that will be interesting to further research but will not be included in this thesis for the same reasons as the former. Another interesting topic is the discrimination of cost of borrowing. This thesis will only look at if there is discrimination in the issuance of funding, not the funding conditions.

2.1 Possible hypotheses

We have proposed three possible hypotheses to help investigate our research question, presented below.

The first and most crucial hypothesis is that male-led start-ups will have more leverage in their capital structure than female-led start-ups. According to statistics, women only receive 0.1% of all startup investments, indicating considerable gender discrimination. The amount of debt a firm has may show that males have an easier time obtaining external financing in terms of leverage than females.

Hypothesis 1: *Male-led start-ups have more external capital in terms of leverage than female-led start-ups.*

Short-term debt generally has higher interests due to its short maturity; thus, long-term debt may be preferred because of better loan agreements. However, most start-ups' capital structure generally consists of more short-term debt than long-term debt due to their short time of existence. Though, if there is a large gap between females and males when it comes to short-term debt, it may indicate discriminatory behavior, more specifically that females have limited access to capital markets.

Hypothesis 2: *Females rely on more short-term debt compared to men, indicating that it is more difficult for females to get funding.*

Research suggests that industries can be separated into female and male-dominated industries, with gender being advantageous while operating in their own dominant industry. According to this, both male- and female-led start-ups may in fact, be discriminated against depending on which industry they are operating in.

Hypothesis 3: *It is easier for females to gain external capital in female-dominated industries and the opposite for men.*

2.2 Our contribution to the literature

This thesis will contribute to the overall literature on gender discrimination in corporate finance. There is limited research on funding discrimination in Norway, though numbers show a funding gap with significantly less funding for females. To confirm that this gap is due to discrimination or if other factors could explain it, we hope that our thesis will bring new and interesting input to the research of gender inequality in funding.

Previous studies on the topic are mainly dominated by research regarding the gender of the investor and founder, in addition to other behavioral economic reasons behind the funding gap. Thus, we hope to provide insight into gender differences by using capital structure. If we observe significant differences, there might be indications of discriminatory behavior. Additionally, our research on industries and gender differences may add a relevant perspective to the existing literature.

3.0 Background information

To better understand why we might observe differences in funding, previous research on the topic will be provided. In this case, discrimination occurs when females are treated less favorably than men despite having identical characteristics. Although statistics show that female-led start-ups get less funding than males, this gap may be explained by other factors such as risk aversion, overconfidence, or choice of industry. Therefore, this section will discuss how gender may affect an investor's choice of investment, industry differences, and how capital structure can be affected by gender differences.

3.1 Genders' effect on investors' choice of investment

According to economic theory, an investor should be indifferent between investing in a male- or female firm, as gender is an irrelevant factor for the firm's performance. What, on the other hand, is an essential factor when investing is how risk and return relate. Following asset pricing models, such as CAPM, the expected return of an asset should be a compensation for risk. Thus, companies with the same risk should have the same expected return (Bodie et al., 2018). When investors are considering where to invest, they are looking for investment opportunities where they can make a profit. Consequently, two firms operating in the same industry, thus raising identical risks, should be equally attractive as they expect the same return.

However, gender has been found to be an important factor in determining who receives financing and who does not (Ewens & Townsend, 2020; Hebert, 2020; Ladd, 1998; World Economic Forum, 2021). Studies have researched how males and females differ in nature when it comes to risk-taking and perceived confidence (Abouzahr et al., 2018; Borghans et al., 2009; Byrnes et al., 1999; Croson & Gneezy, 2009; Huang & Kisgen, 2013; Jianakoplos & Bernasek, 1998; von Gaudecker et al., 2011). These factors can help explain why there is a funding gap for start-ups. As a consequence, not only the firm's characteristics but also the managers' characteristics have an important role when it comes to decision making.

Risk aversion

Risk is an essential factor of the investment decision. Female-led start-ups that deliver the same anticipated payoffs with lower variance (risk), or larger expected payoffs with the same variance, compared to a male-led start-up, should be at an advantage of receiving funding. If that was the case, investors would be unbiased and motivated merely by financial (mean-variance optimization) reasons and would choose the most profit-maximizing start-ups regardless of gender (Ewens & Townsend, 2020).

Several studies have identified gender differences related to risk aversion, suggesting that females are more risk-averse than men (Borghans et al., 2009; Byrnes et al., 1999; Croson & Gneezy, 2009; Jianakoplos & Bernasek, 1998; von Gaudecker et al., 2011). This could explain why there might be a gender disparity in funding. Female-led start-ups may obtain less funding due to discrimination if investors doubt females' ability to make the necessary strategies merely based on

gender. Furthermore, the CAPM implies that increasing risk improves return, which might explain why women are less preferred when funding start-ups (Bodie et al., 2018). On the other hand, taking on less risk will lead to less uncertainty and, as a result, should be more appealing to the investor (P. A. Gompers & Lerner, 2004). However, the investment decision is dependent on whether the investor himself is risk-averse or risk-seeking.

When confining the research to the top executives in an organization, studies demonstrate that the research on risk aversion is both contradictory and inconclusive. Yang et al. (2019) discovered that increasing gender diversity in the boardroom reduces the business's incentives to take on risk while improving firm performance. In comparison, Adams and Funk (2012) found that having female directors may not necessarily increase risk aversion. Hence, there might be a difference between women as founders and the general woman's risk aversion. Furthermore, studies such as Hvide and Panos (2014) reveal that individuals who are risk-seeking are more likely to be entrepreneurs and start-up founders. However, evidence suggests that those who are more risk-tolerant perform worse than those who are less risk-tolerant.

Overconfidence

Overconfidence refers to a person's overestimation of their own ability. Moreover, an overconfident person has an optimistic expectation of his ability and believes he can perform above average. This is referred to as the better-than-average effect (Svenson, 1981). Overconfidence has also been positively correlated with excessive risk-taking, where an overconfident person tends to take on more risk (Broihanne et al., 2014).

More recently, there is a growing literature on how overconfidence and gender are related in the financial market. These studies find that there is a tendency of females to be less overconfident than males. For instance, Huang and Kisgen (2013) study how overconfidence applies to a manager's decision-making. They find that due to females being less confident, they will issue less debt and are less likely to make acquisitions than males (Huang & Kisgen, 2013).

When it comes to start-ups, males are more likely than females to take on risky projects due to their confidence. To receive funding, you must "pitch" your project to different investors. What Boston Consulting Group found in their survey is that male-led start-ups tend to gain more funding due to their ability to "oversell"

their project in a confident way. Females, in contrast, tend to be more conservative and ask for less funding (Abouzahr et al., 2018). As a result, a person's confidence level can impact an investor's decision of where to invest. Gender has been demonstrated to have a substantial impact on the perceived confidence level; thus, this is an important element to have in mind while researching the funding gap.

Moreover, the 2020 Global Entrepreneurship Monitor Survey found that 51% of men believe they have the skills to start a business, while only 38.4% of women agree with that statement (Hart et al., 2020, p.11). This shows a lack of self-confidence in women, again supporting that they may be risk-averse and less confident than males.

3.2 Effect of gender and industry

There is a clear tendency for different industries being dominated by either male or female businesses. Thus, the same goes for start-ups. A study done in the Nordic countries, France, Germany, and the UK finds that the top three industries females usually start their businesses in are kids, wellness beauty, and fashion. The study further finds that these industries gain little of the overall funding received from investors (World Economic Forum, 2021).

When it comes to external finance (such as venture capital, angel investing, crowdfunding, etc.), there is a tendency for investors to support industries characterized by high risk and high level of technology (P. Gompers & Wang, 2017; Graphics, 2018; World Economic Forum, 2021). These are typically male-dominated industries, resulting in most of the funding going to male-led start-ups. A study done by Gompers and Wang (2017) finds that information technology is the industry gaining the most funding from venture capitals. Moreover, only 6.04% of the start-ups in this industry are founded by females (P. Gompers & Wang, 2017).

When considering where to invest, it is crucial to have sufficient knowledge about the firm's industry. It is natural that females have more knowledge about industries dominated by females and therefore have a broader understanding of the needs and value of projects in this sector. Women often come up with ideas based on their own experience, and the products are usually made for other women to use. As most investors in venture capitals are men (Balachandra, 2020; P. Gompers & Wang, 2017; Hebert, 2020; World Economic Forum, 2021), many females struggle to get investors' attention as they are not familiar with the need of the product or service they are considering to start (Abouzahr et al., 2018).

The reason why females receive little of the funding may have several explanations. When studying whether discrimination exists in receiving external capital for start-ups, it is important to consider how different industries attract different attention from investors. As a result, the observed funding gap could be due to a supply-demand imbalance, where female entrepreneurs prefer to establish companies in industries where investors are unwilling to invest. If this is the case, we cannot conclude that the observed discrepancy is due to gender discrimination. However, if investors evaluate or see men and women differently, everything else equal, this might imply discriminatory behavior.

3.3 Effect of gender and capital structure

Start-ups founded by males or females may have different perceptions of their optimal capital structure. These differences may explain some of the reasons why there is a gender funding gap.

Ever since Modigliani and Miller proposed the Irrelevance Proposition Theorem in 1985, corporate capital structure has gained a lot of attention. According to the theorem, the value of a firm is not affected by the level of financial leverage if income tax and distress costs are not present in the market (a perfect market). However, the theorem has gained a lot of criticism regarding its assumption of a perfect market. Accordingly, income tax, distress cost, agency cost, and asymmetric information have become important to consider when choosing the optimal capital structure following trade-off theory (Myers, 1984), pecking order theory (Myers & Majluf, 1984), and agency theory (Jensen & Meckling, 1976).

In addition, recent studies have looked at how firm- and industry-specific characteristics can have an important role in the capital structure. A study by Frank and Goyal (2009) argues that some of a firm's leverage ratio can be explained by the following factors; industry median leverage, asset tangibility, profitability, firm size, and market-to-book asset ratio. Because these factors alone cannot explain the leverage ratio, more recent literature has indicated that CEO characteristics are also explanatory factors. Gender is one such characteristic, and hence gender differences may explain firm leverage above and beyond Frank and Goyal's firm characteristics.

Whether start-ups choose to use internal funds or external finance to fund their business will be affected by the managers' willingness to take risks. Thus, the funding can be linked to how gender influences risk aversion. Risk aversion has

been shown to affect differences in the capital structure. In accordance with trade-off theory (Myers, 1984), a risk-taking leader would want a larger debt level in order to maximize the tax shield advantage, whereas a risk-averse leader would prefer a lower debt level to reduce the risk of default. As previously stated, females have been argued to act more risk-averse than men. Thus, the funding gap may only be explained by women applying for less external capital than men as a result of being more risk-averse.

4.0. Data and descriptive statistics

This thesis uses secondary data from the Centre for Corporate Governance Research (CCGR) at BI Norwegian Business School, which provides accounting and governance information on public and private firms in Norway. Through the CCGR database, this thesis will obtain high-quality datasets of start-up firms and thereby conduct a good model to answer the research question.

4.1 Dataset criteria

The dataset that we obtained from CCGR has been adjusted according to the following criteria to get a representative dataset without disruptions. This results in a final dataset consisting of 39,801 observations.

First, because CEO gender is the key independent variable, all firms must have reported on it. Furthermore, throughout the first five years of operation, all firms must have the same CEO gender to exclude firms with shifting leadership. To avoid disruptions in the dataset caused by changes in capital structure, all firms must be in the same industry for the first five years of operation. Furthermore, we consider a start-up to be five years old. As a result, we have decided only to include firms that have been in business for five years, from 2005 to 2015. This means we have one observation for each firm and accounting data from 2010 through 2020. To include only entrepreneurs, we excluded any firms with less than or equal to 20% CEO ownership.

By removing all firms with negative revenue and all firms with less than or equal to zero assets and liabilities, we will avoid passive firms in the data. Lastly, some specific industries have been removed. Firms in the financial industry have been removed due to different reporting rules, whereas firms in real-estate have been removed due to start-ups not being in this specific industry. Furthermore, some industries have been removed because there are none or only one observation in our

remaining dataset. These are public administration and defense, activities of households, and activities of extraterritorial organizations and bodies. A more detailed overview of variables retrieved from CCGR can be found in Appendix 1.

4.2 Explanatory variable

Female start-up

We consider a company to be female-founded if the CEO is female. To ensure consistency in our data, the CEO must be of the same gender throughout the first five years of operation. This is in line with our definition of a start-up. To determine the influence of a female CEO on funding, we will utilize a dummy variable referred to as the gender dummy. This will take the value 1 if the CEO is female and 0 if male.

4.3 Dependent variables

Following the research question, the dependent variables will be different definitions of external funding ratios, including different book values of debt acquired by CCGR. Because we only have access to accounting data, we will answer our research question by analyzing the different capital structures that a start-up may have. Having diverse definitions of external funding will help us better understand how firms obtain funding and if discrimination is consistent (see Appendix 2 for calculations).

Total leverage

The use of leverage as a dependent variable can indicate whether there is gender discrimination in receiving funding. Thus, utilizing total leverage as a dependent variable shows how capital structure differs between male and female start-ups. We anticipate that total leverage will negatively correlate with gender (female). Total leverage is defined as the ratio of total long-term and short-term debt to total capital.

$$Total\ leverage = \frac{Total\ debt}{Total\ capital}$$

Short-term leverage

Hypothesis 2 suggests that female-led start-ups will have more short-term debt in their capital structure to determine whether female-led start-ups are discriminated against when it comes to receiving short-term leverage. As a result, we anticipate that our explanatory variable, gender, will be positively related to short-term

leverage. This would be consistent with females having a greater short-term ratio, suggesting discrimination regarding poorer lending terms for short-term debt vs. long-term debt. This variable is defined as short-term leverage to total capital.

$$Short - term\ leverage = \frac{Short - term\ leverage}{Total\ capital}$$

4.4 Control variables

In accordance with Frank and Goyal's study (2009), the following control variables have been chosen as these have been shown to be good predictors for leverage ratio.

Tangibility

More tangible assets are shown to be positively related to higher leverage (Frank & Goyal, 2009; Rajan & Zingales, 1995). Following trade-off theory, asset tangibility lowers financial distress costs since tangible assets are less likely to lose value in the case of bankruptcy. Accordingly, firms with high tangibility will have more leverage. Furthermore, tangible assets are safer and may thus be collateralized when seeking debt financing, lowering the lender's risk and, as a result, reducing the agency costs they bear in the contractual relationship (Rajan & Zingales, 1995). Since tangible assets are easier to value for outside investors, lenders are more inclined to give finance when tangibility is high (Frank & Goyal, 2009; Rajan & Zingales, 1995). We define tangibility using the following formula.

$$Tangibility = \frac{Tangible\ Assets}{Total\ Assets}$$

Growth opportunity

There are inconclusive results when looking at capital structure and how it is related to a firm's growth opportunities. According to Frank and Goyal (2009), growth opportunities are negatively correlated with a firm's debt level. This finding is in accordance with the trade-off theory due to firms' incentive to avoid debt overhang and the underinvestment problem (Myers, 1984; Rajan & Zingales, 1995). On the other hand, the pecking order theory suggests that growth and leverage are positively related because firms will favor internal funds and external debt before equity when investing in new projects (Frank & Goyal, 2009; Myers & Majluf, 1984).

The most commonly used measure for growth opportunity, which has also been the most reliable, is the market-to-book ratio (Adam & Goyal, 2008; Frank &

Goyal, 2009). However, it is difficult to obtain the market value for start-ups; thus, we will define growth opportunity as revenue to total assets. What is vital to remember is that there will be greater uncertainty regarding start-ups' growth prospects.

$$Growth\ Opportunity = \frac{Revenue}{Total\ Assets}$$

Profitability

Profitability is expected to be negatively related to leverage and hence a critical variable when looking at debt financing. The negative correlation is suggested by Myers and Majluf (1984) through finding strong evidence that profitable firms have more internal funds available and thus would prefer that over external financing. This is in accordance with the pecking order theory. Similarly, less profitable firms would require more external financing, increasing the debt ratio (Myers, 2001). The evidence of a negative correlation is also supported by Frank and Goyal (2009) and Rajan and Zingales (1995). The following formula defines profitability.

$$Profitabiliy = \frac{Net\ Income}{Total\ Assets}$$

Firm size

Size is an important firm's characteristics that can help explain a start-up's capital structure. Firm size will typically be positively related to debt financing (Frank & Goyal, 2009). This is because large businesses have better creditworthiness, more access to capital markets, and lower borrowing costs (Ampenberger et al., 2009). This is further supported by the trade-off theory, where large firms will have lower bankruptcy costs and thus more debt. We define firm size as the natural logarithm of total assets.

$$Firm\ Size = \text{Log}\ (Total\ Assets)$$

Industry

The industry in which a start-up operates will possibly influence its degree of external funding. This is because firms in the same industry are subjected to similar factors, influencing their financing decisions. Dummy variables will be used to capture the industry's effect on funding. An industry dummy can detect any consistent fluctuations relating to an industry. Thus, the dummy is utilized to explain funding discrepancies that are not reflected by the other control variables (Brown, 1968). We anticipate that industries will be positively related to the

dependent variable. Firms operating in industries that require substantial assets will be even more positively correlated with debt.

4.5 Descriptive statistics

Some descriptive statistics have been provided to gain an overview of the basic characteristics of the data. We will investigate the dependent and control variables in our model, including certain industries classified as male- or female-dominated. All variables are winsorized at 2.5 %. The descriptive data are summarized in Table 1a and Table 1b. The statistic has further been separated into small and large firms based on the distribution of total asset value, with small firms defined as asset value less than or equal to 500,000 and large firms defined as asset value greater than or equal to 2,000,000. Furthermore, the statistics will be segmented into male and female-led start-ups. This is to better understand the data set, which may differ amongst subgroups.

Table 1a: Descriptive statistics for female-and male-led firms and all firms.

Table 1a.	FEMALE-LED FIRMS					MALE-LED FIRMS					ALL FIRMS				
DEPENDENT VARIABLES	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
Total leverage	8 697	0.918	0.794	0.059	3.896	31 104	0.808	0.697	0.059	3.896	39 801	0.832	0.721	0.059	3.896
Short-term debt	8 697	0.718	0.637	0.021	3.086	31 104	0.620	0.577	0.021	3.086	39 801	0.642	0.592	0.021	3.086
Financial institutional debt	8 697	0.090	0.203	0	0.838	31 104	0.109	0.212	0	0.838	39 801	0.105	0.211	0	0.838
EXPLANATORY VARIABLE															
Female CEO	8 697	1	0	1	1	31 104	0	0	0	0	39 801	0.218	0.413	0	1
CONTROL VARIABLES															
Tangibility	8 697	0.126	0.211	0	0.850	31 104	0.179	0.239	0	0.850	39 801	0.167	0.234	0	0.850
Growth opportunity	8 697	2.968	2.361	0.050	10.345	31 104	2.498	2.263	0.050	10.345	39 801	2.600	2.293	0.050	10.345
Profitability	8 697	0.006	0.345	-1.186	0.648	31 104	0.033	0.328	-1.186	0.648	39 801	0.027	0.332	-1.186	0.648
Firm size	8 697	13.453	1.270	10.645	16.320	31 104	13.893	1.347	10.645	16.320	39 801	13.797	1.343	10.645	16.320
SPECIFIC INDUSTRIES' TOTAL LEVERAGE															
Other service activities	1 094	0.964	0.761	0.059	3.896	336	0.933	0.842	0.059	3.896	1 430	0.957	0.781	0.059	3.896
Human health and social work	1 217	0.752	0.643	0.059	3.896	1 437	0.635	0.553	0.059	3.896	2 654	0.689	0.598	0.059	3.896
Tourism	766	1.063	0.893	0.059	3.896	1 412	1.043	0.857	0.059	3.896	2 178	1.050	0.869	0.059	3.896
Building	173	0.986	0.753	0.059	3.896	8 224	0.826	0.632	0.059	3.896	8 397	0.829	0.635	0.059	3.896
Professional, scientific and technical activities	1 544	0.810	0.752	0.059	3.896	5 644	0.665	0.636	0.059	3.896	7 188	0.696	0.665	0.059	3.896
Retail	2 365	0.978	0.773	0.059	3.896	5 256	0.893	0.747	0.059	3.896	7 621	0.919	0.756	0.059	3.896

Table 1a contains the data divided into male and female-led start-ups. When considering the different dependent variables, it is evident that females use more debt than males. On average, females have a total leverage of 91.8%, whereas males have 80.8%. In comparison, the average total leverage is 83.2% for all firms. There is a similar trend for short-term debt, where female start-ups have around 10% more short-term debt than males in their capital structure. Males have almost identical short-term ratio as for all firms, 62% compared to 64.2%. A higher short-term ratio for females may reflect discrimination in terms of worse loan agreements for short-term compared to long-term debt. Both genders are financed with mainly short-term debt, accounting for over 50% of their capital structure. Given that the data set is primarily comprised of small firms (start-ups), the observed trend is not surprising. For financial institutional debt, male start-ups have slightly more than female start-

ups. Males have 10.9% and females 9%, compared to 10.5% for all firms. Further, for all industries, regardless of being male- or female-dominated, females have on average more total leverage in their capital structure.

There are some similarities in the results for the control variables tangibility, profitability, growth opportunity, and firm size. Males, however, have a higher value for all variables except growth opportunity compared to both females and all firms. As a result, it appears that males work in industries that require more tangible assets and thus have larger firms. Females appear less profitable than men, with 0.6% against 3.3%.

Table 1b: Descriptive statistics for small and large firms.

Table 1b.	SMALL FIRMS					LARGE FIRMS				
DEPENDENT VARIABLES	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
Total leverage	11 619	1.177	1.096	0.059	3.896	12 600	0.642	0.325	0.059	3.896
Short-term debt	11 619	0.953	0.087	0.021	3.086	12 600	0.438	0.296	0.021	3.086
Financial institutional debt	11 619	0.065	0.193	0	0.838	12 600	0.153	0.237	0	0.838
EXPLANATORY VARIABLE										
Female CEO	11 619	0.281	0.450	0	1	12 600	0.141	0.348	0	1
CONTROL VARIABLES										
Tangibility	11 619	0.118	0.210	0	0.850	12 600	0.220	0.263	0	0.850
Growth opportunity	11 619	3.421	2.936	0.050	10.345	12 600	1.974	1.875	0.050	10.345
Profitability	11 619	-0.107	0.484	-1.186	0.648	12 600	0.106	0.173	-1.186	0.648
Firm size	11 619	12.151	0.756	10.645	13.122	12 600	15.273	0.549	14.509	16.320
SPECIFIC INDUSTRIES' TOTAL LEVERAGE										
Other service activities	684	1.233	0.992	0.059	3.896	114	0.611	0.275	0.059	1.460
Human health and social work	775	0.983	0.907	0.059	3.896	929	0.496	0.311	0.059	2.100
Tourism	663	1.520	1.231	0.059	3.896	562	0.728	0.334	0.059	2.820
Building	1 926	1.243	1.050	0.059	3.896	3 169	0.673	0.290	0.059	3.292
Professional, scientific and technical activities	2 411	0.968	0.98	0.059	3.896	1 800	0.491	0.322	0.059	3.203
Retail	1 782	1.384	1.223	0.059	3.896	2 780	0.714	0.315	0.059	3.640

Table 1b is divided into subsets of small and large firms where the differences are substantial. Consistent with our prediction that females are more represented in smaller firms, statistics show that small firms have an average of 28% female-led firms compared to large firms with only 14%. For total leverage, small firms have an average ratio of 117.7%, indicating that there might be negative equity on their balance sheet. This is not unusual for small start-ups as they have not yet started to generate enough income. While for large firms, the average ratio of total leverage is 64.2%. Further numbers show that smaller firms obtain more short-term leverage (95.3% compared to 43.8%) and have less financial institutional debt (6.5% compared to 15.3%). Smaller firms issue more short-term leverage, which is consistent with findings showing more costs involved with issuing equity and long-term debt for small firms rather than for large firms (Titman & Wessels, 1988). Smaller firms are also considered to be more dependent on trade credit, which is the most common type of short-term debt.

To summarize Table 1b further, the control variables are as predicted. Large companies have more tangible assets, less opportunities for growth, and are more profitable than smaller firms. On the other hand, more tangible assets should suggest more collateral to obtain leverage, which contradicts the findings for total leverage. A reason for this might be that profitability for smaller start-ups is negative, suggesting less equity and possibly a high leverage ratio. This high leverage ratio pattern is reflected in the statistics for the various industries, implying that all industries appear to have less leverage for large firms than for small ones.

Our dataset contains 39 801 firms, 8 697 of which were founded by women, accounting for 21.8% of all firms. In comparison, 31 104 of the firms were founded by men (78.2%). Furthermore, the firms are categorized into 16 industries. All industries are dominated by men, with the exception of other service activities, which is dominated by women at 76.5%. In our dataset, the industries with the highest representation of females are human health and social work (45.9%), education (36.7%), and tourism (35.1%). See Appendix 3 for complete overview of the industry statistics.

Female founders have consistently made up roughly 20% of all start-ups over the sample years, slightly increasing from 2017 until 2020 (Figure 1). When looking at the number of firms and comparing this to the amount of leverage invested each year (Figure 1), we find that male-founded start-ups receive more than females. For example, when looking at the figures from 2010, we find that females account for 20% of start-ups while only receiving 14.9% of the debt. This trend has been consistent throughout the years. Accordingly, there might be a skewed funding distribution between males and females. However, these statistics cannot solely explain if there is gender discrimination when receiving funding. This is because these numbers do not account for industrial differences, including firm size, and how this may affect funding.

Figure 1: Percentage of start-ups and total leverage divided by gender.

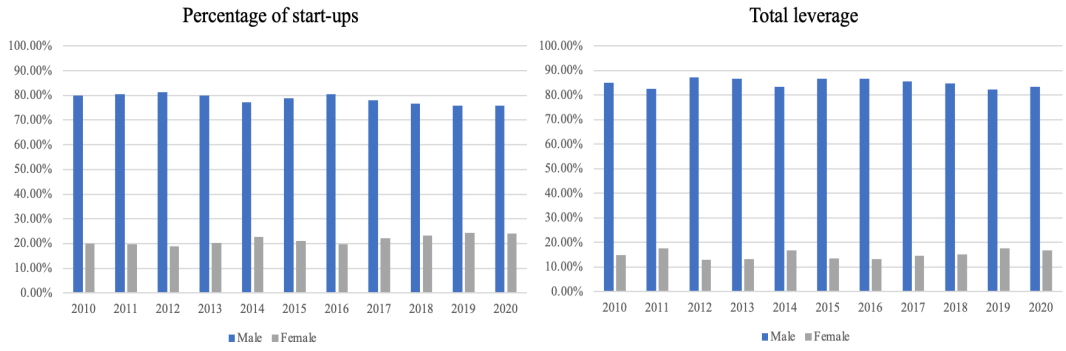
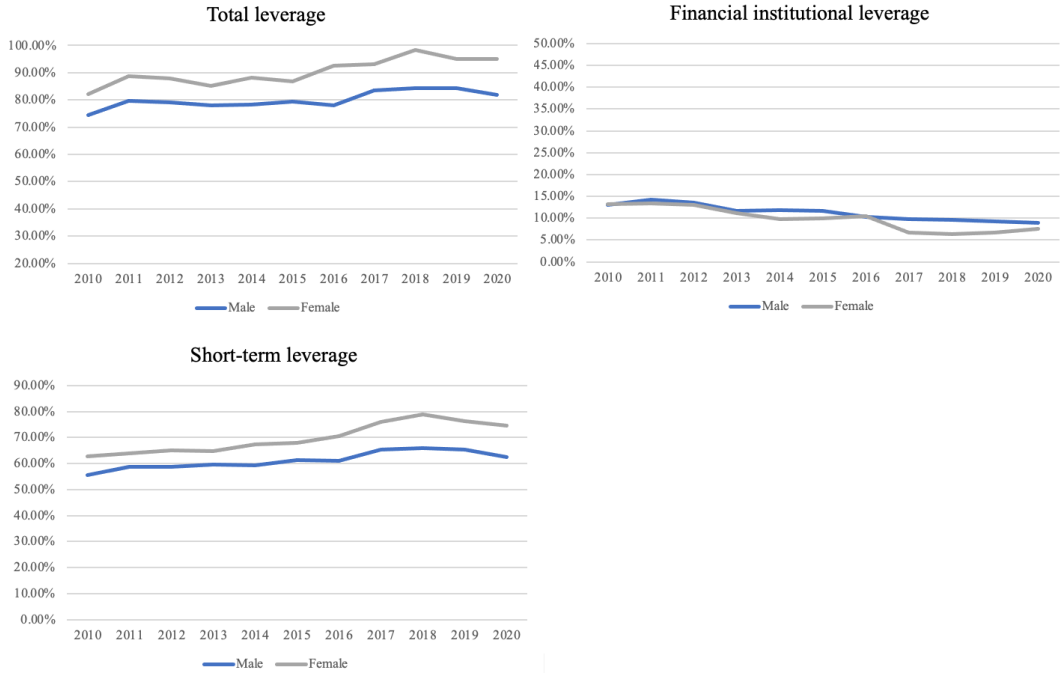


Figure 2 illustrates the yearly evolution of the percentage value of the mean debt structure by gender. Total leverage, short-term leverage, and financial institutional leverage are three variables of funding displayed in the graphs below (calculated over total assets). Throughout the years, female start-ups appear to have more total leverage and short-term debt than males. Both ratios follow an upward-sloping trend, where the gap widens slightly from 2016. For financial institutional debt, the changes throughout the years are different. Females have, in general, less financial institutional debt, even though the differences are quite small.

Figure 2: Evolution of leverage female vs. male start-ups.



4.6 Correlation and multicollinearity

We have conducted a correlation matrix between the independent variables in our model to test for multicollinearity, as displayed in table 2. From the matrix, we observe that gender is positively correlated with total leverage and short-term debt, whereas financial institutional debt is negatively correlated. This is consistent with findings from descriptive statistics. All the variables have a modest value, which indicates that they are not closely related.

If the independent variables are closely related, it can be difficult to draw conclusions from the regression. Because near multicollinearity can result in wide confidence intervals, a significant test will be improper (Brooks, 2014, p.217).

Correlation above 0.7 would indicate near multicollinearity. Our correlation matrix shows a relatively low correlation between all the independent variables used in the regression. Thus, we conclude that multicollinearity will not be a problem for our results.

Table 2: Correlation matrix.

	Total leverage	Short-term leverage	Financial institutional debt	Tangibility	Growth opportunity	Profitability	Firm size	Gender
Total leverage	1							
Short-term leverage	0.8484	1						
Financial institutional leverage	0.2355	-0.0161	1					
Tangibility	0.0701	-0.1319	0.4691	1				
Growth opportunity	0.3782	0.4737	-0.0527	-0.1485	1			
Profitability	-0.4258	-0.37	-0.1245	-0.0794	-0.1698	1		
Firm size	-0.3539	-0.4006	0.1806	0.1877	-0.2738	0.2923	1	
Gender	0.0629	0.0682	-0.0369	-0.0933	0.0845	-0.0333	-0.1353	1

5.0 Empirical model

In order to model external financing, we will conduct a year-by-year and combined regression to determine whether there are differences in receiving external finance between male and female-founded firms. The following regression is proposed:

$$Y_{it} = \beta_1 Gender_{it} + \beta_2 X_{it} + \beta_3 Industry_{it} + u_{it} \quad (1)$$

The dependent variable, Y_{it}, will be defined as total and short-term leverage in the regressions. $Gender_{it}$ will be a dummy variable, taking value 1 if the start-up is founded by a woman and 0 if not. Thus, this variable will be the most interesting to examine as it will indicate whether a gender funding gap exists for Norwegian start-ups. The variable X_{it} represents a vector of capital structure characteristics specific to start-ups. It contains the control variables tangibility, growth opportunity, profitability, and firm size. To control for industry differences in our dataset, we have added industry dummies captured by $Industry_{it}$ in our model. Lastly, u_{it} represents the error term. This consists of the unobserved firms' effects and the true residuals.

Because gender and industry are both dummy variables, we removed the constant in the following regressions to prevent a dummy trap. Additionally, all variables have been winsorized at 2.5% to avoid large outliers because we are working with accounting data.

Hypothesis 3 will have a slightly different model, as we now examine the gender funding gap in different industries. The model used to capture the gender effect will be the following:

$$(Y_{it}|Industry) = \beta_0 + \beta_1 Gender + \beta_2 X_{it} + u_{it} \quad (2)$$

The control variables used in this model will be the same as model (1), whereas the dependent variable, Y_{it}, will be measured by total leverage. Further, the regression will be done dependent on a specific industry. The industries will be either male- or female-dominated to be able to observe if the gender effect on funding is reversed in specific gender-dominated industries.

6.0 Quantitative analysis and discussion

The analysis is divided into three sections, each of which will provide the main results from the regressions. Each section will test one of the proposed hypotheses. The impact of gender on total leverage will be investigated first, followed by how this affects short-term leverage, and finally, the relationship between gender and male- and female-dominated industries. A robustness test will be conducted in three ways under each section: a regression on subsets of small and large firms, a new gender definition, and a new dependent variable definition. For the regression on gender-dominated industries, a robustness test based on firm size will not be included because there will not be a sufficient number of firms to capture the effect of gender. The constant will be removed from the total and short-term leverage regressions to avoid the dummy-trap. As a result, an artificially high R^2 will be produced, which is why it will not be formally discussed throughout the analysis. All results are produced with clustered standard errors to avoid heteroskedasticity.

6.1 Total leverage

In the first hypothesis, we predicted that male-led startups have more external capital in terms of leverage compared to females. Table 3 represents our findings when investigating the effect of gender on total leverage.

Table 3: Regression 1 – Total leverage.

Total leverage	All firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Gender	0.024	-0.008	0.009	-0.032	0.001	0.023	0.033	0.053*	-0.005	0.057*	0.019	0.082***
	(0.016)	(0.025)	(0.023)	(0.041)	(0.045)	(0.026)	(0.039)	(0.032)	(0.0337)	(0.027)	(0.030)	(0.024)
Tangibility	0.394***	0.387***	0.484****	0.363***	0.513***	0.411***	0.315***	0.447***	0.316***	0.376***	0.418***	0.367***
	(0.029)	(0.045)	(0.056)	(0.049)	(0.118)	(0.064)	(0.047)	(0.088)	(0.034)	(0.043)	(0.062)	(0.058)
Growth opportunity	0.088***	0.090***	0.100***	0.095***	0.094***	0.067***	0.087***	0.094***	0.086***	0.080***	0.087***	0.099***
	(0.014)	(0.018)	(0.015)	(0.012)	(0.023)	(0.011)	(0.016)	(0.024)	(0.0.011)	(0.012)	(0.010)	(0.018)
Profitability	-0.652***	-0.676***	-0.512***	-0.626***	-0.592***	-0.647***	-0.497***	-0.588**	-0.725***	-0.639***	-0.719***	-0.679***
	(0.129)	(0.124)	(0.097)	(0.122)	(0.097)	(0.106)	(0.057)	(0.074)	(0.158)	(0.144)	(0.163)	(0.172)
Firm size	-0.116**	-0.093***	-0.129**	-0.117*	0.127*	-0.125*	-0.115*	-0.109	-0.111*	-0.131**	-0.116*	-0.121**
	(0.059)	(0.035)	(0.065)	(0.068)	(0.073)	(0.076)	(0.069)	(0.066)	(0.058)	(0.059)	(0.059)	(0.057)
Adj. R squared	0.7108	0.7512	0.728	0.7286	0.7261	0.721	0.7104	0.7059	7113	0.7032	0.7064	0.6949
N	39801	3394	2977	2728	2477	2131	2338	3158	5569	5218	5168	4643

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

Gender, our key independent variable, is significant for all firms at 13.3%. The coefficient is slightly positive at 0.024, implying that women have 2.4% more leverage in their capital structure, which contradicts our hypothesis. Gender is, however, not statistically significant; thus, we cannot claim that gender is a good explanatory variable for differences in total leverage. According to this result, women do not appear to face discrimination in receiving external funding in terms of total debt.

In the year-by-year regression, gender is not statistically significant in the majority of the sample years. Nevertheless, gender is only significant at the 1% level in 2011, at the 10% level in 2016 and 2018, and at the 1% level in 2020. Furthermore, the coefficients shift from negative to positive over time, indicating an unstable relationship between gender and total debt. The low representation of female firms in the subsets could explain these findings. Contrary to our expectations and the regression results for all firms, gender and total leverage appears to have a weak relationship. This suggests that gender may not cause differences in acquiring external funding. Nonetheless, the result of the year-by-year regression must be thoroughly considered due to the reduced sample size, which increases standard errors. Furthermore, because our data contains 78.2 % male-led firms, fewer female-led firms would be represented as the sample size drops.

With the exception of firm size, which has an average significance level of 5%, the control variables are significant at the 1% level. Tangibility, profitability, and growth opportunity all show the expected results. Both tangibility and growth opportunity show positive coefficients, which is consistent with trade-off and pecking order theory. Profitability has a negative coefficient, indicating that firms prefer to use internal capital over external funding. Moreover, the coefficient for

firm size is slightly negative for all years, which is the reverse of what was predicted. This could be because our dataset includes data from start-ups, and hence the majority of the companies are still small (75% of all firms in the dataset have a total asset value of under 2,500,000). Because all industry dummies have positive and similar coefficients, they will not be discussed further. This, however, demonstrates a homogeneity in our data sample across industries, which was not expected (see full regression output in Appendix 4).

We find little evidence to support hypothesis 1 based on the above results. As a result, gender is rarely a significant variable and may not explain differences in funding. Still, the gender coefficient is significant at a 13% level, suggesting that females have a minor advantage in raising finance compared to men.

Robustness test: Firm size

For hypothesis 1, our regression provides inconclusive result. Our regression findings indicate that gender may only be a significant factor in a subset of firms, such as larger firms or a particular group. As a result, this heterogeneity may be more evident in the regression for all firms. As a response, a robustness test will be performed prior to drawing any conclusions.

To further test the dataset's heterogeneity, we want to perform a regression for a specific subset. Although the majority of the firms in our dataset are small, splitting the dataset into small and large start-up firms may allow us to see if gender has a significant impact on leverage (we classified small firms as asset value <= 500,000 and large firms as asset value >= 2,000,000). We will not include a year-by-year regression in the robustness test because it would be inefficient due to small yearly sample sizes. This would increase standard errors and decrease the number of female-led firms, giving our results less credibility. See table 4 for regression output.

The results of the small firm regression reveal that the gender dummy is highly significant at the 1% level. Furthermore, the coefficient has increased to 0.077 from 0.024 in the regression for all firms. This suggests that when just small firms are considered, females may obtain more leverage than men. Furthermore, when the data input is restricted to only large firms, the gender dummy exhibits nearly comparable coefficient values as for all firms (0.023 against 0.024). Still, it is now significant at the 1% level. This suggests that employing subsamples reduces the problem of heterogeneity. Further, because gender is significant in both the

subsamples, this may indicate that there is a lot of variation in each direction for the median-size sample (total asset larger than 500,000 and smaller than 2,000,000), resulting in gender being insignificant for the full sample. The results for the control variables are significant, and the two subsamples have the same anticipated values as all firms.

Table 4: Robustness test total leverage: Firm size subsamples.

Total leverage	Small firms	Large firms	All firms
Gender	0.077***	0.023***	0.024
	(0.017)	(0.008)	(0.016)
Tangibility	0.552***	0.286***	0.394***
	(0.084)	(0.028)	(0.029)
Growth opportunity	0.110***	0.051***	0.088***
	(0.014)	(0.004)	(0.014)
Profitability	-0.587***	-0.619***	-0.652***
	(0.102)	(0.041)	(0.129)
Firm size	-0.345*	-0.012*	-0.116**
	(0.203)	(0.006)	(0.059)
Adj. R squared	0.6776	0.8556	0.7108
N	11619	12600	39801

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

The robustness test may imply that females generally have a minor advantage in receiving leverage based on the findings when separating the firms into subsets by size. Nonetheless, female-led firms may have a slightly greater positive effect on smaller firms. These findings imply that there may be some data heterogeneity in our original model. As a result, the gender effect is more evident when subsets of the sample are used. This may, however, complicate the regression 1's robustness.

Robustness test: Alternative definition of female-led firm

Gender is the most important independent variable in our study, so we want to test if changing its definition will affect our results. Previously, a company was considered female-led if the CEO was female for the first five years of operation. We have therefore created a new definition of the gender dummy. The gender dummy will, in the robustness test, be defined as a firm having more than 50% of female personal owners, taking the value 1 if it is and 0 otherwise. The new

definition will include a new aspect of control. Because the data limits our ability to determine who the firm's founder is, we can use owners instead of CEO gender to see if our result from regression 1 is robust. Furthermore, when issuing capital, the CEO usually consults with owners; hence, these two are closely related, and we predict that they will yield similar results. It is worth noting that when changing the definition, we will have no observations for 2019 due to numbers of owners not being reported, resulting in a slight reduction in the sample size.

We observe consistency in both coefficients and significance when we compare the results. The significance level for all firms is now 8.1%, down from 13.3%, and the coefficient is 0.029, up from 0.024 in regression 1. This could imply that altering the definition of a female-led firm yields better results, indicating that females have 2.9% greater leverage in their capital structure. With the exception of 2018, the year-by-year regression finds the same years significant. Furthermore, 2016 is now significant at the 1% level, down from 10% earlier. The coefficients and p-values for the control variables are nearly identical to the original regression and will hence not be discussed further.

Table 5: Robustness test – Changing explanatory variable of female owners.

Total leverage	All firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Female owners	0.029*	-0.019	0.012	-0.049	0.009	0.022	0.01	0.089***	0.016	0.053**		0.084***
	(0.016)	(0.024)	(0.024)	(0.041)	(0.043)	(0.027)	(0.043)	(0.032)	(0.026)	(0.023)		(0.028)
Tangibility	0.391***	0.387***	0.484***	0.363***	0.513***	0.411***	0.314***	0.449***	0.317***	0.376***		0.368***
	(0.026)	(0.044)	(0.055)	(0.048)	(0.117)	(0.064)	(0.047)	(0.089)	(0.034)	(0.042)		(0.059)
Growth opportunity	0.089***	0.090***	0.100***	0.095***	0.094***	0.067***	0.087***	0.093***	0.086***	0.080***		0.099***
	(0.014)	(0.017)	(0.015)	(0.012)	(0.023)	(0.011)	(0.016)	(0.024)	(0.011)	(0.012)		(0.018)
Profitability	-0.639***	-0.676***	-0.512***	-0.627***	-0.592***	-0.647***	-0.497***	-0.588***	-0.724***	-0.640***		-0.679***
	(0.122)	(0.123)	(0.097)	(0.121)	(0.097)	(0.106)	(0.056)	(0.072)	(0.157)	(0.145)		(0.171)
Firm size	-0.117***	-0.094***	-0.129**	-0.118*	-0.127*	-0.126*	-0.116*	-0.108*	-0.110*	-0.131**		-0.201**
	(0.059)	(0.034)	(0.064)	(0.067)	(0.073)	(0.076)	(0.069)	(0.065)	(0.057)	(0.059)		(0.057)
Adj. R squared	0.7118	0.7528	0.728	0.7287	0.7261	0.7209	0.7103	0.7064	0.7114	0.7031		0.6948
N	34633	3394	2977	2728	2477	2131	2338	3158	5569	5218	No obs.	4643

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

The conclusion stays unchanged by changing the definition of the gender dummy. When looking at the year-by-year regression, gender does not appear to impact whether female-led or male-led start-ups have more leverage in their capital structure. However, female owners appear to have a slight advantage in acquiring external finance for all firms.

Robustness test: Alternative definition of the dependent variable

We wish to run a regression using an alternative definition of the dependent variable to further test the robustness of our hypothesis. The variable total leverage includes all of a firm's leverage, including financial statements that are unrelated to external

finance. By using financial institutional debt as our new dependent variable, we want to see if females are at a disadvantage when simply looking at regulated leverage. Regulated leverage such as debt from financial institutions might capture the effect of discriminatory behavior as we are now looking at professional institutions in isolation.

Table 6: Robustness test – Changing the dependent variable to financial institutional debt.

Financial institutional debt	All firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Gender	0.008*	0.014**	0.016*	0.018*	0.012	0.002	0.009	0.02	-0.004	-0.007	0.003	0.017
	(0.004)	(0.006)	(0.009)	(0.011)	(0.011)	(0.007)	(0.009)	(0.012)	(0.004)	(0.005)	(0.004)	(0.013)
Tangibility	0.393***	0.459***	0.476***	0.448***	0.418***	0.401***	0.423***	0.415***	0.345***	0.362***	0.343***	0.351**
	(0.120)	(0.104)	(0.093)	(0.107)	(0.093)	(0.101)	(0.108)	(0.135)	(0.125)	(0.130)	(0.122)	(0.141)
Growth opportunity	0.002	0.002	0.004	0.001	-0.001	-0.003*	0.002	0.004	0.003	0.003*	0.001	0.003
	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.002)	(0.002)	(0.001)	(0.002)
Profitability	-0.075	-0.116	-0.115*	-0.104*	-0.083*	-0.122	-0.105	-0.076	-0.062	-0.058	-0.063	-0.046
	(0.054)	(0.084)	(0.068)	(0.062)	(0.044)	(0.082)	(0.072)	(0.052)	(0.045)	(0.046)	(0.048)	(0.036)
Firm size	0.020***	0.013**	0.017***	0.017*	0.013	0.015**	0.018***	0.019***	0.021***	0.018***	0.023***	0.020***
	(0.005)	(0.005)	(0.006)	(0.006)	(0.009)	(0.006)	(0.005)	(0.005)	(0.007)	(0.006)	(0.007)	(0.006)
Adj. R squared	0.4025	0.4523	0.471	0.474	0.4446	0.4327	0.4208	0.416	0.3637	0.3732	0.3767	0.3507
N	39801	3394	2977	2728	2477	2131	2338	3158	5569	5218	5168	4643

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

Gender is significant at 5.8% for all firms, which is an improvement from the initial definition of leverage. However, the coefficient has decreased to 0.008, indicating that females get less financial institutional debt compared to total leverage. Furthermore, the year-by-year regression finds deviating results compared to all firms, with just the first three years being significant. As a result, gender does not appear to be an explanatory factor for financial institutional debt, as indicated by regression 1.

The control variables in table 6 differ from the original regression. Growth opportunity and profitability are rarely significant anymore, meaning that they have no explanatory power on the firm's financial institutional debt. Additionally, firm size now has a positive coefficient and is significant at a 1% level for all firms. Firm size had a negative coefficient in the original regression, but it is now positively significant for all years except 2013. This is as predicted by trade-off theory, which predicts that larger firms will have more debt due to tax benefits and reduced bankruptcy costs. A reason for this could be that we are only looking at bank debt, which is easier to regulate.

To summarize, by changing the definition of leverage, our conclusion remains the same, finding no strong support for hypothesis 1. Moreover, it is worth mentioning that females have a slight advantage (0.8%) in receiving financial institutional debt, yet the advantage is smaller than before changing the definition (2.4%).

6.2 Short-term leverage

For the second hypothesis, we will examine whether females rely on more short-term debt than males. Table 7 shows the regression output for the effect of gender on short-term debt (see Appendix 5 for full regression output).

Table 7: Regression 2 - Short-term leverage.

Short-term leverage	All firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Gender	0.004	-0.005	-0.033	-0.062**	-0.029	-0.003	0.014	0.005	-0.001	0.031*	0.011	0.049**
	(0.012)	(0.018)	(0.022)	(0.030)	(0.038)	(0.026)	(0.027)	(0.027)	(0.032)	(0.015)	(0.020)	(0.023)
Tangibility	-0.140***	-0.160***	-0.119***	-0.228***	-0.691	-0.262***	-0.228***	-0.064	-0.154***	-0.100**	-0.093***	-0.145***
	(0.022)	(0.028)	(0.041)	(0.036)	(0.087)	(0.038)	(0.033)	(0.094)	(0.025)	(0.047)	(0.034)	(0.030)
Growth opportunity	0.094***	0.101***	0.999***	0.101***	0.098***	0.079***	0.097***	0.097***	0.092***	0.087***	0.090***	0.102***
	(0.010)	(0.013)	(0.014)	(0.012)	(0.016)	(0.007)	(0.009)	(0.015)	(0.008)	(0.008)	(0.008)	(0.014)
Profitability	-0.442***	-0.400***	-0.325***	-0.421***	-0.378***	-0.422***	-0.384***	-0.405***	-0.516***	-0.441***	-0.487***	-0.448***
	(0.011)	(0.113)	(0.094)	(0.086)	(0.097)	(0.117)	(0.045)	(0.062)	(0.135)	(0.108)	(0.142)	(0.145)
Firm size	-0.097**	-0.083***	-0.095***	-0.100**	-0.099**	-0.088**	-0.09	-0.092*	-0.096**	-0.113**	-0.097**	-0.096**
	(0.044)	(0.024)	(0.038)	(0.044)	(0.049)	(0.039)	(0.057)	(0.047)	(0.047)	(0.055)	(0.041)	(0.042)
Adj. R squared	0.7061	0.7428	0.7288	0.7370	0.7252	0.7270	0.7184	0.7011	0.7068	0.6963	0.6986	0.6846
N	39801	3394	2977	2728	2477	2131	2338	3158	5569	5218	5168	4643

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

For all firms, gender shows a weak positive coefficient, 0.004; however, the coefficient is not significant. Further, the coefficient fluctuates between slightly positive and slightly negative throughout time. This demonstrates that there is no noticeable difference in terms of obtaining short-term leverage. Gender, according to these findings, is only significant at the 5% level in 2012 and 2020 and at the 10% level in 2018. These findings imply that gender may not be a reliable predictor of differences in short-term leverage.

Investigating the control variables reveals that tangibility now has a negative coefficient, which contradicts our findings for total leverage (regression 1). This can be explained by the fact that long-term leverage and asset tangibility are positively correlated. Growth opportunity and profitability are as predicted and in line with the results of regression 1. In this regression, the firm size coefficient is also negative, which is more predictable given that the dependent variable is short-term debt. This could again indicate that larger firms prefer long-term debt.

These findings do not support hypothesis 2, which states that females have more short-term leverage in their capital structure. Our gender variable is rarely significant, indicating that gender differences in short-term debt may not be explained by gender in isolation.

Robustness test: Firm size

To test for robustness in our model, we proceed by checking our results for both small and large firms (small firms are defined as asset value <= 500,000 and large firms >= 2,000,000). Output is displayed in table 8.

For small firms, results show a positive coefficient of 0.041, significant at the 7.8% level. This means that female-led start-ups would have a 4.1% higher short-term leverage ratio than male-led start-ups for small firms.

When only looking at large firms, gender is now significant at a 1.7% level with a coefficient of 0.016 compared to the regression of all firms where gender is not significant. This means that female-led firms have 1.6% more short-term debt than male-led firms when considering only large firms. Compared to the regression for small firms, it may also indicate that it is easier for females to obtain short-term financing when operating among smaller firms. This is consistent with larger firms having better access to long-term debt.

Table 8: Robustness test – Short-term leverage and firm size.

Short-term leverage	Small firms	Large firms	All firms
Gender	0.041*	0.016**	0.004
	(0.013)	(0.006)	(0.012)
Tangibility	0.118*	-0.269***	-0.140***
	(0.064)	(0.015)	(0.022)
Growth opportunity	0.102***	0.076***	0.094***
	(0.011)	(0.003)	(0.010)
Profitability	-0.445***	-0.237***	-0.442***
	(0.086)	(0.028)	(0.011)
Firm size	-0.238	-0.028***	-0.097**
	(0.153)	(0.004)	(0.044)
Adj. R squared	0.6852	0.8007	0.7061
N	11619	12600	39801

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

The regression of all firms finds all the control variables statistically significant. In the subsets, profitability and growth opportunity is still significant and have the predicted values. Firm size is still negative; however, the p-value has increased, making it significant at a 12.1% level for small firms. Further, the coefficient is less negative for large firms compared to small firms; this is still in line with trade-off theory, where large firms will have more debt. Tangibility is positively significant

for small firms, which differs from findings for all and large firms where the coefficient is negative. An explanation for the change between positive and negative coefficients can be due to large firms having more tangible assets, making them more capable of obtaining long-term debt rather than short-term debt.

In conclusion, the gender variable is now significant in the regression for both large and small firms, demonstrating that gender better explains the amount of short-term debt when only looking at each subsample rather than all firms. As a result, the robustness test yields conflicting results; however, separating the data into subsamples better indicates how gender (female) may positively affect short-term leverage.

Robustness test: Alternative definition of female-led firm

Similar to regression 1, we have chosen to test the robustness of our results by changing the definition of the gender dummy. Hence, it is now defined depending on the number of female personal owners being larger than 50%, where results are displayed in table 9 below. For all firms, the results are still very similar both in coefficients and significance. The year-by-year regression shows that the new definition of gender has inconclusive p-values. Regardless of the changing p-values, it is only significant in 2012 and 2020, which is somewhat consistent with findings from regression 2. The p-values and coefficients for the control variables are nearly identical to those in regression 2; thus, they will not be addressed further.

Table 9: Robustness test results – Changing the definition of a female-led firm.

Short-term leverage	All firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Female owners	0.011	-0.005	-0.022	-0.046*	-0.035	-0.001	0.016	0.025	0.024	0.031		0.043**
	(0.014)	(0.017)	(0.023)	(0.031)	(0.035)	(0.024)	(0.025)	(0.028)	(0.022)	(0.025)		(0.024)
Tangibility	-0.145***	-0.160***	-0.119***	-0.228***	-0.071	-0.261***	-0.228***	-0.062	-0.152***	-0.100**		-0.145***
	(0.026)	(0.034)	(0.037)	(0.034)	(0.077)	(0.040)	(0.038)	(0.081)	(0.032)	(0.037)		(0.036)
Growth opportunity	0.095***	0.101***	0.999***	0.101***	0.098***	0.079***	0.097***	0.097***	0.092***	0.087***		0.102***
	(0.009)	(0.012)	(0.009)	(0.008)	(0.015)	(0.007)	(0.009)	(0.018)	(0.007)	(0.008)		(0.014)
Profitability	-0.433***	-0.400***	-0.325***	-0.419***	-0.378***	-0.422***	-0.384***	-0.405***	-0.516***	-0.441***		-0.448***
	(0.077)	(0.087)	(0.089)	(0.083)	(0.060)	(0.102)	(0.044)	(0.045)	(0.091)	(0.091)		(0.104)
Firm size	-0.097**	-0.083***	-0.095***	-0.100**	-0.099**	-0.088**	-0.09	-0.092*	-0.096**	-0.113**		-0.096**
	(0.035)	(0.021)	(0.027)	(0.042)	(0.045)	(0.042)	(0.047)	(0.043)	(0.038)	(0.036)		(0.033)
Adj. R squared	0.7076	0.7428	0.7287	0.7366	0.7252	0.727	0.7184	0.7012	0.7069	0.6963		0.6948
N	34633	3394	2977	2728	2477	2131	2338	3158	5569	5218	No obs.	4643

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

According to this robustness test, the gender coefficient shifts from positive to negative, validating prior findings that gender explains very little of the differences in short-term leverage. This demonstrates that the findings remain the same even when the definition is changed.

Robustness test: Alternative definition of the dependent variable

Trade credit, short-term liability to financial institutions, and other short-term liability are components of short-term leverage. Therefore, we will split the variable, short-term leverage, into different parts to determine if gender may be better observed in this manner, considering short-term leverage did not find significant results for gender. The year-by-year regression is rarely significant for the new variables and very similar to regression 2; hence we only report output for all years combined. See table 10 for results.

The gender dummy shows contradicting results for all new variables, where short-term liability to financial institutions and trade credit is not significant. In contrast, other short-term liability is significant at a 6% level with a positive coefficient. These results show that gender may not explain differences in short-term liability to financial institutions and trade credit. However, trade credit is just not significant at the 14.7% level and is now negatively related to gender, which could indicate that female-led firms either have worse relationships with vendors or that they have lower trade-credit due to risk-aversion and not wanting to have any outstanding payments. Oher short-term liability is positively related to gender, which supports hypothesis 2 of females having more short-term debt. According to this, females have 1.6% more other short-term liability in their capital structure compared to males. This type of debt combines all short-term debt that cannot be categorized into their own lines in the financial statements, making it difficult to further analyze why we see this positive effect for females. It might be the case that some of the debt included in other short-term liability is not related to external finance, and thus this may be the reason why we observe this positive gender effect.

Since none of the control variables are significant for short-term liability to financial institutions, it may be that the firms in our dataset are not dependent on this type of debt, and it will therefore not be discussed further. For trade credit, tangibility is in accordance with the findings from regression 2, which indicate a negative relationship of -3.8% between tangibility and trade credit. This can simply be because firms with higher tangibility use more long-term debt instead of trade credit. While for other short-term liability, it is not significant hence, tangibility does not seem to affect the variable.

For the rest of the control variables, growth opportunity and profitability are similar to regression 2. At the same time, firm size now has both positive and negative coefficients based on the type of short-term debt. For trade credit the

coefficient is positive, indicating that the larger the firm, the more debt. This may further support our hypothesis of females having more short-term debt. Other short-term liability supports findings for regression 2, that larger firms have less short-term debt.

Table 10: Robustness test: Alternative definitions of short-term leverage.

	Short-term liability to financial institutions	Trade credit	Other short-term liability
Gender	-0.001	-0.009	0.016*
	(0.001)	(0.005)	(0.008)
Tangibility	0.005	-0.038***	0.006
	(0.004)	(0.008)	(0.015)
Growth opportunity	0.002	0.030***	0.028***
	(0.001)	(0.004)	(0.005)
Profitability	-0.018	-0.103***	-0.304***
	(0.017)	(0.032)	(0.080)
Firm size	0.002	0.014*	-0.089**
	(0.001)	(0.008)	(0.041)
Adj. R squared	0.0996	0.5002	0.5111
N	39801	39801	39801

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

In accordance with results from regression 2, dividing short-term leverage into different categories find inconclusive results. Thus, it is not clear how gender may impact short-term leverage. Hence, this shows some robustness to previous findings.

6.3 Female and male-dominated industries

For the third hypothesis, we want to examine whether females are at an advantage of receiving funding in female-dominated industries and at a disadvantage in male-dominated industries. We will do this by examining three female-dominated and three male-dominated industries and see how gender can explain disparities in funding for these industries. Females are only dominated in one of the industries, based on the criteria of having more than 50% of the number of firms in an industry. Thus, a female-dominated industry will be one where females are highly represented compared to the other industries. In addition, the chosen industry must have a certain number of observations to ensure a large enough sample size to capture the effect of gender on leverage.

We have chosen other service activities, human health and social work, and tourism as our female-dominated industries because these are the industries where females are highly represented, 76.5%, 45.9%, and 35.14%, respectively. Building, professional, scientific and technical activities, and retail will be the male-dominated industries, where males make up 95.8%, 78.57%, and 68.95% of the industries. The effect of gender (female) on the various industries is displayed in table 11.

Table 11: Regression 3 – Gender-dominated industries.

	Female dominated			***Male dominated***		
Total leverage	**Other service activities**	**Human health and social work**	**Tourism**	**Building**	**Professional, scientific and technical activities**	**Retail**
Gender	-0.038	0.025	-0.025	0.104***	0.025	0.017
	(0.044)	(0.017)	(0.032)	(0.039)	(0.020)	(0.028)
Tangibility	0.775***	0.500***	0.571***	0.329***	0.374***	0.310***
	(0.108)	(0.040)	(0.063)	(0.024)	(0.048)	(0.070)
Growth opportunity	0.142***	0.077***	0.099***	0.104***	0.105***	0.060***
	(0.014)	(0.008)	(0.017)	(0.015)	(0.014)	(0.013)
Profitability	-0.727***	-0.318***	-0.834***	-0.558***	-0.483***	-0.895***
	(0.156)	(0.107)	(0.122)	(0.088)	(0.136)	(0.112)
Firm size	-0.156**	-0.097**	-0.151*	-0.090*	-0.098**	-0.154**
	(0.066)	(0.048)	(0.084)	(0.048)	(0.049)	(0.076)
Constant	2.469***	1.796**	2.584**	1.740***	1.826***	2.827***
	(0.904)	(0.729)	(1.182)	(0.683)	(0.708)	(1.093)
Adj. R squared	0.4206	0.298	0.4037	0.3366	0.2893	0.3277
N	1430	2654	2178	8397	7188	7621

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

For all industries R^2 ranges between 30-40%, indicating that the control variables adequately explain the total leverage ratio. Female-dominated industries find inconclusive results for females, being both at advantage and disadvantage of receiving debt. However, none of the industries give significant results. Because of this, we cannot make any particular inference of whether females are at an advantage or not when receiving debt in their dominated industry. However, it is unclear if these findings are because the sample size for each industry is still too small to capture the gender effect or that gender does not account for much in funding disparities.

For the male-dominated industries, the results are a bit different. Building is significant at a 0.9% level, resulting in a positive gender coefficient of 0.104. From these results, female-led start-ups may actually be an advantage when operating in this male-dominated industry, having 10.4% more debt in their capital structure. This is in line with statistics showing that females have a higher debt to

asset ratio for almost all industries. The gender coefficient is positive in the two other male-dominated industries, but the results are insignificant, so we cannot draw any conclusions. For the control variables, all industries give significant results and a coefficient value that is in line with earlier regressions.

Based on these results, we do not find support for hypothesis 3 of gender being at an advantage when operating in their own dominated industry. However, the sample size is reduced substantially when looking at one industry in isolation. Even when trying to pick female industries with a large sample, the sample size is relatively modest due to females only making up 22% of all firms in the entire sample. Because females are less dominant in most industries, this may explain why results are rarely significant. Our data thus limits our ability to examine the relationship between gender and dominated industries. In contrast to hypothesis 3, these results find little tendencies of any gender being at advantage of obtaining funding regardless of which industry they operate in.

Robustness test: Alternative definition of female-led firm

We employ the alternative definition for a female-led firm to further test the robustness of our model. Similar to previous robustness tests, the new definition is defined as 50% female personal owners. As a result of these numbers not being reported, we will have no observations for 2019, resulting in a modest reduction in the sample size of each industry. See table 12 for output. Unfortunately, this leads to greater standard errors, which may explain why the results are not as significant.

By changing the definition, we now see a change in industries that result in significant numbers for the female ownership dummy. The control variables for all industries are nearly identical to those found in regression 3 and will not be discussed further. The findings for female-dominated industries are comparable to other service activities, with female owners not being a significant variable in total leverage differences. Furthermore, for human health and social work, the variable is now significant at the 7% level, contrary to the conclusions of the initial regression. According to the findings, female owners receive 3.7% more leverage than males in the same industry. Tourism, the next female-dominated industry, yields essentially identical results to regression 3, with female ownership not being significant.

For the male-dominant industries, building finds that female ownership is no longer significant. In contrast, professional, scientific and technical activities

find significant results at the 2.2% level, with females having 4.8% more leverage in their capital structure. For retail, results are again almost identical to the original regression, with female owners not being a significant variable, thus indicating that gender does not affect leverage in that particular industry.

Table 12: Robustness test – Alternative definition of a female-led firm.

	Female dominated			***Male dominated***		
Total leverage	**Other service activities**	**Human health and social work**	**Tourism**	**Building**	**Professional, scientific and technical activities**	**Retail**
Female owners	-0.027	0.037*	-0.022	0.069	0.048**	0.020
	(0.041)	(0.020)	(0.038)	(0.078)	(0.020)	(0.024)
Tangibility	0.754***	0.517***	0.578***	0.328***	0.380***	0.294***
	(0.116)	(0.040)	(0.064)	(0.024)	(0.049)	(0.068)
Growth opportunity	0.150***	0.076***	0.100***	0.105***	0.105***	0.059***
	(0.016)	(0.008)	(0.018)	(0.016)	(0.013)	(0.013)
Profitability	-0.706***	-0.319***	-0.820***	-0.525***	-0.476***	-0.881***
	(0.161)	(0.099)	(0.113)	(0.073)	(0.146)	(0.098)
Firm size	-0.153**	-0.092*	-0.155*	-0.094*	-0.091*	-0.158***
	(0.065)	(0.052)	(0.084)	(0.049)	(0.048)	(0.078)
Constant	2.406***	1.735**	2.633**	1.799***	1.724**	2.898***
	(0.893)	(0.783)	(1.169)	(0.694)	(0.695)	(1.122)
Adj. R squared	0.4158	0.2897	0.3989	0.3256	0.2823	0.3244
N	1208	2306	1835	7329	6253	6706

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

The findings from this robustness test are inconclusive in comparison to regression 3. Finding differing results in this robustness test for female owners indicates that regression 3 may not be considered robust. However, the robustness test results yield high R^2 values indicating that the other control variables are still effective predictors of the firm's total leverage even when female owners have little significant impact.

Robustness test: Alternative definition of the dependent variable

When looking at leverage in terms of financial institutional debt instead of total debt, we find somewhat similar results as before. Compared to regression 3, the R^2 has decreased, implying that the control variables explain less when changing the definition of leverage. See further details in table 13.

When changing the definition of leverage, only retail is significant. The gender coefficient for this industry is positive and significant at a 1% level, which indicates an advantage for females operating in a male-dominated industry. However, retail has not been significant for any of the former regressions, which

makes the robustness of this result somewhat questionable. This makes it difficult to make any clear inference of the true effect of gender on external funding.

Table 13: Robust test – Alternative definition of leverage.

	Female dominated				*Male dominated*	
Financial institutional debt	**Other service activities**	**Human health and social work**	**Tourism**	**Building**	**Professional, scientific and technical activities**	**Retail**
Gender	0.012	0.011	-0.001	0.005	-0.007	0.015***
	(0.009)	(0.010)	(0.009)	(0.013)	(0.006)	(0.110)
Tangibility	0.383**	0.480***	0.376**	0.409***	0.346**	0.345***
	(0.157)	(0.157)	(0.154)	(0.102)	(0.140)	(0.087)
Growth opportunity	0.006	-0.001	-0.001	0.001	0.006	-0.002
	(0.004)	(0.002)	(0.001)	(0.001)	(0.005)	(0.001)
Profitability	-0.057	-0.068	-0.043	-0.084*	-0.039	-0.134
	(0.058)	(0.045)	(0.039)	(0.049)	(0.034)	(0.089)
Firm size	0.007	0.015**	0.020***	0.026***	0.011**	0.018**
	(0.011)	(0.006)	(0.005)	(0.003)	(0.005)	(0.007)
Constant	-0.09	-0.193***	-0.259***	-0.336***	-0.137**	-0.175
	(0.153)	(0.010)	(0.009)	(0.013)	(0.006)	(0.110)
Adj. R squared	0.1687	0.3557	0.2611	0.2501	0.1948	0.1261
N	1430	2654	2178	8397	7188	7621

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

Tangibility is the sole control variable that remains significant across all industries. While firm size is significant in all industries except other service activities, profitability remains significant in the building industry. As a result, by dividing our sample into industries, we can see that most of the control variables may not be excellent predictors of each industry's level of financial institutional debt.

In conclusion, because of the weak significance of gender and the low coefficient values, gender may not explain much of the differences in financing. Moreover, financial institutional debt accounts for just around 10% of start-up capital, making it challenging to capture the impact of gender when analyzing industry subsamples.

6.4 Endogeneity

Endogeneity is a crucial aspect to consider for ensuring a robust model. The problem of endogeneity arises when at least one of the explanatory variables in the model correlates with the error term (Wooldridge, 2020). Because of our limited dataset, it is difficult to avoid the problem of endogeneity; consequently, it is critical to be conscious of this throughout the thesis. This issue is crucial to address for our research because it can lead to incorrect inferences about the impact females have on differences in obtaining external financing. This issue could be caused by self-selection, reverse causality, or omitted variables.

Even if the findings confirm our hypothesis, we must still examine the issue of endogeneity. This implies that our findings may be impacted by variables other than discrimination. According to self-selection, women may self-select into industries that require less capital and may seek less funding based on the degree of risk associated with issuing debt as a start-up. Funding differences may thus be a result of a supply and demand imbalance, in which females choose industries (demand) for which investors do not offer funding (supply).

Furthermore, reverse causality may raise the issue of endogeneity. Investors and lenders may be more inclined to invest in industries and firms with more risk and growth potential, implying gender is irrelevant. As a result, the financing disparity may be seen as a result of women self-selecting towards areas that receive less funding, while investors only consider profit-maximizing investment opportunities. Consequently, it may be unclear which is the cause, and which is the effect of the observed funding gap. This brings up the question of reverse causality.

Endogeneity can also emerge if some important variables are left out of the model, referred to as the omitted variable problem. This can affect the significance of the gender impact of funding. Some variables are not included in our model because they are either difficult to observe or we do not have sufficient information to include them. These factors could be related to the entrepreneurs themselves, such as their educational level, prior experience, or willingness to take risks. These are the factors that can impact a lender's willingness to invest. Furthermore, the gender of the lender may explain funding differences since the lender may be more likely to lend to their own gender. These issues can result in inaccurate estimations and, as a result, improper interpretation of the results.

Heteroskedasticity may emerge as a result of omitted variables. This is that the residuals do not have a constant variance (Wooldridge, 2020). Using clustered standard errors is a typical method of preventing this concern; hence this has been incorporated for all regressions throughout this thesis.

6.5 Limitations

This thesis has some limitations which can make it difficult to measure the actual effect of gender on external funding. Our thesis uses secondary accounting data retrieved from CCGR, which means that we cannot know for sure what each variable contains. For example, venture capital is commonly used as finance by start-ups; however, we do not have insight into where this specific funding can be

found in the financial statements. Additionally, accounting data may not be the best predictor to see the gender differences in funding as we must draw conclusions based on capital structure. However, it can give us some indications.

Furthermore, accounting data limits our access to other variables that could be important in explaining financing disparities between genders. This relates to our discussion about endogeneity and omitted variables. For example, we do not have access to information about the gender of the investor, which could give a better indication of discriminatory behavior. According to studies, investors are biased toward their own gender, which may explain why males receive the majority of funding, given that investors are often men (Bapna & Ganco, 2021; Ewens & Townsend, 2020; P. Gompers & Wang, 2017; Guzman & Kacperczyk, 2019). As a result, this could be interesting to investigate further, but due to data limitations, we are unable to do so.

Consequently, there are some omitted variables, such as personal characteristics, that we are unable to include in our model. These characteristics, such as education, willingness to take on risk, and experience, may be the true cause of the funding gap. In general, such endogeneity is challenging to manage with our data setup and is therefore a limitation in this thesis.

7.0 Conclusion

With this thesis, we aim to provide new and interesting perspectives to the existing research on gender inequality in external financing. Despite Norway's high ranking in closing the gender gap (World Economic Forum, 2021), statistics show that women continue to face a disadvantage when it comes to obtaining start-up finance (Bavey et al., 2021). Using accounting data, this thesis examines the capital structure of start-ups to determine whether females incur a disadvantage while seeking external finance. By comparing different definitions of external finance, such as total leverage and short-term leverage ratio, we can identify potential differences related to gender. Furthermore, we regress how gender-dominated industries may find contradictory results in light of Hebert's (2020) discovery that discrimination against female-led start-ups appears to reverse in female-dominated industries. This could help us identify if there is a tendency of a funding gap as a result of discrimination or if it can be explained by other causes.

First, we initially proposed that female-led start-ups would have less total leverage in their capital structure compared to men. Contradictive to this

hypothesis, our findings suggest that gender may not be a good predictor of how much leverage is in a firm's capital structure. Gender has low significance in our model and alternates between being positively and negatively related to leverage throughout the sample years. Accordingly, funding differences could be explained by other factors not captured by our model. However, our findings imply that female-led start-ups may have a minor advantage in seeking external funding because their capital structure has 2.4% more leverage. These findings are also better observed when we study subsamples of our data, as we are able to get around some of the problems associated with heterogeneity. When we divide the sample into small and large firms, we discover that women who work in small firms will have the greatest advantage. Contrary to our expectations, this may indicate that females are more risk-seeking than previous research suggested (Borghans et al., 2009; Byrnes et al., 1999; Croson & Gneezy, 2009; Jianakoplos & Bernasek, 1998; von Gaudecker et al., 2011). However, this is consistent with Adams and Funk (2012), who found that having female CEOs does not necessarily raise risk aversion. As a result, there may be a distinction between women as founders and typical female risk aversion. Nevertheless, findings from our regression are considered to be fairly robust because the results do not differ significantly when adjustments to the model are made. In conclusion, there is no evident advantage or disadvantage for female-led firms when issuing leverage; rather, the discrepancies are primarily due to traditional capital structure theory.

Furthermore, we proposed that female-led start-ups will have more short-term leverage in their capital structure compared to males. In our model, we do not find a strong relationship between short-term leverage and gender, and hence our findings do not support this statement. As a result, we cannot conclude that gender discrimination explains disparities in short-term leverage between male and female start-ups. Similar to our findings for total leverage, we do find a slight positive relationship between females and short-term leverage when dividing the sample into small and large firms. As a result, these findings confirm that our sample has a heterogeneity problem, making it challenging to capture the gender effect. The positive relationship between females and short-term leverage when looking at subsamples therefore supports our proposed hypothesis. This may indicate that females are discriminated against in terms of debt maturity, where long-term debt is more favorable in terms of loan agreements. Our data, however, limits our capacity to know this for sure, as we do not know if women prefer this form of

capital structure or if they face discrimination when applying for external finance. Our model finds somewhat similar results when modifying the model, and thus it is considered quite robust. However, the results are somewhat inconclusive when examining the gender effect from the different components of short-term liability. While women may have less trade credit than men, the opposite is true for other short-term liabilities. The former may indicate that females are more risk-averse and thus do not want to have outstanding payments in their financial statements or that the negative relationship may be due to a bad relationship with vendors. For other short-term liability, our proposed hypothesis is thus confirmed. However, we do not know precisely what is in this financial account, making it difficult to interpret why this positive relationship exists. Following this, we cannot conclude that females experience short-term leverage discrimination; however, when we explore subsamples and ratio components, we find some evidence for our hypothesis, indicating that females have higher short-term leverage in their capital structure than men.

For our last hypothesis, we predicted that discrimination against female-led start-ups would reverse in female-dominated industries. Overall, our findings fail to capture the gender effect, resulting in inconclusive results. Consequently, gender may not be a strong predictor of leverage disparities. It is also worth mentioning that when dividing our data into specific industries, the sample sizes decrease substantially and may not give reliable results. Contrary to our beliefs, we find that females in the male-dominant sector, building, have 10.4% more leverage in their capital structure. However, our robustness test suggests no robust findings of advantages or disadvantages for any gender in their relevant industry. When changing the definition of gender, the results are significant for human health and social work and professional, scientific and technical activities. In proposing a new definition for leverage, gender is significant for a different industry, retail. The alternative definition for leverage also gives a lower R^2's, indicating that the models might not be a good fit. Hence, there is little robustness to these results, and we cannot find any clear indication of advantages when operating in their own dominated industry.

To summarize our results, we do not find gender to be an important factor in explaining funding differences. Nevertheless, female-led start-ups show indications of a slightly positive advantage in obtaining external finance. However, we cannot make any strong inference about these results, as we do not know if it is

a result of discrimination or a self-made decision. This reverse-causality raises the endogeneity problem in our data. To solve this problem, other sources of data would be required.

Following our findings and the limitations of our study, what would be interesting to further investigate is the effect the investors' gender and preferences would have on funding differences. Furthermore, having insight into who asks for funding and who receives the issued financing would give a better indication of whether there exists gender discrimination. Additionally, having access to external financing information, such as venture capital, crowdfunding, and angel investing, would indicate how investors distribute the funding for start-ups. Another interesting topic to look more into is the founder's preferences and personal characteristics and how this may influence their capital structure choice. These suggested subjects will further give insight into whether the funding gap can be explained by discriminatory behavior or if it is just a consequence of economics and personal choices.

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Appendix

Appendix 1: Variables retrieved from CCGR.

Item number

Item_2: CEO gender
Item_9: Revenue
Item_39: Net income
Item_51: Total fixed assets (tangible)
Item_63: Total fixed assets
Item_69: Total receivables
Item_76: cash and cash equivalents
Item_78: Total current assets
Item_79: par value of subscribed share capital
Item_80: Treasury stock
Item_82: Total paid-in capital
Item_85: Other equity
Item_86: Retained earnings
Item_87: Total equity
Item_91: Total provision
Item_92: Convertible loan
Item_93: Bonds
Item_94: Liability to financial institutions
Item_95: Subordinated loan capital
Item_97: Other long-term liability
Item_98: Total other long-term liability
Item_99: Convertible loans
Item_100: Certificate loan
Item_101: Liability to financial institutions
Item_102: Account payable
Item_108: Other short-term liability
Item_109: Total current liability
Item_11102: Industry codes
Item_13401: Foundation date
Item_13421: Foundation year
Item_202: Number of owners (direct ownership)
Item_203: Number of owners with unspecified type
Item_204: Number of institutional owners
Item_205: Number of personal owners
Item_206: Number of personal male owners
Item_207: Number of personal female owners
Item_208: Number of state owners
Item_209: Number of international owners
Item_210: Number of industrial owners
Item_13601: Share owned by CEO
Item_50100: Name

Appendix 2: Calculations.

Total leverage: (total provisions + total other long-term liability + total current liability) / (total current assets + total fixed assets)

Short-term leverage: (total current liability) / (total current assets + total fixed assets)

Financial institutional leverage: (total long-term liability to financial institutions + short-term liability to financial institutions) / (total current assets + total fixed assets)

Tangibility: total tangible assets / (total current assets + total fixed assets)

Growth opportunity: revenue / (total current assets + total fixed assets)

Profitability: net income / (total current assets + total fixed assets)

Firm size: log(total current assets + total fixed assets)

Appendix 3: Industries by gender.

		Male	Female	Total
Industry 1: Administrative and support activities	N	1432	292	1724
	%	83.06%	16.94%	100%
Industry 2: Agriculture, forsetry and fishing	N	864	80	944
	%	91.53%	8.47%	100%
Industry 3: Arts, entertainment and recreation	N	640	243	883
	%	72.48%	27.52%	100%
Industry 4: Building	N	8229	173	8402
	%	97.94%	2.06%	100%
Industry 5: Communication	N	1993	228	2221
	%	89.73%	10.27%	100%
Industry 6: Education	N	621	360	981
	%	63.30%	36.70%	100%
Industry 7: Electricity and water	N	176	9	185
	%	95.14%	4.86%	100%
Industry 8: Heavy industry	N	852	42	894
	%	95.30%	4.70%	100%
Industry 9: Human healt and social work	N	1437	1220	2657
	%	54.08%	45.92%	100%
Industry 10: Light industry	N	601	225	826
	%	72.76%	27.24%	100%
Industry 11: Mining and quarrying	N	0	122	122
	%	0%	100%	100%
Industry 12: Other service activities	N	337	1094	1431
	%	23.55%	76.45%	100%
Industry 13: Professional, scientific and technical activities	N	5651	1546	7197
	%	78.52%	21.48%	100%
Industry 14: Retail	N	5266	2371	7637
	%	68.95%	31.05%	100%
Industry 15: Tourism	N	1414	766	2180
	%	64.86%	35.14%	100%
Industry 16: Transport	N	1510	67	1577
	%	95.75%	4.25%	100%
Total	N	31145	8716	39861
	%	21.87%	78.13%	100%

Appendix 4: Total leverage regression.

Total leverage	All firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Gender	0.024	-0.008	0.009	-0.032	0.001	0.023	0.033	0.053*	-0.005	0.057*	0.019	0.082***
	(0.016)	(0.025)	(0.023)	(0.041)	(0.045)	(0.026)	(0.039)	(0.032)	(0.0337)	(0.027)	(0.030)	(0.024)
Tangibility	0.394***	0.387***	0.484****	0.363***	0.513***	0.411***	0.315***	0.447***	0.316***	0.376***	0.418***	0.367***
	(0.029)	(0.045)	(0.056)	(0.049)	(0.118)	(0.064)	(0.047)	(0.088)	(0.034)	(0.043)	(0.062)	(0.058)
Growth opportunity	0.088***	0.090***	0.100***	0.095***	0.094***	0.067***	0.087***	0.094***	0.086***	0.080***	0.087***	0.099***
	(0.014)	(0.018)	(0.015)	(0.012)	(0.023)	(0.011)	(0.016)	(0.024)	(0.0.011)	(0.012)	(0.010)	(0.018)
Profitability	-0.652***	-0.676***	-0.512***	-0.626***	-0.592***	-0.647***	-0.497***	-0.588**	-0.725***	-0.639***	-0.719***	-0.679***
	(0.129)	(0.124)	(0.097)	(0.122)	(0.097)	(0.106)	(0.057)	(0.074)	(0.158)	(0.144)	(0.163)	(0.172)
Firm size	-0.116**	-0.093***	-0.129**	-0.117*	0.127*	-0.125*	-0.115*	-0.109	-0.111*	-0.131**	-0.116*	-0.121**
	(0.059)	(0.035)	(0.065)	(0.068)	(0.073)	(0.076)	(0.069)	(0.066)	(0.058)	(0.059)	(0.059)	(0.057)
Industry 1	2.134**	1.793***	2.265**	2.200**	2.221**	2.383**	2.123**	1.976**	2.028**	2.378***	2.104**	2.134***
	(0.839)	(0.484)	(0.981)	(1.008)	(1.034)	(1.083)	(0.961)	(0.903)	(0.816)	(0.843)	(0.854)	(0.816)
Industry 2	2.239**	1.923***	2.406**	2.316**	2.297**	2.311**	2.250**	2.115**	2.200***	2.365***	2.209**	2.352***
	(0.870)	(0.570)	(0.933)	(1.021)	(1.026)	(1.102)	(1.017)	(0.983)	(0.845)	(0.875)	(0.866)	(0.871)
Industry 3	2.108**	1.890***	2.414**	2.296**	2.245**	2.259**	2.196**	2.142**	2.015**	2.176***	2.031**	2.150***
	(0.878)	(0.567)	(1.100)	(0.997)	(1.004)	(1.032)	(1.100)	(0.994)	(0.853)	(0.821)	(0.894)	(0.904)
Industry 4	2.145**	1.833***	2.338**	2.184**	2.283**	2.340**	2.174**	1.994**	2.073**	2.368***	2.093**	2.145***
	(0.836)	(0.485)	(0.933)	(0.990)	(1.015)	(1.117)	(1.011)	(0.911)	(0.818)	(0.840)	(0.834)	(0.796)
Industry 5	2.193**	1.848***	2.404**	2.238**	2.313**	2.310**	2.231**	2.070**	2.102**	2.437***	2.184**	2.177***
	(0.864)	(0.549)	(0.954)	(1.013)	(1.047)	(1.067)	(1.037)	(0.955)	(0.854)	(0.829)	(0.829)	(0.817)
Industry 6	2.075**	1.766***	2.296**	2.204**	1.985**	2.349**	2.109**	1.852**	1.982**	2.310***	2.109**	2.066***
	(0.847)	(0.479)	(0.970)	(1.062)	(0.948)	(1.141)	(1.074)	(0.958)	(0.836)	(0.846)	(0.892)	(0.836)
Industry 7	2.339***	2.004***	2.439***	2.464**	2.470**	2.520**	2.650**	2.300**	2.205**	2.503***	2.270**	2.013***
	(0.895)	(0.520)	(0.961)	(1.117)	(1.037)	(1.163)	(1.107)	(0.981)	(0.905)	(0.863)	(0.872)	(0.865)
Industry 8	2.152**	1.761***	2.389**	2.100**	2.248**	2.407**	2.089**	2.122**	2.049**	2.326***	2.186**	2.176***
	(0.856)	(0.486)	(0.962)	(1.013)	(0.999)	(1.194)	(0.949)	(0.969)	(0.806)	(0.828)	(0.948)	(0.792)
Industry 9	2.102**	1.785***	2.310**	2.142**	2.334**	2.331**	2.032**	1.971**	2.013**	2.276***	2.096**	2.107***
	(0.0843)	(0.491)	(0.924)	(0.986)	(1.070)	(1.067)	(1.010)	(0.934)	(0.832)	(0.844)	(0.841)	(0.818)
Industry10	2.263***	1.902***	2.323**	2.216**	2.341**	2.413**	2.240**	2.165**	2.208***	2.472***	2.264***	2.388***
	(0.846)	(0.522)	(0.914)	(0.977)	(1.087)	(1.070)	(1.056)	(0.929)	(0.774)	(0.877)	(0.859)	(0.813)
Industry 11	2.184**	1.875***	2.352**	2.130**	2.324**	2.789***	2.367**	2.012**	2.082**	2.346***	2.040**	2.361***
	(0.852)	(0.597)	(0.930)	(1.016)	(1.063)	(1.050)	(1.032)	(0.920)	(0.835)	(0.829)	(0.851)	(0.803)
Industry 12	2.130***	1.871***	2.288***	2.217**	2.215**	2.279**	2.055**	1.920**	2.136**	2.342***	2.125**	2.098***
	(0.806)	(0.475)	(0.840)	(0.965)	(0.956)	(1.048)	(0.972)	(0.865)	(0.833)	(0.797)	(0.824)	(0.771)
Industry 13	2.123**	1.815***	2.307**	2.151**	2.234**	2.274**	2.025**	2.000**	2.059**	2.313***	2.137**	2.164***
	(0.839)	(0.500)	(0.929)	(0.974)	(1.015)	(1.094)	(0.964)	(0.928)	(0.824)	(0.834)	(0.855)	(0.820)
Industry 14	2.198**	1.819***	2.330**	2.182**	2.331**	2.422**	2.191**	2.057**	2.175**	2.426***	2.170**	2.233***
	(0.854)	(0.473)	(0.916)	(0.998)	(1.040)	(1.110)	(1.009)	(0.921)	(0.873)	(0.854)	(0.866)	(0.828)
Industry 15	2.177**	1.817***	2.359**	2.252**	2.262**	2.353**	2.227**	2.000**	2.065**	2.437***	2.162**	2.212***
	(0.851)	(0.491)	(0.946)	(0.999)	(1.038)	(1.114)	(0.995)	(0.861)	(0.858)	(0.832)	(0.875)	(0.850)
Industry 16	2.124**	1.796***	2.251**	2.207**	2.210**	2.288**	2.102**	1.900**	2.062**	2.362***	2.136***	2.194***
	(0.839)	(0.485)	(0.924)	(1.017)	(0.994)	(1.106)	(0.980)	(0.899)	(0.835)	(0.853)	(0.818)	(0.821)
Adj. R squared	0.7108	0.7512	0.728	0.7286	0.7261	0.721	0.7104	0.7059	7113	0.7032	0.7064	0.6949
N	39801	3394	2977	2728	2477	2131	2338	3158	5569	5218	5168	4643

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*

Appendix 5: Short-term leverage regression.

Short-term leverage	All firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Gender	0.004	-0.005	-0.033	-0.062**	-0.029	-0.003	0.014	0.005	-0.001	0.031*	0.011	0.049**
	(0.012)	(0.018)	(0.022)	(0.030)	(0.038)	(0.026)	(0.027)	(0.027)	(0.032)	(0.015)	(0.020)	(0.023)
Tangibility	-0.140***	-0.160***	-0.119***	-0.228***	-0.691	-0.262***	-0.228***	-0.064	-0.154***	-0.100**	-0.093***	-0.145***
	(0.022)	(0.028)	(0.041)	(0.036)	(0.087)	(0.038)	(0.033)	(0.094)	(0.025)	(0.047)	(0.034)	(0.030)
Growth opportunity	0.094***	0.101***	0.999***	0.101***	0.098***	0.079***	0.097***	0.097***	0.092***	0.087***	0.090***	0.102***
	(0.010)	(0.013)	(0.014)	(0.012)	(0.016)	(0.007)	(0.009)	(0.015)	(0.008)	(0.008)	(0.008)	(0.014)
Profitability	-0.442***	-0.400***	-0.325***	-0.421***	-0.378***	-0.422***	-0.384***	-0.405***	-0.516***	-0.441***	-0.487***	-0.448***
	(0.011)	(0.113)	(0.094)	(0.086)	(0.097)	(0.117)	(0.045)	(0.062)	(0.135)	(0.108)	(0.142)	(0.145)
Firm size	-0.097**	-0.083***	-0.095***	-0.100**	-0.099**	-0.088**	-0.09	-0.092*	-0.096**	-0.113**	-0.097**	-0.096**
	(0.044)	(0.024)	(0.038)	(0.044)	(0.049)	(0.039)	(0.057)	(0.047)	(0.047)	(0.055)	(0.041)	(0.042)
Industry 1	1.779***	1.539***	1.778***	1.825***	1.819***	1.770***	1.692***	1.687***	1.770***	2.023***	1.777***	1.743***
	(0.627)	(0.333)	(0.545)	(0.618)	(0.680)	(0.576)	(0.806)	(0.655)	(0.666)	(0.801)	(0.598)	(0.608)
Industry 2	1.749***	1.639***	1.712***	1.793***	1.702***	1.592***	1.667***	1.661***	1.768***	1.955***	1.747***	1.748***
	(0.653)	(0.384)	(0.557)	(0.663)	(0.680)	(0.581)	(0.851)	(0.686)	(0.698)	(0.802)	(0.612)	(0.664)
Industry 3	1.699***	1.636***	1.624***	1.837***	1.682***	1.682***	1.746***	1.793***	1.687***	1.811***	1.646***	1.673***
	(0.637)	(0.399)	(0.537)	(0.657)	(0.674)	(0.556)	(0.912)	(0.690)	(0.674)	(0.752)	(0.621)	(0.610)
Industry 4	1.785***	1.595***	1.775***	1.849***	1.814***	1.734***	1.738***	1.692***	1.781***	2.018***	1.766***	1.729***
	(0.627)	(0.346)	(0.546)	(0.641)	(0.681)	(0.597)	(0.850)	(0.652)	(0.665)	(0.778)	(0.584)	(0.599)
Industry 5	1.810***	1.608***	1.827***	1.901***	1.790***	1.696***	1.814***	1.763***	1.816***	2.078***	1.795***	1.684***
	(0.646)	(0.376)	(0.562)	(0.633)	(0.682)	(0.569)	(0.884)	(0.687)	(0.686)	(0.793)	(0.611)	(0.613)
Industry 6	1.683***	1.497***	1.757***	1.898***	1.631***	1.779***	1.679***	1.599***	1.617***	1.941***	1.696***	1.566***
	(0.634)	(0.332)	(0.582)	(0.726)	(0.637)	(0.589)	(0.886)	(0.700)	(0.671)	(0.759)	(0.622)	(0.593)
Industry 7	1.775***	1.556***	1.676***	1.866***	1.779***	1.633***	1.799***	1.799***	1.799***	2.168***	1.866***	1.597***
	(0.683)	(0.369)	(0.557)	(0.758)	(0.695)	(0.609)	(0.915)	(0.695)	(0.741)	(0.797)	(0.739)	(0.644)
Industry 8	1.768***	1.540***	1.822***	1.783***	1.749***	1.697***	1.647***	1.686***	1.770***	1.986***	1.803***	1.728***
	(0.685)	(0.339)	(0.566)	(0.651)	(0.679)	(0.560)	(0.796)	(0.702)	(0.654)	(0.782)	(0.654)	(0.598)
Industry 9	1.740***	1.536***	1.742***	1.830***	1.860***	1.711***	1.608***	1.630***	1.712***	1.949***	1.766***	1.687***
	(0.635)	(0.348)	(0.546)	(0.637)	(0.725)	(0.541)	(0.838)	(0.664)	(0.693)	(0.779)	(0.594)	(0.609)
Industry10	1.823***	1.583***	1.761***	1.839***	1.852***	1.767***	1.603***	1.732***	1.868***	2.014***	1.831***	1.894***
	(0.633)	(0.341)	(0.555)	(0.632)	(0.712)	(0.597)	(0.784)	(0.704)	(0.689)	(0.791)	(0.588)	(0.612)
Industry 11	1.751***	1.619***	1.710***	1.744***	1.701***	2.422***	1.691***	1.633***	1.722***	1.914***	1.728***	1.738***
	(0.634)	(0.418)	(0.539)	(0.655)	(0.707)	(0.524)	(0.868)	(0.647)	(0.689)	(0.766)	(0.593)	(0.602)
Industry 12	1.747***	1.558***	1.768***	1.848***	1.756***	1.658***	1.587***	1.581***	1.797***	2.003***	1.759***	1.676***
	(0.599)	(0.346)	(0.516)	(0.619)	(0.641)	(0.574)	(0.789)	(0.676)	(0.677)	(0.744)	(0.572)	(0.555)
Industry 13	1.762***	1.570***	1.757***	1.814***	1.793***	1.655***	1.633***	1.701***	1.771***	1.970***	1.775***	1.737***
	(0.628)	(0.349)	(0.531)	(0.623)	(0.688)	(0.591)	(0.807)	(0.625)	(0.678)	(0.765)	(0.603)	(0.613)
Industry 14	1.752***	1.482***	1.703***	1.803***	1.778***	1.670***	1.673***	1.676***	1.791***	1.996***	1.756***	1.710***
	(0.639)	(0.324)	(0.532)	(0.627)	(0.694)	(0.597)	(0.854)	(0.679)	(0.707)	(0.807)	(0.602)	(0.606)
Industry 15	1.777***	1.540***	1.730***	1.895***	1.808***	1.710***	1.748***	1.671***	1.740***	1.996***	1.793***	1.778***
	(0.634)	(0.335)	(0.535)	(0.651)	(0.700)	(0.587)	(0.865)	(0.614)	(0.690)	(0.794)	(0.605)	(0.614)
Industry 16	1.724***	1.491***	1.645***	1.804***	1.714***	1.699***	1.648***	1.559***	1.765***	1.976***	1.732***	1.710***
	(0.621)	(0.321)	(0.517)	(0.648)	(0.665)	(0.569)	(0.818)	(0.644)	(0.674)	(0.775)	(0.591)	(0.610)
Adj. R squared	0.7061	0.7428	0.7288	0.737	0.7252	0.727	0.7184	0.7011	0.7068	0.6963	0.6986	0.6846
N	39801	3394	2977	2728	2477	2131	2338	3158	5569	5218	5168	4643

*Significance at 10% level, 5% level and 1% level are reported as *, **, ***. Standard errors are clustered and presented in parentheses in the table.*