

Swedish Corporate Ownership and Choice of Debt: The Effect of Dual Class Shares

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Abstract:

Using yearly ownership and capital structure data, we estimate control-ownership divergence, due to dual class shares, in the Swedish stock market 2011-2020. We investigate its effect on the firm's choice of debt and debt-to-equity ratio through multivariate regression analysis. Our results indicate a negative correlation between the firms' control-ownership wedge and the proportion of bank debt. The results support the hypothesis of bank monitoring avoidance for firms with a higher separation of control rights and cash-flow rights for the largest owner. However, our results do not indicate that the firm's debt-to-equity ratio increased with the separation of ownership and control, contrary to our hypothesis. The results in this paper provide insight into the ongoing debate of dual class shares and the potentially hazardous incentives they create for shareholders.

Keywords: Dual class shares; Bank Debt; Public Debt; Excess control rights

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1. Introduction

The choice of debt source is an essential decision for firms and their shareholders as different types of debt, i.e., public and bank debt, have considerable implications on the firm and its capital structure. The question is, why do some firms borrow from arm's-length public bondholders and banks with more effective monitoring and information capacity? Existing theories explain the benefits and costs of arm's-length public bonds compared to debt via banks with more effective monitoring (Fama, 1985; Diamond, 1984; Diamond, 1991). For example, Denis and Mihov (2003) explained that firms with medium credit ratings tend to use bank debt, and firms with high credit ratings tend to use public debt, however less so during times of low future profitability and higher interest rates.

These theories explain how information asymmetries are alleviated with bank debt, which is more monitoring-intensive than directly issuing public debt. Banks have access to private information as insiders, making the monitoring more effective (James, 1987). This would be an appropriate motivation for firms to use bank debt to alleviate information asymmetries and lower the cost of debt. Due to banks' concentrated holdings, credible threats, and access to information, they are much more effective in evaluating firms to understand and investigate potential self-dealing activities of shareholders (Hoshi et al., 1993). In comparison, the diffuse ownership of bondholders in public debt creates free-rider problems. The bondholders would be required to duplicate monitoring efforts, effectively incentivising them to avoid performing costly monitoring (Houston and James, 1996). This would imply that a choice of public debt involves a lower degree of monitoring. It follows that the reasonable choice would be that firms which require less monitoring turn towards public debt funding, and more complex and risky firms which require more intense monitoring to limit the potential downside of the loan would turn to bank debt (Houston and James, 1996; Denis and Mihov, 2003).

The notion that agency conflicts affect a firm's capital structure decisions is widely accepted by existing literature (Yang et al., 2021). However, looking further past the standard agency problem between managers and dispersed shareholders, there are substantial agency problems between minority and majority shareholders (Lefort and Walker, 2007). Observing the role of capital structure, firms whose capital structure involves dual class shares, the largest shareholder with more control than cash-flow rights, may have incentives to engage in self-dealing activities. This is at the expense of the other shareholders with less control but proportionally more cash-flow rights (La Porta et al., 1999; Claessens et al., 2000; Laeven and Levine, 2008). The largest shareholder with more control rights than cash-flow rights is a *controlling minority shareholder* (CMS), as we will refer to in this paper (Cronqvist and Nilsson, 2003). The use of control rights can enable and incentivise the CMS to engage in tunnelling and other hazardous activities for personal benefits. This is explained intuitively as the CMS receives only a fraction of the corporate distribution of dividends, but the full personal benefit of the assets left in the firm (Bebchuk et al., 2000). This controlling position is hypothesised to affect the firm's choice of debt, as the CMS would want to avoid bank monitoring of the firm, which involves scrutiny of the firm and its corporate decisions. This monitoring comes from the debt source and the issuers' surveillance of the firm (Lin et al., 2013).

As supported by previous research by Jensen and Meckling (1976), when firms are in financial distress, moral hazard issues such as asset transfers and movement between companies are a large risk to creditors. According to Campello et al. (2011), this leads to the bank increasing the intensity of their firm monitoring. Simultaneously, the incentives, especially the possibilities

of pursuing personal benefits and tunnelling assets, appear during financial distress (Johnson et al., 2000), (Shleifer and Vishny, 1997). Financial distress increases the effect of CMS turning away from bank debt and monitoring in times of financial distress due to an increased desire not to be monitored and scrutinised for their corporate decisions and incentives.

Earlier research on the effect of control-ownership divergence and the choice of debt such as Lin et al. (2013) and Boubaker and Labégorre (2008), concerns large samples of multinational firms where they assess the interaction between these variables in a larger context. However, these studies disregard the role of institutions and the financial system of a specific country, which are likely to affect how much a company affected by moral hazards can evade monitoring through public debt issuance. The research has thus mainly been silent on the effect of control-ownership divergence and debt choice for specific countries, where legislation and corporate culture may have a sizable effect on the frequency of differences between cash-flow rights and ownership and its meaningfulness.

Previous literature regarding agency problems such as Jensen and Meckling (1976) and debt structure (Rajan, 1992) is limited to research on whether the discrepancy between cash-flow rights and control rights of the ultimate owner in a firm affects the choice of debt. In addition, there is a lack of research assessing the potential implications of the dual class shares and providing possible explanatory value for the debt size and how the debt degree can further be affected by the potential agency problems.

Existing research regarding CMS and the debt-to-equity ratio explains how firms CMS can use debt to facilitate the expropriation of the other shareholders by allowing them to control more resources without diluting their control stake (Faccio et al., 2001). Furthermore, the research discusses how CMS may use higher debt-to-equity ratios to inflate the voting power of their shares and reduce the discipline of the market for corporate control (Harris and Raviv, 1988), (Stulz, 1988). This research is furthermore supported by the more recent study of Du and Dai (2005). However, research and data supporting these theories of CMS incentives to increase leverage are limited, and there is a gap in empirical evidence of these theories.

This paper investigates control-ownership divergence and the choice of debt to determine if the CMS drives firms away from bank debt as they want to avoid the banks' effective monitoring and scrutiny of the firm. Furthermore, this paper aims to investigate if the CMS affects the firm's balance sheet by increasing the debt-to-equity ratio.

Based on what is said above, this paper aims to answer the following questions:

Do firms where the CMS has a control-ownership wedge avoid bank debt due to its monitoring and scrutiny?

Do firms where the CMS has a control-ownership wedge have a larger debt-to-equity ratio?

This paper's extension on the subject is thus threefold. Primarily, we will replicate the study of Lin et al. (2013) and modify it through a novel dataset of 2011-2020 to observe if these firms still have the same bank monitoring avoidance tendencies.

Secondly, we will use a sample of Swedish firms. The Swedish corporate governance landscape is significantly differentiated (Holmén and Knopf, 2004). When La Porta et al. (1999) investigated 27 countries worldwide and their corporate governance measures, Sweden performed poorly. Sweden ranked first in the usage of dual class shares, second after Belgium in the frequency

of pyramid ownership, and finally third after Germany and Belgium in the frequency of cross-shareholdings. We seek to investigate if the weak shareholder minority is still prevalent in Sweden and how it might affect financing and debt structure. This paper will use a panel data sample of Swedish firms to focus on a single economic climate with unique legislation and culture regarding capital structure and pay-out policy (Stenfors, 2014).

Thirdly, in addition to debt source, we will investigate the effect of control-ownership divergence on the debt-to-equity ratio among the firms in the sample to understand the incentives and potential effects of CMS and their effect on the firm's leverage.

Our empirical results indicate a negative and significant correlation between the CMS's control-ownership wedge and bank debt level. The results support existing theories regarding the bank monitoring avoidance hypothesis, where firms with robust CMS avoid monitoring and scrutinising banks issued debt. Hence, we argue that agency problems are shown due to the separation of control and ownership among shareholders. However, the results of our extension do not suggest any significant correlation between CMS and control-ownership wedge and an increased debt-to-equity ratio for the firms under their control.

The remainder of this paper is structured as follows. In the second section, we discuss the theoretical frameworks of corporate governance, debt and moral hazards which are used. Then, we define their limits and origins. Section three describes the methodology of our measurement of control-ownership divergence. In addition, we outline the hypotheses used in this paper. The fourth section describes the dataset, the variables, and their definitions. The results are then presented in section five, and our conclusion is in section six.

2. Theoretical framework

Control-ownership divergence

In a 1932 classic, Adolph Berle and Gardiner explained their research regarding a prevalence of widely held corporations in the U.S., where ownership of capital is dispersed among small shareholders and control is concentrated in the hands of a few managers and shareholders. However, many studies since have questioned the empirical validity of Berle and Gardiner, such as Shleifer and Vishny (1986) and shown that there is a modest concentration of ownership among American firms.

However, as the eyes are drawn towards Europe, several studies showed a significant concentration of ownership in Germany (Edwards and Fischer, 1996; Franks and Mayer, 2009) and Italy (Barca, 1995), and several other OECD countries (Becht, 1999).

The control-ownership divergence results from the discrepancy between the cash-flow rights and the control rights of a shareholder. This discrepancy can originate from the classification of A and B shares of a company, where A shares tend to imply more voting strength than B shares. This discrepancy creates what is referred to as the control-ownership wedge and a controlling minority shareholder. The paper of La Porta et al. (1999) is the first article to research the issue of ultimate control, where they trace the chain of ownership to find who has the most control rights. The findings were that ownership and control could be separated to the benefit of the larger shareholder, and further research implied a concentration of ownership over time (Claessens et al., 2000).

Control-ownership divergence is hypothesised to create a distance to the negative financial implications that tunnelling incentives could entail for a firm shareholder, effectively facilitating a situation where the CMS can exert personal benefits (Shleifer and Vishny, 1997; Lin et al., 2013). For example, there are examples of tunnelling where assets are transferred out of a company, profits are moved off to escape creditors, and financially troubled firms are propped up using loan guarantees from other companies with which the CMS was associated (Johnson et al., 2000). Another example of such tunnelling incentives, where personal benefits are the priority, is when deals are made between parent firms and subsidiaries that do not benefit the non-controlling shareholders of that firm but the CMS.

The CMS can recognise that the possible financial impact will be less prominent on their stake than the possible personal benefits which can be exerted (Yang et al., 2021). As laid out by Holmén and Knopf (2004), markets such as Sweden and Belgium have a history of strong shareholders who possess great control over companies, as opposed to, for instance, the U.S., where power often is more fragmented.

Public vs Private debt

The issuing of public debt has long been influenced by research regarding its diffuse ownership and free-rider problems regarding the individual bondholders' incentives to engage in monitoring which cost them time and resources individually (Diamond, 1994; Diamond, 1991). The research argues that even if the bondholders were keen on monitoring the firms, the efforts would be inefficient as it would involve unnecessary duplication of monitoring efforts and resources for all the individual bondholders (Houston and James, 1996). This is mainly unsecured public bonds without valuable and tradable assets as securities.

Theorists have argued that borrowing from a bank reduces the information asymmetry issues and, consequently, allows the firms to issue debt with less financial friction as the bank can more effectively understand the company and determine its credit risk. This decrease in financial friction thus would, according to theory, lead to a lower cost of debt (Stiglitz and Weiss, 1983). Further advantages of relying on bank debt come from having possibilities of renegotiation and re-contracting in case of financial distress, as well as that they possess the ability to price claims in case of a large extent of information asymmetry, given the fact that they have special access to inside information (Ramakrishnan and Thakor, 1984).

Diamond (1984) and Fama (1985) suggested that private debt, i.e., bank debt, in this case, is superior in providing monitoring as opposed to arm's length investors. This will, in turn, entail that firms with high degrees of information asymmetry should exploit the use of bank debt to mitigate the implications to the degree possible. In contrast, the opposite goes for firms with low degrees of information asymmetry. The theory is that with higher information asymmetry, the firm will get more favourable terms of loans from banks, as they are superior in their monitoring and credit risk analysis compared to public issuers. However, as outlined by Diamond (1984) and Rajan (1992), low-quality firms will assess the extent of monitoring provided by banks as a substantial cost and thus issue public debt instead. This monitoring advantage stems partly from having access to private information as insiders (Lin et al., 2013). The advantages give banks greater insight into the borrowing firm's operation. Through the effective use of targeted measures, partly through the threat of liquidation, they can control them superior to the public lenders. (Park 2000) argues that the tools of the private lenders, i.e., in this case, the banks, such as the threat of liquidation and a renegotiation, effectively allow them to exert great power to align incentives with their borrowers. These tools are substantially less applicable for public lenders due to the dispersion of power and influence.

Principal-Agent theory

The theory of the principal-agent problem stems from research conducted by Jensen and Meckling (1976), where the concept is defined as an agency relationship within a firm. The relationship is further defined with a contract where a person (the principal) hires a person (the agent) to perform a service on their behalf. If the respective parties are utility maximising, there is good reason to believe that the agent will not always act in the principal's best interest but pursue its own interests. This is defined as the principal-agent problem or, in this paper, agency problem or agency cost. These costs can, however, be mitigated by aligning incentives with the agent and the principal.

Firm-controlling agents without economic interest in the firm can pursue benefits that are not necessarily value-creating for the firm. Through misaligned incentives, there is a risk that the agent acts differently than the principal would want. This can be through excessive risk-taking, pursuing personal benefits, or hazardous deal activity which favours an external company the agent is afflicted with.

Given the context of this research paper, agency costs become relevant through the control-ownership wedge as incentives could be altered through this discrepancy. Through the control-ownership divergence, there exists a, per definition, agency problem between the firm's shareholders. The more significant the discrepancy, the more distant the CMS comes from the possible negative implications that tunnelling incentives could entail, which could affect the risk aversion of the CMS (Boubaker and Labégorre 2008).

The debt-to-equity ratio in the context of agency problems

According to Kim and Sorensen (1986), it is evident that agency problems and, thus, potential costs seem to arise as the degree of debt claims undertaken by a firm rises. Through issuing debt, the managers, through their controlling shareholders, have incentives to redistribute capital from the bondholders to the equity holders. Studies such as Bertrand et al. (2002) and Johnson et al. (2000) show how the CMS can have incentives to pursue potential personal benefits and tunnelling activities, using the redistributed capital from the bondholders to transfer resources out of the firms, moving off capital to escape creditors, and exploiting corporate opportunities for the firm.

Recent research supports this theory, such as Faccio et al. (2001) explains how debt can facilitate the expropriation of the affiliate by allowing the CMS to control more resources without diluting their control stake. The study further refers to research by Harris and Raviv (1988) and Stulz (1988), who argue that CMS may have incentives to increase leverage to inflate the voting power of their shares and reduce the discipline of the market for corporate control. Finally, this research is consistent with recent studies from Du and Dai (2005), who explain how CMS can increase leverage out of a protective motive to prevent the dilution of their dominant control.

3. Methodology

This chapter aims to provide a foundation for the method used in the processing and the interpretation of our data. First, we examine whether a control-ownership wedge of the CMS affects debt choice. We use Swedish data compiled from Nasdaq Main Market and employ a methodology similar to the one used in the original research paper produced by Lin et al. (2013). The method concerns employing a multivariate regression model from which we conclude the marginal effects and power of the tests. We conduct regressions on different models, effectively facilitating an analysis enhanced by re-framing and viewing the data from different angles.

Hypotheses

The hypotheses this paper aims to investigate are:

Control-ownership divergence in Swedish firms leads the CMS to influence and choose public debt to avoid bank monitoring of their firm and its corporate decisions.

The CMS will influence and choose to increase the debt-to-equity ratio to gain control of the increased amounts of capital while preventing dilution of their dominant control.

Theoretical motivation

The first hypothesis is based on the theories outlined by this paper's benchmark article (Lin et al., 2013) and their bank avoidance hypothesis. We argue that this effect should also be seen in Sweden, driven by Sweden's weak shareholder protection and frequent use of dual class shares. Furthermore, as opposed to Shleifer and Vishny (1997) and Lin et al. (2013), we recognise that national legislation exists within the subject of dual class shares and the expropriation of power within companies. The country-specific effect is significant to the degree that a multinational analysis would become too affected by the differing characteristics of different legislative environments. The second hypothesis follows Bertrand et al. (2002) and Johnson et al. (2000) theories regarding agency problems and leverage, which show incentives of CMS to increase debt, allowing the CMS to control more resources to potentially engage in further hazardous activities with the funds. Furthermore, theories from Faccio et al. (2001) explain how CMS have incentives to increase debt to control more resources without diluting their dominant control. Our hypothesis thus follows these theories in the context of our research in the Swedish corporate governance climate.

Research design

We compile a dataset containing Swedish companies listed on Nasdaq in 2011-2020 to test the above listed hypotheses. As previously mentioned, we employ a methodology like the one used by Lin et al. (2013) and Boubaker and Labégorre (2008) by using the control-ownership wedge as a dependent variable, and thus seek to treat it as a proxy for a possible underlying agency problem. The agency problem is determined to stem from the difference in control rights and cash-flow rights, i.e., ideally, to the extent to which control rights exceed the CMS's cash-flow rights in a firm. We argue that the larger the wedge, the more significant the agency problem could

become, as CMS are increasingly distant from the financial implications of corporate decisions. Furthermore, to extend the reasoning we use public debt to visualise an existing agency problem where we treat it as being evident choice which distinguishes the CMS's misaligned incentives. Thus, the link which we seek to display is how an existing control-ownership wedge could allow the CMS to influence the organisation so that they choose to issue public debt instead of bank debt, implying fewer restrictions on the CMS.

We construct the dependent variable, the debt choice measure, as a fraction of total debt. The variable is constructed so that the inverse relation exists for public debt. For example, suppose a strong positive impact is witnessed using bank debt-to-total debt. In that case, the inverse relation exists for the degree of public debt, i.e., a strong negative relationship exists between the same variable and public debt. As substantiated by the literature review, public debt is regarded as an indication of a potential agency problem. However, we recognise the presence of omitted variables in this case and that other factors influence the choice of debt but choose to remain consistent with previous literature, such as Lin et al. (2013) who comprises a relevant and focused model which is not subject to any evident multivariable bias.

A key aspect of our research is that we employ a single-market analysis, meaning that we are only researching the Swedish market. Swedish publicly listed companies are the scope of our analysis, so the legislation is the same for all firms within the sample, with caution because it concerns a ten-year period. As there have been minor revisions made over the given period which effectively alters the framework in which possible agency conflicts could appear. By directing our research to a single market, we aim to effectively research the concept within a given legal framework that is the same for all firms. By doing this, we seek to observe real effects opposed to mechanical effects which are primarily driven by the differences in different market's legislations. The argument is strengthened by Boubaker and Labégorre (2008), who states that many of the variables used in research that concern the global dataset are likely to become influenced by other country specifications, which damages the original research by omitting correlated factors.

For the study, we chose a more extended period, from 2011-2020 to ensure that the results are robust to evident time-dependent omitted variables affecting our data which could occur if the data only concerns a narrow timeframe. Our sample size per year varied with the total number of companies listed on the main market list but summarised, the sample size was 2183 after the adjustments and exclusions explained above. The total number of different companies in our data amounts to 333.

The data concerns a panel dataset that looks at a broad set of firms over a given period. Our dependent variable is the Bank debt as a fraction of Total debt. We perform Ordinary Least Squared regressions to observe a possible correlation between the variables while accounting for relevant control variables.

To answer the mentioned research questions, we construct a set of different OLS regressions for our two dependent variables: bank debt as a fraction of total debt and debt-to-equity ratio. The empirical method employed in this research paper is a multivariate regression analysis in which we observe the effect of a set of different variables on two dependent variables. Since both dependent variables are fractions, we strengthen our empirical method, as Lin et al. (2013) conducted by estimating Tobit regression, to effectively account for that, making the results more robust. We report the marginal effects of each variable. We report standard errors given the possible implications of a fixed effect. We look at power of the test for each variable and view the model's accuracy in the R-squared.

The effect of control-ownership divergence on the choice of debt is estimated with the following multivariable linear regression model:

$$\text{Debt choice measure} = f(\text{Control - Ownership wedge, control variables, Firm fixed effects})$$

Further, we choose to examine a subset of our data, composed of the most relevant observations, i.e., those firms in which the CMS have a positive control-ownership wedge. Where their control rights exceed their cash-flow rights. In firms with a difference, we theorise that there will be a propensity to entrench themselves and expropriate other shareholders. Thus, it becomes highly relevant in our additional tests to conduct multivariate analysis on the subsample in which a concrete foundation exists for the suggested agency problems. However, we included all wedges in our original sample to avoid attributing biases to our empirical results.

Furthermore, we draw a threshold to the control rights for the CMS at 5%, i.e. exclude all the firms whose CMS have fewer control rights than 5%. This is because we deem, similar to Lin et al. (2013), CMS excess of 5% control rights to have sufficient influence to be eligible to exert their power in their respective firm. All firms with CMS under 5% of control rights are thus excluded using the inverse reasoning. Thus, we aim to remain close to a realistic picture, as well as previous literature, to recognise that a shareholder of below 5% would likely not be able to exert significant influence.

To further improve the explanatory value of our model, we will investigate various empirical challenges that provide causal inference. We include fixed effect estimators, which allows us to get closer to causal claims when commenting on our results. Our fixed effect model includes accounting for firm-specific as opposed to industry-fixed effects. Both tests were originally included due to significant results from conducting the Breusch-Pagan test. However, including both neglects their effects, and thus we only include the firm. We view firm fixed effects as playing a more significant role in the question at hand over industry fixed effects. To avoid an inaccurate interaction between dependent and independent variables, we recognise the existence of groups in our sample and their effect on the result. By accounting for it, we have robust standard errors in our model. In addition, we perform multiple VIF (variance inflation factor) tests throughout the paper on our respective models. The results of these tests are presented in the appendix. Thus, we assess each OLS regression by viewing the variable's VIF results, to deem whether it is feasible to include. By assuring this, we effectively mitigate the degree to which there is a correlation among the predictor variables. To mitigate the issue of correlation amongst predictors, we exclude Z-score from the model in which the debt-to-equity ratio is the dependent variable, as debt is used in the construction of that variable.

The control variables included in the regression are many, which we deem essential, and we stem from previous literature to decide on which to include. In order to mitigate that, we might exclude any important determinants of Y which otherwise could distort the model. Compared to Lin et al. (2013), we exclude certain control variables that he deems relevant. Such variables are propping potential and distance to default. The simple explanation is that we have limited space and focus more thoroughly on other aspects of the research. It is further a matter of unavailable data.

We test for different factors that we hypothesise will affect or even strengthen the monitoring avoidance. We use Z-score as a proxy for financial distress, similar to Lin et al. (2013), to understand if they are significant in our model and perhaps could provide further clarity on the forces of information asymmetry and moral hazards in firms. The variable is included in the

additional tests of Lin et al. (2013) and is deemed relevant and included to control for its presence in explaining why firms avoid bank monitoring.

4. Data Description

In constructing our data set, we collect a sample of all Swedish firms publicly listed on the Nasdaq main market, including small, mid and large cap. We collect data from the S&P Compustat and Holdings database. The ownership data of control rights and cash-flow rights are gathered from the Holdings database, which provides extensive ownership information on all publicly listed firms in Sweden. Modular finance and its service Holdings extract information on ownership structures from Nordics companies, stemming from data from the financial infrastructure company Euroclear. Holdings is used by over 90% of the largest banks and institutions in Sweden and are well-known as a reliable source of ownership data. The capital structure data and all other financial information we use to construct control variables are gathered from S&P Compustat (Capital I.Q.). The Compustat database provides financial data on over 50,000 public and private companies. S&P Compustat collects its information from the company's annual reports.

Sample selection

We collect a comprehensive data set on Swedish publicly listed firms' corporate ownership, control, and debt structures. We obtain detailed information on companies which are or have been listed on Nasdaq's main market within the time frame 2011-2020. We obtain fiscal year-end data from 2011-2020 from the two databases, S&P Compustat for the financials and Holdings for the ownership data. The data contains 2104 firm-year observations across the ten-year time frame. The data concerns an unbalanced panel dataset, within which we have 10-year data on certain companies while other companies only are present during a single year, i.e., unbalanced panel dataset.

We choose the Swedish market specifically as we recognise it is unique by a history of concentrated ownership, with many companies which are run by strong shareholders in Sweden specifically (Claessens et al., 2000). Furthermore, Sweden is a market where control-ownership divergence is significant. It thus becomes increasingly relevant in the lens of potential agency problems arising from this discrepancy between ownership and control (La Porta et al., 1999).

Choosing to look at public firms is a result of ensuring data availability. However, it is mainly public firms that also have public debt as a feasible option as outlined by Houston & James (1996). However, we recognise an increasing degree of factors mitigating potential visible agency problems in public firms due to the high degree of transparency and other factors at play in well-functioning capital markets.

We obtain ownership information of the largest ultimate owner for each company and each year selectively. When collecting the complementary information on financials from S&P's Compustat, we exclude all data points with missing values on any of the primary or control variables used in the regression analysis. We exclude financial institutions from our sample as it will skew our data set since our dependent variable is a debt offered as a product from banks, and their structure is ultimately very different.

To avoid potential survival bias where our data only contain the firms which have "survived" as a firm over the period which we have chosen. Those firms that might have been

delisted or gone bankrupt are also included in the research, effectively mitigating any survival bias. In addition, through hand-collecting old financial as well as ownership information, we include those in our sample as well. The method creates a deviation in the number of companies we have information on for each year, which is why our data set ranges from 270 firms to 333 firms per year.

We limit the data set by excluding all firms where the largest ultimate owner has below 5% of the firm's control rights. The limitation is done to mitigate the extent of firms where the largest ultimate owner does not hold a sufficiently powerful position to exert any significant influence. Lin et al. (2013) defines *fragmented ownership* as when the largest ultimate owner has less than 5% control right, and no significant personal benefits could reasonably be pursued. Furthermore, we effectively exclude all companies with no debt registered in the Compustat database, as those companies will not be able to show their debt choice.

As previously mentioned, we employ a set of thresholds through which we slim down our data to establish its relevance to the model employed in this research paper. However, due to the already slim dataset, we limit the extent of limiting data further. We presume an approach where we perform tests on selected subsamples of our data to complement the tests, we perform on our full dataset instead of entirely excluding a significant fraction of the data directly in the sample selection. The steps in which we delimited our dataset are listed below.

Table 1: Sample size

Cleaning data	<i># excluded datapoints</i>	<i>Total</i>
Swedish Nasdaq main (main, mid and small) list 2011-2020	0	2824
Excluding all <5% voting rights of largest ultimate owner	-144	2680
Excluding all firms without any form of debt, public or bank	-498	2182
Excluding financial institutions, i.e. banks	-178	2104

Data Variables

The control-ownership divergence of the largest ultimate owner

The Modular Finance database allows us to map the complete ownership chain and identify the firm's largest ultimate owner and their control rights and cash-flow rights. Indirect control is also accounted for, which would be control or cash-flow rights through a different entity that the same ultimate owner controls. Finally, direct ownership is directly linked and defined according to existing literature such as Claessens et al. (2000).

The largest ultimate owner is defined as the ultimate owner with the most outstanding cumulative control rights.

To capture the degree of control-ownership divergence in a firm's ownership structure, we define our crucial measure, the control-ownership wedge, as the difference between control rights and the cash-flow rights of the largest ultimate owner of the firm.

Consequently, we theorise on the background of previous literature that the larger the deviation between ownership and control, the greater the incentives of the controlling shareholders to engage in tunnelling and other moral hazard activities (Shleifer and Vishny, 1997), (Johnson et al., 2000).

$$R_{control} - R_{cashflow} = \text{Control-Ownership Wedge}$$

Debt structure

The total debt reported on Compustat is the total of all debts, including term loans, revolving credit, senior bonds and notes, subordinated bonds and notes, commercial paper, capital leases, and other debts.

To study the choice between bank debt and public debt, we use the debt structure information from Compustat to construct two measures: The ratio of bank debt-to-total debt and the ratio of public debt to total debt.

Bank debt is defined as the sum of term loans and revolving credit, and *public debt* is defined as the sum of senior bonds and notes, subordinated bonds and notes, and commercial paper.

According to Lin et al. (2013), excluding capital leases and other debt has proved robust. Moreover, the exclusion is increasingly important due to recent changes within IFRS-16 and the characterisation of long-term lease liabilities as an interest-bearing liability on the balance sheet. However, the article also discussed the potential importance of within-country factors, such as firm ownership structure, in determining debt choice. The importance of country-specific factors argues for our case of focusing on a Swedish data sample.

$$\frac{(\text{term loans} + \text{revolving credit})}{(\text{Public debt} + \text{Bank debt})} = \% \text{ of bank debt}$$

Data variables (with control variables)

In examining the relationship between corporate ownership structure and debt structure, we control for differences in various firm characteristics, including firm size, leverage, profitability, Q, asset tangibility, and default risk.

Table 2: Variable definition

<i>Independent variables</i>	<i>Definition</i>
<i>Debt structure</i>	
<i>Bank debt/Total debt</i>	The ratio of bank debt to total debt. Calculated as the sum of term loans and revolving credit, divided by total debt
<i>Public debt/Total debt</i>	The ratio of public debt to total debt. Calculated as the sum of senior bonds and notes, subordinated bonds and notes, and commercial paper, divided by total debt
<i>Ownership structure</i>	
<i>Control-ownership wedge</i>	The difference between control rights and cash-flow rights of the largest ultimate owner of the firm. The discrepancy stems from the fact that the shareholders may hold different compositions of class A and class B shares where A often will offer significantly larger amounts of voting rights per share owned. There exists regulations stating that firms can have up to 1 to 10 relation between voting and ownership of each share. There is no legislation present that would support A having more voting rights than B shareholders but nevertheless, this is often the case and class A shares are often held by shareholders in management positions.
<i>Cash-flow rights</i>	The cash-flow rights of the largest ultimate owner of the firm is the actual ownership for a chosen shareholder. I.e. capital ownership of the firm.
<i>Firm characteristics</i>	
<i>Debt-to-equity ratio</i>	The sum of long-term debt and debt in current liabilities divided by total Equity.
<i>Tangibility</i>	Net property, plant, and equipment divided by total assets
<i>Profitability</i>	Earnings before interest, taxes, depreciation and amortisation divided by total assets. We recognize that this is not the usual profitability measure, but as Lin et al use it, we seek to use it as well, in order to avoid making the results incomparable.
<i>Q</i>	The sum of market value of equity plus book value of debt divided by total assets, where market value of equity equals price per share times the total number of shares outstanding, and book value of debt equals total assets minus book value of equity
<i>Z-score</i>	Altman's (1968) Z-score, calculated as $(1.2 \times \text{working capital} + 1.4 \times \text{retained earnings} + 3.3 \times \text{earnings before interest and taxes} + 0.999 \times \text{sales}) / \text{total assets} + 0.6 \times (\text{market value of equity} / \text{book value of debt})$
<i>Industry</i>	We examine which industry the company is in as we recognize that there might be differences in respect to what degree of debt a firm takes on as well as there might be industry standards affecting the choice of public or bank debt which is issued.

Sample Distribution

Table 3: Summary statistics

The sample comprises 333 companies

Variables name	Mean	STD	Min	25th perc.	Median	75th perc.	Max	N
<i>Debt structure</i>								
Bank debt/Total debt	0.72	0.37	0.00	0.40	0.99	1.00	1.00	2104
Public debt/Total debt	0.28	0.37	0.00	0.00	0.01	0.60	1.00	2104
<i>Ownership structure</i>								
Control-ownership wedge	0.051	0.11	-0.54	0.00	0.00	0.07	0.50	2104
Cash-flow rights	0.24	0.16	0.05	0.12	0.20	0.30	2.21	2104
Control rights	0.29	0.2	0.05	0.14	0.25	0.39	0.39	2104
<i>Firm characteristics</i>								
Tangibility	0.22	0.28	0.00	0.03	0.10	0.27	1.00	2104
Profitability	0.08	0.13	-2.20	0.05	0.09	0.13	0.70	2104
Q	1.74	1.46	0.20	1.06	1.38	1.91	26.74	2104
Z-Score	2.93	4.11	-24.90	1.35	2.53	3.65	54.29	2104
Debt-to-equity ratio	0.82	4.41	-106.21	0.27	0.57	1.00	1.00	2104

As shown by table 3 presented above, we have compiled a collection of key statistics for each variable employed in the model. The median of the control-ownership wedge is 0.00, and the mean is 0.051, meaning that only a fraction of the observations in the sample constitutes firms whose owners' control rights exceed their cash-flow rights. However, the mean of approximately 5% implies there still exists a large degree of firms in our sample with a substantial control-ownership wedge.

Public debt is not common within the sample, as observed by a 0.01 median of public debt to total debt. Important to note, however, is that public debt is not a viable tool for many corporations to choose and thus has evident implications on the sample median.

In addition, Z-score has a median of 2.53, and given that Z-score below two is regarded as financially distressed firms, most of our sample firms do not generally consist of firms with poor financial health.

Our second dependent variable, the subject of our extension, the debt-to-equity ratio, provides a median of 0.57, effectively visualising the prevalence of debt as a source of finance in this context. Again, we witness quite large variations, as with the Z-score, that the variable has a significant standard deviation.

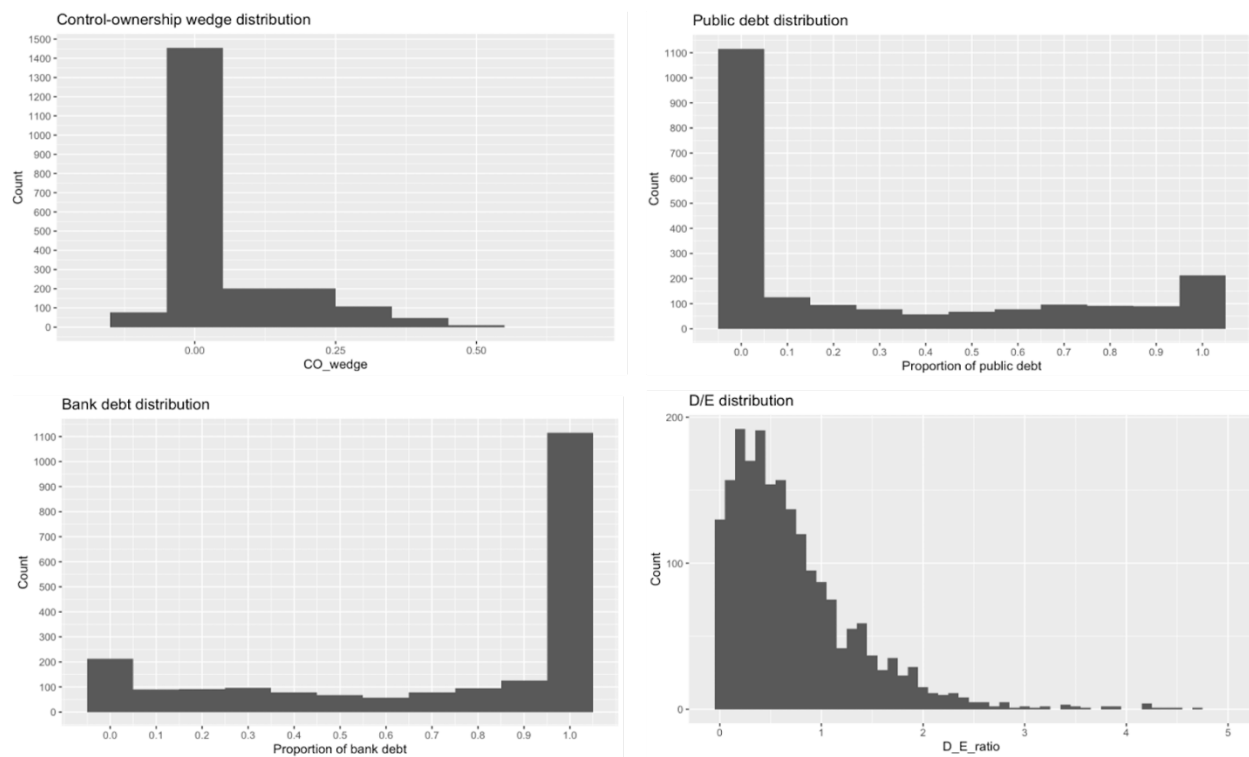
Compared to what Lin et al. (2013) presents, our data show many similarities when examining the various variables' summary statistics. As we apply the research on a single geographical market, explanations to various deviations in some variables could have multiple explanations. Our sample differs significantly from that of Lin et al. (2013). However, it is a reassurance that there are still evident similarities concerning the average and standard deviation of all vital explanatory variables. The mean and the standard deviation of the control-ownership wedge variable are 0.05 higher, and the standard deviation is only 0.03 higher than Lin et al. (2013). Bank and public debt show similar results as a fraction of total debt. The share of bank debt is substantially higher than the share of the public, both in our case and in the case of Lin et al. (2013). This works as a feasible reassurance that the Swedish market provides similar implications for the critical variable as their multinational sample of over 8000 firms.

We display the statistics of our key variables in the graphs below. The control-ownership wedge, bank debt as a fraction of total debt, public debt as a fraction of total debt and ultimately, the spread of debt-to-equity ratio among the firms.

The two graphs concerning the share of public contra bank debt present us with somewhat expected visuals where bank debt is the prevailing debt choice amongst Swedish firms. However, some of the Swedish market's unique characteristics are that banks hold a high status. Thus, an underlying cultural factor provides an understanding of the seemingly large gap.

The graph displaying the distribution of the control-ownership wedge across our sample provides an understanding of the extent of CMS within Swedish publicly listed firms. As expected, many data points are around 0, i.e., there is no separation between ownership and control in many of the firms in our dataset. The bar representing values of zero wedge also represents the very few occasions where firms have a negative wedge.

Graph 1: Distribution of key variables



Data limitation

The Compustat database by S&P is a sizable global database subject to legislation and is operated by one of the largest credit rating companies in the world. Therefore, this is one of the most trusted sources of financial and company-specific information. However, their coverage is gathered on the "scrapping" of quarterly and annual reports and other company announcements. The data-gathering method of Compustat opens for lack of information, especially amongst

smaller firms which may communicate this information more ambiguously. The reason we analyse publicly listed firms is evident; there is extensive information because publicly listed firms have regulatory requirements for reporting their financials. The companies are also more heavily monitored and sometimes covered by research analysts from different financial and broker firms. However, we recognise the limitations of this choice as this alters this proposed effect given that there are elements of supervision from the public equity holders to another extent than privately held firms. Privately held firms could arguably have more extensive issues of agency costs, whereas public firms are monitored in the public eye and by potential banks.

In addition, Compustat provides us with the primary industry classification for each of the firms in the sample. Therefore, the industry could be relevant as one could recognise that industry characteristics could affect the degree to which firms use debt as a source of financing. Furthermore, there are possibly extensive regulatory factors affecting the feasibility of issuing public debt which varies amongst different industries, which further could argue for the inclusion of industry as an independent variable. However, as the industry classifications are deemed to be defined too narrowly and followingly, the total number of different industries within our sample would be too extensive to be of empirical relevance, we choose to exclude it as an independent variable in our sample. Further, as a substantial part of our sample are companies which are related to various conglomerates and subsidiaries, this contributes to the issues of including industry specifications and thus accounting for industry effects.

5. Empirical results

We conduct a series of tests, where the results are reported in different tables. Table 4 displays the results from our primary empirical model, the effect of the control-ownership wedge on the choice of debt, bank debt as a fraction of total debt being our dependent variable. We display three different regressions. The table includes two OLS regressions where the second opposed to the first one includes the relevant control variables. In addition, we account for the possible implications of our dependent variable being a fraction by adding the results of a Tobit regression, making our results more robust.

The findings of our main empirical results gathered from our dataset and regression are reported in table 4. The variables are to the left, and their values of correlation and significance are to the right. The table includes an OLS regression using only the control-ownership wedge and cash-flow rights variables without any firm fixed effect. Furthermore, we present the regression with all control variables, such as tangibility, profitability, Tobin's Q and Z-score. Displayed in the tables are the correlation and its significance on the dependent variable, which is bank debt-to-total debt. The significance is displayed with three levels of statistical significance, with its levels explained at the bottom of the table.

Furthermore, we provide statistical results for a subset of our data, investigating the effect of control-ownership divergence on firms solely with a wedge over zero. Having a positive wedge is what we theorise can create the agency problem, effectively supporting us in constructing this subsample.

In addition, we perform robustness tests where firm fixed effects are analysed because of the highly significant Breusch-Pagan test. Finally, we control for firm fixed effect in table 6, where our results are of slightly less significance and strength.

To make the results more robust, we can conclude that the inverse relationship exists for public debt/total debt and control-ownership wedge. This is done by setting the public debt-to-total debt as the dependent variable.

The multivariate analysis is employed using the following model:

$$\text{debt choice} = f(\text{control - ownership wedge, firm controls, year, firm effects})$$

Table 5 presents the results of the first regressions. We estimate OLS regressions in columns 1 and 2 and Tobit regression in column 3. Significance with a p-value at less than 10%, 5% and 1% level is reported through *, ** and *** respectively.

Ultimately, we provide material for our second hypothesis in table 7, where the debt-to-equity ratio is the dependent variable, and the degree of debt is investigated.

Results

The effect of corporate ownership divergence on the choice of debt

Table 4 displays the results of regressions which are conducted using our main empirical model, in which all firms of our sample are included, and bank debt as a fraction of total debt is the dependent variable. When performing the initial test, we exclude firm-fixed effects. However, we do account for firm fixed effects later in the section concerning robustness testing.

Firstly, by observing the central independent variable, the control-ownership wedge, we witness a significant negative correlation between the two variables. The significance is at the 1% level. The result implies that the degree of bank debt of the firm's total debt decreases when the wedge increases. Furthermore, the correlation remains negative and significant when including all relevant firm control variables and when conducting the Tobit regression, which effectively accounts for the fact that the dependent variable is a fraction. Based on the estimates from column 2, a one-standard-deviation increase in the control-ownership wedge reduces the ratio of bank debt-to-total debt by 6 percentage points. The effect is also economically significant given the sample average bank debt-to-total debt ratio of 72%.

Focusing on the various control variables highlights strong significance levels for multiple of them. Primarily we witness significance at the 1% level across the variables concerning financial distress, effectively serving as an implication that, since the inverse relation exists for public debt/total debt, that firm's Z-score and Tobin's Q decreases with larger fractions of public debt. In addition, cash-flow rights show strong significance at a less than 1% level with bank debt-to-total debt, implying that firms where the CMS degree of cash-flow rights is larger, tend to have more immense proportions of bank debt. Regarding the other control variables, we do not find significance for either profitability or tangibility.

The aforementioned negative relationship of the control-ownership wedge and the proportion of bank debt effectively supports our hypothesis of bank monitoring avoidance among firms where the largest shareholder has a large divergence between its' cash-flow rights and control rights. As the divergence increases, firms rely more on public debt and have decreasing bank debt levels. The results are consistent with the hypothesis that the largest shareholders are using their voting strength to steer the firm towards public debt rather than bank debt to avoid the more effective bank monitoring, as per Lin et al. (2013).

Table 4: Control-ownership wedge on bank debt

The table presents three separate regressions. The first is an OLS regression containing only two independent variables in the control-ownership wedge and cash-flow rights. The second also concerns an OLS regression but includes all relevant control variables as outlined above (marginal effects reported). Finally, the third regression is a Tobit regression to account for the fact that the dependent variable is a fraction and not an absolute value.

	(1) <i>OLS</i>	(2) <i>OLS</i>	(3) <i>Tobit</i>
<i>Independent variables</i>			
1. Control-ownership wedge	-0.522 0.073 0.001 ^(***)	-0.514 0.096 0.001 ^(***)	-0.542 0.077 0.001 ^(***)
2. Cash flow rights	0.257 0.049 0.001 ^(***)	0.253 0.049 0.001 ^(***)	0.260 0.052 0.001 ^(***)
4. Tangibility		0.012 0.030 0.679	0.013 0.031 0.680
5. Profitability		0.060 0.064 0.342	0.098 0.068 0.152
6. <i>Q</i>		-0.017 0.006 0.004 ^(***)	-0.020 0.006 0.002 ^(***)
7. Z-score		0.011 0.002 0.001 ^(***)	0.011 0.002 0.001 ^(***)
Firm effects	No	No	No
Number of observations	2104	2104	2104
Number of firms	333	333	333
Adjusted R	0.034	0.050	-

* Statistically significant at 5-10% level

** Statistically significant at 1-5% level

*** Statistically significant at >1% level

Further observing the values of the original model, including the control variables, there are findings which go against the surrounding literature theories regarding the effect of firms with higher asset tangibility and firms which are more profitable. Inconsistent with Lin et al. (2013) and Houston and James (1996), many of these variables are positively correlated, although with low significance. The positive correlation between asset tangibility and bank debt has multiple potential explanations, such as better terms due to increased collateral which the bank can monitor effectively. The negative correlation between Tobin's Q and bank debt has high significance levels, indicating that bank debt tends to decrease along with the firm value. The correlation is not surprising as public debt tends to be easier for larger firms to issue. Finally, the positive and significant correlation between profitability and bank has explanations such as a lower credit risk for the bank due to a lower risk of default.

The model's explanatory value is relatively low as displayed by the R-Squared value. The R-squared reflects that debt choice is a complicated question with multiple potentially omitted variables affecting the firms. We are thus careful to analyse the model's results with too much confidence. However, the significant negative correlation still supports our hypothesis of bank monitoring avoidance of CMS in the Swedish market.

Furthermore, as previously touched upon and as outlined by Lin et al. (2013), the effect of control-ownership divergence is stated to increase amongst firms with poor financial health. Following the methodology of Lin et al. (2013), this research paper uses Z-score as a proxy for the financial health of a firm. i.e., firms below the most commonly used threshold of 2.0 are deemed financially distressed. We include this in our main model as a control variable to recognise the implications of financially distressed firms. However, we choose not to include a whole model in which the interactive effect of the Z-score and the control-ownership wedge is the main subject of interest. Instead, those results are presented in table 10 in the appendix.

Additional tests

As presumed priorly, the higher the excess control, as captured by the control-ownership wedge, the larger the incentives to pursue private benefits for the CMS. Thus, to further investigate the issue, we perform additional tests on a subsample of the data. The primary test is sampling the data into all the firm-year observations with a control-ownership wedge above 0. The limitation is to single out the firms we theorise to have the structures that can imply an agency problem with the CMS's controlling position.

Table 5: Subsample: Control-ownership wedge on bank debt

The table presents four separate regressions. The data concerns a subsample containing the firm-year observations, which present a positive control-ownership wedge. The first is OLS regression containing only two independent variables in the control-ownership wedge and cash-flow rights. The second also concerns an OLS regression but includes all relevant control variables (marginal effects reported). The third includes fixed effects and is an OLS regression with robust standard errors. The fourth is a Tobit regression to account for the dependent variable being a fraction and not an absolute value.

	(1) <i>OLS</i>	(2) <i>OLS</i>	(3) <i>OLS</i>	(4) <i>Tobit</i>
<i>Independent variables</i>				
1. Control-ownership wedge	-0.364 0.111 0.001 ^(***)	-0.406 0.112 0.001 ^(***)	-0.098 0.105 0.349	-0.384 0.117 0.001 ^(***)
2. Cash flow rights	0.364 0.079 0.000 ^(***)	0.372 0.079 0.001 ^(***)	0.134 0.059 0.023 ^(**)	0.378 0.083 0.001 ^(***)
3. Tangibility		0.084 0.046 0.058 ^(*)	-0.052 0.039 0.180	0.071 0.048 0.139
4. Profitability		0.319 0.156 0.041 ^(**)	0.355 0.110 0.001 ^(***)	0.390 0.165 0.018 ^(**)
5. <i>Q</i>		0.004 0.016 0.990	-0.002 0.001 0.027 ^(**)	0.002 0.017 0.885
6. Z-score		0.009 0.005 0.010 ^(**)	0.002 0.002 0.480	0.008 0.005 0.128
Firm effects	No	No	Yes	No
Number of observations	737	737	737	737
Number of firms	129	129	129	129
Adjusted R	0.049	0.047	-0.173	-0.173

* Statistically significant at 5-10% level

** Statistically significant at 1-5% level

*** Statistically significant at >1% level

When observing the subsample results, an evident difference is the presence of a different R-squared than the one which was original sample. Other than differences in reported marginal effects as well as the level of significance, more importantly, the subsample offers a lower R-squared than the original sample. Indicating that the model has a better empirical fit on the larger dataset, which lowers the practical use of our model in the real world. It implies that when specifying the model for a focused sample, our model does not increase its explanatory value. However, this should be regarded with caution, as possible explanations for this could lie in the size of the subsample, comprising only 129 firms, and that it is not little to provide any sufficient explanatory value regarding the issue at hand.

Table 5 shows a significantly smaller sample size, 737 observations, compared to 2104 in the original dataset. After forming a subsample of all firms with a positive control-ownership wedge, the dataset is slimmed down by approximately 65% to effectively form a sample representing the observations in which we theorise an effect, only including the firms where the supposed prerequisites for an agency problem exist for the CMS.

Looking at our primary independent variable in table 5, the control-ownership wedge presents a negative and significant relation to the proportion of bank debt at the 1% level. However, concerning the original sample, we witness a smaller marginal effect, i.e., a less apparent relation among the variables. Based on the estimates from column 2, a one-standard-deviation increase in the control-ownership wedge reduces the ratio of bank debt-to-total debt by 5 percentage points. The effect is also economically significant given the sample average bank debt-to-total debt ratio of 65%. The effect indicates that our subsample has low explanatory value for the results, as touched upon regarding the difference amongst the R-squared of the two models, despite it being focused on the sample of firms where we theorise an effect.

In respect to other variables, we find that profitable firms have a tendency to rely on bank debt as displayed by a positive and significant relationship amongst the two variables. With a 0.24 higher marginal effect as well as significance at the 5% level, it implies that the relation among profitability and bank debt exists exclusively within our focused sample.

We witness a significant difference when controlling for firm fixed effects in column 3 as opposed to columns 1 and 3. This is because of the small sample, where it only represents observations from 129 firms. With a smaller number of firms, there is a higher likelihood of the effect stemming from each firm. Thus, much of the variation in this model stems from the fact that it is the same small set of firms showing the effect across different years.

Robustness test

With the aim of effectively ensuring robustness of the results in table 4, we include OLS regression which includes fixed effect estimators to avoid there being sole mechanical effects displayed in the initial regressions. More specifically, we want to investigate whether and how the results presented in table 4 are present when accounting for firm-specific differences. A limitation when performing regressions on samples including firm-year observations concerns the internal policies in respect to capital structure. In which, firm's strategic focus largely will influence the degree to which a firm can rely on debt, and further the degree to which they are eligible to choose public debt as a source of financing. We choose to include firm fixed effects, not industry, since it would negatively affect the effect of firm fixed estimators. When weighing the two against each other, we deem firm characteristics more important than industry. However, we recognise that

specific industry standards may affect what degree of public debt is reasonable, for instance. We perform the below outlined robustness test, following the result of the Breusch-Pagan test, which implies that there are fixed effects at play in our model, effectively explaining a large extent of the variation in the model. Below in table 6, we witness the results of our fixed effect model and a significantly lower marginal effect, providing a 0.15 difference for the control-ownership wedge. The model still provides significance and thus explanatory value at the 1% level for the primary independent variable, the control-ownership wedge.

Table 6: Control-Ownership divergence on bank debt including fixed effect estimators

The table presents two separate regressions—the first being OLS regression containing only two independent variables, control-ownership wedge and cash-flow rights. The second also concerns an OLS regression but includes all relevant control variables as outlined above. The regressions presented in the table concern a robustness test to account for possible firm fixed effects.

	(1) <i>OLS</i>	(2) <i>OLS</i>
<i>Independent variables</i>		
1. Control-ownership wedge	-0.208 0.042 0.000 ^(***)	-0.205 0.070 0.003 ^(***)
2. Cash flow rights	0.031 0.034 0.361	0.024 0.021 0.239
3. Tangibility		0.053 0.041 0.193
4. Profitability		0.038 0.041 0.355
5. <i>Q</i>		-0.011 0.005 0.023 ^(**)
6. Z-score		0.001 0.001 0.112
<i>Firm effects</i>	Yes	Yes
<i>Number of observations</i>	2104	2104
<i>Number of firms</i>	333	333
<i>Adjusted R</i>	-0.159	-0.165

* Statistically significant at 5-10% level

** Statistically significant at 1-5% level

*** Statistically significant at >1% level

In accordance with the initial results of the main empirical model, including the fixed effect estimators strengthen the negative and significant relationship between the dependent variable, the proportion of bank debt, and the main independent variable being control-ownership wedge. However, the relationship among the two variables is weaker here, a consequence of an extensive degree of the variation stemming from the fact that firm-year observations do in fact belong to a specific entity. The variation thus largely stems from firm specific characteristics.

However, table 6 showcases a low marginal effect throughout the variables with low significance levels, implying that much of the observed effect in our original model stems from firm identity. Given that table 1 ("Summary statistics") showed that less than half of our original sample had a positive wedge, and further, the fact that firms are likely consistent in their data across the years, it is reasonable to view a large extent of firm fixed effect. The firms where this problem occurs may have a disproportionate effect on the model.

Hypothesis 2

Table 7 concerns the results of the second hypothesis in which we theorise regarding the mentioned control-ownership wedge and its impact on the extent of debt, i.e., that a higher wedge could imply a higher debt-to-equity ratio. As outlined by Kim and Sorensen (1986), it is evident that agency problems and, thus, potential costs seem to arise as the degree of debt claims undertaken by a firm rises. Through issuing debt, the managers, through their controlling shareholders, have incentives to redistribute capital from the bondholders to the equity holders. We employ an OLS regression similar to the one employed in the initial hypothesis. Again, we chose to control for the variables included in our primary hypothesis while also including fixed effect estimators, also this time a result of the Breusch-Pagan test, which identified the presence of heteroskedasticity. Including fixed effect estimators allow us to construct robust standard errors.

Table 7: Control-ownership on debt-to-equity ratio

The table presents three separate regressions, which all concern the control-ownership wedge as the primary independent variable but with the debt-to-equity ratio as the dependent variable. The first is OLS regression containing only two independent variables in the control-ownership wedge and cash-flow rights. The second also concerns an OLS regression but includes all relevant control variables as outlined above (marginal effects reported). Finally, the third regression is a Tobit regression to account for the fact that the dependent variable is a fraction and not an absolute value.

	(1) <i>OLS</i>	(2) <i>OLS</i>	(3) <i>OLS</i>	(4) <i>Tobit</i>
<i>Independent variables</i>				
1. <i>Control-ownership wedge</i>	-1.047 0.882 0.235	-1.328 0.888 0.134	-2.766 1.413 0.052 ^(*)	-1.520 0.791 0.052 ^(*)
2. <i>Cash flow rights</i>	-0.301 0.598 0.614	-0.474 0.600 0.430	-0.188 0.207 0.362	-0.224 0.533 0.674
3. <i>Tangibility</i>		0.714 0.346 0.040 ^(**)	-0.065 0.434 0.880	0.574 0.310 0.060 ^(*)
4. <i>Profitability</i>		-0.247 0.747 0.741	-0.005 0.792 0.995	-0.654 0.664 0.325
5. <i>Q</i>		-0.149 0.067 0.029 ^(**)	-0.008 0.028 0.769	-0.147 0.063 0.020 ^(*)
<i>Firm effects</i>	No	No	Yes	No
<i>Number of observations</i>	2104	2104	2104	2104
<i>Number of firms</i>	333	333	333	333
<i>Adjusted R</i>	-0.001	0.006	-0.187	-

* Statistically significant at 5-10% level

** Statistically significant at 1-5% level

*** Statistically significant at >1% level

In addition to previous research, we theorised that the debt-to-equity ratio would increase along with the control-ownership wedge. We expected leverage to increase with the incentives explained by Kim and Sorensen (1986), Bertrand et al. (2002) and Johnson et al. (2000). The papers suggest an effect where CMS increase leverage to increase the free cash flow in their control, to further pursue potential private benefits and tunnelling activities using the bondholder's capital. Our paper's hypothesis was further supported by the study by Du and Dai (2005), which suggested that CMS increases leverage in their firm to prevent the dilution of their dominant control.

Our results do not support our hypothesis, as the effect of the control-ownership wedge has little significance and, nevertheless, has a negative correlation with the firm's debt-to-equity ratio. Based on the estimates from column 2, a one-standard-deviation increase in the control-ownership wedge reduces the debt-to-equity ratio by 15 percentage points. The effect is also economically significant given the sample average debt-to-equity ratio of 82%. There are several explanations for the negative correlation. One could be the effect of the CMS lowering leverage to minimise the risk of bankruptcy, similar to Fama's (1980) theory of management protecting themselves with lower debt rates in firms with misaligned incentives, which similarly could be applied to CMS. The results could also be explained by the fact that many CMS are family shareholders who avoid risk for their company. Theories such as González et al. (2013) suggest that family ownership on the boards lowers the firm's debt levels.

Further observing the model, there is little significance and explanatory power to the rest of the variables. The Z-score variable is highly significant. However, this is hardly surprising given that the Z-score formula is partly based on the firm's equity market value divided by total liabilities. Its negative correlation and significance are thus not surprising, as if the firm's debt-to-equity ratio increases, its Z-score decreases. It is unsurprising as the purpose of the formula is to show increased leverage and financial distress in firms.

Furthermore, as observed, we perform robustness tests in terms of fixed effect estimators on the debt-to-equity regression, as done with the primary hypothesis. These results imply a significant difference.

Summary of results

In general, our results imply a significant negative correlation between control-ownership divergence and bank debt, effectively supporting our primary hypothesis of CMS relying more on public debt to avoid the monitoring and scrutiny of bank debt monitoring. As a firm's control-ownership wedge increases, the proportion of bank debt-to-total debt lowers significantly, whereas the firm's reliance on public debt increases.

The other results determine a significant correlation between the firm's Q-score and Z-score and the control-ownership wedge. The correlation is in line with previous literature, where the Z-score increases with the wedge, meaning that firms with a higher risk of financial distress tend to rely more on bank debt since there are possibilities of refinancing and better terms if the debt is risking default.

However, our second hypothesis is not supported by our data, with little evidence that there exists a relation between the wedge and a firm's degree of debt financing. There are several explanations for this, e.g., risk avoidance from management and CMS, which could decrease leverage for the firms.

Furthermore, we recognise what the low level of R-squared implies for our empirical model. The R-squared shows a low explanatory value for the variance of our model and its usage

as empirical evidence for the bank avoidance hypothesis. However, these results are expected when it concerns a niche research segment. Adding multiple variables would mitigate the omitted variable bias but form a multivariable bias. The seemingly low R-squared could thus be regarded as evidence of limited explanatory value.

Table 8: The results' implication for hypotheses

Hypothesis 1	<i>Control-ownership divergence in Swedish firms leads the CMS to influence and choose public debt to avoid bank monitoring of their firm and its corporate decisions.</i>	Supported
Hypothesis 2	<i>The CMS will influence and choose to increase the debt-to-equity ratio to gain control of the increased amounts of capital while preventing dilution of their dominant control.</i>	Rejected

6. Conclusion

With the background of our results, we conclude that a significant and negative relationship exists between the control-ownership wedge and bank debt as a fraction of total debt. The relationship suggests that the control-wedge ownership creates incentives for CMS to pursue private benefits, tunnelling and other hazardous actions which disfavour the minority shareholders, as they are avoiding bank debt monitoring. However, there still needs to be more knowledge of whether these incentives are sufficient to argue that the CMS is hazardous to the rest of the shareholders in their companies.

The results of our additional model concerning the debt-to-equity ratio implied that a strong CMS does not necessarily lead to higher leverage and bankruptcy risk. The results are positive because it supports that leverage is not a way that CMS engages in hazardous actions due to its corporate control.

Our research becomes relevant concerning the ongoing debate in Sweden and other countries regarding protecting weaker minority shareholders. The evidence from this paper supports the fact that the use of dual class shares with different voting strengths increases the avoidance of bank monitoring and supports the theory of agency problems arising from a control-ownership divergence. However, we view all our results with caution, given their low R-squared and potential explanatory power.

We recommend that further research focuses on determining and searching for tangible empirical evidence of the agency costs which arise from the use of dual class shares. There is still a research gap regarding where the related agency costs appear in firms. There are also possibilities to extend the research through the subject of debt covenants as they might serve as a solution for the free-rider problem of the public, especially unsecured, debt. According to our analysis, debt covenants could mitigate situations where hazardous incentive problems influence firms which might choose public debt due to the lower monitoring. Different solutions of negative and positive covenants for the public debt issuing could help mitigate the monitoring problem, which serves as a basis for our agency problem in relation to the choice of debt. The firms where the most prominent owner has a significant control-ownership wedge and incentives of pursuing personal benefits would then be unable to profit and avoid monitoring from seeking public financing.

The separation between ownership and control will remain an ongoing debate in the global and Swedish markets. In the debate, it is necessary to remember the importance of protecting weak shareholders, despite the potential advantages of dual class shares, such as their increased liquidity and favourability with foreign investors.

7. Appendix

Tables

*Table 9: VIF-test for the variables of main regressions.
VIF test on the variables included in the respective models*

<i>Independent variables</i>	<i>VIF Original</i>	<i>VIF D/E model</i>	<i>VIF Subset</i>
<i>Wedge</i>	1.02	1.017	1.03
<i>Cash flow rights</i>	1.02	1.01	1.03
<i>Profit</i>	1.12	1.02	1.12
<i>Tangibility</i>	1.10	1.05	1.23
<i>Z-score</i>	1.31	-	1.51
<i>Tobin's Q</i>	1.20	1.06	1.27

Table 10: Model with a Z-score interaction term
OLS regression with financial distress

	(1) OLS	(2) OLS
<i>Independent variables</i>		
1. Control-ownership wedge	-0.514 0.096 0.001 ^(***)	-0.205 0.070 0.003 ^(***)
2. Cash flow rights	0.253 0.049 0.001 ^(***)	0.024 0.021 0.239
3. Tangibility	0.012 0.030 0.679	0.053 0.041 0.193
4. Profitability	0.060 0.064 0.342	0.038 0.041 0.355
5. Q	-0.017 0.006 0.004 ^(***)	-0.011 0.005 0.023 ^(**)
6. Z-score	0.011 0.002 0.001 ^(***)	0.001 0.001 0.112
7. Z-score x Wedge	-0.013 0.019 0.508	-0.001 0.011 0.891
<i>Firm effects</i>	No	Yes
<i>Number of observations</i>	2104	2104
<i>Number of firms</i>	333	333
<i>Adjusted R</i>	0.050	-0.165

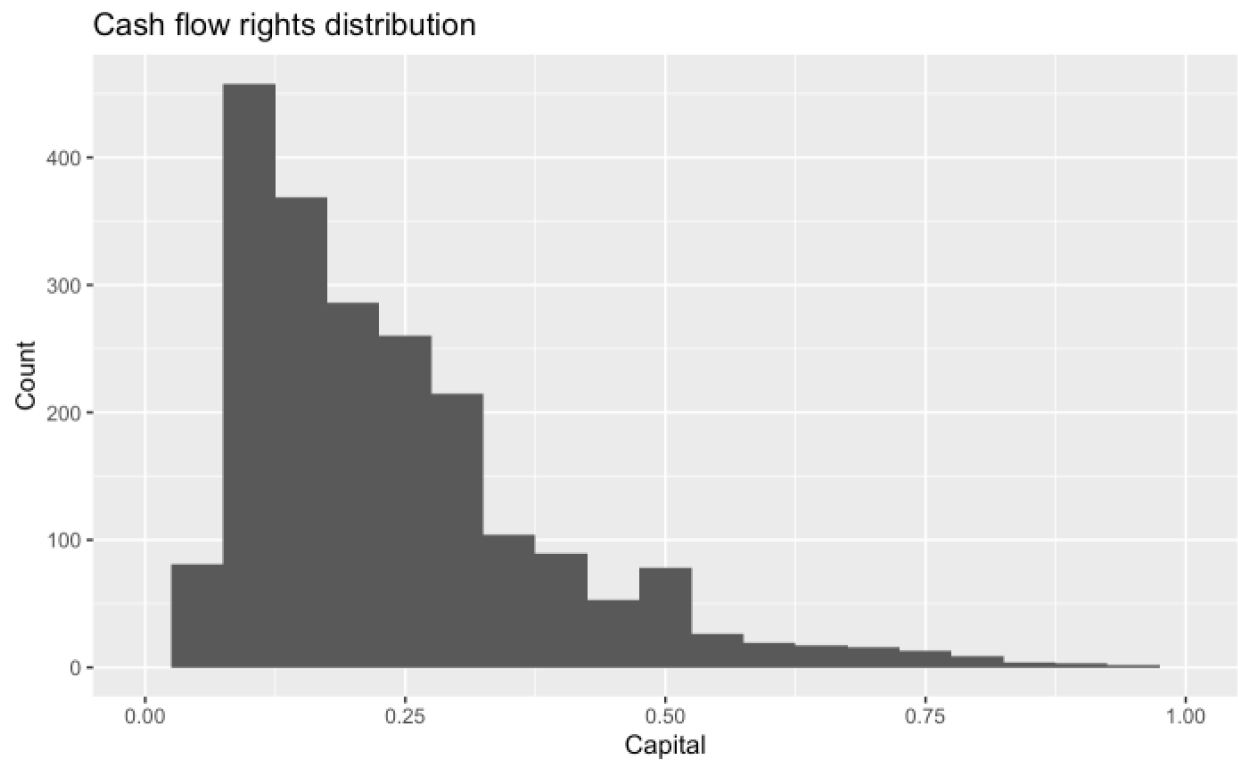
* Statistically significant at 5-10% level

** Statistically significant at 1-5% level

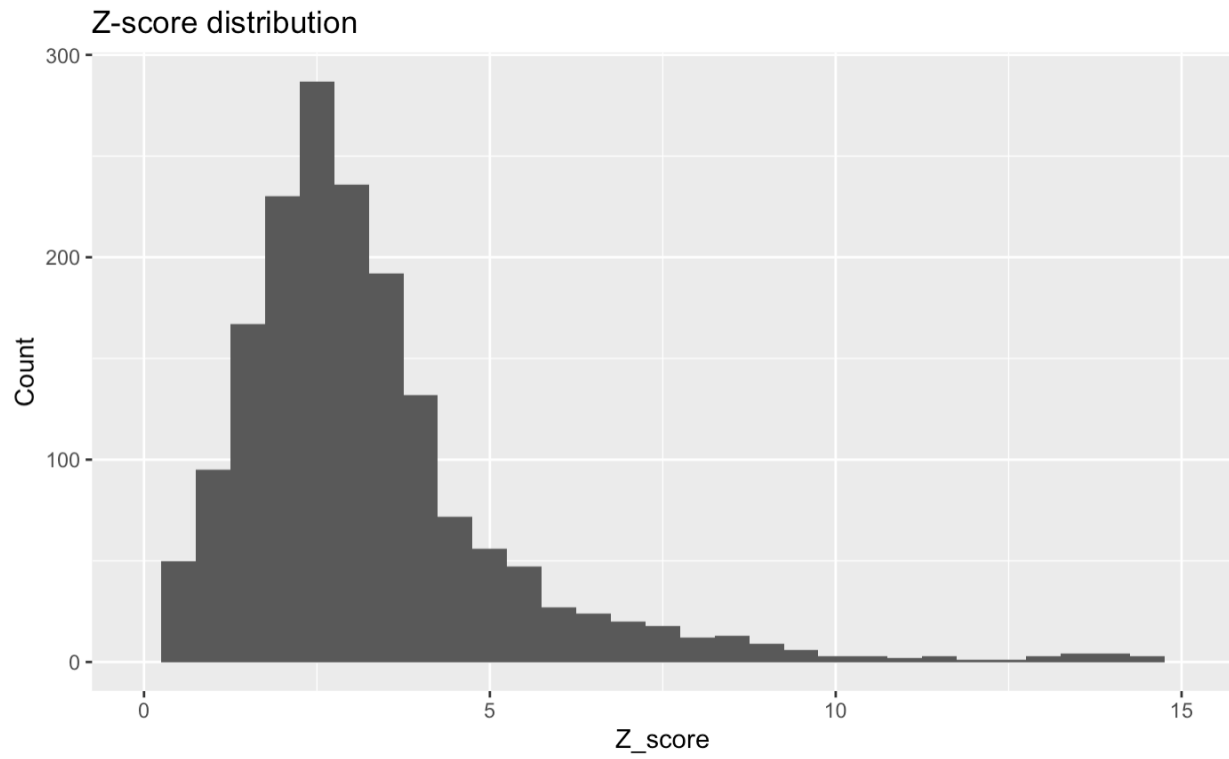
*** Statistically significant at >1% level

Distribution of control variables

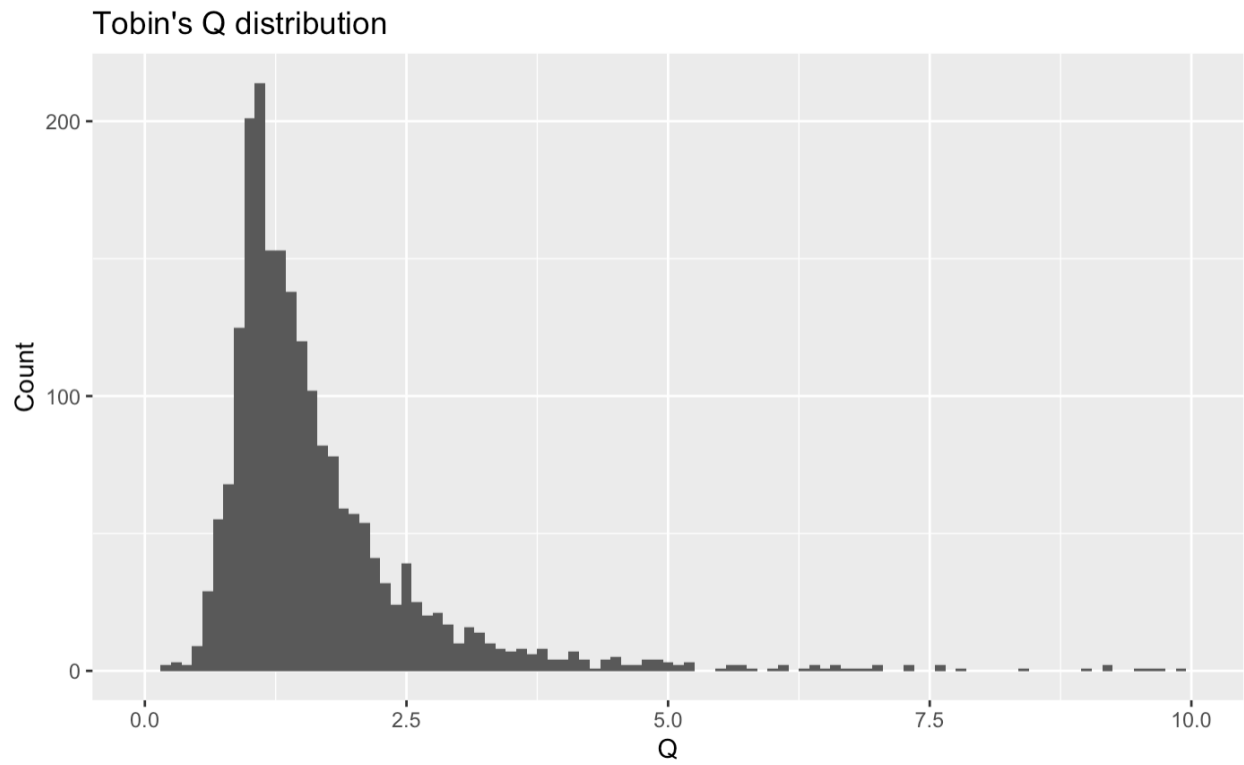
Graph 2: Distribution of the independent variable cash-flow rights.



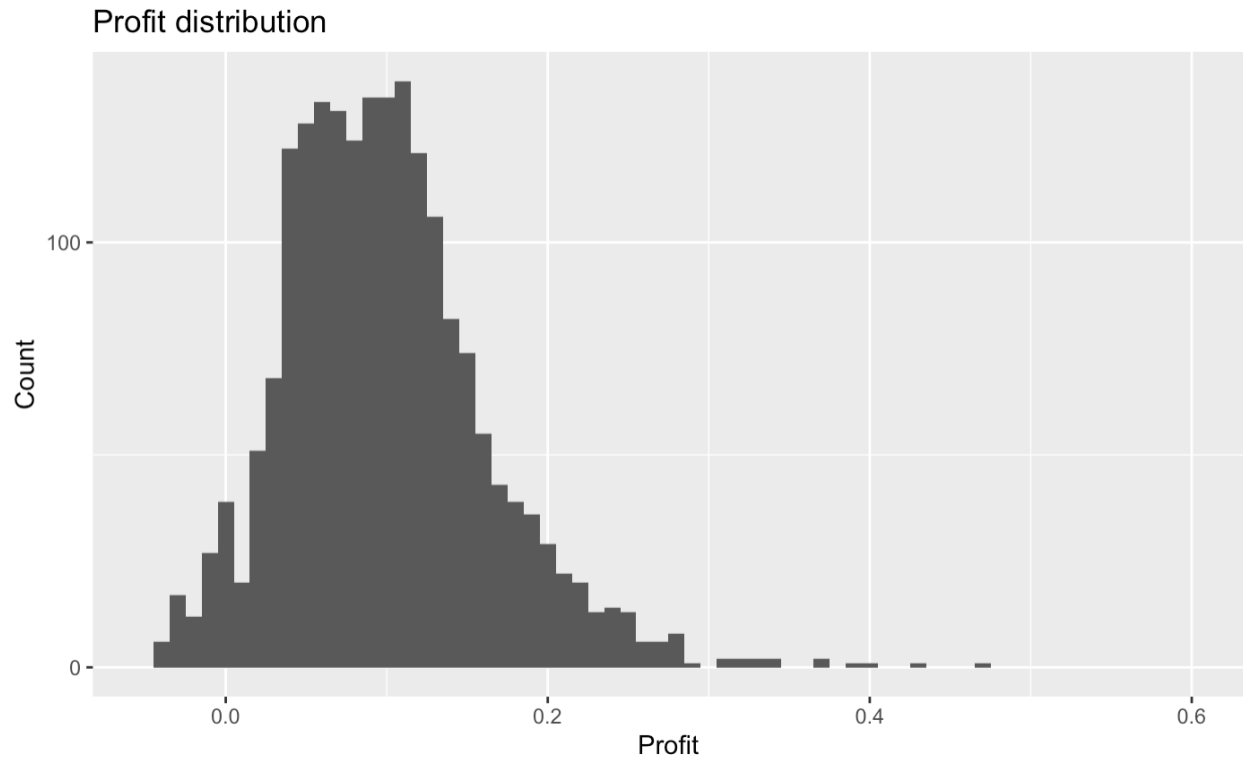
Graph 3: Distribution of the independent variable Z-score.



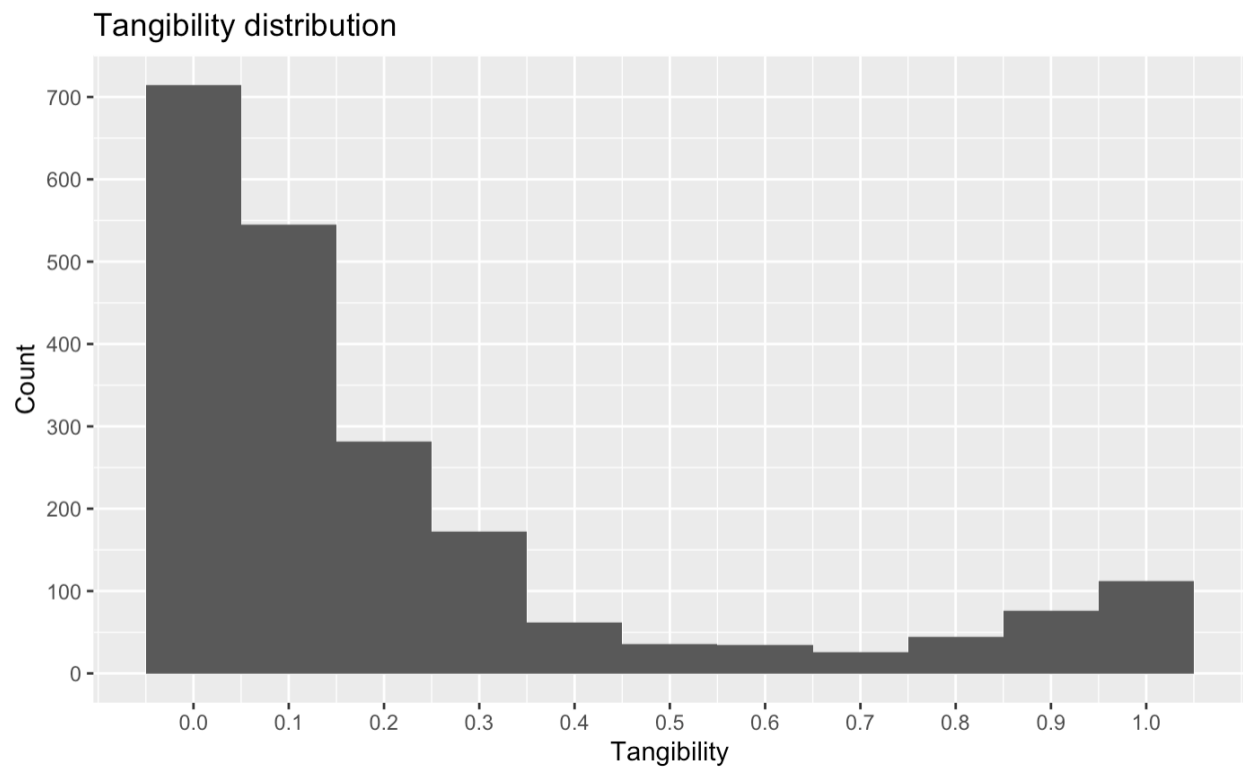
Graph 4: Distribution of the independent variable Tobin's Q .



Graph 5: Distribution of the independent variable Profit.



Graph 6: Distribution of the independent variable Tangibility.



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