SCHOOL OF ECONOMICS AND MANAGEMENT
Lund University

OWNERSHIP STRUCTURE AND THE ZERO-LEVERAGE PUZZLE

AN EMPIRICAL STUDY ON THE SWEDISH MARKET

Author
Hanna Rasmusson

Advisor
Håkan Jankensgård

Lund University School of Economics and Management
Department of Business Administration
Master Thesis in Accounting and Finance
Spring 2019

ABSTRACT

Title: Ownership Structure and the Zero-leverage Puzzle – An empirical study on the Swedish market

Seminar date: 2019-06-03

Course: BUSN79 – Degree Project in Accounting and Finance, 15 ECTS

Author: Hanna Rasmusson

Advisor: Håkan Jankensgård

Keywords: Zero-leverage, ownership concentration, institutional ownership, financial constraint.

Purpose: Investigate whether ownership structure can explain the zero-leverage puzzle.

Methodology: A quantitative approach by conducting logistic regressions is used to investigate the relationship between zero leverage and both ownership concentration and ownership identity.

Theoretical perspectives: Modigliani and Miller proposition, trade-off theory, pecking order theory, zero-leverage hypotheses, agency problems and managerial entrenchment hypothesis, the active monitoring hypothesis, ownership identity.

Empirical foundation: Swedish public firms between 2010 and 2017. Data from Compustat and Holdings, resulting in a final data set of 3 511 observations from 642 companies.

Conclusions: The findings of this paper are threefold. First of all, the zero-leverage puzzle is as present in Sweden as in other parts of the world, and unlevered firms tend to be smaller, hold more cash, have fewer tangible assets and pay higher dividends. Second, there is a relationship between ownership concentration and zero-leverage as firms with more concentrated ownership are less likely to be zero-leveraged. Third, the effect of institutional ownership is not entirely conclusive but there are strong indications that firms with more institutional ownership are less likely to be zero-leveraged.

ACKNOWLEDGEMENTS

I would like to thank my supervisor Håkan Jankengård for his engagement and support. As a single writer it was much needed and appreciated. His experience within the topic of ownership and willingness to share this expertise helped me a lot. I also want to thank Patrik Stenberg at Modular Finance for providing me with data I would not have been able to gather myself. Without his help, this thesis would lack depth and uniqueness.

Hanna Rasmusson

TABLE OF CONTENTS

LIST OF TABLES

1 INTRODUCTION

1.1 BACKGROUND AND PROBLEMATISATION

In 1958, Modigliani and Miller set the foundation to the modern world of corporate finance with their pizza analogy: the capital structure of a firm is like a pizza – it does not matter how many slices you cut it into, the size of the pizza remains the same. That is, a firm's choice of financing, debt versus equity, is a matter of irrelevance – the value of the firm stays the same.

This theorem was however based on the assumption that there exist no market frictions and as researchers later have come up with modified theories about capital structure, it appears that the pizza does not always remain the same size. In fact, adding debt can increase firm value because of the interest tax shield it generates, at least until the point where the risk and costs of a bankruptcy exceed the tax benefits (Kraus & Litzenberger, 1973).

Nonetheless, today a phenomenon called the zero-leverage puzzle is getting increased attention as all around the world (except Japan (Takami, 2016)), the number of firms having a capital structure containing no debt at all is steadily increasing (Bessler et al., 2013). Hence, if connecting this to the pizza analogy, it seems that many firms are satisficing with the current pizza size, not aiming for it to increase. Several attempts to explain this puzzle have been made (Devos et al., 2012; Takami, 2016; Strebulaev & Yang, 2013; Huang, Li & Gao, 2017; El Ghoul et al., 2017; Ghose & Kabra, 2016; Dang, 2013; Bessler et al., 2013; Byoun & Xu, 2013), and while all confirm the hypothesis that some of these firms are finacially constrained and thus unable to access the debt market, there is still a substantial amount of firms that are voluntarily zero-leveraged.

To address this puzzle, Dang (2013) and Ghose and Kabra (2016) look at macroeconomic variables, Devos et al. (2012) investigate the effect of entrenched managers, Takami (2016) focuses on bank relations, Byoun and Xu (2013) on the equity market, and Bessler et al. (2013) on country-specific variables. Strebulaev and Yang (2013), who were the first ones to address the zero-leverage puzzle in their working paper from 2006 (later published in 2013), are the only ones who consider and find significance for that firm ownership influences the zero-leverage decision.

What they find significance for is that CEO and family ownership yields a higher probability of being zero-leveraged (Strebulaev & Yang, 2013). Insiders and families are two interesting groups to study as they might have personal preferences regarding firm operations, albeit there is one more group of investors of interest, a group that want nothing but firm value maximisation: institutional investors (Sun et al., 2016). The number of these institutional owners is also increasing (Agrawal & Nagarajan, 1990) and Agrawal and Mandelker (1990) claim that these have more to gain on monitoring the management. The findings of Strebualev and Yang, together with the, perhaps different, incentives of institutional investors gives rise to an interest of whether the zero-leverage decision is a result of who owns the company.

Chaganti and Damanpour (1991) and Chung and Wang (2014) for example find that firms with more institutional owners have lower debt ratios while Sun et al. (2016) and Margaritis and Psillaki (2010) find the opposite. These inconclusive findings suggests that ownership type is not the only important factor, but also the distribution of ownership, giving one or a few investors much power and incentives. Ownership distribution and ownership identity are two dimensions of a firm's ownership structure. The absence of research about both these dimensions on completely zero-leveraged firms, in addition to the inconclusiveness of the effects of institutional ownership on capital structure justifies this study. Further investigation is needed, not only for firm managers to understand why they are not fully utilising their firms' value, but also for investors to identify firms with possible value-enhancement and for creditors who want to gain more customers.

1.2 RESEARCH QUESTIONS

This paper aims to investigate whether the governance mechanisms provided by the different dimensions of ownership structure can explain the zero-leverage puzzle. This will be done by answering the questions below.

- Can the ownership concentration of a company explain the zero-leverage puzzle?
- Can the owner identities of a company explain the zero-leverage puzzle?

Due to the increased amount of and interest regarding institutional investors, in addition to the absence of previous research about them (in contrast to family and insider ownership), the identity dimension of ownership will be focused on institutional owners.

Further, as the research is conducted on Swedish firms, a baseline question to answer is first of all whether the zero-leverage puzzle is present in Sweden as well, and whether the determinants of the unlevered firms are the same as in previously examined countries.

1.3 PURPOSE AND CONTRIBUTIONS OF STUDY

By investigating the effect of governance and ownership structures in Swedish companies in recent time, this study will contribute to the today limited literature about the zero-leverage puzzle, a growing phenomenon all around the world. The little research that has been done on the zero-leverage puzzle with governance in mind is inconclusive and a need for further studies in that area is needed. A few researchers look at governance (Strebulaev & Yang, 2013; Devos, et al., 2012), but none purely focuses on the different dimensions of ownership structures. These dimensions are, as mentioned, primarily ownership identity and ownership distribution. Strebulaev and Yang (2013) for example look at CEO and family ownership while Devos et al. (2012) focus on board mechanisms and look at blockholding (concentration of ownership). Thanks to Modular Finance's database Holdings, which contain unique information about the ownership and governance of all public companies in Sweden, this paper contributes with in-depth insights about the effect of ownership.

Further, no zero-leverage research has so far been conducted on specific countries in the Northern part of Europe (all one-country research is done on US, China, UK and India) and while international comparisons have been done, for example, Bessler et al. (2013) look at Denmark and Norway but not Sweden. Thus, one contribution of this paper is to investigate whether the zero-leverage puzzle is also present in Sweden, and to what extent. Moreover, this study will include all listed firms in Sweden, not only the ones that are listed on the largest exchanges. This will bring additional insight since companies on different exchanges have quite different ownership structures and capital structures. Smaller exchanges often inhibit smaller firms, and smaller firms are shown to be more probable zero-leverage firms (Strebulaev & Yang, 2013), enlarging the investigated sample.

Sweden is furthermore an interesting country to base research on due to the unique features of the Swedish governance system, with many firms controlled by large families and spheres and the common use of A- and B-shares giving investors different voting rights, while at the same time being influenced by foreign and institutional investors.

Current research about ownership and zero leverage has additionally not been conducted with looking at both companies with purely zero leverage and companies with so-called almost zero-leverage (firms with less than 5 percent debt to assets). Stebulaev and Yang (2013) for example only look at zero-leveraged firms together with almost zero-leveraged firms while Devos et al. (2012) only investigate zero-leveraged firms. Almost zero-leveraged firms are interesting to look at since Strebulaev and Yang (2013) mean that most theories regarding capital structure propose an optimal leverage ratio higher than 5 percent. This study will thus fill this gap by looking at both variables separately, although focus will lie on zero-leveraged firms.

Thus, the aimed contributions of this paper are twofold. First, it hopes to give some practical insights on how firms and investors can optimise their value, and how banks can optimise their offerings. Second, it also hopes to give some theoretical contributions, discovering the flaws of the traditional corporate finance theories while building on to the literature about ownership concentration and identity.

2 THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1 THEORIES ABOUT CAPITAL STRUCTURE

Modigliani and Miller (1958) set the base to most research within corporate finance with their propositions regarding capital structure and firm value. They claim that in an ideal capital market, where there are no market frictions, the value of a firm remains the same regardless of whether it is financed with debt or equity, i.e. it is irrelevant how a firm financed. However, Modigliani and Miller (1963), later relax the assumption of no taxes, and thus the financing decision is no longer a matter or irrelevancy. As the interest expense creates a tax shield, firm value increases with debt financing and the optimal leverage ratio is thus 100 percent debt and no firm should be zero-leveraged.

2.1.1 TRADE-OFF THEORY

Even though financing purely with debt may increase firm value, it also increases the risk of financial distress and bankruptcy, which has resulted in the trade-off theory presented by Kraus and Litzenberger (1973). In this framework, the authors in addition to taxes introduce other violations to the ideal capital markets, such as bankruptcy costs. Since debt increases the risk of bankruptcy, the optimal capital structure of a firm is thus a trade-off of the tax advantages of debt and the costs of financial distress and bankruptcy penalties (Kraus & Litzenberger, 1973). As these are firm-specific, optimal leverage ratio varies for all firms, but in most firms the tax benefits exceed the bankruptcy costs and still, few firms should be zero-leveraged (Korteweg, 2010).

2.1.2 PECKING ORDER THEORY

Another violation of the ideal capital market is that there is information asymmetry between market participants (Myers & Majluf, 1984). Myers and Majluf (1984) assume that the managers of a firm know more about the value of the firm's assets than outsider investors do. Thus, as Akerlof (1970) also means, the investors require a discount as they cannot completely assess the quality of the assets. This discount gives rise to information asymmetry costs which makes it more expensive for the firm to issue external capital. As the information asymmetry, and thus the cost of it, is higher for investors than for creditors, who have better abilities to monitor the firm, it is cheaper for the firm to issue debt than equity. Myers and Majluf (1984) describe this

as the pecking order theory, which consequently means that a firm should finance its investments primarily with internal funds, secondarily by issuing debt, and as a last resort, the firm should issue equity, i.e. preferably with capital with the least amount of information asymmetry. This theory can explain the zero-leveraged firms that use internal funds for investments. However, it cannot explain the zero-leveraged firms that issue equity when in need of financing.

2.1.3 HYPOTHESES REGARDING ZERO LEVERAGE

FINANCIAL CONSTRAINTS HYPOTHESIS

In addition to taxes, costs of financial distress and information asymmetry, there are more market frictions. These can result in that some firms find it difficult to access the debt market (Ghose & Kabra, 2016). For example, Faulkender and Petersen (2006) find that firms with credit ratings have higher leverage than firms without ratings, suggesting that debt is not as accessible for financially constrained firms. Ghose and Kabra (2016) also highlight that firms with high monitoring costs, high-risk projects and severe information asymmetry might suffer from borrowing constraint. Leverage policies are hence not only a voluntary choice, it is also a matter of supply and some firms might consequently be zero-leveraged due to inaccessibility to the credit market.

FINANCIAL FLEXIBILITY AND UNDERINVESTMENT HYPOTHESES

In 1997, Myers highlighted the underinvestment problem. Underinvestment occurs when firms with growth opportunities have incentives not to invest in positive NPV-projects if they also have debt overhang, i.e. more debt than what they can pay back at current prospects. The reason for this underinvestment is that to be able to finance the investment, the firm would have to issue equity while the profit from the investment would be paid back to creditors (Myers, 1997). Thus, a mitigation to this problem could be for firms to foresee growth opportunities and avoid debt overhang by keeping low debt levels (Dang, 2013).

This underinvestment hypothesis is connected to the financial flexibility hypothesis which suggests that high-growth firms will make a strategic choice of keeping low leverage to maintain financial flexibility (DeAngelo & DeAngelo, 2007). Consequently, both the financial flexibility hypothesis and the underinvestment hypothesis might give incentives for firms to keep zero leverage.

MARKET TIMING THEORY

The market timing theory is built on behavioural biases in the market as it claims that when the equity market valuation is high, i.e. when investors irrationally value the firm too high, firms take advantage of the mispricing and issue equity to a greater extent (Baker & Wurgler, 2002). Baker and Wurgler (2002) consequently mean that the capital structure of a firm is the aggregate outcome of all the attempts of timing the equity market. Thus, a high market valuation might have incentivised firms to issue equity rather than debt resulting in zero leverage.

2.2 GOVERNANCE AND OWNERSHIP STRUCTURE

2.2.1 AGENCY PROBLEMS AND MANAGERIAL ENTRENCHMENT

In their paper from 1976, Jensen and Meckling explain agency problems as when the agent does not act in the best interest of the principal. When the principal therefore puts in efforts to monitor the agent, agency costs arise (Jensen & Meckling, 1976). Applied to a corporate finance perspective, shareholders of a firm are assumed to be the principals and the managers of the firm are the agents who are supposed to act in the best interest of the owners. Consequently, the separation between ownership and control generates agency costs when managers take actions in their own best interest instead of the shareholders' (Jensen & Meckling, 1976).

Since debt increases the risk of bankruptcy, and bankruptcy would risk the managers' positions in the firm (loss of income), Jensen and Meckling (1976) mean that this agency problem could cause managers to avoid debt financing. Also, without the monitoring mechanisms of debt (such as interest payments and covenants), managers have better abilities to pursue pet projects and consume perquisities (Jensen & Meckling, 1976). In short, managers' risk aversion and personal preferences could lead to debt ratios lower than optimal. A way to mitigate this is to align the interests of shareholders and managers. If managers themselves own shares in the company, there is potential to reduce agency problems such as pursing non-optimal leverage policies, since such expenses would also reduce their own wealth (Jensen & Meckling, 1976). In turn, this leads to the managerial entrenchment hypothesis since the more shares the managers own, the more control they gain which leads to entrenchment (Farinha, 2003). If managers own a stake large enough, they are secured from getting taken over (Stultz, 1988) and can consume perquisities and perform corporate actions in their own best interest. Besides, when managers own large shares of a company, much of their personal wealth lies therein, and

managers are incentivised to keep low debt levels to minimise the risk of the firm getting in financial distress (Brailsford, Oliver & Pua 2002).

2.2.2 THE ACTIVE MONITORING HYPOTHESIS

For the individual investor, shareholder activism (monitoring the management, hindering them from acting in their own best interest) is costly and time-consuming, and the active investor will be subject to free riders (investors not paying for monitoring but gaining the advantages) which is why these investors often are passive (Shleifer & Vishny, 1986). However, investors who hold significant shares of the stocks of a firm, for example wealthy individuals, families or institutional investors, are more likely to pursue shareholder activism as they also receive a larger benefit of the monitoring (Ogden, Jen, & O'Connor, 2002). Agrawal and Mandelker (1990) refer to this as the active monitoring hypothesis.

Edmans (2014) further explains that there are two ways in which so-called blockholders, i.e. investors with sufficient incentives to monitor management (often defined as owning at least five percent), can exert governance. One is through voice, where they propose suggestions, write to management and vote on proposals (Edmans, 2014). The other one is through exit, in which the blockholders sell their shares and by doing so push down the share price (Edmans, 2014).

2.2.3 OWNERSHIP IDENTITY

Thomsen and Pedersen (2000) find that ownership identity is as important as ownership concentration when studying implications of ownership and governance. They mean that the concentration of ownership measures the shareholders' power to monitor and influence the management, while ownership identity determines the shareholders' objectives, incentives and how they exercise power. Below, the most significant groups of investors are presented.

INSTITUTIONAL INVESTORS

Institutional investors are for example pension funds, hedge funds and insurance companies who, in general, manage someone else's capital (Sun, et al., 2016). Their main purpose is hence to maximise the value of the firms. They often own larger shares in a firm than for example an

individual investor, and thus, according to the active monitoring hypothesis, have more incentives and abilities to effectively monitor the management (Sun, et al., 2016). In addition, institutional investors hold a wide portfolio of different investments, and this diversification makes them less exposed to firm-specific risk (Sun, et al., 2016). Herman (1982) further mean that owners in owner-controlled companies are willing to take higher risks to gain higher returns, in comparison to what managers are willing to in management-controlled companies.

FAMILY FIRMS

Thomsen and Pedersen (2000) conclude that while institutional investors care about value maximisation, family shareholders prioritise control and long-run survival. They are further often not as diversified and thus they are more exposed to firm-specific risk, and even though debt might generate debt tax shield, a bankruptcy would incur a bigger loss. Often, families own large shares in a few companies and thus have the ability to monitor the firm (Anderson & Reeb, 2003).

INSIDERS

In Sweden, an insider is someone who has access to inside information, primarily the CEO or other officers, directors of the board, family members and other relatives (Finansinspektionen, 2018). Their monitoring abilities depend on the size of their holdings and their incentives lie not only within the wealth they have invested but also with the position they have in the firm that can be threatened by either bankruptcy or replacement by unsatisfied shareholders.

2.3 PREVIOUS LITERATURE

2.3.1 LITERATURE ABOUT ZERO-LEVERAGE

The literature about the zero-leverage puzzle is limited and most of it has been done in the last ten to fifteen years. To start with, most researchers have studied the determinants of the unlevered firms (Devos et al., 2012; Takami, 2016; Strebulaev & Yang, 2013; Huang, Li & Gao, 2017; El Ghoul et al., 2017; Ghose & Kabra, 2016; Dang, 2013; Bessler et al., 2013; Byoun & Xu, 2013). Strebulaev and Yang (2013), who are the first to address the puzzle, first of all find that the number of unleverd firms in the US had increased from 4.3 percent in 1979 to 19.5 percent in 2009. They find that, compared to levered firms, the unlevered ones are more profitable, pay higher taxes, have higher cash holdings and issue less equity, as according to

the pecking order theory. Devos et al. (2012) find that in their sample of US firms 1990-2008, the zero-leveraged ones are young, small and more likely to lease their assets. Ghose and Kabra (2016) also find in their study on Indian zero-leveraged firms that they are small and young, but also that they hold more cash and have less tangible assets. These findings concur with the ones of Bessler et al. (2013), Byoun and Xu (2013), Dang (2013), El Ghoul et al. (2017) and Huang, Li and Gao (2017).

Most researchers furthermore find evidence for the financial constraints hypothesis as an explanation for the zero-leverage puzzle. For example Devos et al. (2012), Byoung and Xu (2013) and Ghose and Kabra (2016) all find that some the unlevered firms in their sample are financially constrained and does thus not have availability to debt. There is however also a group of zero-leveraged firms that are non-constrained, and the reason why they have no debt is according to Ghose and Kabra (2016) that they are self-sufficient and thus in no need of external financing, which is consistent with the pecking order theory (Ghose & Kabra, 2016). Huang, Li and Gao (2017) also find evidence for a lacking demand of external financing, like Ghose and Kabra, but also evidence for both the financial constraints and financial flexibility hypotheses in their sample of Chinese firms. Bessler et al. (2013) find evidence for the financial flexibility hypothesis as well. Dang (2013) further divides the zero-leveraged firms in two groups: dividend-payers and non-dividend-payers, where the last group is assumed to be financially constrained and thus have less access to debt financing. The results show that the first group, the dividend-payers, take on no debt because of the underinvestment problem and to keep the financial flexibility while the non-payers take no debt due to constraint (Dang, 2013).

On the contrary to the financial constraint hypothesis, one area that, to the small content it is examined in the shed of zero leverage, is inconsistent in the literature is the one about governance. For example, Strebulaev and Yang (2013) find that if the CEO has large ownership stakes and longer tenure, the firm is more likely to be unlevered. They further find that this is true also for family-owned firms. They explain the reason to be that if CEOs and family members put much of their own wealth in one firm, they have incentives to limit that firm's riskiness, and the more stock they own, the more power they have to do so (Strebulaev & Yang, 2013). Devos et al. (2012) continue on this topic when studying the impact of entrenched managers on zero-leverage firms by controlling for managers' ownership, block ownership and institutional ownership. They do however, compared to Strebulaev and Yang, not find any significant relationship between managerial entrenchment and zero leverage. They conclude

that the unlevered firms are not characterised with weaker governance mechanisms, neither internal nor external. Byoung and Xu (2013) also investigate the governance explanation of the zero-leverage puzzle by looking at, amongst other variables, CEO stock and option ownership as well as CEO tenure. Their findings show, in line with Strebulaev and Yang's, that CEOs and managers have larger ownership stakes in the unlevered firms than in the levered firms.

A few researchers have also done international comparisons to investigate whether some country-specific or macroeconomic variable can explain possible differences between countries (Bessler et al., 2013; El Ghoul et al., 2017). Bessler et al. (2013) find that the highest ratio of zero-leveraged firms is in countries with high creditor protection, common law system and dividend relief tax system. El Ghoul et al. (2017) have another approach to their international comparison as they find that countries which have higher levels of trust and more conservatism inhibit more zero-leveraged firms.

Byoun and Xu (2013) investigate US zero-leveraged firms in the light of the market timing theory and find that favourable market equity valuations contribute to zero leverage. Regarding macroeconomic variables, Dang (2013) find that negative GDP growth impacts the zero-leverage decision for financially constrained firms, but not as much for unconstrained firms, and Ghose and Kabra (2016) find that macroeconomic situations are countercyclical to firms' zero-leverage.

Contrary to the research above, Takami (2016) investigate why Japanese firms are not zero-leveraged. They find that in Japan, no financially constrained firms are unlevered since they are in a larger need of having a good relationship with banks. The few firms that are unlvered are unconstrained and choose to be unlevered of own choice (Takami, 2016).

To summarise the current literature on the topic, researchers are consistent with the determinants of zero-leveraged companies and that there are two groups: constrained, involuntary zero-leveraged, and unconstrained, voluntarily zero-leveraged. A few other areas are investigated, such as macroeconomic conditions, country-specific variables and governance mechanisms. Primarily the last mentioned area is subject to inconsistency and incompleteness, resulting in a need for further investigation.

2.3.2 LITERATURE ABOUT GOVERNANCE AND CAPITAL STRUCTURE

The literature about governance and zero-leverage is as mentioned above limited. However, governance and ownership structure and its impact on capital structure are widely examined. Agrawal and Nagarajan (1990) investigate the impact of agency costs and ownership control on capital structure and find that managers in all-equity firms have larger ownership stakes, and the firms have more family involvement, consistent with what Strebulaev and Yang (2013) find. Ramalho, Rita and da Silva (2018) look at the impact of family ownership on capital structures and find that family firms tend to have more debt than a non-family firm. Many researchers (Brailsford, Oliver & Pua, 2002; Céspedes, González & Molina, 2010; Ruan, Tian & Ma, 2011; Sun, et al., 2016) are furthermore unanimous with the non-linear relationship between managerial ownership and leverage ratio. Results show that on lower levels of managerial ownership, managers' behaviour is affected by governance mechanisms and external investors which results in more monitoring and more debt (Ruan, Tian & Ma, 2011). When managerial ownership is high, however, managers get entrenched and by personal reasons incentivised to keep lower debt levels (Ruan, Tian & Ma, 2011).

Chaganti and Damanpour (1991) are among the first to study the effect of institutional ownership on a firm's capital structure. Their finding is that firms that are heavily (in comparison to lightly) held by institutions have lower leverage ratio (Chaganti & Damanpour, 1991). Chung and Wang (2014) find the same relationship, arguing that the more institutional investors monitoring the firm, the less need for the firm to get the monitoring and disciplining mechanism of debt. Sun et al. (2016), on the other hand, find a positive relationship between institutional ownership and capital structure. This is in line with Bhojraj and Sengupta (2003) who find that having institutional investors, and thus facing stricter monitoring, results in lower yields and higher bond ratings.

Regarding ownership concentration, Le and Tannous (2017) find inconclusive results regarding blockholders in their Vietnamese sample. Brailsford, Oliver and Pua (2002) on the other hand find evidence for the active monitoring hypothesis, as they identify a positive relationship between blockholders and debt ratios on their Australian sample. So do Margaritis and Psillaki (2010) who find that concentrated ownership is positively related to more debt.

Edmans (2014) highlights another aspect regarding blockholders; even though blockholders according to the active monitoring hypothesis are more incentivised to monitor the firm, there is a difference whether the firm has one big blockholder or whether it has multiple smaller blockholders. If there are multiple ones, the free-rider problem emphasised by Shleifer and Vishny (1986) is still present and management is less monitored (Edmans, 2014).

2.4 HYPOTHESES

The active monitoring hypothesis suggests that due to free-riding problems, investors owning small shares of a company find it unbeneficial to monitor the management of a firm. Hence, if the ownership of a firm is dispersed, i.e. there is no single investor with more than 5 percent ownership, the management of the firm face less monitoring. Due to the managers' risk aversion, i.e. the risk of losing their jobs due to a bankruptcy, and their personal preferences, i.e. their willingness to pursue discretionary actions and consume perquisites, which debt disciplines against, managers prefer less debt. Hence, if the management face less monitoring, it will steer the firm towards a zero-leverage policy.
Hypothesis 1a: firms with dispersed ownership are more likely to be zero-leveraged

In opposite of this, it is assumed that if instead the ownership is concentrated, the investors owning a large share gain greater benefits of actively monitoring the firm, since they are less exposed to the free-rider problem and have more wealth tied to the firm. Since debt, according to the trade-off theory, increases firm value thanks to the interest tax shield (at least until a certain level), firms with concentrated ownership supposedly are more leveraged.[1]
Hypothesis 1b: firms with concentrated ownership are less likely to be zero-leveraged

Since the perhaps primary purpose of institutional owners is to maximise firm value (in comparison with family and insider ownership which might focus on survival or personal preferences), they should in accordance with the trade-off theory aim for the optimal leverage-ratio, which due to interest tax shields presumably is not zero. Institutional investors also have greater abilities to monitor management and therefore benefit more from it. They are further prepared

[1] One could also draw the opposite hypothesis based on that active monitoring by blockholders substitute the monitoring effect of debt, and thus firms with concentrated ownership are more likely to be zero-leveraged.

to take on more risk to gain higher returns and in addition, institutional owners also decrease the firm's cost of debt, suggesting that these firms have more debt.[2]

Hypothesis 2: firms with institutional owners are less likely to be zero-leveraged

[2] Having multiple institutional investors in a firm, the free-rider problem resulting in hypothesis 1a might counter-act the willingness of monitoring the firm thoroughly, which despite abovementioned arguments could result in a higher probability of zero leverage.

3 METHODOLOGY

The methodology to test the hypotheses is to perform a quantitative study by gathering data and running regressions to obtain statistical relationships between the examined variables.

3.1 DATA AND SAMPLE

To retrieve the necessary data, the use of two databases is required: one to gather financial data and one to gather ownership data. For the financials, S&P's Compustat is used and for ownership data, Modular Finance's Holdings is used. Holdings is a Swedish database that provides unique information about all the owners that own more than 0.1 percent of a company for all publicly listed companies in Sweden. It shows for example whether ownership is institutional, in spheres or by insiders, and how much ownership the different owners have both in cash flow rights and in voting rights. It also shows historical information in monthly intervals. In those cases where financial data was missing it was manually entered from the companies' annual reports.

All public companies in Sweden are included in the sample. These are listed on four exchanges. Nasdaq Stockholm is the biggest one and is split up in Large cap, Mid cap and Small cap, based on firm size. Also operated by Nasdaq is First North, which has less regulatory requirements, and thus smaller firms are listed there. Spotlight (until recently called Aktietorget) is focusing on growth firms. NGM, Nordic Growth Market, the smallest exchange, is focusing on small and medium-sized firms. The sample thus consists of a wide range of companies, varying in size and age.

The period used, 2010 to 2017, is set after the supply of data. Data from 2018 was excluded as it was deemed unreliable since there were missing data for many companies. Due to inaccessibility of ownership data from the early 2000s and before, both due to many firms not being listed that long and due to Holdings not having data for all lists that long back, ownership data only covers 2010 to 2017. For some more recently listed firms this is shorter however, creating an unbalanced data set. To enable a deeper analysis of the control variables, a larger sample was desired and since ownership data is not needed for that, additional financial data is gathered from year 2000 to 2017.

In accordance with most studies regarding capital structures (for example Devos et al., 2012), financial firms are excluded from the sample due to their atypical capital structure. Also, firms with negative or zero assets and sales are excluded to make sure only active firms are included (as did Devos et al., 2012). To summarise, the final dataset contains 3 511 observations from 642 companies.

3.2 VARIABLE DESCRIPTION

3.2.1 DEPENDENT VARIABLE

The dependent variable of this research is a binary variable, whether the firm has zero leverage or not. Total debt is defined as short-term debt plus long-term debt, like in Strebulaev and Yang (2013).

$$Zero\ Leverage = \frac{Short\ term\ debt + Long\ term\ debt}{Total\ book\ value\ of\ assets} = 0$$

In accordance with Strebulaev and Yang (2013), this study will also look at firms with almost zero debt. Strebulaev and Yang (2013) used a level of debt less than 5 percent of assets, claiming that according to most theories, optimal leverage is considerably higher than this.

$$Almost\ Zero\ Leverage = \frac{Short\ term\ debt + Long\ term\ debt}{Total\ book\ value\ of\ assets} < 5\%$$

To add an extra dimension, this study will also test for what variables causes a change in leverage, both to and from zero leverage. That is, two regressions with binary dependent variables will be run. One where the variable is taking the value 1 if the firm changes from being indebted to being zero-leveraged and 0 if it keeps being levered, and one where the variable is taking the value 1 if it leaves zero debt and 0 if it keeps having zero debt.

3.2.2 INDEPENDENT VARIABLES

To test the hypotheses of this study, multiple independent variables are used. Noteworthy in a research like this is the distinction between ownership of voting rights and of cash flow rights, where for instance families often have so-called A-shares, giving them more voting power relative to their cash flow rights. Thus, cash flow rights are what gives the investor incentives to monitor the firm and voting rights is what gives the power to monitor management. Since the hypotheses in this study are based on both (as one would not monitor unless he/she had incentives to), cash flow rights will be used to start with. Voting rights will also be regressed to see if there is any noteworthy difference.

DISPERSED OWNERSHIP

Dispersed ownership is defined as no owner owning more than 5 percent of a company. It is hence a binary variable, taking the value 1 if the ownership is diffuse and the value 0 if the ownership is not diffuse. The 5-percent threshold is based on Shleifer and Vishny (1986).

CONCENTRATED OWNERSHIP

Concentrated ownership is the reverse of dispersed ownership, i.e. if there are investors owning more than 5 percent each (Edmans, 2014). Since monitoring incentives continuously increase the larger share the investor owns (Edmans, 2014), this variable is, in contrast to the one above, not a dummy but a continuous value. The proxy used for concentrated ownership is thus the sum of all the blockholders' ownership.

INSTITUTIONAL OWNERSHIP

Institutional ownership is proxied in different ways to capture different aspects of it. One is a dummy taking the value 1 if the biggest owner of the firm is an institution (and 0 otherwise), and a second one is whether this institutional owner also is a blockholder. It is thus also a dummy, taking the value 1 if there is an institutional owner owning more than 5 percent, and 0 otherwise. Having multiple institutional owners might create an atmosphere of monitoring, indicating that the larger sum of institutional ownership, the more monitoring and less likelihood of being zero-leveraged. Another proxy for institutional ownership is thus the sum of institutional ownership. There will be one variable for total institutional ownership and, to gain further insights, one variable for the sum of institutional ownership where the institutions own at least 2 percent of the firm each.

3.2.3 CONTROLLING VARIABLES

Control variables in this research are following similar research (Strebulaev & Yang, 2013; Dang, 2013; Devos, et al., 2012; Byoun & Xu, 2013).

SIZE

Firm size is used as a control since it in the zero-leverage research is shown that smaller firms are more likely to be zero-leveraged (Devos, et al., 2012; Ghose & Kabra, 2016). Size is often measured by either total assets or sales (Dang, Li, & Yang, 2018). In their empirical paper, Dang, Li and Yang (2018) find that different proxies for size suit best for different types of studies. They also mention that for capital structure purposes, total assets is the most relevant. Total assets is thus the used proxy in this research.

CASH HOLDINGS

Cash holdings is like size used as a control variable since previous studies find it a determinant of zero-leveraged firms (Strebulaev & Yang, 2013; Ghose & Kabra, 2016). Having more cash would logically reduce the need of debt financing and be consistent with the pecking order theory and financial flexibility hypothesis. It is measured as total cash plus short term investments divided by total assets.

PROFITABILITY

Also consistent with the pecking order theory, more profitable firms are expected to have a lower debt ratio as internal funds is the primary source of funding. Likewise, Devos et al. (2012) find that zero-leveraged firms are more profitable. In contrast, more profitable firms have lower risks of experiencing financial distress (Sun, et al., 2016), and as to solve the problem of having too much free cash flow, debt works as a disciplining mechanism, and more profitable firms can thus be assumed to have more debt (Jensen & Meckling, 1976). Also, if the EBIT of a firm is low and unstable, the tax shield from debt does not increase firm value, and hence low profitability can also mean lower debt. Profitability is proxied as earnings before interest and taxes (EBIT) divided by total book assets (Dang, 2013; Ghose & Kabra, 2016; El Ghoul, et al., 2017).

TANGIBILITY

Tangibility further also seem to be a determinant of zero leverage as unleveraged firms have less tangible assets (Devos, et al., 2012; Ghose & Kabra, 2016). Firms with higher tangibility

have better abilities to secure debt since the assets are then often collateralised (Jensen & Meckling, 1976). Tangibility is proxied by dividing property, plant and equipment by book value of total assets.

INVESTMENT

Since the demand for financing may be a factor limiting the use of external financing (Ghose & Kabra, 2016; Huang, Li & Gao, 2017), the investment expenditures are used as a control variable. Dudley (2012) finds that firms adjust towards their optimal leverage ratio when making investments, indicating that investments should have a negative relation to zero leverage. It is proxied by capital expenditures divided by total assets.

NON-DEBT TAX SHIELD

According to the trade-off theory, the benefit of debt comes from the tax shield the interest expense generates (Kraus & Litzenberger, 1973). Thus, if the firm has high non-debt tax shield, i.e. tax shield gained from other items than interest expense, it is expected to have less debt. Like Brailsford, Oliver and Pua (2002), Dang (2013) and El Ghoul et al. (2017), non-debt tax shield is proxied by depreciation and amortisation divided by total assets.

FINANCIAL CONSTRAINT

All studies within low-leverage conclude that financial constraint is a key determinant for unlevered firms (Devos et al., 2012; Bessler et al., 2013; Byoun & Xu, 2013). The constrained firms are unlevered because they have poor access to the debt market. To investigate governance effects on the zero-leverage puzzle, this study will control for financial constraint. Following Strebulaev and Yang (2013), firms are categorised as constrained if they are not paying dividends and unconstrained if they are paying dividends. This variable is thus a dummy, taking the value 1 if firms pay dividends (are unconstrained) and 0 if firms do not pay dividends (are constrained).

DIVIDEND RATIO

Dividends will be used in another way as well. The dividend ratio, measured as dividends paid divided by total assets, will be used as a continuous variable. If a firm is zero-leveraged according to the financial constraints hypothesis, i.e. by not having access to the capital market, it is assumed not to afford paying dividends. However, if the unlevered firms are unlevered by their own choice, they should instead pay higher dividends to mitigate agency problems of free

cash flow. Also, because zero-leveraged firms may be dependent on equity, they pay dividends to keep a good reputation amongst investors and secure future financing (Byoun & Xu, 2013). Dang (2013), El Ghoul et al. (2017) and Strebulaev and Yang (2013) found that firms with high dividend ratios are more likely to be zero-leveraged.

TIME

Year dummies will be included as a categorical variable in the estimations to capture the time trends since the study uses panel data.

INDUSTRY

Bessler et al. (2013) and Strabulaev and Yang (2013) amongst others found that zero-leverage policies differ widely between different industries, which is why this is used as a control. The industry is based on SIC classification. Industry is a dummy variable, where manufacturing, which is the most common industry, is the base industry to avoid the dummy trap.

EXCHANGE

Since firms' capital and ownership structures are assumed to differ depending on what exchange they are listed on, exchange will be controlled for to test the hypotheses. It is also a way to prevent omitted variables bias of firms in smaller exchanges having less insitutional investors. The exchanges are the ones presented in section 3.1.

TABLE 1: SUMMARY OF VARIABLES

Variable	Proxy	Type	Expected sign
Dependent			
Zero leverage	Total debt/total assets = 0	Dummy	
Almost zero leverage	Total debt/total assets < 0.05	Dummy	
Independent			
Dispersed ownership	No blockholders	Dummy	+
Concentrated ownership	Sum of blockholders' ownership		–
Institutional ownership	Institutional blockholders	Dummy	–
Control			
Size	Total assets	Logarithmised	–
Cash	Cash + short term investments/total assets		+
Profitability	EBIT/total assets		+/–
Tangibility	PPE/total assets		–
Investment	Capital expenditures/total assets		–
Non-debt tax shield (NDTS)	Depreciation + amortisation/total assets		+
Dividends	Cash dividends/total assets		+
Financial constraint	Dividend-paying firm	Dummy	+
Industry	SIC classification	Dummy	
Time	Year	Dummy	
Exchange	Exchange	Dummy	

3.3 MODEL SPECIFICATION

Since the dependent variable is a binary variable, the commonly used multiple linear regression is not a suitable method to use (Wooldridge, 2013). Instead, there are two methods that are suitable for regressing binary variables: logit and probit. These both give similar results, however the logistic (logit) yields an easier interpretation. Following Bessler, et al. (2013), Dang (2013), Byoun and Xu (2013), El Ghoul, et al. (2017) and Strebulaev and Yang (2013) amongst others, the logistic model is chosen. Huang, Li and Gao (2017) perform their tests with both logit and probit but find similar results, indicating that the choice does of method does not have any significant impact on the results. The logistic model is a non-linear cumulative distribution function (Wooldridge, 2013).

$$\Pr(y = 1) = \frac{1}{1 + e^{\alpha+\beta x}}$$

The interpretation of a logistic model is that the coefficient of each explanatory variable shows the increase or decrease in the log odds of the dependent variable taking the value one. In other words: the probability that the outcome of the dependent variable is one. A positive sign on the coefficient means the probability that the dependent variable is one is increasing and the opposite if the sign of the coefficient is negative. The magnitude of the coefficients are however difficult to interpret which is why the more easily interpreted marginal effects at means are reported for each variable. The marginal effect shows, if all other variables are at their means, the change in probability for the dependent variable being one, resulting from a change in one specific variable. (Wooldridge, 2013) It can in other words be regarded as the economic significance of a variable.

Since the firms are investigated during the entire period and not just the first year of being zero-leveraged, the estimations are performed with the panel data function. To adjust for heteroscedasticity, robust standard errors clustered by firm, are used for all estimations.

DIFFUSE OWNERSHIP

To test hypothesis 1a, that firms with dispersed ownership are more likely to be zero-leveraged, the following estimation is used:

$$ZL_{i,t} = \beta_0 + \beta_1 Size_{i,t-1} + \beta_2 Cash_{i,t-1} + \beta_3 Prof_{i,t-1} + \beta_4 Tang_{i,t-1} + \beta_5 Inv_{i,t-1} + \beta_6 NDTS_{i,t-1} + \beta_7 Div_{i,t-1} + \beta_8 Industry_{i,t} + 9Exchange_{i,t} + \beta_7 Time_{i,t} + \beta_{10} Dispersed_{i,t} + \varepsilon_{i,t}$$

Where *Dispersed* is a dummy taking the value 1 if the firm has dispersed ownership. β_0 is a constant and ε is the error term. $_{t-1}$ shows that the independent variables are lagged one year since the effects of the variables are not assumed to be instantly shown in leverage. Regressions will however also be run without lagging the variables to compare which estimations suit better. One could for instance assume that an investment made in year 0 will lead to a leverage increase in year 0 and not in year 1. Lagging the variables is also a method to cope with endogeneity and reverse causality, a common issue within corporate finance.

CONCENTRATED OWNERSHIP

To test hypothesis 1b, that firms with concentrated ownership are less likely to be zero-leveraged, the following estimation is used:

$$ZL_{i,t} = \beta_0 + \beta_1 Size_{i,t-1} + \beta_2 Cash_{i,t-1} + \beta_3 Prof_{i,t-1} + \beta_4 Tang_{i,t-1} + \beta_5 Inv_{i,t-1} + \beta_6 NDTS_{i,t-1} + \beta_7 Div_{i,t-1} + \beta_8 Industry_{i,t} + \beta_9 Exchange_{i,t} + \beta_{10} Time_{i,t} + \beta_{11} Concentrated_{i,t} + \varepsilon_{i,t}$$

Where *Concentrated* is a continuous variable with the sum of all blockholders' ownership.

INSTITUTIONAL OWNERSHIP

To test hypothesis 2, that firms with institutional investors are less likely to be zero-leveraged, the following estimation is used:

$$ZL_{i,t} = \beta_0 + \beta_1 Size_{i,t-1} + \beta_2 Cash_{i,t-1} + \beta_3 Prof_{i,t-1} + \beta_4 Tang_{i,t-1} + \beta_5 Inv_{i,t-1} + \beta_6 NDTS_{i,t-1} + \beta_7 Div_{i,t-1} + \beta_8 Industry_{i,t} + \beta_9 Exchange_{i,t} + \beta_{10} Time_{i,t} + \beta_{11} Institutional_{i,t} + \varepsilon_{i,t}$$

Where *Institutional* for some estimations is a dummy variable taking the value 1 if the biggest owner of a firm is an institutional investor, and for some estimations it is a continuous variable, with the sum of institutional ownership.

3.3.1 ASSUMPTIONS OF LOGISTIC REGRESSIONS

Logistic regressions are different from linear regressions and thus the assumptions that must hold for an OLS estimation, for example linearity, does not have to hold for these regressions to be valid (Wooldridge, 2013). There are however some other assumptions that must hold (Wooldridge, 2013).

1. THE DEPENDENT VARIABLE MUST BE BINARY

Since the dependent variable in this research is a dummy, taking the value one if the firm is zero-leveraged (almost zero-leveraged), this assumption is held.

2. THE OBSERVATIONS MUST BE INDEPENDENT OF EACH OTHER

Since the sample in this study consists of all public firms in Sweden, and not only in a certain industry or size, the observations are considered independent of each other.

3. NO MULTICOLLINEARITY BETWEEN THE INDEPENDENT VARIABLES

Multicollinearity appears when the variables are highly correlated with each other. When multicollinearity is present, the estimation is less precise (Wooldridge, 2013). The correlation test run to test this assumption is presented in table 3 in the Univariate analysis and show that no variables are too highly correlated.

4. LINEARITY OF THE INDEPENDENT VARIABLES AND LOG ODDS

The logit is the log of the odds that the independent variable affects the dependent variable. These log odds ought to be linearly related to the independent variable. This is tested for using the Box-Tidwell test. The results are shown in appendix 6 and show that most variables are linear. The variables that are not linearly related are, when appropriate, squared or logarithmised.

5. LARGE SAMPLE SIZE

Since the sample contains 3 511 observations from 642 companies, this assumption is held.

3.4 VALIDITY, RELIABILITY AND LIMITATIONS OF STUDY

Reliability measures the trustworthiness of the study, i.e. for instance whether the results of the study would be the same if the study was replicated from the applied methodology (Bryman & Bell, 2015). Since Compustat and Holdings, where all data is gathered, and Stata, where the regressions are conducted, all are reliable, this study can be considered reliable. There is however a risk of human errors in the handling of the data since the data is manually matched.

Validity, on the other hand, regards whether the study has studied what it was supposed to study, and a study is regarded valid if it lacks systematic measurement errors (Bryman & Bell, 2015). The variables used in this thesis are based on variables used in previous research, strengthening the validity of the thesis. What could be a possible measurement error is the categorisation made by Holdings regarding investor type. For example, if a pension company has been wrongly categorised as "other" instead of "pension fund" and thus not used in the variable of institutional investors.

Connected to that is one of the limitations of this study, as institutional investors may have different motives and abilities to monitor depending on what kind of investor it is, for instance pension funds and foundations. Thus, lumping them together as one group "institutional" might entail that predicted results are not found. Another limitation regards blockholders which are assumed to lead to less likelihood of zero leverage. However, if this blockholder is also an insider, who is assumed to want zero leverage, the effect might be counteracted. Due to lack of historical data regarding insiders this could not be controlled for. A third limitation is that this study only considers each year a firm is zero-leveraged and does not control for firms that are zero-leveraged for one year only. A perhaps more accurate analysis would be to investigate those firms that are zero-leveraged for a longer period. The data descriptives however indicate that 90 percent of zero-leveraged firms were unlevered the year before too.

4 RESULTS AND ANALYSIS

4.1 UNIVARIATE ANALYSIS

In table 2, the complete descriptive statistics are presented. Except for the dummy variables, all variables have been winsorised at the 1st and 99th percentile to exclude outliers and obtain more reliable means, standard deviations and results. Since financial data is gathered from year 2000 there are more observations on those variables.

TABLE 2: DATA DESCRIPTIVES

Variable	Obs.	Mean	Std. Dev.	Min	Max
Zero leverage dummy	8 695	0.239	0.426	0.000	1.000
Zero + almost zero leverage	8 695	0.364	0.481	0.000	1.000
Initial zero leverage	8 878	0.208	0.406	0.000	1.000
Total assets	9 427	9 286.064	406 40.990	0.944	706 510.000
Cash ratio (%)	8 526	0.184	0.207	0.000	0.923
Profitability (%)	8 526	-0.089	0.344	-2.252	0.502
Tangibility (%)	8 526	0.144	0.198	0.000	0.921
Investment (%)	8 526	0.030	0.050	0.000	0.443
Non-debt tax shield (%)	8 526	0.041	0.049	0.000	0.686
Dividends (%)	8 526	0.016	0.036	0.000	0.261
Dividend-payer	8 882	0.338	0.473	0.000	1.000
Sum blockholders (capital)	3 633	42.760	20.486	0.000	135.490
Sum blockholders (votes)	3 633	47.789	21.488	0.000	135.490
Sum institutional (capital)	3 633	20.704	22.272	0.000	98.580
Sum institutional (votes)	3 603	19.905	23.425	0.000	98.580
Sum institutional >2% (capital)	3 603	14.931	17.702	0.000	98.520
Sum institutional >2% (votes)	3 603	14.672	19.373	0.000	98.520
Dispersed 5% (capital) dummy	3 511	0.014	0.117	0.000	1.000
Dispersed 5% (votes) dummy	3 511	0.028	0.164	0.000	1.000
Dispersed 10% (capital) dummy	3 511	0.156	0.363	0.000	1.000
Institutional owner dummy	3 511	0.226	0.418	0.000	1.000
Institutional & blockholder dummy	3 511	0.221	0.411	0.000	1.000
Large cap	3 511	0.153	0.360	0.000	1.000
Mid cap	3 511	0.201	0.400	0.000	1.000
Small cap	3 511	0.187	0.390	0.000	1.000
First north	3 511	0.264	0.441	0.000	1.000
Spotlight	3 511	0.148	0.356	0.000	1.000
Nordic MTF	3 511	0.029	0.168	0.000	1.000
NGM	3 511	0.017	0.129	0.000	1.000
Agriculture, Forestry and Fishing	8 882	0.002	0.023	0.000	1.000
Mining	8 882	0.036	0.186	0.000	1.000
Construction	8 882	0.016	0.126	0.000	1.000
Manufacturing	8 882	0.446	0.497	0.000	1.000
Transportation, Communications, Gas	8 882	0.059	0.236	0.000	1.000
Wholesale	8 882	0.031	0.172	0.000	1.000
Retail Trade	8 882	0.045	0.207	0.000	1.000
Services	8 882	0.239	0.426	0.000	1.000
Public administration	8 882	0.000	0.000	0.000	0.000
Non-classified	8 882	0.008	0.087	0.000	1.000

The mean of the zero-leverage dummy is 0.239, meaning that almost 25 percent of the firm-year observations in the sample are zero-leveraged, and 36 percent when including the almost zero-leveraged. A third of the firms pay dividends and on average, the firms are not profitable.

Regarding ownership, both data for shares of cash flow rights (capital) and shares of voting rights was gathered to investigate whether there is any noticeable difference. As can be seen though, there is not much difference between the values except for the sum of the capital and voting rights of blockholders. For those variables, the sum of voting rights exceeds the sum of capital shares. For institutional ownership however, the sum of capital shares is larger than the sum of voting rights, even if marginal, which suggests that institutions to a lesser extent own preferred shares. There is further a difference between the sum of institutional ownership and sum of institutional ownership where each institution owns at least 2 percent implying that firms on average have many institutional owners who own less than 2 percent.

Table 3 presents a correlation matrix of all the variables. Except for initial zero-leverage which is highly correlated with zero-leverage and the two sums of institutional ownership, no variables are correlated more than about 0.5. Institutional ownership and blockholding is negatively correlated to zero leverage while the dispersion dummy is positively correlated on 10% but uncorrelated at 5%.

To enable a comparison, table 4 presents some descriptive statistics split up by only zero-leveraged firms, almost zero-leveraged firms and leveraged firms only. As can be seen, almost 90 percent of zero-leveraged firms were unlevered also the previous year, indicating it is a persistent phenomenon and not just temporary. The unlevered firms are smaller (the mean is ten times smaller compared to leveraged firms), have larger cash holdings (as a ratio of total assets), less tangibility, invest less and pay higher dividends, in line with the results from Ghose and Kabra (2016), Devos et al., (2012), and Strebulaev &and Yang, (2013). Surprisingly though, the unlevered firms are less profitable and have smaller non-debt tax shield than the levered ones.

TABLE 3: CORRELATION MATRIX

	Zero-leverage	Initial zero lev	Dividend-payer	Assets	Cash holdings	Profitability	Tangibility	Investment	NDTS	Dividends	Block-holders sum	Inst. Owner-ship sum	Inst. Owner-ship >2%	Dispersed 5%	Dispersed 10%	Inst. owner
Zero-leverage	1.00															
Initial zero lev	0.99	1.00														
Dividend-payer	-0.11	-0.10	1.00													
Assets	-0.14	-0.14	0.22	1.00												
Cash holdings	0.48	0.47	-0.17	-0.12	1.00											
Profitability	-0.13	-0.12	0.45	0.14	-0.27	1.00										
Tangibility	-0.18	-0.18	0.13	0.08	-0.22	0.12	1.00									
Investment	-0.12	-0.12	0.14	0.06	-0.11	0.09	0.57	1.00								
NDTS	-0.07	-0.07	-0.01	-0.03	-0.15	-0.18	0.25	0.24	1.00							
Dividends	0.14	0.14	0.62	0.06	0.06	0.35	0.03	0.09	0.01	1.00						
Block-holders sum	-0.01	-0.01	0.01	-0.20	-0.05	0.07	-0.05	-0.05	0.00	0.02	1.00					
Inst. Ownership sum	-0.17	-0.17	0.35	0.26	-0.13	0.24	0.01	0.01	-0.09	0.15	-0.09	1.00				
Inst. Ownership (>2%)	-0.15	-0.15	0.31	0.12	-0.10	0.21	-0.01	-0.02	-0.09	0.14	-0.01	0.95	1.00			
Dispersed (5%)	0.00	0.00	-0.03	0.00	0.02	0.01	0.06	0.08	0.00	0.00	-0.25	-0.03	-0.05	1.00		
Dispersed (10%)	0.02	0.02	-0.01	0.12	0.03	-0.02	0.02	0.05	0.02	0.02	-0.56	0.04	0.00	0.28	1.00	
Institutional owner	-0.17	-0.16	0.28	0.22	-0.12	0.22	0.02	0.01	-0.04	0.09	-0.19	0.51	0.49	0.03	0.13	1.00

TABLE 4: DESCRIPTIVES SPLIT UP BETWEEN LEVERAGE STATUS

	Zero-leveraged		Almost zero-leveraged		Leveraged	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Initial zero leverage	0.893	0.309	0.583	0.493	0.000	0.000
Total debt	0.000	0.000	15.865	178.291	2272.992	10545.350
Debt/assets (%)	0.000	0.000	0.007	0.013	0.233	0.189
Size	750.442	4325.673	955.979	5050.486	7457.571	26829.270
Cash (SEK)	203.177	1285.291	212.519	1255.207	582.546	2371.895
Cash ratio (%)	0.361	0.253	0.320	0.244	0.133	0.153
Profitability (%)	-0.176	0.537	-0.151	0.473	-0.069	0.295
Tangibility (%)	0.067	0.135	0.075	0.138	0.172	0.209
Investment (%)	0.022	0.054	0.024	0.049	0.034	0.054
Non-debt tax shield (%)	0.036	0.058	0.037	0.057	0.044	0.049
Dividends (%)	0.025	0.059	0.024	0.055	0.014	0.028
Dividend-payer	0.260	0.439	0.290	0.454	0.392	0.488

In Figure 1, the ratios of zero-leveraged and almost zero-leveraged Swedish firms are shown from year 2000 to 2017. The share of completely zero-leveraged firms has increased from 18% to 26%, with a peak of 29% in 2013. The line for almost zero-leveraged firms follow the same shape and it seems that the zero-leverage phenomenon is persistent and slowly increasing.

FIGURE 1: ZERO LEVERAGE IN SWEDEN 2002-2017

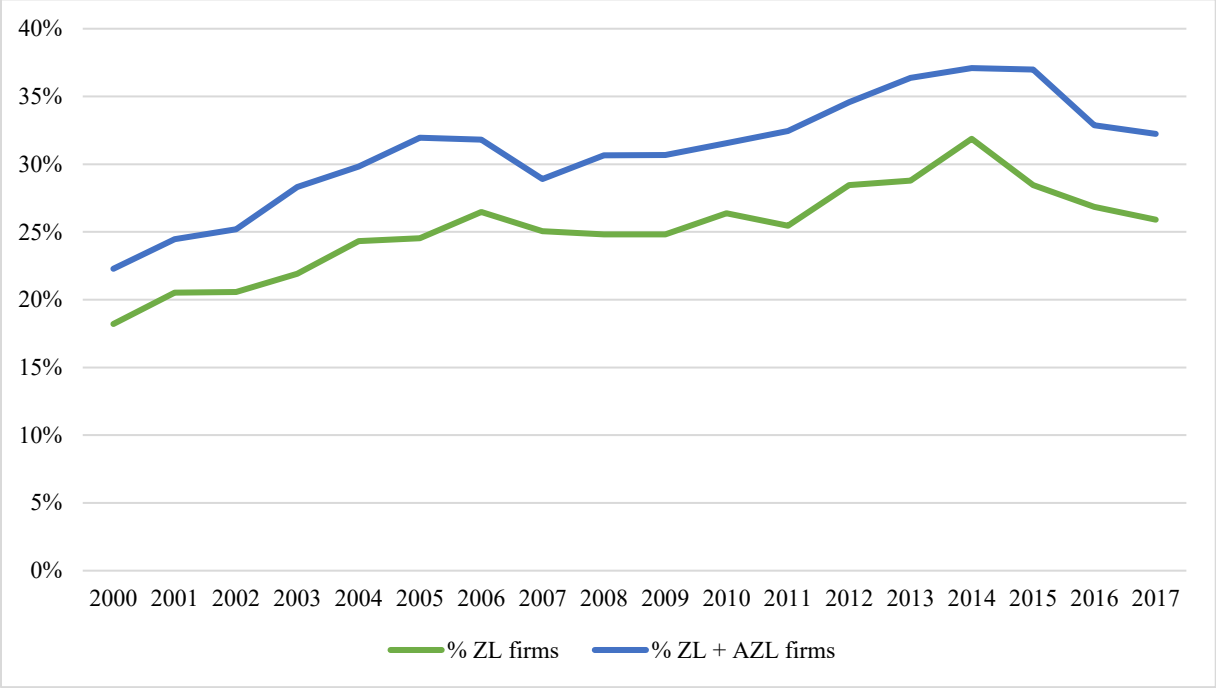

Table 5 presents the zero leverage and almost zero leverage in the sample sorted by industry, financial firms excluded. First of all, it is noticeable that Swedish firms are dominated by manufacturing firms as more than half of the firms belong to that industry. After that, services contain a large amount of firms, and the rest is spread out over the other industries. Note that these are the values from the entire sample, and thus firms are counted one time for each year it is included. The numbers are however similar when looking at 2017 only.

TABLE 5: ZERO-LEVERAGE ACROSS INDUSTRIES

Industry	**Number of firms**	**Of total firms**	**Zero-levered**	**Of total in industry**
Agriculture, Forestry and Fishing	21	0.2%	2	10%
Mining	456	4.9%	156	34%
Construction	164	1.7%	6	4%
Manufacturing	4 905	52.2%	1 316	27%
Transportation, Communications, Electric, Gas	610	6.5%	116	19%
Wholesale Trade	304	3.2%	14	5%
Retail Trade	449	4.8%	87	19%
Services	2 414	25.7%	817	34%
Public Administration	0	0.0%	0	0%
Non-classifiable	79	0.8%	6	8%
Sum	9 402	100%	2 520	

The service industry is dominating in containing zero-leveraged firms. A reason might be that service firms do not possess many tangible assets, and are maybe thus not able to get or in need of debt. Also mining firms, manufacturing firms and retail trade firms show high ratios of unlevered firms. Assets in these industries are usually more volatile and illiquid and do not serve as good collateral (Bessler et al., 2013).

The next table, table 6, presents similar information but split up in exchanges. Note that this also presents firm-year observations. As can be seen First North is the most common one (since OMX is split up between Large, Mid and Small cap). Noticeable is that the larger lists dominate in amount of total firms while the smaller exchanges dominate in the amount of zero-leveraged firms, as expected.

TABLE 6: ZERO-LEVERAGE ACROSS EXCHANGES

Exchange	Number of firms	Of total firms	Zero-leveraged	Of total in list
Large cap	538	14.5%	20	4%
Mid cap	715	19.3%	138	19%
Small cap	677	18.3%	161	24%
First North	1 007	27.2%	332	33%
Spotlight	578	15.6%	232	40%
Nordic MTF	114	3.1%	47	41%
NGM	71	1.9%	18	25%
Sum	3 700		948	

Table 7 presents ownership data split up between zero-leveraged firms and leveraged firms. Sum of blockholders' ownership is similar for leveraged firms and unlevered ones. A big difference is on the other hand noticeable for the sum of institutional ownership where leveraged firms have 50 percent higher institutional ownership than what zero-leveraged firms have. For both samples moreover, less than 2 percent has dispersed ownership. When setting the limit of dispersion to ten percent however, there is less ownership dispersion in leveraged firms. There is further a large difference in the dummy of institutional ownership, i.e. whether the largest owner is an institutional investor, where 26 percent of leveraged firms are mainly owned by an institution and only 10 percent of zero-leveraged firms are. Once again it is apparent that the unlevered ones have a higher presence on the smaller exchanges while the levered firms are more present on the bigger exchanges.

TABLE 7: OWNERSHIP DESCRIPTIVES SPLIT UP BETWEEN LEVERAGE STATUS

	Zero-leveraged		**Leveraged**	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Sum blockholders	42.358	20.344	42.908	20.292
Sum institutional	13.571	18.555	22.277	22.579
Sum institutional >2%	10.130	15.379	16.016	17.917
Dispersed 5% dummy	0.015	0.120	0.014	0.116
Dispersed 10% dummy	0.171	0.377	0.151	0.359
Institutional dummy	0.103	0.304	0.263	0.440
Largecap	0.024	0.154	0.190	0.392
Midcap	0.160	0.367	0.214	0.410
Smallcap	0.187	0.390	0.187	0.390
First North	0.336	0.473	0.241	0.428
Spotlight	0.228	0.420	0.125	0.330
Nordic MTF	0.044	0.204	0.025	0.155
NGM	0.022	0.146	0.015	0.123
Observations	825		2 674	

A final summary statistic is presented in table 8, where the sample is split up in two groups: firms in which the biggest owner is an institution and firms in which the biggest owner is not an institution. There are more zero-leveraged firms in non-institutionally owned firms, in line with hypothesis 2. These firms are also smaller, less profitable and to a smaller extent dividend-payers. For the other variables, the firms are relatively equal.

TABLE 8: DESCRIPTIVE STATISTICS SPLIT UP BETWEEN INSTITUTIONAL OWNERSHIP AND NON-INSTITUTIONAL OWNERSHIP

	Biggest owner institutional		**Biggest owner not institutional**	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Zero leverage dummy	0.108	0.311	0.273	0.446
Zero + almost zero leverage	0.208	0.406	0.406	0.491
Debt/assets	0.197	0.161	0.174	0.197
Size	18 757.210	43 131.060	4 274.326	19 337.620
Cash ratio (%)	0.135	0.171	0.192	0.214
Profitability (%)	0.050	0.182	-0.106	0.329
Tangibility (%)	0.130	0.179	0.118	0.195
Investment (%)	0.023	0.032	0.022	0.039
Non-debt tax shield (%)	0.029	0.028	0.032	0.039
Dividends (%)	0.027	0.038	0.018	0.041
Dividend-payer	0.629	0.483	0.307	0.461
Observations	794		2 716	

4.2 MULTIVARIATE ANALYSIS

In this section, the results from the regressions are presented and analysed. First the control variables will be briefly analysed to investigate what variables increases and decreases the propensity of zero-leverage. After that, the analysis proceeds to examine the hypotheses regarding ownership structure. Lastly, a few robustness tests are presented. Since the estimations are logistic regressions, the interpretation of the marginal effects is that it shows the probability of the dependent variable, in this case zero leverage, being one with a one unit change in the independent variable.

4.2.1 OWNERSHIP CONCENTRATION

Table 9 presents the regressions testing hypotheses 1a and 1b. Consistent in all regressions, the size variable shows similar coefficients and high statistical significance. It shows that the smaller the firm is, the higher the probability of it being unlevered, consistent with the hypothesis about financial constraint. Cash holdings also consistently show high economic significance while at the same time being statistically significant. The positive sign reveals that the more cash holdings, the bigger probability of zero leverage, which confirms both the financial flexibility hypothesis, that firms save cash for future investments, and the underinvestment hypothesis, as to avoid debt overhang. Profitability is also positively related to zero-leverage, supporting the pecking order theory. More profitable firms show higher propensity of pursuing a zero-leverage policy since they can rely on internal funds. Tangibility is also significant and with a negative coefficient, as low tangibility causes difficulties to issue debt due to the lack of collateral. This might explain why for example many firms in the service industry are zero-leveraged. All abovementioned results confirm the results from, amongst others, Devos et al. (2012), Ghose and Kabra (2016), Dang (2013) and Strebulaev and Yang (2013), indicating that Swedish firms are similar to firms in previously studied countries.

Investment ratio is further significant when not lagged, as expected, and with a negative sign meaning that investments lead to a lower probability of zero leverage. This confirms the hypothesis of zero-leveraged firms being financially constrained since constrained firms should not afford to make such capital expenditures and if they do, they have to take on debt.

The non-debt tax shield is not significant for any regression. It further has a negative sign which is opposite of what was predicted since a higher non-debt tax shield yields a lesser need of the interest tax shield and thus according to the trade-off theory, the optimal leverage ratio should decrease and there ought to be higher propensity of zero leverage. It is however consistent with Dang's (2013) findings. He means that an explanation for the non-expected sign is that the zero-leveraged firms have fewer tangible assets and thus lower depreciation which is the proxy for this variable.

The dividend ratio is highly significant, both statistically and economically. This means that the higher dividends the firm pays, the higher the probability that the firm is unlevered. In appendix 1, the control variables are further investigated. One finding of this deeper analysis is that when excluding dividend ratio and including a dummy of whether the firm is paying dividends or not (the proxy for financial constraint), it is also positive and significant. However, when including both dividend-variables (column 3), dividend ratio is even more positive while the dividend-payer dummy shows a negative coefficient. This indicates that conditional on paying dividends, zero-leveraged firms pay higher dividends as to mitigate agency problems of free cash flow, while if not paying dividends there is higher probability of zero-leverage.

Another finding when deeper investigating the control variables is that for investment and non-debt tax shield, there is high statistical significance when adding quadratic terms (and a likelihood ratio test (appendix 5) confirms that adding them gives a better model). For the variables' average values, the signs are still negative. However, the fact that they are significant (and tax shield only when quadratic term is added) gives strong indications that the zero-leveraged firms are not homogeneous but rather split up in two groups: constrained and unconstrained firms for which determinants of being unlevered are the opposite. Thus, even though quadratic terms seemingly improve the model, there still lies suspicions that the model would behave better if split up between the two types of firms and not with quadratic terms. In section 4.2.3, a separation between the two groups are thus tested.

Regarding ownership concentration, it is evident that the sum of the blockholders' ownership is highly statistically significant (column 1), although the economic significance is limited. The sign is negative, proving that the more blockholding, the lower the probability of the firm being zero-leveraged, which confirms the hypothesis that firms with concentrated ownership are less

likely to be unlevered. The relationship further seem weaker when lagging the variables (column 4).

TABLE 9: OUTPUTS FROM OWNERSHIP CONCENTRATION REGRESSIONS

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent are reported. The dependent variable is a dummy taking the value 1 if the firm is zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. In column 4-6 variables are lagged one year. To exclude the dummy trap the manufacturing industry and NGM exchange are excluded from the model.

Variables	**1**	**2**	**3**	**4**	**5**	**6**
Size	-0.944***	-0.917***	-0.929***	-0.867***	-0.839***	-0.795***
	(0.138)	(0.136)	(0.136)	(0.140)	(0.138)	(0.110)
	-6.81%	-6.66%	-6.67%	-6.01%	-5.86%	-5.87%
Cash holdings	5.435***	5.593***	5.571***	5.291***	5.412***	5.116***
	(0.571)	(0.564)	(0.561)	(0.597)	(0.584)	(0.498)
	39.2%	40.6%	40.0%	36.6%	37.8%	37.7%
Profitability	1.220***	1.151***	1.153***	1.471***	1.398***	0.900**
	(0.421)	(0.428)	(0.424)	(0.466)	(0.464)	(0.381)
	8.79%	8.36%	8.28%	10.2%	9.76%	6.63%
Tangibility	-2.152*	-1.988*	-2.026*	-1.322	-1.262	-1.481
	(1.178)	(1.179)	(1.186)	(1.188)	(1.164)	(1.176)
	-15.5%	-14.4%	-14.5%	-9.16%	-8.81%	-10.9%
Investment	-8.757***	-8.752**	-9.127***	-5.793	-5.965*	-4.259
	(3.336)	(3.406)	(3.380)	(3.642)	(3.500)	(3.483)
	-63.1%	-63.6%	-65.5%	-40.1%	-41.6%	-31.4%
Non-debt tax shield	-0.633	-0.823	-1.095	-0.533	-0.614	-0.824
	(2.777)	(2.846)	(2.810)	(2.596)	(2.558)	(2.240)
	-4.57%	-5.98%	-7.86%	-3.69%	-4.29%	-6.08%
Dividends	12.01***	12.22***	12.11***	8.741***	8.832***	9.023***
	(3.113)	(3.077)	(3.042)	(3.188)	(3.232)	(2.848)
	86.6%	88.8%	86.9%	60.5%	61.6%	66.5%
Blockholders sum	-0.0189***			-0.0138*		
	(0.00623)			(0.00792)		
	-0.137%			-0.096%		
Dispersed (5%) dummy		0.499			1.117	
		(0.709)			(0.711)	
		3.63%			7.80%	
Dispersed (10%) dummy			0.653**			0.231
			(0.278)			(0.287)
			4.69%			1.70%
Lagged variables	No	No	No	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.338	0.501	-0.494	1.004	0.265	0.226
	(1.500)	(1.480)	(1.908)	(1.561)	(1.485)	(1.439)
Observations	3 362	3 338	3 370	2 713	2 692	3 256
Number of Firms	630	625	632	555	550	615

In contrast, the dummy for dispersed ownership shows no statistical significance. This could however perhaps be explained by that only 1.5 percent firms have such dispersed ownership

while 26 percent of firms are zero-leveraged. When instead testing the limit of 10 percent instead, i.e. that a firm is concentrated only if one owner owns at least 10 percent, there is however significance in the non-lagged version. For example, in column 3 it can be seen that if a firm has dispersed ownership (10%), it is more likely to be zero-leveraged, confirming hypothesis 1a. The marginal effect is further relatively large. Hence with diffuse ownership, agency problems grow larger as there is more room for managers to avoid the monitoring of debt and be able to consume personal benefits. Furthermore, this marginal effect is also much higher than the one for sum of blockholders' ownership. This suggests that having a 10-percent blockholder decreases the probability of zero leverage more than what having a large sum of blockholdings does. In combination with the dummy for 5 percent dispersion not being significant, this indicates that for an investor, monitoring incentives are most visible when owning at least ten percent of the company. It also suggests that there might be free-rider problems within the blockholders, like Edmans (2014) suggests.

The regressions were conducted with both lagged and non-lagged variables. Most marginal effects are similar except for size, dividends and tangibility which are a bit higher when not lagged. Whether lagged or non-lagged variables suit best has been discussed by researchers before. If the effects of a variable are assumed to be contemporaneous, non-lagged variables are best but if the effect is assumed to be lagged, lagged variables suit best. Chung and Wang (2014) tried both in their research regarding institutional ownership and found that both lagged and non-lagged yield similar results but that the contemporaneous variables explain the data better, which suggests that investors are well-informed. Also this study finds that for the variables concerning ownership concentration, statistical significance is higher when the variables are not lagged, like Chung and Wang (2014) suggests.

The results from the regressions including the almost zero-leveraged firms show similar results and are thus presented in appendix 2. Further, the regressions with ownership variables based on voting rights instead of cash flow rights show almost identical results and are thus not reported.

4.2.2 OWNERSHIP IDENTITY

Below in table 10, the regressions run to test hypothesis 2 are presented. None of the institutional ownership-related variables are significant, neither lagged nor non-lagged. All the coefficients are however negative, meaning that an increase in institutional ownership on average entails a lower probability of the firm having zero leverage, which is in line with the hypothesis and the findings of Sun et al. (2016).

TABLE 10: OUTPUTS FROM OWNERSHIP IDENTITY REGRESSIONS

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent are reported.The dependent variable is a dummy taking the value 1 if the firm is zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. In column 5-6 variables are lagged one year. To exclude the dummy trap the manufacturing industry and NGM exchange are excluded from the model.

Variables	**1**	**2**	**3**	**4**	**5**	**6**
Size	-0.909***	-0.909***	-0.890***	-0.894***	-0.830***	-0.783***
	(0.137)	(0.136)	(0.135)	(0.135)	(0.137)	(0.109)
	-6.58%	-6.58%	-6.49%	-6.52%	-5.81%	-5.79%
Cash holdings	5.492***	5.493***	5.567***	5.562***	5.432***	5.120***
	(0.571)	(0.571)	(0.562)	(0.560)	(0.582)	(0.498)
	39.7%	39.8%	40.6%	40.5%	38.0%	37.8%
Profitability	1.214***	1.220***	1.124***	1.129***	1.384***	0.897**
	(0.429)	(0.429)	(0.423)	(0.423)	(0.457)	(0.382)
	8.79%	8.84%	8.20%	8.23%	9.69%	6.63%
Tangibility	-2.032*	-2.040*	-2.090*	-2.084*	-1.300	-1.513
	(1.168)	(1.168)	(1.176)	(1.177)	(1.148)	(1.165)
	-14.7%	-14.8%	-15.2%	-15.2%	-9.10%	-11.2%
Investment	-8.639**	-8.620**	-8.710***	-8.713***	-5.665	-4.147
	(3.414)	(3.417)	(3.375)	(3.377)	(3.454)	(3.466)
	-62.5%	-62.5%	-63.5%	-63.5%	-39.7%	-30.7%
Non-debt tax shield	-1.434	-1.418	-0.762	-0.784	-0.688	-0.728
	(2.846)	(2.840)	(2.816)	(2.811)	(2.545)	(2.219)
	-10.4%	-10.3%	-5.55%	-5.71%	-4.82%	-5.38%
Dividends	12.10***	12.09***	12.08***	12.09***	8.799***	8.996***
	(3.047)	(3.045)	(3.030)	(3.030)	(3.212)	(2.847)
	87.6%	87.6%	88.1%	88.1%	61.6%	66.5%
Inst. Ownership sum	-0.00502				-0.00438	
	(0.00590)				(0.00667)	
	-0.0363%				-0.0307%	
Inst. Ownership (>2%) sum		-0.00712				
		(0.00690)				
		-0.0516%				
Institutional owner dummy			-0.466			
			(0.395)			
			-3.40%			
Institutional & blockholder				-0.430		-0.139
				(0.395)		(0.373)
				-3.13%		-1.03%

Variables	1	2	3	4	5	6
Lagged variables	No	No	No	No	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.587	0.581	0.0649	-0.131	0.382	0.169
	(1.474)	(1.474)	(1.842)	(1.856)	(1.505)	(1.436)
Observations	3 332	3 332	3 372	3 372	2 713	3 256
Number of Firms	600	600	632	632	555	615

Like with the regressions regarding ownership concentration, including the almost zero-leveraged firms does not make any noteworthy difference and the results is thus placed in appendix 3. The major difference is that sum of institutional ownership is significant on a 10-percent level.

The absence of statistical significance for institutional ownership complicates a rejection of the null hypothesis that institutional ownership does not entail lower probability of zero leverage. The so far only indication there might exist a relationship is the weak significance on the almost zero-leveraged firms. Thus, either the alternative hypothesis that there are free-rider issues also within the institutional investors and thus less monitoring might be true, or these investors use exit instead of voice as governance mechanism.

4.2.3 ROBUSTNESS TESTS

A common issue within the corporate finance field is the one about endogeneity and reverse causality. That is if, in this case, the ownership structure affects the zero-leverage decision of a firm or if certain investors invest in the firms that are not zero-leveraged. In addition to lagging variables, additional regressions are run to test the robustness and causality of the regressions.

FINANCIAL CONSTRAINT

The most tested and confirmed hypothesis in the zero-leverage area is the one about financial constraint – many of the unlevered firms are unlevered due to financial constraint. Since these might differ from the voluntarily unlevered firms, which the results from the control variable regression in appendix 1 indicated, a separation of the two groups is justified. This separation,

in accordance with Strebulaev and Yang (2013), allows for an analysis of what drives, in particular interest, the unconstrained firms to be zero-leveraged. The separation is, as previously mentioned, made by splitting the firms in dividend-payers and non-dividend-payers. As table 8 in the descriptive statistics revealed, twice as many firms pay dividends if their biggest owner is institutional compared to firms in which the biggest owner is of any other kind, suggesting a relationship might be found if separating the sample.

Table 11 presents data descriptives for zero-leveraged firms split up between dividend-paying and non-paying firms. Using dividend-payment or not as proxy for financial constraint seems accurate since the dividend-paying firms are much bigger, more profitable and have higher tangibility. They also invest more and have lower non-debt tax shield and were to a higher degree unlevered the previous year, which indicates that they are unlevered by own choice. The constrained firms have higher cash holdings, perhaps to avoid underinvestment and maintain financial flexibility. The unconstrained firms further have more concentrated ownership and higher institutional ownership.

TABLE 11: ZERO-LEVERAGED FIRMS BY DIVIDEND-PAYING STATUS

	Dividend-paying		**Non-dividend-paying**	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Size	2834.185	10273.920	191.925	671.983
Cash ratio (%)	0.337	0.190	0.366	0.267
Profitability (%)	0.165	0.148	-0.275	0.460
Tangibility (%)	0.107	0.157	0.054	0.127
Investment (%)	0.030	0.040	0.019	0.048
Non-debt tax shield (%)	0.030	0.032	0.036	0.055
Dividends (%)	0.092	0.064	0.000	0.000
Initial zero-leverage	0.958	0.200	0.869	0.337
Sum blockholders	46.005	19.911	40.865	20.347
Sum institutional	16.224	16.378	12.465	19.296
Sum institutional >2%	12.180	14.597	9.275	15.627
Dispersed 5% dummy	0.004	0.065	0.019	0.137
Dispersed 10% dummy	0.063	0.243	0.070	0.255
Institutional dummy	0.100	0.301	0.104	0.306
Institutional blockholder	0.046	0.209	0.039	0.194

TABLE 12: OUTPUTS FROM DIVIDEND-PAYING FIRMS ONLY

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent are reported. The dependent variable is a dummy taking the value 1 if the firm is zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. To exclude the dummy trap the First North exchange is excluded from the model.

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Size	-1.315***	-1.413***	-1.230***	-1.354***	-1.369***	-1.300***	-1.296***
	(0.391)	(0.418)	(0.383)	(0.427)	(0.411)	(0.407)	(0.407)
	-3.59%	-3.73%	-3.06%	-3.57%	-3.57%	-3.07%	-3.07%
Cash holdings	13.86***	13.33***	14.04***	13.80***	14.01***	13.61***	13.60***
	(2.505)	(2.447)	(2.551)	(2.496)	(2.574)	(2.573)	(2.571)
	37.8%	35.2%	35.0%	36.4%	36.6%	32.2%	32.1%
Profitability	6.603***	7.553***	6.467***	6.658***	6.907***	6.513***	6.500***
	(2.212)	(2.220)	(2.124)	(2.206)	(2.226)	(2.239)	(2.236)
	18.0%	19.9%	16.1%	17.6%	18.0%	15.4%	15.4%
Tangibility	-3.280	-3.712	-3.749	-3.431	-3.438	-3.336	-3.311
	(3.013)	(2.959)	(2.915)	(2.974)	(3.078)	(3.070)	(3.066)
	-8.95%	-9.79%	-9.33%	-9.06%	-8.79%	-7.84%	-7.88%
Investment	0.452	-0.131	1.938	0.424	0.102	-0.924	-0.968
	(8.825)	(8.275)	(9.462)	(8.919)	(8.230)	(8.829)	(8.808)
	1.23%	-0.346%	-4.82%	1.12%	0.265%	-2.29%	-2.18%
Non-debt tax shield	16.48	17.25	15.85	16.78	15.79	18.42	18.32
	(12.37)	(12.09)	(12.52)	(12.58)	(12.14)	(12.30)	(12.29)
	45.0%	45.5%	39.4%	44.3%	41.2%	43.4%	43.5%
Dividends	59.44***	56.27***	64.55***	59.30***	60.99***	62.42***	62.55***
	(16.90)	(16.80)	(17.13)	(16.99)	(17.34)	(16.97)	(16.94)
	162.2%	148.4%	160.7%	156.5%	159.1%	148.2%	147.4%
Dividends^2	-194.6***	-188.7***	-211.4***	-193.9***	-203.2***	-204.7***	-205.2***
	(64.54)	(62.21)	(67.15)	(64.91)	(66.20)	(63.79)	(63.64)
	-530.9%	-497.8%	-526.2%	-511.7%	-530.2%	-486.1%	-483.3%
Blockholders sum		-0.0346					
		(0.0220)					
		-0.091%					
Inst. Ownership (>2%) sum			-0.0466***				
			(0.0160)				
			-0.116%				
Dispersed ownership dummy				1.748			
				(1.688)			
				4.61%			
Dispersed (10%) dummy					1.433**		
					(0.729)		
					3.74%		
Institutional owner dummy						-2.090**	
						(0.837)	
						-4.95%	
Institutional & blockholder							-2.072**
							(0.841)
							-4.89%
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.975	2.997	0.398	1.830	1.224	0.909	0.882
	(3.764)	(4.080)	(3.706)	(3.765)	(3.822)	(3.764)	(3.764)
Observations	1 322	1 322	1 322	1 322	1 322	1 322	1 322
Number of Firms	260	260	258	260	260	260	260

TABLE 13: OUTPUTS FROM NON DIVIDEND-PAYING FIRMS ONLY

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent are reported. The dependent variable is a dummy taking the value 1 if the firm is zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. To exclude the dummy trap the First North exchange is excluded from the model.

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Size	-0.832***	-0.875***	-0.847***	-0.841***	-0.860***	-0.831***	-0.831***
	(0.149)	(0.153)	(0.151)	(0.151)	(0.152)	(0.149)	(0.149)
	-7.76%	-8.07%	-7.83%	-7.86%	-7.91%	-7.75%	-7.76%
Cash holdings	4.582***	4.490***	4.512***	4.611***	4.613***	4.584***	4.586***
	(0.536)	(0.547)	(0.546)	(0.538)	(0.538)	(0.536)	(0.536)
	42.7%	41.4%	41.7%	43.1%	42.4%	42.8%	42.8%
Profitability	0.887**	0.944**	0.967**	0.889**	0.894**	0.886**	0.885**
	(0.421)	(0.417)	(0.425)	(0.425)	(0.419)	(0.421)	(0.420)
	8.17%	8.71%	8.93%	8.31%	8.22%	8.26%	8.26%
Tangibility	-2.779**	-2.956**	-2.716**	-2.756**	-2.746**	-2.780**	-2.780**
	(1.254)	(1.267)	(1.244)	(1.261)	(1.264)	(1.253)	(1.253)
	-25.9%	-27.3%	-25.1%	-25.8%	-25.3%	-25.9%	-25.9%
Investment	-9.059**	-9.264**	-9.058**	-9.339**	-9.716**	-9.060**	-9.058**
	(4.210)	(4.171)	(4.251)	(4.266)	(4.257)	(4.210)	(4.209)
	-84.5%	-85.5%	-83.7%	-83.7%	-89.4%	-84.5%	-84.5%
Non-debt tax shield	-2.202	-1.931	-2.608	-2.135	-2.365	-2.195	-2.190
	(2.867)	(2.830)	(2.910)	(2.891)	(2.849)	(2.865)	(2.866)
	-20.5%	-17.8%	-24.1%	-20.0%	-21.8%	-20.4%	-20.5%
Blockholders sum		-0.0183***					
		(0.00624)					
		-0.169%					
Inst. Ownership (>2%) sum			0.00145				
			(0.00726)				
			0.013%				
Dispersed ownership dummy				0.823			
				(0.745)			
				7.70%			
Dispersed (10%) dummy					0.757**		
					(0.297)		
					6.97%		
Institutional owner dummy						-0.0510	
						(0.412)	
						-0.476%	
Institutional & blockholder							-0.0360
							(0.410)
							-0.336%
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.961	2.050	1.269	1.487	1.978	1.953	2.663
	(3.440)	(1.363)	(1.327)	(3.312)	(3.453)	(3.439)	(1.728)
Observations	2 099	2 094	2 068	2 099	2 099	2 099	2 099
Number of Firms	526	525	520	526	526	526	526

Table 12 shows the results from regressions containing only dividend-paying firms and table 13 shows the opposite. By regressing the two firm-types separately, some interesting differences appear. Starting with size, a size increase entails less likelihood of zero leverage for non-

dividend-payers than dividend-payers, probably because the dividend-paying firms are larger and a unit-increase is relatively smaller in the unconstrained firms than in the constrained firms. Regarding cash holdings, the margin is slightly higher for non-payers, indicating that on average an increase in cash increases the probability of being unlevered more for constrained firms than unconstrained firms. The dividend-paying firms further show no significance regarding tangibility and investment, variables for which the non-dividend-paying firms show high statistical significance. An interpretation is that for unconstrained firms, tangibility and investment does not affect the choice of being unlevered, which it on the other hand does for constrained firms since these variables are connected to financial constraint. These findings are in line with the ones of Dang (2013).

In general, there is support for the financial constraints hypothesis for the constrained firms but not for the unconstrained firms. For those firms, the financial flexibility hypothesis and pecking order theory are instead dominant. Surprisingly, the non-debt tax shield is not significant for the unconstrained firms. Since these firms are most likely profitable and not probable of going bankrupt, they could according to the trade-off theory enhance the firm value by adding debt. It is however significant on a 13 percent-level, and more importantly it has a positive sign (compared to for constrained firms), suggesting that it might influence the zero-leverage decision.

Regarding ownership concentration, the sum of blockholding is highly significant for constrained firms but not for unconstrained firms. It may be that blockholders are more active monitors in the constrained firms, to try to get them on track again, which they do not have to with the unconstrained firms. The dummy for 10-percent dispersion however shows significance for both types of firms, showing that the ownership concentration still affects all firms to some degree. The marginal effects are further twice as high for constrained firms than for unconstrained firms, which is connected to the fact that blockholders are more active in these firms, and thus having dispersed ownership has a bigger impact on the zero-leverage decision in constrained firms.

What might be the most interesting part when comparing these two groups, is that for dividend-paying firms, the effect of having institutional owners is statistically significant. Both the sum of institutional ownership and the dummies for the biggest owner being institutional are statis-

tically significant and the negative sign confirms hypothesis 2, that more institutional ownership entails lower probability of the firm being zero-leveraged. They are however not significant for the non-dividend-paying firms. That might be either due to the lower presence of institutional investors in these firms, or that for these firms, there are other explanations dominating the zero leveraged decision, investment and tangibility for instance. The sum of institutional ownership further yields a lower economic effect than the dummy variables. This reveals that just having a large institutional owner affects the zero-leverage choice more than the aggregated amount of institutional ownership, indicating that the free-rider problem might be present amongst institutional owners as well.

In appendix 4 the results from also including almost zero-leveraged firms are shown. As no crucial difference was found it will not be further discussed.

CHANGES TO AND FROM ZERO LEVERAGE

Another dimension to investigate regarding the zero-leverage puzzle is the determinants of firms changing their capital structure to and from zero leverage. Panel A in table 15 shows the regression results from firms that had debt but went unlevered the following year. Panel B shows the results from firms that were zero-leveraged but issued debt to the following year. The independent variables are the same as in previous regressions but the values of them correspond to changes in the variable from one year to the next. Sum of blockholdings and sum of institutional ownership was chosen as only proxies for ownership concentration and identity since those are the only continuous variables.

TABLE 14: DATA DESCRIPTIVES FOR CHANGES TO AND FROM ZERO LEVERAGE

	Change to ZL		**Change from ZL**	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Size change	-.110	1.411	-.205	1.620
Cash change	.0267	.204	.033	.229
Profitability change	.018	.371	.012	.374
Tangibility change	-.010	.141	.009	.086
Investment change	-.0001	.048	.002	.046
Non-debt tax shield change	-.004	.063	.001	.044
Divivdend change	.003	.027	.0007	.040
Blockholders' sum change	-1.694	11.11	-.018	11.01
Institutional ownership sum change	-1.773	12.09	.246	13.67
Observations	383		418	

The data descriptives presented in table 14 shows that in the sample there has occurred a shift to and from being zero-leveraged about 400 times each. Some variables such as size, cash, profitability and dividend show similar values and, unexpectedly, the same sign. Tangibility, investment and institutional ownership, on the other hand, show means with opposite signs. For example, the mean for institutional ownership is substantially negative for the firms changing to zero leverage, in line with hypothesis 2, and opposite for the firms changing from zero leverage.

Variables for which changes with statistical significance affect the probability of changing to zero-leverage are cash holdings, tangibility, blockholding and institutional ownership (panel A). In panel B, the significant variables are cash holdings, profitability and investment. These also, logically, have the opposite sign as in panel A. Blockholding and institutional ownership are however not significant in these regressions.

The much higher marginal effect of cash holdings on the decision to leave zero-leverage show that zero-leveraged firms are more sensitive to cash changes. Ownership concentration and institutional ownership are as mentioned significant only on the decision to change to zero leverage, albeit the economic significance is very low for both variables. This however shows that these investors monitors the leveraged firms they have invested in, trying to hinder them from becoming zero-leveraged, which is in line with the hypotheses. An explanation of the non-significance on the decision to change from zero-leverage might be that these investors do not invest in the zero-leveraged firms from start and thus cannot monitor them.

TABLE 15: OUTPUTS FROM CHANGE REGRESSIONS

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent are reported. In panel A the dependent variable is a dummy taking the value 1 if the firm was leveraged and became zero-leveraged and in panel B the dependent variable is a dummy taking the value 1 if the firm was zero-leveraged and issued debt. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile.

	Panel A: Change to zero leverage			**Panel B: Change from zero leverage**		
Variables	**1**	**2**	**3**	**1**	**2**	**3**
Size	-0.0573	-0.240	-0.303*	-0.0943**	-0.179	-0.169
	(0.0457)	(0.168)	(0.174)	(0.0367)	(0.135)	(0.135)
	-0.308%	-1.20%	-1.50%	-1.50%	-2.83%	-2.67%
Cash holdings	1.547***	1.480**	1.590**	-1.240***	-1.524***	-1.499***
	(0.357)	(0.741)	(0.753)	(0.259)	(0.515)	(0.516)
	8.31%	7.38%	7.89%	-19.8%	-24.1%	-23.8%
Profitability	0.263	0.130	0.142	-0.379**	-0.630*	-0.605*
	(0.213)	(0.459)	(0.465)	(0.159)	(0.326)	(0.328)
	1.41%	0.647%	0.705%	-6.04%	-9.96%	-9.59%
Tangibility	-0.755	-2.668**	-2.498**	1.924***	1.482	1.599
	(0.507)	(1.090)	(1.078)	(0.634)	(1.340)	(1.367)
	-4.06%	-13.3%	-12.4%	30.7%	23.4%	25.4%
Investment	0.462	-2.055	-2.093	-0.553	7.981**	8.084**
	(1.186)	(2.738)	(2.735)	(1.218)	(3.492)	(3.505)
	2.48%	-10.2%	-10.4%	-8.80%	126.2%	128.2%
Non-debt tax shield	-0.701	2.322	1.899	-2.630**	-2.566	-2.736
	(1.153)	(3.083)	(3.067)	(1.257)	(3.175)	(3.173)
	-3.77%	-11.6%	-9.42%	-41.9%	-40.6%	-43.4%
Dividends	4.362**	4.636	4.692	0.731	3.286	3.289
	(2.032)	(3.733)	(3.708)	(1.518)	(2.525)	(2.527)
	23.4%	23.1%	23.3%	11.6%	52.0%	52.2%
Blockholders sum change		-0.0200**			0.00344	
		(0.00926)			(0.00903)	
		-0.099%			0.054%	
Inst. Ownership sum change			-0.0194***			-0.00434
			(0.00719)			(0.00752)
			-0.096%			-0.069%
Constant	-2.797***	-2.878***	-2.863***	-1.402***	-1.385***	-1.383***
	(0.0549)	(0.101)	(0.100)	(0.0586)	(0.101)	(0.101)
Observations	6 305	2 104	2 104	1 964	660	658

5 CONCLUSIONS

First of all, the univariate analysis reveals that the zero-leverage puzzle is present in Sweden since more than a quarter of all Swedish firms are unlevered. In accordance with other literature on the topic, the control variable analysis show that firms are more likely to be zero-leveraged if they are small, hold much cash, have few tangible assets and high dividend payouts. For financially constrained firms it also holds that they invest less and for unconstrained firms it holds that they have higher non-debt tax shields.

Hypothesis 1 is accepted as it is shown that the more concentrated ownership a firm has, the lower the probability of the firm being zero-leveraged. The dummy testing if dispersed firms are more likely to be unlevered shows no significance, although when setting the dispersion-limit to 10 percent instead of 5 percent, the dummy shows significance which indicates that if the firm has dispersed ownership, it is more likely to be zero-leveraged. Ownership concentration can thus help explain the zero-leverage puzzle.

Hypothesis 2 cannot be generally accepted since no relation can be found in the regular model. When including almost zero-leveraged firms, there is however some significance, indicating a negative relationship between institutional ownership and zero-leverage. High statistical significance of institutional ownership on the decision to change from being indebted to being zero-leveraged and if being a financially unconstrained firm, further strengthens the indications that institutional ownership in fact affects the zero-leverage decision of a firm. Ownership identity can therefore help explain the zero-leverage puzzle for some firms.

5.1 CONCLUDING DISCUSSION

This study revealed and confirmed the characteristics of firms that are more or less likely to be zero-leveraged. Some of the variables however show significance only when the sample is separated into financially constrained and unconstrained firms. The considerably differing results from the regressions in which the sample is divided into dividend-paying and non-paying firms indicate that running regressions on the full sample may not be optimal. The results from this study, together with results from other studies establishes that there are two types of firms that are zero-leveraged. As one of them is the involuntarily, financially constrained firms, the perhaps most interesting part of the zero-leverage puzzle is in fact the voluntarily unlevered firms.

In short, the theories and hypotheses for which support can be found in this study is the financial constraint hypothesis which can be seen on the regression done on the non-dividend-paying firms as they are less tangible and in need of taking debt if they invest. Also the financial flexibility and underinvestment hypotheses are confirmed as the zero-leveraged firms tend to hold much cash, specially the constrained ones. For the unconstrained firms also the pecking order theory can be confirmed since these firms are profitable, hold much cash and are not more inclined to take on debt after investing.

The active monitoring hypothesis is also supported by the results since the ownership concentration variable with robustness show significance for all regressions except for the decision of changing from being zero-leveraged to being levered and for dividend-paying firms. This proves that the more concentrated ownership, the more incentives and possibilities to monitor management and increase firm value by not being zero-leveraged. Thus, the alternative hypothesis that blockholders substitute the monitoring function of debt and firms with concentrated ownership are more likely to be unlevered, can thus be rejected. As the study also tested ownership concentration/dispersion by including dummy variables it enables a more in-depth analysis. For example, the dummy of 5 percent dispersion is insignificant for all regressions while the dummy of 10 percent is significant in all cases. This means that if the biggest owner owns at least 10 percent of the firm, it monitors the management more than if it only owns at least 5 percent. Noteworthy in this discussion is though that very few firms are dispersed on a 5-percent level, as only around 1.5 percent are lacking at least one blockholder.

Further, a limitation of this study is, as mentioned above, that it does not control for whether the blockholders are also insiders, due to inaccessibility for historical data regarding insider ownership. Yet, if a hypothesis would be drawn regarding insider ownership, it would be that insider ownership is expected to increase the probability of being zero-leveraged since they could be assumed to have much of their personal wealth in the company and if it is a manager, he/she would have less cash to use for personal benefits. This, in addition to previous research finding insider ownership to cause more likelihood of zero leverage, suggests that the effects of blockholders would probably be even higher if controlling for insider ownership.

The implications on capital structure of having institutional owners are interesting since previous literature has found inconclusive results, and so does this study. For instance, the first re-

gression testing effects of institutional ownership shows no significance. Although when including the almost zero-leveraged firms there is significance on a 10-percent level for institutional ownership when the variables are lagged. Moving forward, there is also significance for the dividend-paying firms but no significance at all for the non-dividend-paying firms. This might however indicate that institutional investors are seeking to invest in firms which pay dividends and are thus more active monitors in those firms. Finally, there is partly significance for institutional ownership also for the change regressions where increased institutional ownership decreases the probability of the firm changing to zero leverage while there is no significance for firms changing from zero leverage. This might indicate that institutional investors prefer to invest in leveraged firms and in those firms monitor to not become zero-leveraged while they may not invest in zero-leveraged firms or if they invest in zero-leveraged firms they may not care to lever it up. The difference between the sum of institutional ownership and the sum of institutions owning more than 2 percent is further marginal which suggests that the smaller owners do not to a large extent actively engage in monitoring.

The non-significance in most cases indicate that institutional investors do not monitor the firm as much as predicted, perhaps due to free-rider problems if there are several investors. Another explanation might be that they have not realised that firm value can be increased if adding debt, or, as mentioned in the limitations of this study, that the group "institutional investors" is not homogenous, and thus have different purposes when investing in a company.

For all firms, debt has potential to increase the value of a firm in the sense that it through interest obligations and covenants disciplines the management and hinders it from wasting resources. The more palpable benefit of debt is however that it enhances firm value by the tax shield it brings. This tax shield however is conditional of the firm not having other high tax shields and more importantly, that the firm has positive and stable earnings. Therefore, a reason of why there is no significance for institutional investors on the constrained firms might be that in these firms there is no value to gain by adding debt, and thus they instead keep the debt levels zero.

A last note to discuss is the, in general, barely-existent difference between zero-leveraged firms and almost zero-leveraged firms. It suggests that the almost zero-leveraged firms behave similarly to the completely zero-leveraged. The main reason might however be that in the regressions to test the hypothesis, there is only around 15 more firms in the sample, and less than 100

more observations. Hence, for the sample used in this study, the inclusion of almost zero-leveraged firms has not contributed with deeper insights, but cautions should be taken if to generalise that conclusion as it might differ for other markets and samples.

5.2 THEORETICAL AND PRACTICAL IMPLICATIONS

This study has generated several contributions to both theory and practice. From a theoretical perspective, it strengthens the financial constraints hypothesis, the financial flexibility hypothesis and the active monitoring hypothesis, while further showing that the traditional capital structure theories are obsolete. One main finding of this research is the distinction of financially constrained and unconstrained firms, proving that the topic of capital structures is not homogeneous, but different theories apply to different types of firms.

Second, the practical implications are twofold. One is for firms who wish to target institutional investors, who should thus not aim for being zero-leveraged. The other implication concerns investors who, depending on their own preferences (zero-leverage or not) can investigate what investors the firm has before investing.

5.3 FUTURE RESEARCH

For sixty years, the traditional view of corporate finance, set by Modigliani and Miller, has been the most dominant and most widely studied. However, as reality reveals itself not to be like theory, many attempts to explain lower-than-optimal leverage ratios have been made the last decades. This paper contributes to the research but there is still much left to study.

In general, future research would gain from separating financially constrained firms from unconstrained firms from start since these show different characteristics. The method to separate the firms used in this paper, i.e. dividend-paying versus non-dividend-paying, seems to be an accurate measure, albeit it might not be the most precise one. Thus, suggestions for future research is to investigate which is the most accurate measure and use that separation in future research. Also other variables regarding ownership are still to be investigated. More research regarding family firms, insiders, different types of institutional investors is justified as it seems to have a significant impact on the likelihood of zero-leverage. To compare if the same results are found in countries with different ownership governance systems would also be interesting,

especially since Bessler et al. (2013) find that countries with the common law system inhibit more zero-leveraged firms than countries with the civil law system, like Sweden.

Another factor that might affect the zero-leverage phenomenon is the new rules about the capitalisation of leases that apply to certain accounting standards. These have previously been accounted for as a rental expense only, but from 2019, firms are supposed to capitalise these and account as an asset and debt respectively. This might generate a shift in the number of zero-leveraged firms.

Moreover, an interesting aspect to study is the effects of being zero-leveraged. Does it lead to higher or lower profitability, or more or less consumed perquisites? Do these firms perform better after an increase in interest rates and during recessions?

The findings from this study are significant in many aspects and thus contributing to the literature, however, the zero-leverage puzzle still remains partly unsolved and future research within the topic is justified and encouraged.

REFERENCES

Agrawal, A. & Mandelker, G. N., 1990. Large Shareholders and the Monitoring of Managers: The Case of Antitakeover Charter Amendments. *Journal of Financial and Quantitative Analysis*, June, 25(2), pp. 143-161.

Agrawal, A. & Nagarajan, N. J., 1990. Corporate Capital Structure, Agency Costs, and Ownership Control: The Case of All-Equity Firms. *The Journal of Finance*, September, XLV(4), pp. 1325-1331.

Akerlof, G. A., 1970. The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84(3), pp. 488-500.

Anderson, R. C. & Reeb, D. M., 2003. Founding-Family Ownership and Firm Performance: Evidence from the S&P 500. *The Journal of Finance*, 58(3), pp. 1301-1328.

Baker, M. & Wurgler, J., 2002. Market Timing and Capital Structure. *The Journal of Finance*, LVII(1), pp. 1-32.

Bessler, W., Drobetz, W., Haller, R. & Meier, I., 2013. The international zero-leverage phenomenon. *Journal of Corporate Finance*, Volume 23, pp. 196-221.

Bhojraj, S. & Sengupta, P., 2003. Effect of Corporate Governance on Bond Ratings and Yields: The Role of Institutional Investors and Outside Directors. *The Journal of Business*, 76(3), pp. 455-475.

Brailsford, T. J., Oliver, B. R. & Pua, S. L. H., 2002. On the relation between ownership structure and capital structure. *Accounting and Finance*, Volume 42, p. 1–26.

Bryman, A. & Bell, E., 2015. *Business research methods.* 5 ed. Oxford: Oxford University Press.

Byoun, S. & Xu, Z., 2013. Why Do Some Firms Go Debt Free?. *Asia-Pacific Journal of Financial Studies*, Volume 42, p. 1–38.

Céspedes, J., González, M. & Molina, C. A., 2010. Ownership and capital structure in Latin America. *Journal of Business Research*, Volume 63, p. 248–254.

Chaganti, R. & Damanpour, F., 1991. Institutional Ownership, Capital Structure, and Firm Performance. *Strategic Management Journal*, 12(7), pp. 479-491.

Chung, C. Y. & Wang, K., 2014. Do institutional investors monitor management? Evidence from the relationship between institutional ownership and capital structure. *North American Journal of Economics and Finance*, Volume 30, pp. 203-233.

Dang, C., Li, Z. & Yang, C., 2018. Measuring Firm Size in Empirical Corporate Finance. *Journal of Banking and Finance*, January, Volume 86, pp. 159-176.

Dang, V. A., 2013. An empirical analysis of zero-leverage firms: New evidence from the UK. *International Review of Financial Analysis*, Volume 30, pp. 189-202.

DeAngelo, L. & DeAngelo, H., 2007. Capital structure, payout policy, and financial flexibility. *Working Paper, University of Southern California*.

Devos, E., Dhillon, U., Jagannathan, M. & Krishnamurthy, S., 2012. Why are firms unlevered?. *Journal of Corporate Finance*, Volume 18, pp. 664-682.

Dudley, E., 2012. Capital Structure and Large Investment Projects. *Journal of Corporate Finance*, 18(5), pp. 1168-1192.

Edmans, A., 2014. Blockholders and corporate governance. *Annual Review of Financial Economics*, December, Volume 6, pp. 23-50.

El Ghoul, S., Guedhami, O., Kwok, C. & Zheng, X., 2017. Zero-Leverage Puzzle: An International Comparison. *Review of Finance*, 22(3), p. 1063–1120.

Farinha, J., 2003. Dividend Policy, CorporateGovernance and the ManagerialEntrenchment Hypothesis: AnEmpirical Analysis. *Journal of Business Finance & Accounting*, 30(9/10), pp. 1173-1211.

Faulkender, M. & Petersen, M. A., 2006. Does the Source of Capital Affect Capital Structure?. *Review of Financial Studies*, 19(1), pp. 45-79.

Finansinspektionen, 2018. *Transaktioner utförda av personer i ledande ställning – insynshandel.* [Online]
Available at: https://www.finansinspektionen.se/sv/marknad/investerare/transaktioner-utforda-av-personer-i-ledande-stallning--insynshandel/
[Accessed 11 04 2019].

Ghose, B. & Kabra, K. C., 2016. What determines firms' zero-leverage policy in India?. *Managerial Finance*, 42(12), pp. 1138-1158.

Herman, E. S., 1982. *Corporate Control, Corporate Power,*. Cambridge: Cambridge University Press.

Huang, Z., Li, W. & Gao, W., 2017. Why do firms choose zero-leverage policy? Evidence from China. *Applied Economics*, 49(28), p. 2736–2748.

Jensen, M. C. & Meckling, W. H., 1976. Theory of the Firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), pp. 305-360.

Korteweg, A., 2010. The Net Benefits to Leverage. *The Journal of Finance*, December, LXV(6), pp. 2137-2170.

Kraus, A. & Litzenberger, R. H., 1973. A State-Preference Model of Optimal Financial Leverage. *The Journal of Finance*, 28(4), pp. 911-922.

Le, T. P. V. & Tannous, K., 2017. Ownership structure and capital structure: a study of Vietnamese listed firms. *Australian Economic Papers*, December, pp. 319-344.

Margaritis, D. & Psillaki, M., 2010. Capital structure, equity ownership and firm performance. *Journal of Banking and Finance*, Volume 34, p. 621–632.

Modigliani, F. & Miller, M. H., 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, June, XLVIII(3), pp. 261-269.

Modigliani, F. & Miller, M. H., 1963. Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, 58(3), pp. 433-443.

Myers, S. C., 1997. Determinants of Corporate Borrowing. *Journal of Financial Economics*, 5(2), pp. 147-175.

Myers, S. C. & Majluf, N. S., 1984. Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have. *Journal of Financial Economics*, 13(2), pp. 187-221.

Ogden, J., Jen, F. C. & O'Connor, P., 2002. *Advanced Corporate Finance.* 1 ed. Upper Saddle River, NJ: Pearson Education.

Ramalho, J. J., Rita, R. M. & da Silva, J. V., 2018. The impact of family ownership on capital structure of firms: Exploring the role of zero-leverage, size, location and the global financial crisis. *International Small Business Journal: Researching Entrepreneurship*, 36(5), p. 574–604.

Ruan, W., Tian, G. & Ma, S., 2011. Managerial Ownership, Capital Structure and Firm Value: Evidence from China's Civilian-run Firms. *Australasian Accounting, Business and Finance Journal*, 5(3), pp. 73-92.

Shleifer, A. & Vishny, R. W., 1986. Large Shareholders and Corporate Control. *Journal of Political Economy*, 94(3), pp. 461-488.

Strebulaev, I. A. & Yang, B., 2013. The mysteryofzero-leveragefirms. *The Journal of Financial Economics*, Volume 109, pp. 1-23.

Stultz, R. M., 1988. Managerial control of voting rights: Financing policies and the market for corporate control. *Journal of Financial Economics*, Volume 20, pp. 25-54.

Sun, J., Ding, L., Guo, J. M. & Li, Y., 2016. Ownership, capital structure and financing decision: Evidence from the UK. *The British Accounting Review*, Volume 48, p. 448e463.

Takami, S., 2016. Factors inhibiting Japanese firms from zero leverage: financial constraints and bank relationships. *Asia-Pacific Journal of Accounting & Economics*, 23(2), pp. 161-176.

Thomsen, S. & Pedersen, T., 2000. Ownership structure and economic performance in the largest European companies. *Strategic Management Journal*, 21(6), pp. 689-705.

Wooldridge, J. M., 2013. *Introductory Econometrics: A Modern Approach.* 5 ed. Mason(OH): South Western, Cengage Learning.

APPENDIX

REGRESSIONS WITH ALMOST ZERO-LEVERAGED FIRMS

APPENDIX 1: CONTROL VARIABLES REGRESSION

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent are reported. The dependent variable is a dummy taking the value 1 if the firm is zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. In column 5-6 variables are lagged one year. To exclude the dummy trap the manufacturing industry is excluded from the model.

Variables	**1**	**2**	**3**	**4**	**5**	**6**
Size	-0.615***	-0.624***	-0.599***	-0.621***	-0.529***	-0.530***
	(0.0547)	(0.0571)	(0.0563)	(0.0555)	(0.0503)	(0.0515)
	-5.25%	-5.33%	-5.09%	-5.29%	-4.44%	-4.40%
Cash holdings	4.361***	4.474***	4.348***	4.323***	4.350***	4.298***
	(0.330)	(0.334)	(0.330)	(0.336)	(0.335)	(0.338)
	37.2%	38.2%	36.9%	36.8%	36.5%	35.7%
Profitability	0.668***	0.768***	0.675***	0.634***	0.513**	0.488**
	(0.227)	(0.230)	(0.226)	(0.225)	(0.231)	(0.232)
	5.70%	6.56%	5.74%	5.40%	4.30%	4.05%
Tangibility	-3.361***	-3.305***	-3.329***	-3.075***	-2.087***	-1.740**
	(0.752)	(0.756)	(0.745)	(0.751)	(0.726)	(0.710)
	-28.7%	-28.2%	-28.3%	-26.2%	-17.5%	-14.5%
Investment	1.403	1.555	1.418	-4.557	-1.818	-10.89***
	(1.370)	(1.360)	(1.353)	(3.050)	(1.693)	(3.268)
	12.0%	13.3%	12.1%	-38.8%	-15.2%	-90.5%
Non-debt tax shield	-1.449	-1.252	-1.427	-5.046**	-0.568	-4.499**
	(1.583)	(1.596)	(1.581)	(2.239)	(1.308)	(2.013)
	-12.4%	-10.7%	-12.1%	-43.0%	-4.76%	-37.4%
Dividend ratio	11.16***		13.37***	18.41***	7.871***	12.42**
	(1.934)		(2.374)	(4.569)	(1.778)	(4.837)
	95.3%		113.7%	156.7%	66.0%	103.1%
Dividend-payer		0.470**	-0.335*			
		(0.187)	(0.223)			
		4.01%	-2.84%			
Dividend^2				-40.92*		-23.77
				(22.97)		(22.79)
				-348.3%		-197.5%
Investment^2				21.33**		32.89***
				(9.219)		(10.73)
				181.6%		273.2%
NDTS^2				11.69**		12.21***
				(5.871)		(4.479)
				99.5%		101.4%
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Lagged variables	No	No	No	No	Yes	Yes
Constant	-0.594	-0.699	-0.631	-0.444	-0.879**	-0.676
	(0.434)	(0.443)	(0.434)	(0.446)	(0.446)	(0.453)
Observations	8 507	8 507	8 507	8 507	7 529	7 529
Number of Firms	887	887	887	887	849	849

APPENDIX 2: OUTPUTS FROM OWNERSHIP CONCENTRATION REGRESSIONS INCL. ALMOST ZERO-LEV

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent is reported. The dependent variable is a dummy taking the value 1 if the firm is almost zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. In column 4-6 variables are lagged one year. To exclude the dummy trap the manufacturing industry and NGM exchange are excluded from the model.

VARIABLES	1	2	3	4	5	6
Size	-0.694***	-0.662***	-0.678***	-0.829***	-0.809***	-0.720***
	(0.123)	(0.122)	(0.121)	(0.123)	(0.123)	(0.0978)
	-8.52%	-8.19%	-8.34%	-9.49%	-9.29%	-8.86%
Cash holdings	6.193***	6.362***	6.296***	4.983***	5.117***	4.583***
	(0.583)	(0.583)	(0.582)	(0.594)	(0.581)	(0.491)
	76.0%	78.7%	77.4%	57.0%	58.7%	56.4%
Profitability	1.015***	0.927**	0.955**	1.161***	1.208***	0.662**
	(0.388)	(0.389)	(0.387)	(0.379)	(0.380)	(0.313)
	12.5%	11.5%	11.7%	13.3%	13.9%	8.14%
Tangibility	-2.962***	-2.691***	-2.900***	-2.004**	-1.839*	-1.852**
	(1.000)	(0.980)	(1.008)	(0.945)	(0.940)	(0.869)
	-36.4%	-33.3%	-35.7%	-22.9%	-21.1%	-22.8%
Investment	-1.845	-1.954	-2.093	-1.747	-1.972	-2.876
	(2.635)	(2.637)	(2.664)	(3.051)	(3.044)	(2.739)
	-22.7%	-24.2%	-25.7%	-19.9%	-22.6%	-35.4%
Non-debt tax shield	-1.258	-1.344	-1.599	-0.194	-0.00842	-0.939
	(2.691)	(2.692)	(2.701)	(2.904)	(2.873)	(2.321)
	33.0%	33.3%	33.2%	-2.22%	-.097%	-11.6%
Dividends	14.53***	14.85***	14.63***	10.71***	10.83***	9.872***
	(3.465)	(3.419)	(3.410)	(3.359)	(3.361)	(2.698)
				122.5%	124.3%	121.5%
Blockholders sum	-0.0125**			-0.00492		
	(0.00567)			(0.00690)		
	-0.15%			-0.56%		
Dispersed (5%) dummy		0.294			1.220**	
		(0.658)			(0.604)	
		3.63%			14.0%	
Dispersed (10%) dummy			0.355			0.107
			(0.252)			(0.257)
			4.37%			1.32%
Control variables lagged	No	No	No	Yes	Yes	Yes
Independent variables lagged	No	No	No	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.582	0.943	-0.336	1.817	1.827	1.800*
	(1.072)	(1.043)	(1.490)	(1.202)	(1.124)	(1.002)
Observations	3.414	3.390	3.422	2.755	2.734	3.308
Number of Firms	640	635	642	564	559	625

APPENDIX 3: OUTPUTS FROM OWNERSHIP IDENTITY REGRESSIONS INLC. ALMOST ZERO-LEV

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent is reported. The dependent variable is a dummy taking the value 1 if the firm is almost zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. In column 3-4 variables are lagged one year. To exclude the dummy trap the manufacturing industry and NGM exchange are excluded from the model.

VARIABLES	1	3	4	6
Size	-0.668***	-0.659***	-0.803***	-0.705***
	(0.123)	(0.122)	(0.121)	(0.0978)
	-8.19%	-8.12%	-9.25%	-8.67%
Cash holdings	6.263***	6.324***	5.048***	4.602***
	(0.596)	(0.583)	(0.583)	(0.490)
	76.8%	77.9%	58.2%	56.6%
Profitability	0.935**	0.925**	1.112***	0.653**
	(0.392)	(0.388)	(0.372)	(0.312)
	11.5%	11.4%	12.8%	8.03%
Tangibility	-2.869***	-2.913***	-2.032**	-1.884**
	(0.993)	(1.009)	(0.935)	(0.865)
	-35.2%	-35.9%	-23.4%	-23.2%
Investment	-1.715	-1.947	-1.669	-2.828
	(2.647)	(2.662)	(2.973)	(2.743)
	-21.0%	-24.0%	-19.2%	-34.8%
Non-debt tax shield	-1.872	-1.444	-0.257	-0.789
	(2.703)	(2.690)	(2.866)	(2.301)
	-23.0%	-17.8%	-2.96%	-9.70%
Dividends	14.86***	14.67***	11.06***	9.875***
	(3.391)	(3.396)	(3.349)	(2.703)
	182.2%	180.7%	127.4%	121.4%
Inst. Ownership sum	-0.00816		-0.0106*	
	(0.00538)		(0.00605)	
	-0.10%		-0.122%	
Institutional & blockholder		-0.429		-0.394
		(0.283)		(0.274)
		-5.28%		-4.84%
Control variables lagged	No	No	Yes	Yes
Independent variables lagged	No	No	Yes	Yes
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes
Constant	1.042	-0.193	1.619	1.682*
	(1.043)	(1.456)	(1.137)	(0.997)
Observations	3.384	3.422	2.755	3.308
Number of Firms	610	642	564	625

APPENDIX 4: OUTPUTS FROM REGRESSIONS SPLIT UP BETWEEN DIVIDEND-PAYING AND NON-DIVIDEND-PAYING FIRMS

The table shows the results from the logit regressions. Coefficients, standard errors (parenthesis) and marginal effects at mean in percent are reported. The dependent variable is a dummy taking the value 1 if the firm is almost zero-leveraged. The variables are presented in the methodology section. ***, ** and * shows statistical significance at the 1%, 5% and 10% level respectively. All variables are winsorised at the 1st and 99th percentile. To exclude the dummy trap the First North exchange is excluded from the model.

	Panel A: dividend-paying firm						
VARIABLES	1	2	3	4	5	6	7
Size	-1.066***	-1.136***	-1.000***	-1.096***	-1.083***	-1.037***	-1.035***
	(0.236)	(0.240)	(0.230)	(0.241)	(0.236)	(0.232)	(0.232)
Cash holdings	8.797***	8.561***	8.425***	8.780***	8.703***	8.578***	8.544***
	(1.662)	(1.668)	(1.664)	(1.671)	(1.659)	(1.651)	(1.650)
Profitability	7.410***	7.857***	7.891***	7.321***	7.545***	7.375***	7.358***
	(1.855)	(1.877)	(1.869)	(1.864)	(1.861)	(1.833)	(1.833)
Tangibility	-4.353**	-4.465**	-4.600**	-4.508**	-4.326**	-4.339**	-4.373**
	(1.987)	(1.985)	(2.009)	(2.008)	(1.984)	(1.958)	(1.958)
Investment	10.15*	9.682	8.650	10.13*	9.927	9.714	9.583
	(6.068)	(6.048)	(6.195)	(6.104)	(6.109)	(6.028)	(6.031)
Non-debt tax shield	-16.10*	-15.06*	-16.18*	-15.95*	-16.45**	-15.60*	-15.47*
	(8.245)	(8.207)	(8.453)	(8.276)	(8.220)	(8.112)	(8.098)
Dividends	10.78***	9.553***	11.94***	10.65***	10.61***	10.97***	10.98***
	(3.641)	(3.694)	(3.691)	(3.661)	(3.635)	(3.616)	(3.615)
Blockholders sum		-0.0207*					
		(0.0115)					
Inst. Ownership (>2%) sum			-0.0446***				
			(0.0113)				
Blockholder dummy				-2.307*			
				(1.371)			
Blockholder (10%) dummy					-0.680		
					(0.509)		
Institutional owner dummy						-0.674	
						(0.467)	
Institutional & blockholder							-0.904*
							(0.469)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	4.858	6.081**	4.819	7.369**	5.664*	4.743	4.744
	(2.982)	(3.029)	(2.951)	(3.372)	(3.045)	(2.919)	(2.915)
Observations	1,326	1,324	1,322	1,326	1,326	1,326	1,326
Number of Firms	262	262	260	262	262	262	262

	Panel B: non dividend-paying firm						
VARIABLES	1	2	3	4	5	6	7
Size	-0.582***	-0.606***	-0.600***	5.726***	5.701***	5.751***	5.747***
	(0.100)	(0.102)	(0.101)	(0.502)	(0.500)	(0.503)	(0.503)
Cash holdings	5.727***	5.607***	5.664***	0.666**	0.683**	0.660**	0.662**
	(0.501)	(0.502)	(0.510)	(0.305)	(0.304)	(0.306)	(0.306)
Profitability	0.666**	0.731**	0.685**	-3.037***	-3.019***	-3.042***	-3.042***
	(0.305)	(0.307)	(0.309)	(0.819)	(0.818)	(0.820)	(0.820)
Tangibility	-3.037***	-3.159***	-2.918***	-3.566	-3.864	-3.562	-3.569
	(0.819)	(0.826)	(0.818)	(2.700)	(2.707)	(2.700)	(2.700)
Investment	-3.555	-3.565	-3.402	-0.849	-0.920	-0.813	-0.826
	(2.697)	(2.712)	(2.715)	(1.999)	(1.996)	(2.000)	(2.000)
Non-debt tax shield	-0.846	-0.582	-1.067				
	(1.999)	(2.003)	(2.017)				
Dividends							
Blockholders sum		-0.0139***					
		(0.00496)					
Inst. Ownership (>2%) sum			0.00429				
			(0.00604)				
Blockholder dummy				-0.0524			
				(0.596)			
Blockholder (10%) dummy					-0.473**		
					(0.229)		
Institutional owner dummy						-0.251	
						(0.316)	
Institutional & blockholder							-0.220
							(0.317)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exchange	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.080	1.672	1.105	1.106	1.236	1.175	1.048
	(3.089)	(1.100)	(1.076)	(3.088)	(2.967)	(3.162)	(3.088)
Observations	2,099	2,094	2,066	2,099	2,099	2,099	2,099
Number of Firms	526	525	497	526	526	526	526

APPENDIX 5: LIKELIHOOD RATIO TEST

The table shows the results from the likelihood ratio test conducted to see which model suit bets. Estimation A is the base regression and estimation B is the base regression including the quadratic terms of dividend ratio, investment ratio and non-debt tax shield ratio. A is thus nested in B.

Likelihood-ratio test		LR chi2(3)	= 18.77
(Assumption: A nested	in B)	Prob > chi2	= 0.0003

APPENDIX 6: BOX TIDWELL TEST

The table shows the results from the Box Tidwell test conducted to investigate the linearity of the log odds.

LR test of rho=0: chibar2(01) = 522.25 Prob >= chibar2 = 0.000

Variable	Coefficient	Std. Err.	z	
Size	-0.823	0.086	-9.56	Nonlin. dev. 4.554 (P = 0.033)
p1	1.814	0.396		
Cash holdings	4.679	0.495	9.45	Nonlin. dev. 18.610 (P = 0.000)
p1	0.335	0.095		
Profitability	1.171	0.33	3.55	Nonlin. dev. 40.548 (P = 0.000)
p1	10.077	2.314		
Tangibility	-2.481	0.949	-2.61	Nonlin. dev. 15.481 (P = 0.000)
p1	0.317	0.116		
Investment	-6.166	3.186	-1.97	Nonlin. dev. 0.200 (P = 0.654)
p1	0.629	0.442		
Non-debt tax shield	0.769	2.189	0.35	Nonlin. dev. 8.306 (P = 0.004)
p1	-0.045	0.162		
Dividend ratio	8.516	2.743	3.10	Nonlin. dev. 0.168 (P = 0.682)
p1	0.875	0.442		
Blockholders sum	-0.018	0.005	-3.32	Nonlin. dev. 0.059 (P = 0.807)
p1	1.174	0.852		
Inst. Ownership sum	0.004	0.011	0.33	Nonlin. dev. 0.000 (P = 1.000)
p1	-3.645	41.992		
Inst. Ownership (>2%) sum	-0.004	0.006	-0.57	Nonlin. dev. 0.083 (P = 0.774)
p1	0.38	1.585		