DUAL CLASS STRUCTURES

EFFECT ON

EARNINGS MANAGEMENT

An empirical study on the effects of dual class structures on earnings management activities in Swedish listed firms within the time period 2010-2014

This thesis contributes to the heated debate on the costs and benefits of the dual class structure by investigating its effect on earnings management. With a refined research design applied to a Swedish setting, where dual class firms are more prevalent than in most other developed countries in the world, the report provides a basis for future research and for intriguing international comparisons. This study performs tests on the direction as well as the causality of the relationship between dual class structures and earnings management. The major finding is that there is a statistically significant negative association. By addressing endogeneity concerns with instrumental variables, a statistically significant causality of dual class structures leading to less earnings management is also found. Given that discretionary accruals is a good proxy for earnings management, the results indicate that on average, managers of dual class firms engage in less earnings management activities than managers of single class firms. Additionally, a statistically significant U-shaped relationship between the disproportionality of distributed voting rights across share classes and earnings management is found in dual class firms. The effects of dual class structures appear to not only be dependent on adopting the structure, but also depend on the specific voting ratio and the number of shares in each share class.

Keywords: Ownership Structures, Dual Class Shares, Earnings Management, Agency Theory

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1 INTRODUCTION

In recent years there has been a heated debate about disproportional ownership, which is characterized by a separation of ownership and control. This separation can be created through adopting a dual class ownership structure. By issuing multiple classes of shares with different voting rights, the structure allows control to be concentrated amongst certain owners without requiring a proportional stake of the capital. The divergence is expected to impact the controlling owners' interests in the firm, which may be unaligned with the interests of other shareholders. This type of ownership structure has therefore gained increasing attention from regulators, media and financial markets. Legal protection of minority shareholders and ways to align incentives between managers and outside investors are regarded as highly important. Regulators are interested in the allocation of resources to enforce standards, and investors are curious to understand the economic consequences of dual class structures. To contribute to the debate researchers are interested in investigating the determinants, nature and economic effects of this structure (Nguyen and Xu, 2010).

To date research has examined the determinants and part of the economic effects of dual class structures, such as its association with market value, operating performance, earnings and dividends informativeness, and managerial rent extraction. Despite the importance of reporting judgment and earnings management, there remains a paucity of evidence on the association between ownership structures and earnings management (Athanasakou, 2010). This report is an extension of the literature and aims to increase knowledge concerning the implications of dual class structures on financial reporting choices.

In the past two decades there has been a decreasing trend in the number of dual class firms across countries due to opposition from institutional investors and regulators advocating for more democratic ownership structures. However, dual class structures are still common in many countries (La Porta et al. 1999) and favored by large tech companies such as Google, LinkedIn, Facebook, Groupon and Zynga, which all chose to adopt a dual class structure at the time of their recent initial public offerings (IPOs). In Google's IPO prospectus, the rationale behind the decision is stated as: *"Dual class ownership has allowed these companies to concentrate on their core, long-term interest in serious news coverage, despite fluctuations in quarterly results"* (Founders' IPO Letter, Google, 2004).

Research in the area by DeAngelo and DeAngelo (1985) and Dimitri and Jain (2006) confirm that in general, managers of dual class firms focus on the firm's long-term performance rather than its short-term earnings targets. Nguyen and Xu (2010) suggest that managers' ability to have a long-term perspective could lead to less asymmetric information

between insiders and outside investors. Their findings show better reporting judgment with less earnings management in dual class firms. For the wider economy, short-termism within firms could be devastating and has been highlighted as a key concern as benchmark targets pressure firms on a quarter-to-quarter basis.[1] A contradicting line of research argues that expropriation of minority shareholders increases as the controlling owners often are managers and directors of firms (Bebchuk et al., 2000). As increased managerial control can result in entrenchment against pressure from corporate governance mechanisms, managers' ability to expropriate other shareholders and act in their own self-interest may lead to more earnings management activities (Cronqvist and Nilsson, 2003).

Following a literature review, the inconsistency and contradictory findings suggest that the association between the prevalence of dual class shares and earnings management remains an empirical question. This report aims to contribute with additional evidence by studying a sample of Swedish listed firms within the time period of 2010 to 2014. With a majority of studies performed in the U.S., where dual class firms only constitute 6% of firms, there is considered to be a need for further research in a setting where dual class firms are more prevalent (Athanasakou, 2010). Sweden exhibits one of the highest frequencies of dual class firms among the developed countries in the world (La Porta et al.,1999) with 50.8% of the listed firms having dual class shares in 2015[2]. This characteristic makes Sweden an ideal and highly interesting market to investigate for the purpose of examining dual class structures (Athanasakou, 2010). International differences in the magnitude of earnings management activities is also reported and can partly be explained by each country's different legal and institutional characteristics (La Porta et al., 1999; Faccio and Lang, 2002). Sweden furthermore provides an alternative legal and institutional setting compared to previous studies and the results could therefore serve as a basis for intriguing comparisons.

This study will perform tests on the direction as well as the causality of the relationship between dual class structures and earnings management. With identified weaknesses in the choice and application of methods in previous research, as suggested by Athanasakou (2010), this report furthermore aims at improving the research design. It will apply an improved method of measuring accruals-based earnings management; introduce developed instruments to control for possible endogeneity concerns; and dwell deeper into possible explanations by examining different characteristics of dual class firms that might drive the relationship. Studies performed in the U.S. (e.g. Nguyen and Xu, 2010) examine the impact from *managers'* disproportionate ownership in dual class firms on earnings management, and hypothesize that

[1] *The Family Way,* Economist (2015).
[2] SIS Ägarservice.

this drives the relationship between dual class structures and earnings management. Shleifer and Vishny (1997) suggest that the conflict of interest in other countries would rather be between *controlling owners* and minority shareholders, than between managers and dispersed shareholders. Recognizing relevant international differences, this study investigates additional characteristics of dual class firms that extend beyond managerial ownership.

1.1 Purpose and research question

Following the economic importance of the topic and the identified research opportunity, the aim of this paper is to add to the existing body of literature by investigating the relationship between dual class structures and earnings management. To establish the nature of this relationship, the paper aims to describe the direction and predict the causality of the relationship. Furthermore, it aims to find possible explanations for any observed association. In order to fulfill the objectives of this thesis, the primary and secondary research question of this study are:

1. *What are the effects of dual class structures on earnings management?*
2. *What are possible explanations for the observed effects on the Swedish market?*

The research questions contain two ambiguous expressions open for interpretations: *effects* and *earnings management.* In this thesis, the *effects* to be investigated are both the direction and the causality of the relationship. Following a review of existing definitions, *earnings management* is defined in this thesis as when managers use the flexibility in reporting choices to alter reported accounting numbers with both opportunistic and value-maximizing intentions (Ronen and Yari, 2008). The magnitude of absolute discretionary accruals will serve as a proxy to capture earnings management activities. The definition and measurement approach are further discussed in section 2.2 and 4.1, respectively.

1.2 Delimitations and focus

Following the aim of the thesis, the study is delimited in terms of scope of the research questions. There is no intention to provide an answer on which ownership structure is superior, as earnings management only represents one part of the many complex implications of dual class structures. Rather, its purpose is to contribute to a debate and provide insights that could help investors, regulators, and managers make more informed decisions through increased understanding of the dual class structures' impact on reporting judgement. Delimitations are also made with regards to geographic and time factors. The sample constitutes of Swedish firms listed on NASDAQ OMX Stockholm within the time period of 2010 to 2014. These

delimitations are made for several reasons. Firstly, by performing the study in a single country it holds constant institutional and legal factors that could impact the ability and incentives for managers to manipulate earnings (Shleifer and Vishny, 1986). Secondly, with regards to the time constraint, five years has been chosen as it is considered a long enough period to produce reliable results, but short enough to ease accessibility and collection of relevant data. Lastly, the proxy for earnings management is delimited to the size of absolute discretionary accruals, measured by the Modified Jones Model with lagged return on assets (ROA).

2 CONCEPTS, THEORIES AND PREVIOUS RESEARCH

This section serves as an introduction for the reader to dual class structures and earnings management. Concepts, theories and previous research related to each field are presented separately, followed by a review of existing literature on the combined topic.

2.1 DUAL CLASS STRUCTURES

Publicly traded firms can decide to issue one or multiple types of shares, under which they are denoted single class or dual class firms, respectively. With only one type of shares, cash flow and voting rights are proportional and equally distributed. In contrast, multiple classes of shares create a disproportional distribution of voting rights across share classes, while the cash flow rights remain equal. The votes of a dual class firm are commonly distributed between one publicly traded class of shares with inferior voting rights, and a non-publicly traded class with superior voting rights (Smart and Zutter, 2003; Gompers et al., 2010). In Sweden, the most used separation between classes is A- and B-shares, where the A-shares are superior with ten times the voting rights per share compared to the inferior B-shares.

2.2 EARNINGS MANAGEMENT

In the absence of a general definition of earnings management, this study presents some examples of commonly used definitions in previous research. The various definitions identify different intentions and means of engaging in earnings management activities. However, common to all definitions is that management is the acting and responsible party. Healy and Wahlen (1999) suggest that earnings management occurs when managers use the flexibility in reporting choices and in structuring transactions to alter financial reports with the intention to mislead or influence outsiders of the firms. Beneish (2001) provides a conflicting view, where the flexibility in reporting choices could be used by managers to reveal their private expectations to outside investors. Ronen and Yaari (2008) attempt to combine the perspectives, where earnings management could either increase or decrease transparency of financial reports. Earnings management can hence be both opportunistic, where managers

intend to maximize their own utility, or it can be value maximizing and economically efficient, when managers attempt to reveal to investors their private expectations. This study will use the broader definition by Ronen and Yaari (2008) to capture both the value maximizing and opportunistic intentions. Depending on managers' incentives, earnings management activities can take different forms and include inflating and deflating earnings, big bath accounting, earnings smoothing, falsifying (Bruns and Merchant, 1990), changing accounting procedures and estimates (Healy, 1985), and making financing and investment decisions that impact the underlying business activities of the firm.

2.3 AGENCY THEORY AND SEPARATION OF CONTROL

Agency theory attempts to explain problems that can arise in the relationship between principals and agents. The agent represents and acts on behalf of the principal in a transaction with a third party, as in the agency relationship between shareholders as principals and managers as agents (Jensen and Meckling, 1976; Fama and Jensen, 1983). A problem can occur when their respective interests are in conflict. The agents might act in their own self-interest without the principals being able to verify this because of potential information asymmetry and monitoring costs. Hence, the separation of ownership from control confronts the firm with agency problems (Berk and Demarzo, 2014). To effectively control the management of the firm, shareholders elect the board of directors and vote on major issues and directives that are given to the board. Normally these voting rights are proportional to the cash flow rights. However, when firms issue multiple classes of stock as in the dual class firm, some shareholders obtain superior voting rights and thus increased control of the firm. The control of the firm is thereby concentrated to a limited number of shareholders. Consequently, additional agency costs are likely to arise in dual class firms through misaligned incentives between controlling owners and other shareholders. Ben-Amar and André (2006) argue that the concentration of control created by a dual class structure differs from concentrated ownership in general. This difference is related to the possibility for controlling owners to extract private benefits of control without bearing the proportional capital loss they would have encountered if their cash flow rights had been equal to their voting rights. The extraction of private benefits of control occurs when controlling owners base their decisions on private incentives to maximize their own utility rather than shareholders' interests (Berle and Means, 1932). If the controlling owners are corporations, they could extract private benefits such as charging below-market transfer prices. If the controlling owners are insiders of the firm, they may want to increase their job security by rejecting efficiency-improving takeover bids as well as increase their financial compensation above what is optimal for the firm. Managers

furthermore may make opportunistic accounting decisions to extract private benefits of control (Watts and Zimmerman, 1990). Positive accounting theory, which builds on agency theory, suggests that managers tend to engage in earnings management activities to reach certain targets in bonus plans with the aim of receiving higher financial rewards. Other objectives could be prestige and status (Healy, 1985; Watts and Zimmerman, 1986).

2.4 PREVIOUS RESEARCH

2.4.1 DETERMINANTS OF DUAL CLASS STRUCTURES

The decision to adopt a dual or single class structure is usually made at the time of the initial public offering (IPO), but the ownership structure could also be changed at other times, for example during recapitalizations. The determinants of dual class structures have been studied extensively (DeAngelo and DeAngelo 1985; Lehn et al. 1990; Smart and Zutter, 2003). For the pre-IPO owners, adopting a dual class structure could bring both costs and benefits, and the trade-off between these will likely be the determinants of the choice of ownership structure.

A main benefit of the dual class structure for the controlling owners is the ability to avoid dilution of control when raising capital from the equity market. With multiple classes of shares, controlling owners can maintain a majority of the votes while only holding a fraction of the firm's equity. Among the benefits associated with control are the ability to extract private benefits of control**,** less risk of hostile takeovers, and reduced pressure from financial markets to meet short-term benchmark targets (DeAngelo and DeAngelo, 1985, Dimitri and Jain, 2006). Thus, the ability to focus on the long-term could be one determinant to adopt a dual class structure. The main cost of the dual class structure is presumably a higher cost of capital, as investors recognize the risk of controlling owners extracting private benefits of control, and they are therefore likely to discount accordingly (Claessens et al., 2002).

Shareholders with superior voting rights thus face a trade-off between exploiting their superior voting rights to maximize their own utility, or to engage in value creating activities to maximize the long-term value of the firm (Bebchuk et al. 2000). As a result of the trade-offs between benefits and costs of the dual class structure, dual class firms are expected to be more prevalent in industries where benefits are high and costs are low (Claessens et al., 2002).

2.4.2 ECONOMIC CONSEQUENCES OF DUAL CLASS STRUCTURES

Following a review of previous research and financial theory, dual class structures are affiliated with two opposing economic effects. The majority of research has focused on the negative consequences of dual class structures. This line of research has covered the defensive mechanisms towards efficiency-improving takeovers (Grossman and Hart, 1988), the increased possibility to extract private benefits of control (Bebchuk et al., 2000), the reduced

earnings and dividends informativeness (Francis et al., 2005), and the association between dual class firms and lower firm market value (Claessens et al., 2002; Cronqvist and Nilsson, 2003; Gompers et al., 2010). The common rationale is the negative economic consequences that stem from agency costs of separate voting and cash flow rights. In contrast to these findings, another stream of research focus on the positive economic effects of dual class firms and argue that managers of dual class firms can concentrate on the firm's long-term performance despite fluctuations in quarterly earnings (DeAngelo and DeAngelo, 1985). In line with these results, Lehn et al. (1990) and Dimitrov and Jain (2006) find that dual class recapitalizations result in superior long-term returns following the announcement month.

2.4.3 THE SMALLEST MAJORITY BLOCKHOLDING (SMB)

An important concept that has received little attention in the research field of dual class structures is the *smallest majority blockholding*[3], hereafter SMB. In accordance with Bergström and Rydqvist (1990), this paper will use the term to describe the minimum capital that the controlling owners need to hold to maintain a majority of the votes (≥50% of votes). In single class firms the SMB is 50% as cash flow rights equal voting rights. However, in dual class firms the SMB can be smaller. The smallest amount of capital required to achieve control in dual class firms will depend on the voting ratio between the share classes as well as the number of shares in each share class. In Sweden, the voting ratio is capped at 10:1 by law[4]. Consequently, the smallest SMB in dual class firms is theoretically 9%, which occurs when the superior shares constitutes 9% of total shares. At that point, 50% of the votes can be attained by holding all the superior shares.[5]

The SMB is an important concept as it attempts to capture the largest divergence of cash flow and voting rights in dual class firms that is expected to create a tension and contribute to agency costs between owners. Once control is reached, additional voting rights are expected to have less effect on agency costs, as the ability to extract private benefits is already obtained. Bergström and Rydqvist (1991) suggest that firms with a low SMB usually are controlled by controlling owners, while firms with a high SMB tend to be more dispersed.

2.4.4 PREVIOUS RESEARCH ON EARNINGS MANAGEMENT

Earnings management has received great interest and attention in financial research and academic literature. In particular, scandals like Enron and Worldcom have spurred the interest for earnings management. These scandals, where managers have engaged in earnings

[3] This studies translation of *"minsta möjliga majoritetsblock"* by Bergström and Rydqvist (1990)
[4] With an exception, Huvudstaden (retroactive)
[5] Calculation example in Appendix, *Calculation 7*

management activities, reinforce the notion that managers act out of their own incentives rather than shareholders' interests. Previous research has examined earnings management and its motivations in multiple settings with the aim of understanding how earnings management activities can be explained by the contracting incentives (Sweeney, 1994) and ways to possibly prevent it through better corporate governance and regulations (Collins et al., 1995).

2.4.5 The relationship between dual class structures and earnings management

Following a literature review and previous research, it appears that two competing views have emerged concerning the effects of dual class structures on earnings management. With inconsistent and even contradicting results, the effects remain an empirical question.

The first view suggests that the *entrenchment effect* results in more earnings management activities for dual class firms. A dual class structure enables control to be more concentrated, and when concentrated to managers this results in increased ability for managers to entrench themselves against pressure from corporate governance mechanisms and divert resources to themselves (Cronqvist and Nilsson, 2003). The first view notes that the increased ability for managers to expropriate other shareholders may lead managers to engage in more earnings management activities (Fan and Wong, 2002).

The second view identifies the *financing effect*, highlights another *entrenchment effect* from concentrated control that contribute to less earnings management, and suggests an *information effect*. The *financing effect* suggests that managers of dual class firms need to signal accountability through high quality earnings to be able to raise capital at a low cost from non-controlling owners, as these expect expropriation from controlling owners and thus might discount accordingly (Fan and Wong, 2002). The alternative *entrenchment effect* is related to managers' increased job security as a result of the defensive mechanism of the dual class structure against hostile takeovers. The reduced risk of managerial dismissal makes it likely that managers adopt a long-term perspective and may take into account the reversing of accruals-based earnings management over time. With a long-term perspective, managers would have less incentives to manipulate earnings to reach market expectations (Jensen and Meckling, 1976; Dimitri and Jain, 2006). A related field of research finds that dual class firms have less informative earnings compared to single class firms (Francis et al. 2005). This is referred to as the *information effect*, which notes that as a result of the less credible earnings in dual class firms, investors are expected to put less weight on dual class firms' reported earnings. Consequently, the benefits and incentives from managing earnings are reduced and hence dual class firms are expected to engage in less earnings management activities.

2.4.6 INTERNATIONAL DIFFERENCES

Since previous research is mostly performed on U.S. data, it is important to note that prior studies have identified large international differences in earnings management (La Porta et al., 1999; Faccio and Lang, 2002). In an attempt to explain the international differences, studies have investigated legal and institutional characteristics' impact on earnings management across countries. The U.S. has been identified as a part of *"outsider economies with large stock markets, dispersed ownership, strong investor rights, and strong legal enforcement"* while Sweden has been identified as a part of *"insider economies with less-developed stock markets, concentrated ownership, weak investor rights, and strong legal enforcement"* (La Porta et al., 1999). Earnings management appears to be lower in the U.S. and other countries with similar characteristics. Compared to Sweden, a relevant difference appears to be the legal system with stronger investor rights, providing minority shareholder protection and thus limiting private benefits of control[6] (La Porta et al., 1999; Nenova, 2003).

The agency problem confronting dual class firms in the U.S. is suspected to be between managers, typically holding the superior class shares, and dispersed shareholders holding the inferior shares (Faccio and Lang, 2002). Gompers et al. (2010) estimate that insiders of dual class firms in the U.S. have 60% of voting rights and 40% of cash flow rights. Previous research has focused on this agency problem as the studies have been conducted on U.S. data. Shleifer and Vishny (1986) suggest that the problem in other countries than the U.S. would rather be between controlling owners and minority shareholders. This thesis investigates Swedish firms and therefore recognizes that the agency problem could differ.

3 HYPOTHESES

The hypothesis section presents two hypotheses that intend to contribute to answer the research questions. All hypotheses are presented in alternative form.

3.1 HYPOTHESIS 1: THE EFFECTS

The first aim of this study is to explore the existence of an association between dual class ownership and earnings management by performing univariate tests. The study also attempts to define the direction and predict the causality of the relationship. Previous research suggests that an association between dual class ownership structures and earnings management exists (DeAngelo and DeAngelo, 1985; Nguyen and Xu, 2010). Nguyen and Xu (2010) furthermore find evidence of the direction and causality of the association by controlling for other variables

[6] Aggregate measure of minority shareholders' rights ranges from weak to strong on a scale from zero to five. The U.S. rank is 5 and Sweden's is 3, La Porta et al. (1999).

and taking into account possible endogeneity concerns. Their results suggest that dual class firms engage in less earnings management activities. Therefore, the prediction is that dual class structures lead to less earnings management. However, due to the inconsistency in previous research, the hypothesis will be tested using doubled sided tests.

H_1: Dual class structures are on average associated with the magnitude of earnings management activities.

3.2 HYPOTHESIS 2: THE EXPLANATIONS

As an additional objective, the study attempts to find possible explanations for any observed association between dual class structures and earnings management. The sample of dual class firms allows for tests on possible explanations. By definition, the main differentiating characteristic of dual class firms compared to single class firms is identified as the separation of ownership and control through multiple share classes. As the dual class structure creates a divergence between cash flow and voting rights, the impact of each can be examined individually in the dual class sample. The divergence can differ among dual class firms depending on both the number of superior shares of total shares, as well as the voting ratio between share classes.

Previous studies have focused on the separate effects from *managerial* cash flow rights and voting rights on earnings management (Nguyen and Xu, 2010). Nguyen and Xu (2010) and Gompers et. al (2010) find that dual class firms are associated with substantially higher managerial ownership in terms of both voting rights and cash flow rights. Nguyen and Xu (2010) find that the magnitude of earnings management is positively associated with managerial cash flow rights, but negatively associated with managerial voting rights. The negative effect from voting rights dominates in their dual class sample, and as managerial voting rights commonly exceed cash flow rights in dual class firms, this could provide a possible explanation for less earnings management in dual class firms. This leads to the following hypothesis:

H_{2a}: For dual class firms, the magnitude of earnings management is negatively associated with insiders' voting rights and positively associated with insiders' cash flow rights.

Assuming independent and opposing implications from *managerial* cash flow and votings rights, managers are most likely considering both simultaneously when making earnings management decisions. Therefore, the next hypothesis aims to investigate the impact of the difference between those, measured as insiders' voting rights subtracted by insiders' cash flow rights (*Wedge*) on earnings management activities. Since the negative effect from voting rights

is expected to dominate the effects from cash flow rights, the predicted sign of *Wedge* is negative (Nguyen and Xu, 2010).

H_{2b}: For dual class firms, the magnitude of earnings management is negatively associated with the difference between insiders' voting rights and cash flow rights.

As previous research finds relevant international differences that impact both earnings management and the adoption of dual class structures (e.g La Porta et al., 1999), ownership concentration and composition might differ along with their respective effects. The results of Nguyen and Xu (2010) might not necessarily extend to this study's sample, as their sample constitutes only U.S. firms. If ownership composition differs, and the concentration of ownership is not attributed to insiders, the separation of managerial cash flow and voting rights might not prove explanatory. Arguably, the separation does not only create an intriguing divergence for insiders but rather among all shareholders. With many other large controlling owners apart from managers and directors in Sweden [7], a broader definition of the divergence could be more suited.

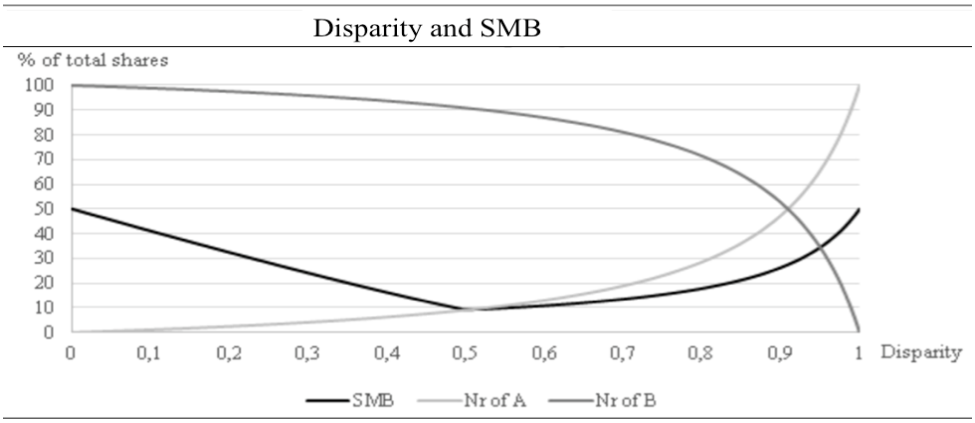
This report attempts to provide a more comprehensive view of the mechanisms created by the divergence of cash flow and voting rights in dual class firms, which appears more suitable for the Swedish market. This report therefore introduces a new measure of the difference between cash flow and voting rights at a *firm* level. This broader measurement excludes the need to assume that the explanation is exclusively found in the managerial ownership stake. As cash flow rights remain equal across share classes, this is measured as the voting rights held by the superior share class as a percentage of total voting rights in the firm (*Disparity*), see Equation 1 below. Since the voting ratio is almost constant at the ratio 10:1[8], *Disparity* will mostly be a function of the number of shares in each class. One implication of *Disparity* is different levels of SMB. Firms with low *Disparity* close to 0 are characterised by few A-shares and high levels of SMB, and firms with medium *Disparity* around 0.5 have around 9% A-shares and low levels of SMB, while firms with high *Disparity* close to 1 have a majority of A-shares and high levels of SMB. Bergström and Rydqvist (1991) suggest that firms with a low SMB usually are controlled by controlling owners, while firms with a high SMB tend to be more dispersed. Low and high *Disparity* firms could then be predicted to differ in terms of earnings management compared to medium *Disparity* firms. The expected relationship is therefore expected to be U-shaped and non-linear. If *Disparity* is an explanatory

[7] For example, One of the most prominent examples of disproportional ownership and control in Sweden is the Wallenberg group. Through their family trusts' high voting rights, they control 80 % of the group's principal holding company Investor, while only holding 40 % of its equity. Source: *The family way*. Economist. 2015.
[8] SIS Ägarservice 2015 (manually checked)

variable for less earnings management in dual class firms, it is also predicted to be negative. This leads to the following hypothesis:

H_{2c}*: For dual class firms, the magnitude of earnings management is negatively non-linearly associated with the disproportional voting distribution across share classes.*

Figure 1



Notes: Disparity is a function of the voting ratio and the number of A- and B-shares. The voting ratio in Sweden is 10:1 for almost all companies[9], therefore this is held constant and only the number of A-shares and B-shares are displayed to illustrate the concept clearly. SMB is furthermore a function of Disparity.

$$Disparity = \frac{Shares_A * Voting\ rights_A}{(Shares_A * Voting\ rights_A) + (Shares_B * Voting\ rights_B)} \quad (1)$$

$Shares_A$: $Number\ of\ superior\ shares$

$Voting\ rights_A$: $Number\ of\ votes\ attached\ to\ each\ superior\ share$

$Shares_B$: $Number\ of\ inferior\ shares$

$Voting\ rights_B$: $Number\ of\ votes\ attached\ to\ each\ inferior\ share$

4 METHOD AND OPERATIONALIZATION

The method section outlines the statistical tests for the hypotheses. As earnings management needs to be proxied, the choice of estimation model is first described and contrasted to alternative methods along with a description of its operationalization. Thereafter the statistical tests for the hypotheses are outlined.

4.1 METHODS TO MEASURE EARNINGS MANAGEMENT

4.1.1 DIFFERENT APPROACHES TO MEASURE EARNINGS MANAGEMENT

Earnings management is difficult to observe and measure for outsiders of the firm as there exist several ways for managers to manipulate earnings (White et al., 2003). In order to capture the various ways to manipulate earnings, such as accrual manipulation and real

[9] SIS Ägardata (Manually checked)

earnings management, different approaches to measure earnings management have emerged. A commonly used method is to measure the frequency of firms meeting or beating analysts' forecasts. The drawback of this approach is that it only measures earnings management activities to manage earnings upwards. However, in some situations managers are incentivized to manipulate earnings downward. To capture managerial activities to manage earnings downward, an accruals-based method can be used, which measures the magnitude of discretionary accruals as a proxy for earnings management. Moreover, Warfield et al. (1995) document that the extent to which firms use accruals to engage in earnings management activities is best measured by the absolute value of accruals. This approach is a commonly used and widely accepted method within the field.[10] Based on the hypotheses and definition of earnings management used in this study, earnings management will be proxied by the size of absolute discretionary accruals to capture the magnitude of managerial activities to manage earnings upward as well as downward.

4.1.2 ACCRUALS-BASED APPROACHES

As accounting earnings are based on accruals, reported earnings are subject to management's discretion and estimates (White et al., 2003). Management's ability to use its discretion over accounting numbers therefore creates opportunities to manipulate earnings (Kepsu, 2012). To examine the impact on earnings from management's discretion, total accruals are divided into discretionary and non-discretionary accruals. Non-discretionary accruals represent non-cash items mandated by accounting standards (Healy, 1985). Discretionary accruals, on the other hand, represent the amount of accruals subject to managerial interventions in the financial reporting process (Healy, 1985; Islam et al., 2011). The size of discretionary accruals is therefore used as a proxy for earnings management activities. To examine the magnitude of earnings management, the amount of discretionary accruals needs to be separated from non-discretionary accruals. However, discretionary accruals are difficult to identify and thus need to be estimated using models. Among the various discretionary accrual models, Dechow et al. (1995) document that the Jones and the Modified Jones model are the best-performing models to estimate earnings management.

JONES MODEL (1991) AND THE MODIFIED JONES MODEL (1995)

The Jones Model was the first aggregate discretionary accruals regression model to account for the effects on non-discretionary accruals from changing economic conditions (Dechow et al., 1995). By including property, plant and equipment (PPE) and revenue in the regression,

[10] Defond and Jiambalvo, 1994; Rees et al., 1996; Kothari, 2001; Ronen and Yaari, 2008

the model aims to control for the change in non-discretionary accruals affected by changing economic conditions, and consequently results in a more correct classification of discretionary and non-discretionary accruals (Jones, 1991). Assets are used as the deflator for all variables in the model to mitigate heteroskedasticity in residuals (White, 1980) and increase the comparability between firms of different sizes (Kothari et al., 2005). A drawback of the Jones model is however that revenue is assumed to be non-discretionary. Thus, there is a risk that the model underestimates the size of discretionary accruals and consequently the level of earnings management. To deal with the weakness regarding misclassification of accruals related to revenue, The Modified Jones model was introduced by Dechow et al. (1995). By adjusting the change in revenue with changes in receivables, the model controls for firms that use their discretion over revenue to manage earnings. *See Calculations 8 and 9 in Appendix.*

KOTHARI MODEL (2005)

Furthermore, Dechow et al. (1995) find that accruals are to an extent a function of the firm's performance and that a correlation between discretionary accruals and performance exists. Thus, accruals-based models are misspecified when applied to samples that include firms experiencing superior financial performance. If managers expect an increase in sales, they might invest in working capital to support that growth. The Modified Jones Model can wrongfully categorize the increase in working capital as discretionary and thus overstate earnings management. To deal with this drawback, Kothari et al. (2005) developed the Modified Jones model by adding lagged return on assets (ROA) as an additional variable in the regression to capture the effect of performance on discretionary accruals. Furthermore, the model can be estimated with or without an intercept. Kothari et al. (2005) argue that the intercept serves as an additional control for heteroskedasticity and results in more symmetric discretionary accruals.

Following an evaluation of previous research of models, this study will use the Modified Jones Model with lagged ROA and an intercept to estimate the size of absolute discretionary accruals. This model will be referred to as the Kothari model in this study.

4.1.3 OPERATIONALIZATION OF THE KOTHARI MODEL

ESTIMATION OF TOTAL ACCRUALS

The first step in the Kothari model is to calculate total accruals for each company and year. There are two alternative ways to calculate total accruals; the cash flow method and the balance sheet method. In the cash flow method, total accruals are defined as all non-cash items of net income. That is, total accruals are equal to the difference between net income and cash flow from operations. Hence, accruals are separated from cash earnings using the calculation

(2) below:

$$TA_{i,t} = Net\ Income_{i,t} - CFO_{i,t} \qquad (2)$$

$Net\ Income_{i,t}$: $Net\ Income\ excluding\ extrodinary\ items\ for\ firm\ i\ in\ year\ t$

$CFO_{i,t}$: $Net\ Cash\ Flow\ From\ Operating\ Activities\ for\ firm\ i\ in\ year\ t$

$TA_{i,t}$: $Total\ accruals\ for\ firm\ i\ in\ year\ t$

Alternatively, the balance sheet method can be used to measure the size of accruals. The balance sheet method is built upon the presumed articulation between changes in working capital accounts on the balance sheet and accruals on the income statement. However, it has been criticized since the presumed relation does not hold under certain situations, such as acquisitions, divestments or during changes in accounting principles as they may affect working capital on the balance sheet while not being reflected in the income statement (Bahnson et al., 1996). Based on this criticism many researchers prefer the cash flow method (Collins and Hribar, 2002) and it will therefore be used in this study to calculate total accruals.

ESTIMATION OF NON-DISCRETIONARY ACCRUALS

In the Kothari model, non-discretionary accruals are estimated using a regression model to divide a company's total accruals into discretionary and non-discretionary accruals. There are two approaches to estimate the parameters of the non-discretionary accruals in the Kothari model; the time-series approach and the cross-sectional.

The time-series approach regresses accrual data from individual firms over a time period. It estimates the coefficients of the components in the model separately for each firm during a time period where no earnings management is expected to have occurred. These coefficients are later used to estimate earnings management for a specific year for each firm. However, this approach has received major criticism, with the most prominent one being that it requires a substantial amount of data for many years to reliably estimate the model parameters, resulting in survivorship bias and reduced sample sizes (Jeter and Shivakumar, 1999). To deal with the drawbacks in the time-series approach, the cross-sectional approach can be used, which instead regresses accrual data for an industry consisting of many firms during one time period (DeFond and Jiambalvo, 1994). As the normal level of accruals is considered industry-specific and can vary between years, the regression in the Kothari model is estimated separately for each year and industry. The estimated industry average of accruals is then compared to the individual firm's accruals in order to determine if the company has more or less accruals than the amount considered normal to its specific industry. The drawback of this approach is that it will not be able to detect earnings management performed by the industry as a whole (Peasnell et al., 2000). In line with previous research

(Subramanyam, 1996; Xie, 2001) this paper uses the cross-sectional approach to estimate non-discretionary accruals. It is calculated with equation (4), using the coefficients from regressing total accruals with equation (3).

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_{1_t}\left(\frac{1}{A_{i,t-1}}\right) + \beta_{2_t}\left(\frac{(\triangle REV_{i,t} - \triangle REC_{i,t})}{A_{i,t-1}}\right) + \beta_{3_t}\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \beta_{4_t}(ROA_{i,t-1}) + \varepsilon_{i,t} \qquad (3)$$

$$\frac{NDA_{i,t}}{A_{i,t-1}} = a + b_{1_t}\left(\frac{1}{A_{i,t-1}}\right) + b_{2_t}\left(\frac{(\triangle REV_{i,t} - \triangle REC_{i,t})}{A_{i,t-1}}\right) + b_{3_t}\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + b_{4_t}(ROA_{i,t-1}) \qquad (4)$$

$TA_{i,t}$: $Total\ accruals\ for\ firm\ i\ in\ year\ t$
a: $Constant\ term$
$NDA_{i,t}$: $Non-discretionary\ accruals\ for\ firm\ i\ in\ year\ t$
$A_{i,t-1}$: $Total\ assets\ for\ firm\ i\ in\ year\ t-1$
$\triangle REV_{i,t}$: $Change\ in\ revenue\ for\ firm\ i\ in\ year\ t$
$\triangle REC_{i,t}$: $Change\ in\ receivables\ for\ firm\ i\ in\ year\ t$
$PPE_{i,t}$: $Property, plant\ and\ equipment\ for\ firm\ i\ in\ year\ t$
$ROA_{i,t-1}$: $Return\ on\ assets\ for\ firm\ i\ in\ year\ t-1$

ESTIMATION OF DISCRETIONARY ACCRUALS

Using the results for each firm's total accruals and subtracting non-discretionary accruals, discretionary accruals can be estimated. Discretionary accruals will be measured as absolute values. Absolute discretionary accruals will hereafter be referred to as abnormal accruals.

$$DA_{i,t} = \left(\frac{TA_{i,t}}{A_{i,t-1}}\right) - \left(\frac{NDA_{i,t}}{A_{i,t-1}}\right) \qquad (5)$$

$DA_{i,t}$: $Discretionary\ accruals\ for\ firm\ i\ in\ year\ t$
$TA_{i,t}$: $Total\ accruals\ for\ firm\ i\ in\ year\ t$
$NDA_{i,t}$: $Non-discretionary\ \ accruals\ for\ firm\ i\ in\ year\ t$
$A_{i,t-1}$: $Total\ assets\ for\ firm\ i\ in\ year\ t-1$

4.3 STATISTICAL TESTS FOR HYPOTHESIS 1 - THE EFFECTS

The following section will test Hypothesis 1. Initially, Hypothesis 1 will be tested using univariate tests to explore the existence of an association. As a next step, multivariate tests are performed to further explore the direction and causality of any observed association.

4.3.1 UNIVARIATE TESTS - EXPLORATION OF AN ASSOCIATION

This study will perform two univariate tests; a t-test and a Wilcoxon rank-sum test. By comparing the size of abnormal accruals between dual and single class firms with their respective means in the t-test and sum of ranks in the Wilcoxon test, the univariate tests can indicate whether it appears to exist a difference in the magnitude of earnings management.

UNPAIRED T-TEST

The two subsamples in this study - single and dual class firms - are compared with an unpaired

t-test with the alternative hypothesis that the means of the two populations are not equal. Since the subsamples are non-overlapping they are classified as independent samples and should be treated as "unpaired". An underlying assumption when performing a t-test is that each of the two populations follows a normal distribution. By the central limit theorem, sample means of moderately large samples are often well-approximated by a normal distribution, even if the data itself is not normally distributed (Newbold et al., 2010). The sample sizes in this study are considered large enough to be approximated as normally distributed, with 437 and 374 firm-year observations in the dual and single class samples respectively. The t-test is therefore considered appropriate. This study has chosen the conventional level of 5% as the significance level. This means that if the t-test is significant with a p-value smaller than or equal to 0.05 the null hypothesis of no difference will be rejected in favor of the alternative hypothesis of the existence of an association between dual class structures and earnings management.

WILCOXON RANK-SUM TEST

The t-test is complemented with the nonparametric Wilcoxon rank-sum test, with the alternative hypothesis that the sizes of abnormal accruals in the two populations tend to not be equal. The Wilcoxon rank-sum test is less sensitive to the assumption of normality, and often has better statistical power for distributions that are skewed or have large tails. Furthermore, it offers more robust results since it compares the sum of ranks between the samples, and therefore is less sensitive to extreme values that might have influenced the results in the t-test (Newbold et al., 2010). If the Wilcoxon rank-sum test is significant with a p-value smaller than or equal to 0.05, the null hypothesis of no difference will be rejected in favor of the alternative hypothesis of the existence of an association.

4.3.2 MULTIVARIATE REGRESSION MODELS

Since the univariate tests do not account for other firm characteristics than ownership structure that may impact earnings management activities, they could lead to incorrect interpretations and thus the ability to draw reliable conclusions from the results are limited. To get closer in estimating the effects of dual class structures on earnings management, the next aim is to describe the direction and predict the causality of the relationship. This will be tested with multivariate regression models that include additional explanatory variables. An ordinary least squares (OLS) regression will be performed, followed by a two-stage probit least squares (2SPLS) regression. As the sample size decreases substantially when controlling for certain variables, both regressions will be estimated with two different models; a Baseline model excluding some variables and an Extended model including all variables.

FIXED EFFECTS (FE) IN OLS AND 2SLPS REGRESSIONS

Since this study uses panel data, dummy variables for industry and year are used in all models to control for industry and year fixed effects (DeFond and Park, 1997; Healy, 1985). Industry dummy variables are included since private benefits of control are considered to vary across industries. The different abilities to extract private benefits of control is expected to impact the incentives to engage in earnings management activities as well as the decision to adopt a dual class structure (Claessen et al., 2002). In accordance with Nguyen and Xu (2010), year dummy variables are also included to control for year-specific shocks.

ORDINARY LEAST SQUARE REGRESSIONS (OLS)

The OLS model is the best linear unbiased estimator under the condition that a set of assumptions holds. If one or more of these assumptions are violated, it will result in biased or inconsistent coefficient estimates, which could lead to incorrect interpretations. Therefore, the assumptions are tested and if needed attempted to be corrected for. The results of these assumption tests are discussed in section 7.1. Worth noting is that the following models will use robust standard errors to correct for a violation of the assumption of a constant error variance.

$$Abnormal\ Accruals_{i,t} = \beta_0 + \beta_1 Dual_{i,t} + \beta_2 Y_{1B} + \beta_3 FE + \varepsilon_{i,t} \qquad \text{OLS Baseline (1)}$$

$$Abnormal\ Accruals_{i,t} = \alpha_0 + \alpha_1 Dual_{i,t} + \alpha_2 Y_{1E} + \alpha_3\, FE + \nu_{i,t} \qquad \text{OLS Extended (2)}$$

Y: $Leverage + Past\ Growth + Sales\ Growth$

Y_{1B}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow$

Y_{1E}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow + Bonus + Capital$

FE: $Industry + Year$

CONTROL VARIABLES FOR OLS BASELINE MODEL (Y_{1B})

Previous research and theories suggest multiple other variables in excess of ownershistructure that may impact earnings management, which will be included in this study as control variables. To begin with, firm size has been suggested to be negatively associated with earnings management by multiple studies (e.g. Lee and Choi, 2002; Dechow and Dichev, 2002). The rationale is that larger firms tend to be monitored more closely by financial markets and have more regulatory pressure, which limit their ability to engage in earnings management. Therefore *Market Value,* measured as the natural logarithm of market value of equity, will be included as a proxy for firm size and with an expected negative coefficient. Findings by DeFond and Jiambalvo (1994) suggest that managers with high leverage manipulate earnings to relax debt covenants. Similar to Nguyen and Xu (2010), this is

controlled for by including debt to assets as a proxy for debt covenants violation, referred to as *Leverage,* and with an expected positive coefficient. Skinner and Sloan (2002) show that equity incentives generally are higher for high growth firms. With higher equity incentives, earnings management is expected to increase. In line with these findings, growth is controlled for by including both current sales growth, *Sales Growth,* and past growth, *Past Growth,* measured as the natural logarithm of the firm's market-to-book ratio. The predicted signs of these two control variables are therefore positive. Hribar and Nichols (2007) find that volatility in cash flow, revenues, and earnings may affect firms' earnings management decisions. These three variables are therefore included in the regressions, measured as their respective standard deviation over the current and prior four years, as defined by Nguyen and Xu (2010). However, due to lack of evidence of a specific direction, no expected signs will be predicted.

ADDITIONAL CONTROL VARIABLES FOR OLS EXTENDED MODEL (Y_{1E})

Y_{1E} includes all variables from Y_{1B} and the two additional control variables *Bonus* and *Capital*. Positive accounting theory suggests that managers tend to engage in earnings management activities to increase financial compensation and decrease political costs (Healy, 1985). Mohanram (2003) argues that managers engage in earnings management to reach certain benchmarks in their compensation contracts such as a bonus threshold. Hence, bonus is explicitly controlled for by including an indicator variable (*Bonus)* equal to one if the CEO has bonus and zero otherwise. *Bonus* is expected to have a positive correlation with abnormal accruals. To control for the effect of insiders' equity ownership on earnings management activities, the control variable *Capital*, measured as insiders' cash flow rights as a percentage of total cash flow rights, is included. One line of research suggests that higher levels of managerial ownership is expected to lead to better aligned incentives with other shareholders and therefore lead to less earnings management (Jensen and Meckling, 1976). In contrast, another stream of research expects increased earnings management activities from managerial ownership as the benefits from stock appreciation are larger (Fan and Wong, 2002). As a result of the inconsistency in previous research, no predicted sign is offered for *Capital*.

TWO-STAGE PROBIT LEAST SQUARES REGRESSION (2SPLS)

To investigate the effect of dual class structures on earnings management, several potential problems need to be addressed. To begin with, a serious concern of the OLS regressions is that the estimated correlation does not necessarily imply a causal relationship. The relationship could be subject to simultaneity or reverse causality if there is an endogeneity problem. Endogeneity exists if one of the explanatory variables is correlated with the error term, which

results in biased coefficient estimates and therefore the results could be unreliable (Larcker and Rusticus, 2007). Endogeneity could be caused by simultaneity, which is an uncontrolled variable that determines both the independent and dependent variables. In the context of this study, simultaneity is related to the possibility that an unknown factor determines both dual class structures and earnings management. Endogeneity could also be a result of reverse causality, which is a loop of causality between the independent and dependent variables (Stock and Watson, 2015). It would occur if firms' decision to adopt a certain ownership structure is influenced by its level of earnings management, as well as the other way around. That is, if firms with lower (higher) earnings management more often adopted a dual (single) class ownership structure to begin with. This is likely to be a concern as managers presumably consider the financial reporting pressure from the public when deciding on ownership structure. The superior voting rights in dual class firms can enable insiders to gain increased control, and as a result they presumably face reduced pressure from financial markets to meet benchmarks such as earnings targets. That is, managers may choose to adopt a dual class structure to reduce financial reporting pressures from outside investors. This would be the reverse causality of dual class structures and earnings management (Nguyen and Xu, 2010).

Noting the potential problem of endogeneity, the OLS might not be the best estimator. The problem and how to estimate the interrelation between the dependent and independent variable in these cases has been widely discussed in the statistical literature (Gujarati, 1995; Greene, 2000). It is suggested that endogeneity could be corrected for by using a two-stage procedure with an instrumental variable estimation. In the case of this study, it appears that there is both a continuous variable, *Abnormal Accruals*, and a dichotomous variable, *Dual* [11], that simultaneously determine each other. When the dependent variable is continuous and the endogenous explanatory variable is dichotomous, a two-stage probit least squares (2SPLS) regression could be used, which is an extension of the 2SLS model (Heckman, 1978; Maddala, 1983). This study will therefore use a 2SPLS model to be able to indicate whether the causality is that dual class structures lead to less earnings management.

In a 2SPLS regression, endogeneity concerns are addressed by using exogenous predictors of dual class structure decisions and earnings management choices as instruments. The instrumental variable estimations are simultaneously performed in a first-stage regression. The instrumental variables from the first stage are then used in the second stage regression to replace the actual endogenous variables *Dual* and *Abnormal Accruals.* For an instrument to be a valid correction of endogeneity concerns, it needs to be both relevant and exogenous. The

[11] *Dual* is a dichotomous variable which can adopt two values, either zero for single class firms or one for dual class firms.

relevance criterion states that the predictors need to be relevant for predicting the endogenous variable, and should therefore be based on solid theory and research. The exogenous criterion states that the instrument cannot be correlated with either the omitted variable in the error term or the dependent variable after controlling for independent variables (Wooldrige, 2012; Stock and Watson, 2015). This means that the instrument for *Dual* cannot have any other effect on *Abnormal Accruals* other than through the endogenous *Dual* variable, and vice versa. By construction, the fitted values from the first-stage regressions will be independent of their respective error terms, and can thus be used as instrumental variables in the second-stage regression. As a result, the 2SPLS regressions generate consistent model parameter estimates (Maddala, 1983). The instruments used in the model are based on a combination of previous studies by Gompers et al. (2010) and Nguyen and Xu (2010) that both use 2SPLS regressions for studying dual class structures. To capture the interrelation between dual class structures and earnings management activities, this study uses the following 2SPLS model:

2SPLS Baseline (3)

$$Dual_{i,t} = \theta_0 + \theta_1 Abnormal\ Accruals^*_{i,t} + \theta_2 Y + \theta_3 Y_3 + \theta_4 FE + v_{i,t} \quad \text{(D)}$$

$$Abnormal\ Accruals_{i,t} = \pi_0 + \pi_1 Dual^*_{i,t} + \pi_2 Y + \pi_3 Y_{2B} + \pi_4 FE + \mu_{i,t} \quad \text{(A)}$$

2SPLS Extended (4)

$$Dual_{i,t} = \eta_0 + \eta_1 Abnormal\ Accruals^*_{i,t} + \eta_2 Y + \eta_3 Y_3 + \eta_4 FE + e_{i,t} \quad \text{(D)}$$

$$Abnormal\ Accruals_{i,t} = \rho_0 + \rho_1 Dual^*_{i,t} + \rho_2 Y + \rho_3 Y_{2E} + \rho_4 FE + \lambda_{i,t} \quad \text{(A)}$$

Y: $Leverage + Past\ Growth + Sales\ Growth$

Y_{2B}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow$

Y_{2E}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow + Bonus + Capital$

Y_3: $Age + Name$

FE: $Industry + Year$

FIRST-STAGE REGRESSION

The first stage in the 2SPLS regression includes regressing each of the jointly endogenous variables *Dual* and *Abnormal Accruals* on all variables other than their respective instruments (*Dual** and *Abnormal Accruals*)* that are included in equations (D) and (A). Equations prediciting *Dual* (D) is required to contain at least one variable not included in equations prediciting *Abnormal Accruals* (A), and vice versa, to prevent creating a singular covariance matrix in the second stage.

PREDICTORS COMMON TO BOTH INSTRUMENTS (Y)

Y is a vector that contains eogenous variables known to impact both the decision to adopt a dual class structure and earnings management choices, and is therefore included in both

equation (D) and (A). These are *Sales Growth, Past Growth* and *Leverage.* The rationale for including these in equation (A) relates to their prediction of earnings management. The reasoning for the variables to be relevant predictors of *Abnormal Accruals* is discussed in the previous section of control variables in vector Y_{1B} (see section 4.3.3). The effects of these variables are therefore next discussed in relation to equation (D), that is, how they are related to dual class structure decisions. Lehn et al. (1990) and Dimitrov and Jain (2006) show that firms with better growth prospects are more likely to adopt a dual class structure. Therefore, current sales growth, *Sales Growth,* is identified as a relevant predictor. *Past Growth* is also included as Gompers et al. (2010) find that firms that have experienced slow growth are more likely to adopt a dual class structure. Furthermore, Gompers et al. (2010) find that dual class firms have a significantly higher debt to assets ratio than single class firms, and offer the explanation that dual class firms are reluctant to engage in seasoned equity offerings (SEO) due to the dilution of control that accompanies a SEO. They therefore issue debt instead of raising equity. On the basis of these findings, Nguyen and Xu (2010) suggest that firms also take their debt ratio into account when deciding on ownership structure, and thus the control variable *Leverage* is included to capture this effect.

PREDICTORS SPECIFIC TO DUAL (Y_3)

Dual is a dichotomous variable that will be estimated using equation (D). Y_3 is a vector that includes exogenous variables that are uniquely related to the decision to adopt a dual class structure. The variables included in Y_1 are firm age (*Age*) and firm name (*Name*), as both of these variables are known to affect dual class structure decisions (Gompers et al., 2010). Since no theoretical basis exists for a relation between these variables and earnings management choices, they are excluded from equation (A). One predictive variable of dual class structure is the magnitude of private benefits of control. Prior studies document that dual class structures are more prevalent when private benefits are high (Gompers et al., 2010). One potential signal that insiders place a high value on the private benefits resulting from superior control is if the firm is named after a founder, as such naming could indicate a personal stake in the business. *Name* is an indicator variable equal to one if the name of the firm at the time of the IPO to some extent includes the founder's name. The *Name* predictor has been documented to be a powerful predictor of dual class structure in previous research (Gompers et al. 2010). Y_3 also contains firm age (*Age*) since prior studies document that the age of the firm represents one plausible proxy of founder status. *Age* is measured as the number of years since the firm was registered at the Swedish Companies Registration Office.

PREDICTORS SPECIFIC TO ABNORMAL ACCRUALS (Y_{2B} AND Y_{2E})

Y_{2B} and Y_{2E} are vectors that include exogenous variables that are uniquely related to firms' earnings management choices. Y_{2B} and Y_{2E} contain all control variables included in Y_{1B} and Y_{1E} from the OLS regressions, respectively, that are not already included in Y. Y_{2B} represents the Baseline model for the 2SPLS and Y_{2E} the Extended model for the 2SPLS. The rationale for including these control variables is described in the OLS section (4.3.2).

4.4 STATISTICAL TESTS FOR HYPOTHESIS 2 - THE EXPLANATIONS

The following section will test Hypothesis 2, which objective is to dwell deeper into the nature of the relationship between dual class structures and earnings management and identify possible explanations for any observed effects. This section's tests will be conducted on dual class firms only as the explanation is expected to be found in specific characteristic of the dual class structure. Hypothesis 2 will be tested using a two-stage Heckman regression model (Heckman, 1979) that tests possible explanations found at a managerial level as well as at a firm level. The section can be divided into three parts, with one section for the first-stage and two sections for two alternative second-stages. The two alternative second-stages will each be performed with a Baseline and an Extended model.

4.4.1 FIRST-STAGE AND SELECTION BIAS

A problem related to exclusively performing tests on dual class firms is self-selection bias. If the decision to adopt a certain ownership structure was random, self-selection bias would not be a problem. However, theories suggest that there are multiple determinants of ownership structure, which raises concern of self-selection bias. This results in difficulties to draw reliable conclusions beyond the subsample; even if the results are correct for dual firms, it does not necessarily imply that results can be extended to all types of firms. To enable such an extension, the study uses a technique developed by Heckman (1979) with a two-stage equation model. As a first-stage, a probit regression across samples is performed, including both single and dual firms, which generates a variable, the Inverse Mills Ratio *(Mills),* which models the propensity to adopt a dual class structure. *Mills* is then included in the second-stage to control for selection bias. The equation includes all variables related to *Dual* as have previously been discussed and used in the cross-sample 2SPLS models.

Heckman first-stage

$$Dual_{i,t} = \beta_0 + \beta_1 Y + \beta_2 Y_3 + \beta_4 FE + \varepsilon_{i,t}$$

Y: $Leverage + Past\ Growth + Sales\ Growth$

Y_3: $Age + Name$

FE: $Industry + Year$

4.4.2 SECOND-STAGE WITH INSIDERS' CASH FLOW AND VOTING RIGHTS (5 & 6)

The first form of the second-stage, tests hypothesis H_{2a}, and investigates the relationship between earnings management and the percentage of insiders' voting and cash flow rights. To examine this relationship, separate coefficients are estimated for insiders' cash flow rights (*Capital)* and voting rights (*Votes)* for dual class firms.

Capital and *Votes* serve as key independent variables in equations (5) and (6). Control variables are the same as earlier stated to be relevant for earnings management in the 2SPLS, and include vector Y with *Sales Growth, Past Growth* and *Leverage,* as well as Y_{2B} with *Market Value, σRevenue, σEarnings* and *σCash flow*. In addition, Y_{2E} in the Extended model also includes *Bonus*. *Capital* is already included in both models in the Heckman regression as it now represents one of the key independent variables. Additionally, the variable Mills from the first-stage is included to control for selection bias.

Heckman second-stage Baseline (5)

$$Abnormal\ Accruals_{i,t} = \omega_0 + \omega_1 Capital_{i,t} + \omega_2 Votes + \omega_3 Y + \omega_4 Y_{2B} + \omega_5 Mills + \omega_6 FE + \rho_{i,t}$$

Heckman second-stage Extended (6)

$$Abnormal\ Accruals_{i,t} = \alpha_0 + \alpha_1 Capital_{i,t} + \alpha_2 Votes + \alpha_3 Y + \alpha_4 Y_{2E} + \alpha_5 Mills + \alpha_6 FE + o_{i,t}$$

Y: $Leverage + Past\ Growth + Sales\ Growth$

Y_{2B}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow$

Y_{2E}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow + Bonus$

Y_3: $Age + Name$

FE: $Industry + Year$

4.4.3 SECOND-STAGE FOR INSIDERS' WEDGE AND FIRM'S DISPARITY (7 & 8)

The alternative form of the second-stage aims to test hypotheses H_{2b} and H_{2c}. The test investigates the relationship between earnings management and the difference between managerial ownership of voting rights and cash flow rights (*Wedge)* and the disproportional voting distribution across share classes (*Disparity)*. To examine these relationships, separate coefficients are estimated for *Wedge* and *Disparity*. As there is expected to be a linearity issue with *Disparity* (see Figure 4 in Appendix), the need for a transformation to a quadratic form is tested by analyzing a scatter plot with the variable and Augmented Component Plus Residual. The relationship appears non-linear (see Figure 4 in Appendix) and $Disparity^2$ is therefore added. *Wedge* and *Disparity* and $Disparity^2$ serve as key independent variables in equations (7) and (8). Control variables are the same as stated earlier and include vector Y with *Sales Growth, Past Growth* and *Leverage,* as well as Y_{2B} with *Market Value, σRevenue, σEarnings, σCash flow,* and *Capital*. As *Wedge* is dependent on *Capital* the number of observations in the

Baseline model is unaffected by including *Capital,* and *Capital* is therefore included in the Baseline model. The Extended model Y_{2E} also includes *Bonus.* Additionally, the variable *Mills* from the first-stage is included to control for selection bias.

Heckman second-stage Baseline (7)

$$Abnormal\ Accruals_{i,t} = \kappa_0 + \kappa_1 Wedge_{i,t} + \kappa_2 Disparity_{i,t} + \kappa_3\ Disparity^2{}_{i,t} + \kappa_4 Y + \kappa_5 Y_{2B} + \kappa_6 Mills + \kappa_7 FE + \epsilon_{i,t}$$

Heckman second-stage Extended (8)

$$Abnormal\ Accruals_{i,t} = \varpi + \varpi_1 Wedge_{i,t} + \varpi_2 Disparity_{i,t} + \varpi_3\ Disparity^2{}_{i,t} + \varpi_4 Y + \varpi_5 Y_{2E} + \varpi_6 Mills + \kappa_7 FE + \nu_{i,t}$$

Y: $Leverage + Past\ Growth + Sales\ Growth$

Y_{2B}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow + Capital$

Y_{2E}: $Market\ Value + \sigma Revenue + \sigma Earnings + \sigma CashFlow + Bonus + Capital$

Y_3: $Age + Name$

FE: $Industry + Year$

5 DATA AND SAMPLE SELECTION PROCEDURES

The operationalization and methods previously described require data on variables needed to estimate the size of abnormal accruals, as well as data for ownership structures, control variables, descriptive statistics, and variables required in the instrumental variables for *Dual** and *Abnormal Accruals**. Thus the data collection process can be divided into three areas: 1) Identify listed firms with sufficient data to calculate *Abnormal Accruals* with the Kothari model, 2) collect data on ownership structure, 3) collect data on independent variables needed to perform the multivariate regressions as well as data on descriptive statistics and 4) collect data for Extended models *(See Table 5 in Appendix for detailed outline).*

Information on firms listed on the NASDAQ OMX Stockholm within the time period of 2010 to 2014 was collected from NASDAQ and complemented with information on delisted companies from SIS Ägarservice. To avoid survivorship bias, sample firms do not have to be listed during the whole time period. The only condition is that firms have been listed for at least two consecutive years, as this is required to estimate earnings management. This resulted in 1623 firm-year observations. Financial data on these firm-year observations were then collected from *Datastream.* Firms without available or valid data were excluded, resulting in a reduction of 229 firm-year observations. In line with previous research, all financial companies were excluded. This allows for a more homogenous sample as their financial reports and accruals differ from other types of firms (Peasnell et al., 2000). Firms' ICB-codes were collected from NASDAQ and used to identify financial companies, and resulted in a loss of 390 firm-year observations. ICB-codes were furthermore used to identify firms' industry categories to estimate the industry-specific coefficients in the Kothari model. Consistent with

previous research, all industries with less than 10 companies were excluded to achieve more stable and reliable coefficients in the model (Peasnell et al., 2000; Kothari et al., 2005). These were identified as *Telecommunications, Utilities* and *Oil and Gas* and counted 75 firm-year observations. This selection process results in a final sample of 929 firm-year observations for the first regression analysis, which estimates the industry specific coefficients in the Kothari model. Please refer to Table 7 in Appendix for the sample distribution across industries.

For Step 2, SIS Ägarservice helped identify firms' ownership structure, which allowed the categorization of single and dual class firms. It reduced the sample size with 66 firm-year observations. The source additionally provided information on the number of shares in each share class along with the firm's voting ratio, which were used to calculate *Disparity*. For Step 3, 52 firm-year observations were then excluded due to lack of data required for control variables. For the univariate and multivariate tests' Baseline models, 811 firm-year observations were used to investigate the association between ownership structure and earnings management in the. In step 4 for the additional variables in theExtended model, 171 observations were lost due to lack of data on insiders' ownership, and 324 due to limited information on bonus. Taken together, with partial overlap, 429 observations were lost resulting in 382 observations in the Extended model.

6 EMPIRICAL RESULTS AND ANALYSIS

In this section, the findings of this study is presented, analyzed and compared to previous research. This includes an evaluation of the Kothari model, descriptive statistics for the subsamples, results of univariate and multivariate tests (OLS and 2SPLS) for Hypothesis 1, and multivariate tests (Heckman regressions) for Hypothesis 2. Please note that all significance levels are based on a two-tailed significance level.

6.1 ABNORMAL ACCRUALS

The R-Squares for estimations of non-discretionary accruals in this study have a mean of 51% (Table 7 in Appendix). Due to small sample sizes in the year and industry specific regressions, the R-square is more important to analyze than significance level for specific coefficients. The Kothari model appears satisfactory in estimating non-discretionary accruals, as the R-squares are generally high. The sample mean (median) of *Absolute Accruals* in the total data sample (dual and single class firms combined) is 6.19% (3.94%), which could be compared to the slightly higher results found by Reynolds and Francis (2000) at 8.72% (4.86%) on US data.

6.2 DESCRIPTIVE STATISTICS

6.2.1 SUBSAMPLE DIFFERENCES IN DESCRIPTIVE DATA

Table 8 in Appendix compares selected characteristics of the two subsamples. Dual class firms constitute 53.88 % of the data sample. In 2015, 50.8% of Swedish listed firms were dual (SIS Ägarservice), with a decreasing trend in the number of dual class firms in recent years. Therefore, the number of firms in the two subsamples is considered representative of the distribution between dual and single class firms within the time period 2010-2014.

The subsamples in this study – dual and single class firms – are found to be similar with regards to insiders' *Capital*, *Bonus*, and *Leverage*, with no significant difference. The similarity in insiders' *Capital* across single class firms (29%) and dual class firms (28%) suggests a difference in the effects of dual class structures in Swedish firms compared to U.S. firms, as Gompers et al. (2010) estimate that insiders of dual class firms in the U.S. have 60% of voting rights and 40% of cash flow rights. Gompers et al. (2010) state that an effect of the dual class structure in the US is higher managerial ownership, which does not seem to be the case in Sweden. Furthermore, Table 8 displays how dual class structures can affect the relationship between capital ownership and control. On average, insiders of dual class firms have 40% of the voting rights and 29% of cash flow rights, reflecting the separation of equity ownership from control of these firms. Similar to Bergström and Rydqvist' (1990) findings, this sample of data suggests that dual class firms are characterized by higher insider vote concentration than single class firms (40% compared to 28% and significant), but that the impact of disproportionate voting rights is limited to affect votes and not capital.

Several significant differences in characteristics are found between the subsamples. Dual class firms are on average larger than single class firms; they have more revenue and, in line with previous research by Gompers et al. (2010), larger market value. Furthermore, dual class firms on average have lower past growth, which suggests a consistency with the findings by Gompers et al. (2010), who find that firms which have experienced slow growth are more likely to adopt a dual class structure. The t-test suggests higher sales growth for dual class firms. This finding is consistent with Dimitrov and Jain (2006) who show that firms with better growth prospects to a greater extent adopt a dual class structure. Thus, the data suggests that firms that are growing slowly but have better growth prospects are more likely to adopt a dual class structure. Moreover, dual class firms have lower volatility in revenue, but higher earnings and cash flow volatility. In accordance with Gompers et al. (2010), dual class firms are found to be older on average. They offer the explanation that dual class firms are less likely to be acquired due to its defensive mechanisms.

6.3 RESULTS FOR HYPOTHESIS 1 – THE EFFECTS

6.3.1 UNIVARIATE TEST RESULTS

Table 1 reports results from the univariate tests of the magnitude of abnormal accruals for the dual and single class firms. The results show that dual class firms tend to have lower abnormal accruals: mean (median) is 0.05 (0.03) for the dual class sample and 0.07 (0.05) for the single class sample. Differences are statistically significant at p-value<0.001 using both a two-tailed unpaired t-test for differences in means and a Wilcoxon rank sum test for differences in the sum of ranks. This finding is consistent with previous research by Nguyen and Xu (2010). In summary, the results are consistent with Hypothesis 1 and in line with predictions, suggesting that firms with a dual class structure tend to have a smaller magnitude of abnormal accruals compared to single class firms.

Table 1

Univariate Earnings Management Tests

	Single Class		*Dual Class*		*Difference (Single-Dual)*	
	Mean	Median	Mean	Median	t-test	Wilcoxon-test
Abnormal Accruals	0.07	0.05	0.05	0.03	5.06***	4.56***
Observations	*374*		*437*			
Number of firms	*88*		*92*			

Notes: This table provides the univariate earnings management test results by comparing abnormal accruals for the dual class and single class samples. t-statistics for differences in means and Wilcoxon rank-sum Z-statistics for differences in medians are also reported. Significant differences for the means are indicated at the 10%, 5% and 1% levels by *, ** and ***, respectively. All continuous variables are winsorized at the 5% and 95% interval. *For a more detailed distribution of Abnormal Accruals, see Figure 3 in Appendix.*

6.3.2 MULTIVARIATE REGRESSION RESULTS

To increase the reliability of results and the ability to make correct interpretations, results from the multivariate regressions is next presented and analyzed. When taking into consideration other factors that may affect earnings management and controlling for possible endogeneity problems, the results remain stable but show a slightly smaller effect. The findings are consistent with Hypothesis 1 of an association and the predictions; on average, dual class firms appear to engage in less earnings management activities. In summary, the findings suggest that dual class structures lead to less earnings management measured by *Abnormal Accruals,* with a significance level ranging from below 1% to 5%.

Table 2 reports results for cross-sample tests comparing earnings management activities for dual and single class firms from the OLS and 2SPLS regressions with robust standard errors. When including *Bonus* and *Capital*, the sample is reduced from 811 to 382 observations. Therefore, the regressions are first performed excluding these two variables, the Baseline model, columns (1) and (3), and then including them in the Extended model, columns (2) and (4) in Table 2.

Table 2

Cross Sample Multivariate Regressions

	OLS		*2SPLS*	
	Baseline (1)	Extended (2)	Baseline (3)	Extended (4)
Abnormal Accruals			*Second-stage*	*Second-stage*
Intercept	0.199***	0.284***	0.187***	0.273***
	(-0.024)	(-0.044)	(-0.027)	(-0.057)
Market Value (-)	-0.004***	-0.007***	-0.004***	-0.007***
	(-0.001)	(-0.002)	(-0.001)	(-0.002)
Leverage (+)	0.016	0.023	0.016	0.025
	(-0.013)	(-0.021)	(-0.012)	(-0.025)
Past Growth (+)	0.002	0.003	0.002	0.002
	(-0.001)	(-0.002)	(-0.001)	(-0.002)
Sales Growth (+)	0.018***	0.021**	0.020***	0.024**
	(-0.007)	(-0.011)	(-0.007)	(-0.014)
σRevenue	-0.003	-0.036*	-0.005	-0.036*
	(-0.014)	(-0.020)	(-0.013)	(-0.027)
σEarnings	0.000	0.003	0.001	0.004*
	(-0.001)	(-0.002)	(-0.001)	(-0.003)
σCash flow	-0.004	-0.004	-0.004*	-0.005
	(-0.003)	(-0.004)	(-0.002)	(-0.005)
Bonus (+)		-0.007		-0.007
		(-0.006)		(-0.009)
Capital		-0.035**		-0.033**
		(-0.016)		(-0.020)
Dual (-)	-0.011***	-0.017***		
	(-0.003)	(-0.005)		
Dual* (-)			-0.006**	-0.008***
			(-0.003)	(-0.005)
Adj. R-square	0.195	0.21	0.172	0.157
Observations	*811*	*382*	*811*	*382*
Number of firms	*180*	*85*	*180*	*85*

Notes: This table provides results for multivariate regressions. The dependent variable is Abnormal Accruals. Columns (1) and (2) report results for the Baseline and Extended model from OLS regressions, respectively. Columns (3) and (4) report results for the Baseline and Extended models from the 2SPLS regressions, respectively. The coefficients from the first-stage regressions are omitted from the table for brevity, but full results are available in Table 9 in Appendix. The 2SPLS regressions test how dual class structures affect the size of abnormal accrual using a simultaneous-equation approach, where Dual and Abnormal Accruals are the endogenous variables. Observations consist of dual class firms and single class firms. The Baseline models (1) and (3) do not include Bonus and Capital, while the Extended models (2) and (4) include all variables. Market Value is the natural logarithm of market value of equity at end of fiscal year t. Leverage is debt divided by assets for fiscal year t-1. Past Growth is the natural logarithm of market to book ratio in year t-1. Sales Growth is revenue for fiscal year t divided by revenue for fiscal year t-1. σRevenue is calculated as the standard deviation of revenue over current and prior four years. σEarnings is calculated as the standard deviation of earnings over current and prior four years. σCashFlow is calculated as the standard deviation of cash flow over current and prior four years. Bonus is an indicator variable equal to one for firm-years whose CEOs have a bonus and zero otherwise. Capital is the total percentage of cash flow rights owned by insiders of the firm. Dual is an indicator variable equal to one if a firm has a dual class structure and zero otherwise. Dual* is the predicted value for Dual from the first-stage regressions. Expected signs for coefficients are shown in parenthesis by the variable name. Year and industry dummy variables are included to control for year and industry fixed effects. All continuous variables are winsorized at the 5% and 95% interval. Robust standard errors are presented in parentheses. Reported significance levels are based on a two-tailed significance level. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

ANALYSIS OF KEY INDEPENDENT VARIABLE

In the Baseline model (1) in the OLS regression, the coefficient of *Dual* is negative and statistically significant at the 1% level (-0.011***). In the Extended model (2), the coefficient

of *Dual** remains negative and significant at the 1% level but is larger (-0.017***). For the 2SPLS regressions, inferences about dual class ownership structure and control variables are based on the results from the second-stage regression, while inferences about the validity of the instruments are based on the first-stage. Therefore, the coefficients from the first-stage are excluded from Table 2 for brevity, but full results are reported in Table 9 in Appendix. When controlling for possible endogeneity concerns in the 2SPLS regressions, coefficient estimates on *Dual** are slightly smaller than the OLS estimates but still negative and significant (-0.006** in (3) and -0.008*** in (4)). The results indicate that dual class structures *lead* to less earnings management activities via abnormal accruals (*Abnormal Accruals**). The reliability of results in the 2SPLS depends on the validity of the instruments used. The instrument is considered valid in the Baseline model (3), and the negative and significant coefficient (-0.006**) of *Dual* therefore provides an indication of the causality between dual firms and less earnings management at 5% significance level. In the Extended model (4) concerns about a weak instrument[12] could result in biased results, which limits the ability to draw the same conclusion at the higher 1% significance level for *Dual** (-0.008***).

COMPARISON OF RESULTS TO PREVIOUS RESEARCH

The coefficient of *Dual* is smaller in the 2SPLS regression, implying that the OLS regression might overestimate the effect of *Dual* on earnings management activities. This could possibly be explained by the suspected endogeneity problem in the OLS. The overall findings are consistent with Nguyen and Xu (2010), who also find a significant negative relationship between dual class structure and earnings management (at the 1% and 5% level). However, further comparability is difficult without the coefficients' standard errors from Nguyen and Xu (2010). In addition, the explanatory power of this study's models are higher than previous research. The adjusted R-squares in the cross-sample 2SPLS regressions, indicating the goodness-of-fit of the statistical model, shows that 17.2% of the sample variation in earnings management can be explained by the independent variables in the Baseline model, and 15.7% in the Extended model. These results can be compared to the R-squares in Nguyen and Xu (2010), which range from 3% to 8% for their comparable abnormal accruals regressions. One possible explanation for the higher R-squares in this study could potentially be the refined research design. First of all, it could be related to the proxy for discretionary accruals which is estimated with the Kothari Model, as this model is considered better at predicting abnormal accruals than the Modified Jones Model used by Nguyen and Xu (2010) (Athanasakou, 2010). The dependent variable *Abnormal Accruals* in this study may therefore be specified more

[12] Evaluation of the validity of the instrument will be discussed in section 8, see Appendix for results of first-stage 2SPLS

precisely. Another explanation could be the development of the instrument for *Dual* with the inclusion of *Name* as an additional variable in the instrument for *Dual,* inspired by Gompers et al. (2010). Additionally, a more exact proxy of *Age* is used in this study, as age is not approximated with number of years since the IPO, but with the number of years since firm registration. This is considered an improvement since it measures what Gompers et al (2010) and Nguyen and Xu (2010) aim to capture with their proxies of firm age. Finally, this study is considered to include a more holistic control variable for insiders' capital ownership, as managers' and directors' cash flow rights are controlled for rather than approximated with CEO stock ownership as in Nguyen and Xu (2010).

ANALYSIS OF CONTROL VARIABLES

With respect to control variables, these do not change notably between the OLS and 2SPLS regressions. However, small changes can be observed between the Baseline and Extended models. The Extended models are based on fewer observations, which could provide part of the explanation to why some variables loose significance compared to the Baseline model. The significance level of *Sales Growth* goes from 1% in the Baseline models (1) and (3) to 5% in the Extended models (2) and (4). σ*Revenue* becomes significance at the 10% level in the Extended models (2) and (4). σ*Earnings* gains significance in (4) while σ*Cash Flow* loose significance. *Capital* is significant at the 5% level in both the OLS and 2SPLS regressions. As to the predicted signs of control variables, these have their expected coefficient signs, except for *Bonus* in the Extended model. *Bonus* has a negative coefficient while the predicted sign based on theories and previous research is positive. Therefore, (2) and (4) should be interpreted with caution. However, *Bonus* is noted to be insignificant.

6.4 RESULTS FOR HYPOTHESIS 2 - THE EXPLANATIONS

To test hypotheses H_{2a}, H_{2b} and H_{2c}, this study performs two versions of the Heckman regression model limited to the subsample of dual class firms. The findings from these regressions can be found in Table 3. In these Within-Sample tests, R-square range between 28-31 %, which can be considered high compared to 5-8% in the study by Nguyen and Xu (2010).

6.4.1 RESULTS AND ANALYSIS FOR H_{2a}

For hypothesis H_{2a}, the null hypothesis cannot be rejected in favor of the alternative hypothesis of a positive effect from insiders' cash flow rights, and a negative effect from insiders' voting rights. *Capital* is marginally significant at the 10% level in the Baseline model (-0.032*) but not significant when controlling for *Bonus* in the Extended model. *Votes* is not

Table 3

Within Sample Heckman Regressions

	Capital and Votes		*Disparity and Wedge*	
	Baseline (5)	Extended (6)	Baseline (7)	Extended (8)
Abnormal Accruals	*Second-stage*	*Second-stage*	*Second-stage*	*Second-stage*
Intercept	0.257***	0.320***	0.270***	0.333***
	(0.040)	(0.057)	(0.439)	(0.067)
Market Value (-)	-0.006***	-0.009***	-0.006***	-0.009***
	(0.002)	(0.002)	(-0.002)	(-0.002)
Leverage (+)	-0.017	-0.022	0.024	-0.023
	(0.018)	(0.024)	(-0.019)	(0.029)
Past Growth (+)	-0.002	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.003)
Sales Growth (+)	0.009	0.012	0.006	0.010
	(0.010)	(0.010)	(-0.009)	(0.012)
σRevenue	-0.013	-0.047**	-0.015	-0.046*
	(0.018)	(0.023)	(-0.019)	(0.027)
σEarnings	0.001	0.005**	0.002	0.004
	(0.002)	(0.002)	(-0.002)	(0.003)
σCash flow	-0.002*	0.001	-0.002	0.001
	(0.003)	(0.004)	(-0.003)	(0.005)
Mills	0.006	0.007	0.001	0.003
	(0.006)	(0.008)	(0.006)	(0.009)
Bonus (+)		-0.001		-0.002
		(0.007)		(0.008)
Capital (+)	-0.032*	-0.042	-0.032**	-0.043**
	(0.020)	(0.080)	(0.013)	(0.020)
Votes (-)	0.005	0.008		
	(0.014)	(0.019)		
Wedge (-)			0.013	0.010
			(-0.171)	(0.024)
Disparity (-)			-0.088**	-0.082
			(0.046)	(0.061)
Disparity^2 (+)			0.128***	0.137**
			(0.054)	(0.072)
F-statistic	4.87***	2.76***	4.24***	2.77***
Adj. R-square	0.286	0.288	0.295	0.316
Observations	*369*	*211*	*369*	*211*

Notes: This table reports results of the relationship between *Abnormal Accruals* and insiders' cash flow and voting rights as well as *Disparity* for the dual class sample. The dependent variable is *Abnormal Accruals. Mills* is the Inverse Mills Ratio from the first-stage and is included to control for selection bias. The first-stage results are omitted from the table for brevity, but full results are available in Table 10 in Appendix. Columns (5) and (6) report results from the second-stage Heckman regressions where *Capital* and *Votes* are the key independent variables for the Baseline and Extended model. Columns (7) and (8) report results from Heckman regressions where *Disparity, Disparity*^{2} and *Wedge* are the key independent variables for the Baseline and Extended model. *Market Value* is the natural logarithm of market value of equity at end of fiscal year t. *Leverage* is debt divided by assets for fiscal year t-1. *Past Growth* is the natural logarithm of market to book ratio in year t-1. *Sales Growth* is revenue for fiscal year t divided by revenue for fiscal year t-1. σ*Revenue* is calculated as the standard deviation of revenue over current and prior four years. σ*Earnings* is calculated as the standard deviation of earnings over current and prior four years. σ*CashFlow* is calculated as the standard deviation of cash flow from operations over current and prior four years. *Bonus* is an indicator variable equal to one for firm-years whose CEOs have a bonus and zero otherwise. *Capital* is the total percentage of cash flow rights owned by insiders of the firm. *Votes* is the total percentage of voting rights owned by insiders of the firm. Expected signs for coefficients are shown in parenthesis by the variable name. Year and industry dummy variables are included to control for year and industry fixed effects. All continuous variables are winsorized at the 5% and 95% interval. Robust standard errors are presented in parentheses below. Significance levels are based on a two-tailed significance level. at the 10%, 5%, and 1% levels is indicated by *, **, and ***.

significant at conventional levels in neither model. Without significance of the two variables along with coefficient signs inconsistent with predictions, the results need to be interpreted with caution. Thus, H_{2a} cannot be confirmed and further analysis is not conducted. Nguyen and Xu (2010), find coefficient signs consistent with the predictions and significant, for their measure of insiders' cash flow rights, but similarly insiders' voting rights lack significance. The inconsistency in findings regarding the *Capital* sign compared to Nguyen and Xu (2010) could possibly be related to the contradictory theories, with the *entrenchment, incentives* and *information* effect providing different implications on the effects of insiders' ownership on earnings management. Moreover, due to relevant international differences (La Porta et. al, 1999), the dominance of particular effects is likely to vary across countries.

6.4.2 Results and analysis for H_{2b}

Columns (7) and (8) in Table 3 displays results for hypothesis H_{2b}, where *Wedge* is not significant at conventional levels in neither model and has positive signs contradictory to predictions (0.013 and 0.013). As a result, the hypothesis (H_{2b}) about the relationship between earnings management and the divergence of insiders' equity ownership and control cannot be confirmed. Nguyen and Xu (2010) find a marginally negative and significant *Wedge* when controlling for executive compensation (-0.014*). The results are weak and contradictory to the findings by Nguyen and Xu (2010). While their results are significant and in line with theory regarding the effect of insiders' voting rights, it appears that their results cannot be extended to the dataset in this study. Therefore, we cannot draw the same conclusions and the results by Nguyen and Xu (2010) do not offer a comprehensive explanation for dual class firms' lower earnings management. If *Wedge* would represent the differential characteristic of dual class firms that could explain the observation of less earnings management, the coefficient would be expected to be negative and significant.

6.4.3 Results and analysis for H_{2c}

For hypothesis H_{2c}, a negative coefficient is found for *Disparity* (-0.088**), and a positive coefficient for the squared-term of the variable, *Disparity*^{2} (0.128***), is found in the Baseline model (7). However, when controlling for *Bonus* in the Extended model (8), lose significance (-0.082) while *Disparity*^{2} (0.137**) remains significant. Collectively, these results suggest a U-shaped relationship between *Disparity* and *Abnormal Accruals*. The null hypothesis is rejected at a 5% significance level in favor of the alternative hypothesis of a negative non-linear association.

These findings suggest that dual class firms with the lowest and highest *Disparity,* close to 0 or 1, engage in more earnings management activities, measured as the magnitude of

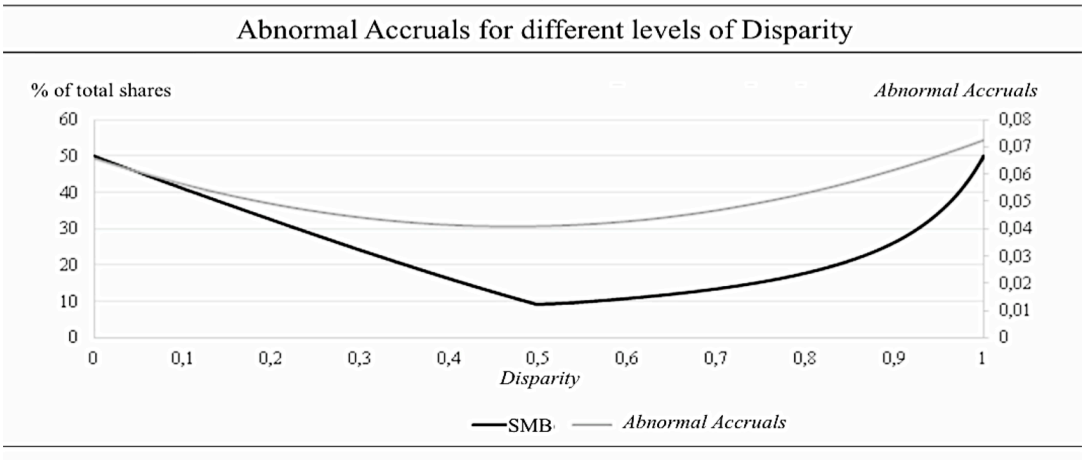
absolute discretionary accruals (*Abnormal Accruals)*. The non-linear relationship could possibly be related to the levels of SMB[13] in different degrees of disparity. As can be seen in Figure 2; as *Disparity* is increasing, *Abnormal Accruals* is decelerating until the turning point, which appears to occur around the lowest level of SMB, and thereafter *Abnormal Accruals* is accelerating.

The SMB represents a type of separation of ownership and control and is therefore related to agency theory (Bergström and Rydqvist, 1990). As agency costs are expected to have implications for the incentives to engage in earnings management, the SMB is also included in Figure 2. SMB is a function of *Disparity* as it is dependent on both the number of shares across classes and the voting ratio (see example in Appendix, Calculation 1). SMB represents the lowest level of capital ownership that is required to attain control of the firm (≥50% of votes). Due to theories of private benefits of control, additional voting rights are expected to have less impact on earnings management once control is reached as they do not contribute with practical implications to the same extent as before (e.g. through increased private benefits of control). Therefore, related to theories about agency problems, the SMB captures the largest divergence of cash flow and voting rights that is expected to create tension and contribute to agency costs. If the SMB is low, the separation between ownership and control has the potential to be large. The lowest level of SMB associated with the highest level of divergence, occurs when *Disparity* equals 0.5 (see Figure 2). This degree of disparity is reached when the number of A-shares constitutes 9% of total shares, assuming a voting ratio of 10:1[14]. When *Disparity* approaches 0 and 1, the SMB approaches its high point of 50%. This means that the dual class firm becomes more similar to the single class firm in terms of SMB. In a single class firm, 50% of the capital is needed to obtain 50% of the votes. The similar requirement exists in a dual class firm that has almost all shares in one class, weather it be B-shares (as close to *Disparity* 0) or A-shares (as close to *Disparity* 1).

If the difference in SMB requirements created by the multiple share classes in dual class firms represents the main differentiator of dual class firms that impact *Abnormal Accruals*, the expected turning point for *Abnormal Accruals* would be predicted to coincide with the SMB's turning point at *Disparity* 0.5. Analyzing the graphs that plot SMB and *Abnormal Accruals* (Figure 2 and in Appendix Figure 5) against *Disparity,* the relationship and turning points appear to be fairly close. Without accounting for other factors that might affect the size of *Abnormal Accruals* (Figure 2), both *Abnormal Accruals* and SMB appear to change direction from a negative to positive correlation at the 0.5 level of *Disparity*. When considering the

[13] SMB stands for *smallest majority blockholding*. Please see section 2.4.3 for further description of the concept.
[14] This is the case for 98% of the dual sample firms (SIS Ägarservice)

Figure 2



Notes: Figure 2 plots the estimated relationship between Disparity and Abnormal Accruals without considering other factors that could impact the size of Abnormal Accruals. SMB is calculated assuming the voting ratio of 10:1, while Disparity is based on the actual voting ratio in each firm. Average Disparity is 0.45 with 50% of dual sample firms between 0.30 and 0.60.

impact of other factors, as shown in Figure 5 in Appendix, the turning point for *Abnormal Accruals* appears at a slightly lower level of *Disparity* than the SMB. A possible explanation is that the actual blockholding of a controlling owner is not necessarily aligned with the smallest SMB that could have been held theoretically, since other factors not related to earnings management are likely to influence the optimal level of blockholding, such as the cost of capital and firm value (Bergström and Rydqvist, 1990).

Collectively, the results indicate a statistically significant U-shaped relationship between earnings management and the separation of ownership and control at a firm level. Our interpretation of these results it that a possible explanation for dual class firms to engage in less earnings management activities, measured as abnormal accruals, is the disproportionality of distributed voting rights across share classes, which is a function of both the number of shares in each class and the voting ratio. The effects of dual class structures appear to not only be dependent on adopting the structure or not, but also on the voting ratio and the number of shares in each share class. In comparison to previous studies on U.S. data, an explanation is not found in the managerial separation of ownership and control but rather at the firm level. This indicates international differences among the effects of dual class structures.

7 DISCUSSION

This section discusses the sensitivity of the decision to apply specific estimation methods and models, and how well the underlying assumptions of these models appear to hold. These areas will be discussed in relation to validity and reliability concerns, as well as the ability to extend

the results beyond the specific sample. Furthermore, a discussion regarding alternative interpretations and suggestions for future research is presented.

7.1 RELIABILITY, VALIDITY AND GENERALIZABILITY

7.1.1 MEASURING EARNINGS MANAGEMENT

A prerequisite for validity of the study and its findings is that earnings management is estimated properly. This study uses the Modified Jones Model with lagged ROA (Kothari model) to use absolute discretionary accruals as a proxy for earnings management. The model is regarded as one of the best-performing estimation models of discretionary accruals (Kothari et al., 2005). However, the chosen model is subject to possible measurement errors both in regards to input and the model specification. The model is based on input data collected from *Datastream*, which is a frequently used source in the research field and generally assumed to be valid. The data has also been subject to randomized cross-checkings towards financial reports, but could anyhow be subject to incorrect values that may have affected the results.

Regarding the model specification, R-square for the estimation models of industry and year specific coefficients are generally high (please refer to Table 7 in Appendix). However, only about half of the coefficients across models are significant, suggesting that there may be some measurement errors in the estimation of *Abnormal Accruals*. Another possible explanation for low significance is noted to be the small sample sizes, as the model requires *Abnormal Accruals* to be estimated separately for each year and industry. Another possible validity concern is that the cross-sectional method incorrectly assumes that all firms in an industry have the same coefficients (Peasnell et al. 2000), and it will therefore not be able to identify earnings management performed by an industry as a whole. Furthermore, the limitation to only measure accruals-based earnings management may have resulted in an underestimation or overestimation of the true earnings management. Therefore it is important to recognize that the findings might not be generalizable to other forms of earnings management activities.

7.1.2 SAMPLE SELECTION METHOD

Recognizing that four out of ten industries have been excluded from this study's sample[15], a possible selection bias could be present and the results may not extend to these industries. *Financial* firms have been excluded due to differences in their financial reports and accruals. *Telecommunications, Utilities* and *Oil and Gas* have also been excluded as they have less than ten firms within the time period, which is required to obtain reliable estimations with the

[15] Please see Table 5 in Appendix for the detailed Data collection process

Kothari model. Incentives to engage in earnings management may vary across industries due to differences in private benefits of control, this indiciates that care should be taken when extending results beyond the particular industries included in the sample.

7.1.3 Regression model specifications

The OLS model is the best linear unbiased estimator if the following assumptions hold; *i)* the relationship between predictors and the outcome variable is linear, *ii)* it is a random sample of the population, *iii)* no independent variable is a constant and the independent variables are not perfectly correlated, *iv)* no important variables are omitted in the model, *v)* the error variance is constant (homogeneity of variance) and the error have a conditional mean of zero (exogeneity). However, if one or more of these assumptions are violated, it will result in biased or inconsistent coefficients (Newbold et al., 2010). Therefore, the assumptions are tested and if needed corrected for to any extent possible. *i)* A squared term of *Disparity* is included in the model as the relationship appears non-linear with *Abnormal Accruals,* see *Figure 4* in Appendix (for discussion see section 4.4.3). *ii)* A Heckman selection model is used to control for the non-random sample in the within-sample tests for Hypothesis 2, for discussion see section 4.4.1. *iii)* The Pearson correlation coefficients between variables do not show any high correlations that could cause potential problems, see Table 11 and 12 in Appendix. Table 13 in Appendix further reinforce that the assumption holds, as the VIF values are below 10 for all variables (Wooldrige, 2012). *v)* Heteroskedasticity is suggested to be present by a White test and a Breush-Pagan Cook-Weisberg test, see Table 14 in Appendix. Therefore, robust standard errors are used in all models to correct for this. Previous research suggests an endogeneity concern, and an instrumental 2SPLS model is therefore used (see discussion in section 4.3.2). We acknowledge that other endogeneity concerns may still be present.

7.1.4 Validity and Relevance of instruments in 2SPLS

Whether the instrumental 2SPLS regression is useful for the particular application of estimating the effects of dual class structures on earnings management depends on the validity of instruments. There are two requirements of a valid instrument; relevance and exogeneity. Relevant instruments produce accurate estimators, while weak instruments produce biased estimators and unreliable confidence intervals. A rule of thumb is that a first-stage F-statistic less than 10 indicates a weak instrument (Stock and Watson, 2015). As can be seen in Table 9 in Appendix, the first-stage F-statistic in the Baseline model (3) is 10.48 with p-value<0.000, indicating a relevant instrument. However, in the first-stage of the Extended model (4), the F-statistic is only 4.62 with a p-value<0.000, indicating a possibly weak instrument and therefore

care should be taken when interpreting these results. The relevance criterion can furthermore be tested by having a statistically significant instrument coefficient in the first stage of the 2SPLS regression (Wooldridge, 2012). The significance levels of 10% for *Age* and 1% for *Name* in both the Baseline and Extended models thus indicate that the instrument for *Dual* is relevant. The second assumption regards the exogeneity of the instrument. As the exogeneity criterion cannot be tested, the assumption is assessed as valid based on previous research and theories regarding predictors of dual class structures and earnings management.

7.1.5 Extreme values

The risk of not adjusting for extreme values is that the estimated coefficients are dominated by a few extremely small or large values. By winsorizing, extreme values are replaced rather than excluded, and thus the sample size remains. To mitigate the effect of extreme values in this thesis, all continuous variables have been winsorized at the 5% and 95% interval. A sensitivity analysis of this decision is performed by contrasting the results to the same tests performed with continuous variables winsorized at the 1% and 99% interval as well as their original values. The significance levels for control variables decrease, R-square is lower while *Dual* remains negative and significant. However, the size of *Dual* is deemed less reliable as the model specification appears less valid. As the result of the variable *Dual* remains, the results are deemed robust with regards to the choice of handling extreme values.[16]

7.2 Alternative interpretations and future research

Francis et al. (2005) suggest that earnings for dual class firms are less informative as credibility is lower. Their results could be consistent with this study's finding of lower earnings management for dual class firms, with the rationale that investors do not put the same weight on reported earnings for dual class firms, and managers' benefits and incentives to manage earnings therefore differs. Credibility and informativeness of earnings have not been measured for the subsamples in this study and can therefore neither be established nor be excluded as a possible explanation. This would be interesting avenue for future research.

This study is limited to investigate the effects of a dual class ownership structure, but if the underlying driver is the separation of control from ownership, other mechanisms that are also related to such a separation exist that are not included in the scope of this study, such as pyramid structures and cross-holdings. These are however less transparent and hence more difficult to investigate. The ultimate ownership and control is therefore not feasible to test in this study, but tracing the chain of ultimate ownership and tracking allied investors makes a

[16] Table available upon request

good suggestion for future research.

Finally, an intriguing area for future research is to examine firms switching from dual to single class structures, or vice versa, as this could increase the understanding of the effects of dual class structures.

8 CONCLUSION

This thesis aims to contribute to the debate on the costs and benefits of dual class structures by investigating the effects of dual class structures on earnings management. To date there remains a paucity of evidence on the relationship between dual class structures and financial reporting choices and a need for further research in a setting where dual class firms are more prevalent such as Sweden has been identified. With a sample of Swedish listed firms within the time period of 2010 to 2014 this study sheds further light on the effects of disproportional ownership structures and provides intriguing comparisons to previous literature.

The major finding is that there is a statistically significant negative association between dual class structures and earnings management. By addressing endogeneity concerns with exogenous predictors of dual class structures and earnings management, a causality of the effects of dual class structures on less earnings management is found. Given that discretionary accruals is a good proxy for earnings management, the results indicate that managers of dual class firms on average engage in less earnings management activities than in single class firms. Another key finding is a statistically significant U-shaped relationship between the disproportionately distributed voting rights across share classes in dual class firms and earnings management. This result suggests that a possible explanation for the negative effect of dual class structures on earnings management is the separation of ownership and control. The effects of dual class structures appear to not only be dependent on adopting the structure or not, but also on the specific voting ratio and the number of shares in each share class. In comparison to previous studies on U.S. data, an explanation is not found in the managerial separation of ownership and control but rather at the firm level. This indicates international differences among the effects of dual class structures.

This study can particularly contribute to additional insight on ownership structures effects; for regulators aiming to improve corporate governance and financial reporting, for investors and financial analysts evaluating earnings quality and forecasting performance, for stakeholders such as credit institutes, and for shareholders deciding on which ownership structure to adopt. It can also contribute with a refined research design for future research within the field. Note that the results should be cautiously generalized outside the scope of this study.

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APPENDIX

Calculation 7

SMB Calculation Example

SMB is 9% when the voting ratio is 10:1 and A-shares constitutes 9% of total shares:

$$50\%\ of\ votes = \frac{(10\ votes * 9\%\ shares_A)}{(10\ votes * 9\%\ shares_A) + (1\ vote * 91\%\ \ shares_B)}$$

$shares_A$: $number\ of\ superior\ shares$

$shares_B$: $number\ of\ inferior\ shares$

Calculations 8-10

Different Accruals-based Models

Jones model (1992)

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_{1_t}\left(\frac{1}{A_{i,t-1}}\right) + \beta_{2_t}\left(\frac{(\Delta REC_{i,t})}{A_{i,t-1}}\right) + \beta_{3_t}\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \mathcal{E}_{i,t} \qquad (8)$$

Modified Jones model (1995)

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_{1_t}\left(\frac{1}{A_{i,t-1}}\right) + \beta_{2_t}\left(\frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}}\right) + \beta_{3_t}\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \mathcal{E}_{i,t} \qquad (9)$$

Kothari, et al. (2005)

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_{1_t}\left(\frac{1}{A_{i,t-1}}\right) + \beta_{2_t}\left(\frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}}\right) + \beta_{3_t}\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \beta_{4_t}(ROA_{i,t-1}) + \mathcal{E}_{i,t} \qquad (10)$$

$TA_{i,t}$: $total\ accruals\ for\ firm\ i\ in\ year\ t$

$A_{i,t-1}$: $total\ assets\ for\ firm\ i\ in\ year\ t-1$

$\Delta\ REV_{i,t}$: $change\ in\ revenue\ for\ firm\ i\ in\ year\ t$

$\Delta\ REC_{i,t}$: $change\ in\ receivables\ for\ firm\ i\ in\ year\ t$

$PPE_{i,t}$: $property, plant\ and\ equipment\ for\ firm\ i\ in\ year\ t$

$ROA_{i,t-1}$: $return\ on\ assets\ for\ firm\ i\ in\ year\ t-1$

$\mathcal{E}_{i,t}$: $error\ term\ for\ firm\ i\ in\ year\ t$

Table 4

Variables and Definitions

Variable	*Description*	*Source*
Net Income	Net Income after Extraordinary Items and Preferred Dividends	Datastream
Cash Flow	Cash Flow from Operating Activities	Datastream
Assets	Total Assets	Datastream
Revenue	Net Sales or Revenue	Datastream
Receivables	Accounts Receivables	Datastream
PPE	Property Plant and Equipment	Datastream
Market Value	Natural Logarithm of Market Value of Equity at end of fiscal year t	Datastream
Past Growth	Natural Logarithm of Market to Book ratio in year t-1	Datastream
Sales Growth	Revenue for fiscal year t divided by Revenue for fiscal year t-1	Datastream
Leverage	Debt divided by Assets for fiscal year t-1	Datastream
σRevenue	Standard deviation of Revenue over current and prior four years	Datastream
σEarnings	Standard deviation of Net Income over current and prior four years	Datastream
σCash flow	Standard deviation of Cash Flow from Operations over current and prior four years	Datastream
Dual	One for firms with a dual class structure and zero for firms with a single class structure	SIS Ägarservice
Age	Number of years since registration at Bolagsverket	Bolagsverket
Name	One if the founder's name to some extent appears in the firm's name at the time of the IPO [1)]	Handcollected
Capital	Total percentage of cash flow rights owned by insiders of the firm	Modular Finance
Votes	Total percentage of voting rights owned by insiders of the firm	Modular Finance
Wedge	Insiders' voting rights subtracted by insiders' cash flow rights	Modular Finance
Disparity	Superior shares' voting rights as a % of total voting rights	SIS Ägarservice
Bonus	One for firm-years whose CEOs have a bonus and zero otherwise	Handcollected
CEO Turnover	Number of CEO changes between 1999-2013	Handcollected
Industry	Defined in accordance with Industry Classification Benchmark (ICB)	ICB
Defintion	*Description*	*Source*
SMB	Smallest majority blockholding	
Insider	Individuals with propriatary information about the firm during the specific year, typically managers and directors of the firm	Finans-inspektionen
Controlling owner	An individual or a group of allied investors which have have >50% of the voting rights or effective control over the firm	
Kothari model	Modified Jones model with lagged return on Assets (ROA)	Kothari et al.
Abnormal Accruals	Absolute Discreationary Acrruals, estimated by the Kothari model	(2005)

Notes: 1) For example, on the company KABE's website it is stated in a footnote that the name KABE originates from the initials in the founder Kurt Blomqivst's name (KB). Data on the variable Name is handcollected by investigating e.g company websites and news paper articles.

Table 5

Sample Size and Selection Method

		Selection method		*Sample size*		
Step	Category	Criteria	Source	Data loss	Data loss %	Obs.
1	Firm-years	Firms listed on NASDAQ OMX Stockholm 2010-2014	NASDAQ & SIS Ägarservice			1623
1	Financial data	Available and valid financial data needed to perform the Kothari model	Datastream & Annual Reports	229	14%	1394
1	Financial firms	Exclude financial firms according to ICB classifications	NASDAQ	390	28%	1004
1	Small industries	Exclude industries with less than 10 firms	NASDAQ	75	7%	929
Sum	*Kothari industry regression*					*929*
2	Ownership structure	Single or dual class firms	SIS Ägarservice	66	7%	863
Sum	*Kothari firm regression*					*863*
3	Volatility of Revenue, Earnings and Cash-flow	Data for current year and four prior years	Datastream	52	5%	811
Sum	*Baseline model*					*811*
4	Ownership and compensation			429	53%	382
4a	*Insider ownership*	*Insider's cash flow and voting rights*	*Modular Finance*	*171*	*21%*	*640*
4b	*Executive compensation*	*CEO Bonus information for firm*	*Handcollected*	*324*	*40%*	*487*
Sum	*Extended model*					*382*

Table 6

Industry Description

Industry	Description	ICB-code
1	Basic Material	1000
2	Industrials	2000
3	Consumer Goods	3000
4	Health Care	4000
5	Consumer Services	5000
9	Technology	9000

Table 7

R-square for Non-discretionary Accruals

	Year					*Observations*
Industry	2010	2011	2012	2013	2014	
1	0.95	0.93	0.95	0.81	0.97	56
2	0.06	0.09	0.37	0.3	0.13	327
3	0.28	0.28	0.18	0.42	0.17	109
4	0.38	0.16	0.05	0.64	0.74	145
5	0.69	0.64	0.85	0.87	0.78	125
9	0.53	0.45	0.57	0.3	0.92	167
Total						*762*
Average R-square						51.20%

Notes: This table provides R-squares for the OLS regression for Non-Discretionary Accruals as estimated by the Kothari Model for each industry and year, as well as the total number of firm-year observations for each industry. Firms are categorized according to the Industry Classification Benchmark (ICB). 6 out of 10 industries are represented in our sample. It excludes Oil and Gas, Financials, Telecommunication and Utilities.

Table 8

Summary Statistics

	Single Class		*Dual Class*		*Difference (Single-Dual)*	
	Mean	Median	Mean	Median	t-test	Wilcoxon-test
General Descriptives						
Market Value	5090	763	11000	1300	-2.83***	-4.002***
Revenue	5.18	0.97	19.90	1.67	-6.91***	-6.372***
Sales Growth	0.11	0.05	0.15	0.06	-1.91**	-1.16
Past Growth	2.62	2.08	1.98	1.49	4.98***	5.65***
σRevenue	0.25	0.20	0.18	0.13	5.48***	6.01***
σEarnings	0.01	0.26	0.28	0.34	-3.05***	-2.59***
σCashFlow	0.32	0.36	0.42	0.37	-1.75*	-0.50
Leverage	0.17	0.16	0.18	0.15	-0.66	-0.697
Age	28.40	19	44.56	32	-10.09***	-10.20***
Name	0.04	0	0.28	0	-9.46***	-8.99***
Observations	*374*		*437*			
Ownership Structure						
Votes	0.28	0.28	0.40	0.40	-6.05***	-5.19***
Capital	0.28	0.28	0.29	0.28	0.13	0.20
Observations	*271*		*369*			
Disparity	N/A	N/A	0.42	0.41	-33.9***	-24.50***
Observations			*437*			
Additional Descriptives						
CEO Turnover	3.91		2.98		6.46***	5.99***
Observations	*206*		*343*			
Bonus	0.15		0.13		0.62	0.62
Observations	*230*		*257*			

Notes: This table presents means and sum of ranks of several variables for dual- and single class firms within the period of 2010-2014. t-statistics for differences in means and Wilcoxon rank-sum Z-statistics for differences in sum of ranks are also reported. Market Value is market value of equity in million SEK at the end of fiscal year t. Revenue is revenue in million SEK at the end of fiscal year t. Sales Growth is revenue for fiscal year t divided by revenue for fiscal year t-1. Past Growth is the natural logarithm of market to book ratio in year t-1. σRevenue is calculated as the standard deviation of revenue over current and prior four years. σEarnings is calculated as the standard

deviation of earnings over current and prior four years. σCashFlow is calculated as the standard deviation of cash flow from operations over current and prior four years. Leverage is debt divided by assets for fiscal year t-1. Age is the number of years since registration at Bolagsverket. Name is a dummy variable equal to one if the founder's name to some extent appears in the firm's name at the time of the IPO. Its construction is discussed in the text. Votes is the total percentage of voting rights owned by insiders of the firm. Capital is the total percentage of cash flow rights owned by insiders of the firm. Disparity is the superior shares' voting rights as a percentage of total voting rights. CEO Turnover is the number of CEO changes between 1999-2013. Bonus is an indicator variable equal to one for firm-years whose CEOs have a bonus and zero otherwise. Significant differences are indicated at the 10%, 5% and 1% levels by *, ** and ***, respectively. All continuous variables are winsorized at the 5% and 95% interval.

Table 9

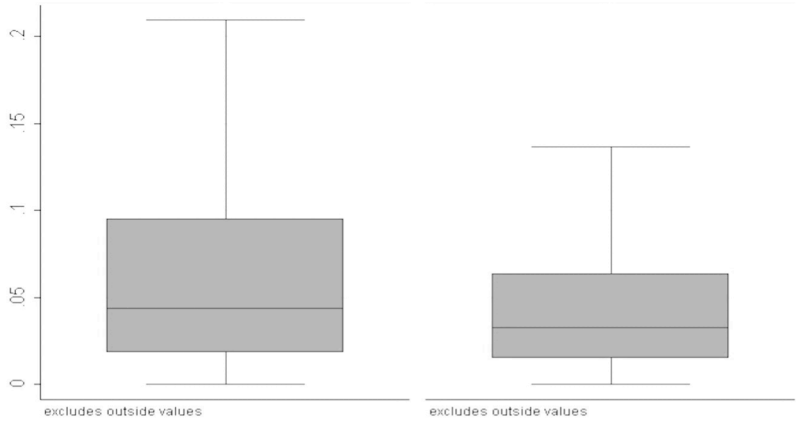
Cross Sample Multivariate Regressions

	2SPLS			
	Baseline (3)		Extended (4)	
	First-stage	*Second-stage*	*First-stage*	*Second-stage*
	IV	Abnormal Accruals	IV	Abnormal Accruals
Intercept	0.206***	0.187***	0.284***	0.273***
	(0.026)	(-0.027)	(-0.044)	(-0.057)
Age	0.001*		0.001*	
	(0.000)		(-0.000)	
Name	-0.012***		-0.020***	
	(0.005)		(-0.007)	
Market Value (-)	-0.005***	-0.004***	-0.008***	-0.007***
	(0.001)	(-0.001)	(-0.002)	(-0.002)
Leverage (+)	0.018	0.016	0.025	0.025
	0.012	(-0.012)	(-0.019)	(-0.025)
Past Growth (+)	0.003**	0.002	0.004**	0.002
	(0.001)	(-0.001)	(-0.002)	(-0.002)
Sales Growth (+)	0.016**	0.020***	0.018*	0.024**
	(0.006)	(-0.007)	(-0.010)	(-0.014)
σRevenue	-0.004	-0.005	-0.041**	-0.036*
	(0.013)	(-0.013)	(-0.021)	(-0.027)
σEarnings	0.000	0.001	0.002	0.004*
	(0.001)	(-0.001)	(-0.002)	(-0.003)
σCash-flow	-0.004*	-0.004*	-0.005	-0.005
	(0.002)	(-0.002)	(-0.005)	(-0.005)
Bonus (+)			-0.005	-0.007
			(-0.007)	(-0.009)
Capital			-0.031**	-0.033**
			-0.016	(-0.020)
Dual* (-)		-0.006**		-0.008***
		(-0.003)		(-0.005)
F-statistic	10.48***	10.92***	4.62***	4.73***
Adj. R-square	0.174	0.172	0.160	0.157
Observations	*811*	*811*	*382*	*382*
Number of firms	*180*	*180*	*85*	*85*

Notes: This table provides results for multivariate regressions. The dependent variable is Abnormal Accruals. Columns (1) and (2) report results for the Baseline and Extended model from OLS regressions, respectively. Columns (3) and (4) report results for the Baseline and Extended models from the 2SPLS regressions, respectively. The 2SPLS regressions test how dual class structures affect the size of abnormal accrual using a simultaneous-equation approach, where Dual and Abnormal Accruals are the endogenous variables. Observations consist of dual class firms and single class firms. The Baseline models (1) and (3) do not include Bonus and Capital, while the Extended models (2) and (4) include all variables. Market Value is the natural logarithm of market value of equity at end of fiscal year t. Leverage is debt divided by assets for fiscal year t-1. Past Growth is the natural logarithm of market to book ratio in year t-1. Sales Growth is revenue for fiscal year t divided by revenue for fiscal year t-1. σRevenue is calculated as the standard deviation of revenue over current and prior four years. σEarnings is calculated as the standard deviation of earnings over current and prior four years. σCashFlow is calculated as the standard deviation of cash flow over current and prior four years. Bonus is an indicator variable equal to one for firm-years whose CEOs have a bonus

and zero otherwise. Capital is the total percentage of cash flow rights owned by insiders of the firm. Dual is an indicator variable equal to one if a firm has a dual class structure and zero otherwise. Dual* is the predicted value for dual from the first-stage regressions. Expected signs for coefficients are shown in parenthesis by the variable name. Year and industry dummy variables are included to control for year and industry fixed effects. Robust standard errors are presented in parentheses. Reported significance levels are based on a two-tailed significance level. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively. All continuous variables are winsorized at the 5% and 95% interval.

Figure 3
Absolute Abnormal Accruals Distribution across Subsamples



Single class firms Dual class firms

Table 10
Heckman Selection

Dual	*First-stage*
Intercept	-0.172
Age	0.012***
	(0.002)
Name	1.128***
	(0.144)
Past Growth	-0.103***
	(0.027)
Sales Growth	0.376**
	(0.162)
Leverage	-0.960***
	(0.323)
Mills	-0.049
	(0.036)
Rho	-0.215
Sigma	0.227
Wald $\chi 2$	16.15
Prob. $\chi 2$	0.001
Observations	*811*
Censored observations	*383*
Unsensored observations	*428*

Notes: Notes: This table reports the first-stage coefficients from the Heckman regressions. Age is the number of years since registration at Bolagsverket. Name is an indicator variable equal to one if the founder's name to some extent appears in the firm's name at the time of the IPO. Past growth is the natural logarithm of market to book ratio in year t-1. Sales growth is Revenue for fiscal year t divided by Revenue for fiscal year t-1. Leverage is debt divided by assets for fiscal year t-1. Mills is the Inverse Mills Ratio.

Figure 4

Non-linearity of Disparity in Heckman Selection Model (7)

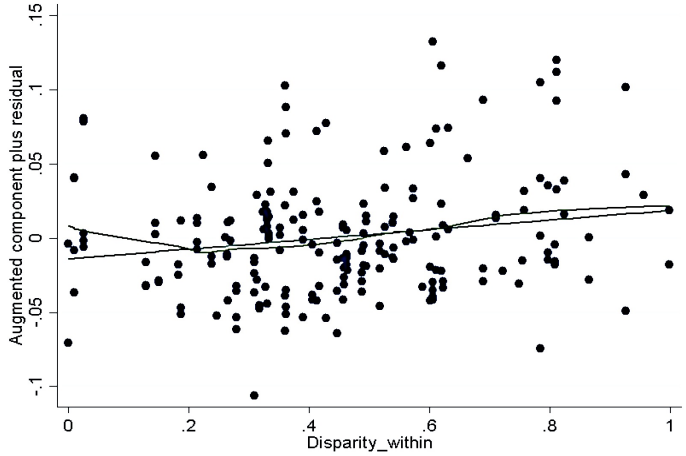
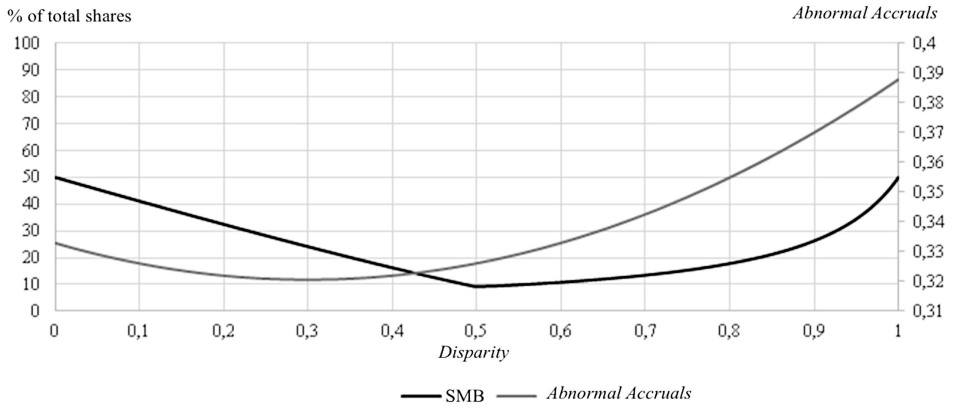


Figure 5

Abnormal Accruals and SMB for different levels of Disparity



Notes: Figure 5 plots the estimated relationship between Disparity and Abnormal Accruals. It uses the parameters *Disparity* and $Disparity^2$ in column (7) in Table 2 and holds the control variables fixed at zero. SMB is calculated assuming the voting ratio of 10:1, while Disparity is based on the actual voting ratio in each firm. Average Disparity is 0.45 with 50% of dual sample firms between 0.30 and 0.60.

Table 11

Pearson correlation coefficients between variables

	Abnormal Accruals	*Dual*	*Market Value*	*Leverage*	*Past Growth*	*Sales Growth*	*σCashFlow*	*σEarnings*	*σRevenue*	*Bonus*
Dual	-0.2300***									
Market Value	-0.0968*	0.0410								
Leverage	-0.0139	-0.0033	0.4111***							
Past Growth	-0.0271	-0.0981*	0.1033*	-0.1869***						
Sales Growth	0.0077	0.1643***	-0.0564	-0.0282	0.0907					
σCashFlow	-0.0817	-0.0282	0.0041	-0.0044	-0.0667	-0.1517***				
σEarnings	0.0406	0.1066*	0.1493**	0.0190	-0.0254	-0.0250	0.2515***			
σRevenue	0.0442	0.0681	-0.2350***	-0.2396***	-0.0254	0.3132***	-0.1338 **	-0.0741		
Bonus	-0.0838	-0.0525	0.0546	0.0425	-0.0645	-0.0297	0.0615	0.0721	-0.1139*	
Capital	-0.0520	0.0225	-0.4458***	-0.1258**	0.0597	-0.0069	0.2410***	0.0236	0.0037	-0.0362

Notes: This table shows the Pearson correlation coefficients across the years 2010-2014. The table reports the pair-wise correlation coefficient of the main variables used in the regression models. Dual is an indicator variable equal to one if the firm is dual and zero otherwise. Abnormal Accruals is defined as absolute discretionary accruals estimated by the Kothari Model. Market Value is the natural logarithm of market value of equity at end of fiscal year t. Sales Growth is revenue for fiscal year t divided by revenue for fiscal year t-1. Past Growth is the natural logarithm of market to book ratio in year t-1. σRevenue is calculated as the standard deviation of revenue over current and prior four years. σEarnings is calculated as the standard deviation of earnings over current and prior four years. σCashFlow is calculated as the standard deviation of cash flow from operations over current and prior four years. Leverage is debt divided by assets for fiscal year t-1. Age is the number of years since registration at Bolagsverket. Name is an indicator variable equal to one if the founder's name to some extent appears in the firm name at the time of the IPO. Votes is the total percentage of voting rights owned by insiders of the firm. Capital is the total percentage of cash flow rights owned by insiders of the firm. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively. All continuous variables are winsorized at the 5% and 95% interval.

Table 12

Pearson correlation coefficients

	Disparity	Wedge
Wedge	-0.0258	
Capital	-0.0164	0.2140

Notes: This table shows the Pearson correlation coefficients. The table reports the pair-wise correlation coefficient of Wedge, Capital and Disparity. Capital is the total percentage of cash flow rights owned by insiders of the firm. Wedge is the difference in insiders' voting rights and cash flow rights. Disparity is the superior shares' voting rights as a % of total voting rights. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively. All continuous variables are winsorized at the 5% and 95% interval.

Table 13

VIF-test

	Baseline		*Extended*	
	VIF	1/VIF	VIF	1/VIF
Market Value	1.39	0.72	1.64	0.61
Past Growth	1.43	0.70	1.45	0.69
Sales Growth	1.23	0.81	1.28	0.78
Leverage	1.20	0.84	1.34	0.75
σRevenue	1.63	0.61	1.52	0.66
σEarnings	1.11	0.90	1.19	0.84
σCash-flow	1.16	0.86	1.24	0.81
Dual	1.13	0.89	1.14	0.88
Bonus			1.04	0.96
Capital			1.35	0.74
Year 2011	1.64	0.61	1.63	0.61
Year 2012	1.65	0.61	1.66	0.60
Year 2013	1.62	0.62	1.65	0.61
Year 2014	1.73	0.58	1.75	0.57
Industry 2	4.85	0.21	4.28	0.23
Industry 3	2.68	0.37	2.45	0.41
Industry 4	3.29	0.30	3.03	0.33
Industry 5	2.90	0.35	2.18	0.46
Industry 9	3.66	0.27	3.31	0.30
Median	2.02		1.85	

Notes: This Table presents results from the variance inflation factor (VIF) test of the OLS regressions (1) and (2). The VIF-test tests the assumption of multicollinearity. Multicollinearity can occur when independent variables are highly correlated. If the correlation results in that independent variables affect each other's variances, this makes it difficult to separate out the effects of a specific variable and can result in an inefficient model. The test suggests that a multicollinearity problem is not present as no variables have a VIF value above 10. *Market Value* is the natural logarithm of market value of equity at end of fiscal year t. *Past Growth* is the natural logarithm of market to book ratio in year t-1. *Sales Growth* is revenue for fiscal year t divided by revenue for fiscal year t-1. *Leverage* is debt divided by assets for fiscal year t-1. *σRevenue*, *σEarnings* and *σCashFlow* are calculated as their respective standard deviations over current and prior four years. *Dual* is an indicator variable equal to one if the firm is dual and zero otherwise. Bonus is an indicator variable equal to one for firm-years whose CEOs have a bonus and zero otherwise. *Capital* is the total percentage of cash flow rights owned by insiders of the firm.

Table 14

Hetroskedasticity

	White		*Breusch-Pagan*	
	Baseline	Extended	Baseline	Extended
χ^2	281.04***	217.47***	133.41***	51.94***

Notes: This Table presents results for the White test and Breusch-Pagan Cook-Weisberg test which both test the assumption of homogeneity. When the error variance is not constant, the variance is said to be heteroskedastic and the standard errors of the estimated coefficients become unreliable. The assumption of homogeneity of variance is tested with a White test to detect if a non-linear form of heteroskedasticity is present and a Breusch-Pagan Cook-Weisberg test to detect error variance as a function of one or more variables. The Breusch-Pagan Cook-Weisberg test is tested with the null hypothesis that the error variances are homoskedastic against the alternative hypothesis that the error variances are heteroskedastic. The results show a χ2-value of 133.41 in the Baseline Model and 51.94 in the Extended model at p=0.000 and p=0.004, respectively. This indicates that heteroskedasticity is present. Similarly, the White test for a non-linear form of heteroskedasticity gives a χ2-value of 281.04 in the Baseline Model and 217.47 in the Extended model at p=0.000, which also rejects the null hypothesis of homoscedasticity.