Agency costs of
controlled ownership in transition

An empirical study of disproportionate ownership and controlling owners in
Sweden during 1999-2007

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Abstract

This thesis investigates the agency costs of controlling minority shareholders in Sweden during the period 1999-2007 with respect to the institutional changes under the stated period. A total data sample of 1 473 firm-year observations for 274 firms listed on the Stockholm Stock Exchange is utilised to determine the effect of controlling owners and disproportionate ownership on firm value, approximated by Tobin's q. Our results from running pooled ordinary least-square regressions show that the agency costs associated with controlling minority shareholders have risen from approximately 17.5% to 20.0% of firm value during the past decade. However, when controlling for unobserved firm heterogeneity using a firm-fixed effect specification the impact of concentrated ownership and the prevalence of disproportionate ownership of firm value is insignificantly zero. This statistically insignificance in the results is not in line with prior research, suggesting there indeed has been a shift in the determinant factors of agency costs associated with controlling minority shareholders. Changes in the Swedish legislative environment as well as an increased transparency in the corporate setting are discussed as possible explanations of the observed phenomenon. Finally, we do not find any significant support for the conjecture that disproportionate ownership has an effect on firm value.

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1   INTRODUCTION

The consequences of disproportionate ownership, i.e. the separation of voting rights and cash flow rights, on non-controlling shareholders and firm value is rigorously debated within corporate governance; namely the one share – one vote (1S1V) debate. On the one hand, deviations from the 1S1V principle is argued to create agency and entrenchment problems, as the controlling shareholders can extract extensive private benefits at the expense of minority shareholders. On the other hand, hostile takeovers are less likely in cases of disproportionate ownership. Not only are the theoretical discussions and the empirical evidence presented to date ambiguous,[1] the effect and implications of disproportionate ownership also depend heavily on the institutional environment and therefore varies across countries.[2]

In this debate, Sweden is of special significance and interest as it is one of the few countries where disproportionate ownership, both in terms of dual-class shares and pyramidal structures,[3] has traditionally been, and still is, very common. This piece of evidence has attracted much of the attention in past research concerning the 1S1V debate.[4] As an example, the agency costs of controlling minority shareholders[5] prevailing on the Swedish Stock Exchange (SSE) were estimated in a study by Cronqvist & Nilsson (2003) for the years 1991-1997. They find that these agency costs were approximately 6%-25% of firm value as measured by Tobin's *q*, depending on ownership characteristics during the period. The level of the estimated agency costs is observed to be lower relative other countries were similar studies have been conducted,[6] which can partly be explained by the rather strong legal climate and high media awareness in Sweden.[7]

However, recent observations published by Pajuste (2005) show that there is a global declining trend of firms utilising dual-class shares, which is a mechanism commonly employed by minority shareholders to enhance the value of their control rights. In Sweden, the percentage of listed firms with dual-class shares decreased from 61.3% to 46.3% between 1995 and 2001. During this period, there have been substantial changes in the institutional as well as financial

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[1] In their study of the empirical evidence presented to date, Adams & Ferreira (2007) conclude that the one thing previous research find in common, is the proposition of a contextual dimension to the 1S1V debate, i.e. the institutional setting matters.

[2] The European Commission has mapped determinants of the institutional environment in different countries across Europe in their comprehensive overview, "Report on the Proportionality Principle in the European Union" (2007), aimed to establish a deeper understanding for the true implications of disproportionate ownership. As it turns out, Sweden is one of the countries where the divergence between cash flow rights and control rights is most pronounced. In combination with the availability of high quality data, this remark has motivated numerous academics to study the Swedish example.

[3] The term *dual-class shares* refer to the implementation of share structures were the relation between cash flow rights and voting rights varies across different classes of shares. This is not allowed in all European jurisdictions and has been fiercely debated as a topic for future intervention of the European Commission. To date, 5 § 4 ch. Aktiebolagslagen (2005:551) allows for a maximum divergence ratio of 1:10 in Swedish firms. The number of allowed classes is, however, not regulated.

[4] According to La Porta et al. (1999), Sweden is the only country that is top-three in all categories; one share – one vote, cross-shareholdings, and stock pyramids. For more information, see Table IV in their report. Cronqvist & Nilsson (2003) comments on this as well, and also referes to Bergström & Rydqvist (1990) for more information on the 1S1V topic.

[5] The term *controlling minority shareholders* refers to shareholders controlling a firm's votes, while only owning a minority of the cash flow rights.

[6] Most notably, the studies of U.S. data initiated by Mork, Shleifer and Vishny (1988b) and continued by McConnell & Servaes (1990).

[7] In the study by Holmen and Knopf (2004), they conclude that social norms, media awareness and other non-legislative control mechanisms can mitigate the otherwise harmful effects of poor minority shareholder protection. Hence, private benefits are not extracted at the expense of minority shareholders to the same extent otherwise expected in regards to the large diversion between voting and cash flow rights.

environment in Sweden. The most prominent institutional change is conceivably the expansion of the European Union (E.U.), enabling free flow of capital and unrestricted firm establishments between membership countries. Moreover, changes in national legislation have altered the prerequisites for the use of dual-class share structures in Sweden; most notably in 1997 and 2005 by passing of the legislative amendment *Lag (1994:802) om ändring i aktiebolagslagen (1975:1385)* and the introduction of the new corporate law *Aktiebolagslagen (2005:551)* respectively.[8]

Hence, we find it interesting to assess if this recent development has affected the level of agency costs relating to controlling minority shareholders in Swedish firms and if so – to what extent, as well as the resulting economic implications regarding the different ownership structures of firms listed on the Swedish stock market. This study complements the work of Cronqvist & Nilsson in two ways; we evaluate the consistency and magnitude of the implied agency costs associated with firms traded on the SSE for a period continuing post 1997, and develop a further understanding for how, if at all, the divergence between cash flow rights and voting rights affect firm value.

1.1 PURPOSE

The purpose of this thesis is to evaluate the agency costs associated with controlling minority shareholders on the Swedish Stock Exchange and to test the contemporary validity of previous findings, given the new institutional setting on the financial environment in Sweden. Following this purpose, the thesis presents and aims to answer the following two research questions:

1. What agency costs are associated with controlling minority shareholders on the Swedish Stock Exchange during the period 1999-2007?

2. Can the new institutional setting help explain any possible deviations from previous findings?

1.2 OUTLINE OF THE THESIS

We begin this thesis by presenting the theoretical framework and the previous research conducted, focusing to a large extent on the empirical study of Cronqvist & Nilsson (2003). The mentioned section is then followed by an overview of the recent changes in the institutional environment taken place since 1997, and their effect on the views and implications of disproportionate ownership in Swedish firms. With some minor alterations, the method used in this thesis is in line with the methodology introduced by Himmelberg et al. (1999), more recently applied by Cronqvist & Nilsson (2003), which is discussed further in Chapter 3. The unique data set consisting of 1 473 specific firm-year observations is described in Chapter 4. In Chapter 5, the results from our empirical study are presented and discussed, followed by overall conclusions and remarks in Chapter 6, which concludes this thesis.

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[8] As a result of the introduction of the new corporate law 2005:551, shareholders are now allowed to represent all their voting shares at the Annual General Meeting, according to 8 § 7 ch. Aktiebolagslagen (2005:551). Previously, there had been a cap on voting exercise set to one-fifth of all shares represented at the meeting, effectively reducing the intrinsic value of voting rights proportional to volume.

2 THEORETICAL FRAMEWORK

2.1 PREVIOUS RESEARCH

A core topic within corporate governance is the emergence of agency problems as a result of different ownership structures. In countries of common-law origin, agency problems often arise from disperse ownership and lack of shareholder activism, whilst agency problems due to high levels of concentrated ownership more frequently prevails in countries of civil-law origin, namely Continental Europe (Lopez-de-Foronda, Lopez-Iturriaga & Santamaria-Mariscal, 2007). Ownership structures where shareholders can exert control without a proportionate stake in equity, referred to as a controlling minority structure, are common outside of the U.S. and rely on the existence of a divergence between control rights and cash flow rights. These structures can occur in three principal ways; pyramids, cross-ownership ties and dual-shares (Bebchuk et al., 2000). Previous research indicates that different types of concentrated ownership structures are not randomly distributed over firms; rather, the extent of concentration is correlated with contextual factors and firm characteristics (Adams & Ferreira, 2007).

The consequences of deviating from the 1S1V principle have been rigorously debated, theoretically as well as empirically, yielding ambiguous results. As summarised by Adams & Ferreira (2007), the dominant view is in favour of the proportionality principle[9], as controlling minority structures is argued to create control costs due to agency and entrenchment problems. Furthermore, controlling owners can extract private benefits at the expense of other minority shareholders. However, critiques against the 1S1V principle are several. Shareholders that are not pure residual claimants, such as shareholders that also own an offsetting short position, are still entitled to a proportionate voting right, despite the fact that their ownership of shares is economically flawed as their incentives are not aligned with "pure" shareholders (Martin & Partnoy, 2005). The cost of control is further argued to be dependent on other factors than ownership control (Khanna & Yafeh, 2006) or rather on the level of control, not control per se (Fama, 1980). Furthermore, for firms with good growth prospects that wish to consolidate control, dual-class shares can be an option to going private. Hence, dual-class structures may enable a lower cost of capital (Lehn et al., 1990).

However, the main question to be answered is how concentrated ownership structures, as well as the disproportionate ownership that arises when deviating from the 1S1V principle, affect firm value.[10] A comprehensive study of the theoretical implications by Burkart & Lee (2007) concludes that the effect of separating cash flow rights and voting rights depends on ownership structure rather than the debated separation per se. Thus, in the case of non-concentrated ownership, the 1S1V principle may not be optimal. However, in the case of controlled ownership, equal voting right is the most efficient way of deterring value-decreasing control transfers. Furthermore, firms with disproportional ownership are deemed more prone to agency costs than firms with proportional ownership, as controlling owners may distort firm decisions due to the possible extraction of private benefits (Bebchuk et al., 2000).

In a study by Cronqvist & Nilsson (2003), the authors argue that agency costs can be inferred from Tobin's q as the controlling owners directly affect the value of the firm's intangible assets through their decisions and, therefore, have a significant influence on the market-to-book ratio

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[9] The term *proportionality principle* is used synonymously with one share – one vote.
[10] Being an important determinant, the definition of firm value is not obvious. However, most research concerned with the 1S1V debate considers the market-to-book ratio Tobin's q to be a relevant proxy for firm value. Although this view is not undisputed, to encourage comparison of empirical findings, we align our method to account for this perception.

of a firm's assets. From their data sample covering 309 Swedish firms listed on the SSE over the period 1991-1997, they find a significant negative correlation between firm value and controlling owner vote ownership, i.e. the extent to which controlling owners are entitled to firm voting rights. Over the period, the implied agency costs were approximately 6%-25% of firm value, depending on ownership characteristics (i.e., firms controlled by a founder family, a non-founder family, a corporate owner or firms controlled by a financial institution). However, the authors find no statistical significance in the slight positive correlation between firm value and the divergence between capital rights and voting rights of the controlling owner.

Similar studies have been conducted by Mork, Shleifer and Vishny (1988b) and continued by McConnell & Servaes (1990) for U.S. firms. These studies indicate the same negative correlation between increased controlled ownership and Tobin's *q*. However, it is difficult to draw any definite comparative conclusions as the data set compiled by Cronqvist & Nilsson is unique in regards to the legislative requirements of the Swedish government to register detailed ownership structure records since the 1970s; information not necessarily obtainable in other countries.[11] Overall in the 1S1V debate, Sweden serves as an interesting phenomenon since it has a long tradition of highly concentrated ownership structures.[12] Still, the measured value of control is relatively small (Nenova, 2003 and Dyck & Zingales, 2004), which is likely to be explained by the high media awareness and the Swedish legal environment.[13] The latter will be discussed more extensively in the succeeding section, focusing on explaining the current ownership structure in Sweden and how the recent changes in the institutional environment is affecting the ownership structure of Swedish firms.

2.2 INSTITUTIONAL ENVIRONMENT

The current dominating ownership structure in Sweden, i.e. high concentrated ownership in the hands of a few families and banks, can to a large extent be explained by the institutional setting governing the Swedish economy. Historically, Sweden has been under persistent Social Democratic political influence with private capitalism governing the financial market. This apparent paradoxical structure can be explained by the extensive separation of capital rights and voting rights that was developed in order to keep the largest firms under Swedish control to mitigate the threat of capital migration. The Swedish firms' capital requirements were largely met by relying on bank loans and retained earnings that were heavily tax subsidized, creating a preference for internal capital over external capital. Due to this political and institutional setting, the incentives for listed firms to disperse ownership were small as dependency on the equity market was limited (Högfeldt, 2004).

According to a study commissioned by the E.U. in 2006, approximately 80% of the largest firms in Sweden have one or more control enhancing mechanism (mainly multiple voting

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[11] The data is reported to Värdepapperscentralen (VPC), collected by SIS Ägarservice and later summarized each year by Sundqvist & Sundin (1985-). Starting from 1999, the summarized ownership data for all listed companies in Sweden is also available online at SIS Ägarservice's website, http://www.aktieservice.se/. It should be noted that the way the data is structured, enables one to derive any publically held pyramidal structures, not only by direct ownership relations. As previously been pointed out, this easy access to data is one of the key factors that has made Sweden a popular example to study in the 1S1V debate.

[12] There is a historical dimension to this argument; the legislative climate set by the Social Democrats during their rule in the early and mid 1900's encouraged strong Swedish institutional owners by adjusting marginal tax rates and imposing regulatory control on foreign ownership.

[13] Please refer to Table 6 in Adam & Ferreira, 2007. In relation to the level of concentrated ownership on the SSE, the value of control is merely 1-7% which can be compared to 9-10% in Germany and more extremely, 29-37% in Italy. It should also be noted that Sweden is consistently considered to be one of the world's least corrupt states, according to an annual study by the non-governmental organization Transparency International, for more information see http://www.transparency.org/policy_research/surveys_indices/cpi/.

right shares[14] and pyramid structures).[15] Although this is much in line with the traditionally observed ownership structure, these firms are operating in a different financial setting than before, characterized by increasing globalisation in regards to the level of international cash flows and diminishing transactional boundaries concerning all forms of capital,[16] much accredited to the participation in the E.U. since 1995.[17] Accordingly, Pajuste (2005) provides evidence of a decreasing trend in dual-class share structures in Europe, with Sweden going from 61.3% to 46.3% during the years 1995-2001. This is a relatively small decrease in comparison to the other European countries surveyed by Pajuste, rendering Sweden as the country with the highest level of firms with dual-class share ownership structure. The internationally observed unification[18] of dual-class shares is argued by Pajuste to occur in order to extract investment capital from the equity market.

However, the institutional climate in Sweden has been affected by more changes than a mere shift in investment capital demand. In 1993, restrictions on foreign ownership in Swedish firms were abolished, resulting in an increase of foreign ownership in listed Swedish shares (Högfeldt, 2004). In 1997, regulations for the construction of dual-class shares were amended from a prior capital to vote restriction of 1:1000 to a current maximum of 1:10.[19] Furthermore, in the end of 1998, the voting constraint restricting shareholders to a maximum of 20% of the votes represented at the Annual General Meeting was abolished.[20] In 2005, a new corporate law, Aktiebolagslagen (2005:551), was introduced with an overall review of the legislative environment. During this period of institutional revision in the financial climate in Sweden, the convergence to the E.U. further enhances the conformability to surrounding financial markets. The adoption of the International Financial Reporting Standard (IFRS) further increases the transparency of large Swedish firms, encouraging foreign investment capital. As a result, it can be concluded that the financial climate in Sweden has changed considerably since 1997 and it is therefore of interest to confirm if the observed level of agency costs measured by Cronqvist & Nilsson (2003) still prevail.

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[14] This term is often used synonymously with dual-class shares in the 1S1V debate.

[15] Please refer to *Report on the Proportionality Principle in the European Union* (2007), p. 119.

[16] As an example, Sweden's foreign trade has increased by approximately 38% since 2005. Between 2008 and 2007, Sweden's trade with countries within the European Union increased by 16-18% (Statistics Sweden, 2008). However, it has also been suggested that Sweden's non-participation in the European Monetary Union (EMU) may have had a negative offsetting effect on the demand for Swedish equity assets (Coeurdacier & Martin, 2007). Nonetheless, empirical evidence implies that international exposure of Swedish equities has increased over the past decade.

[17] In 2005, the European Union put forward plans of regulating equal voting rights for all firms registered within the European Union. The reasons put forth were, amongst others, that disproportional ownership decreased firm value and that deviations from equal voting rights hindered foreign investments. This motion encountered strong opposition from mainly civil-law countries such as France, Spain and Sweden. These plans were later abolished in late 2007 with reference to the comprehensive survey *Report on the Proportionality Principle in the European Union* (2007), commissioned by the European Union, as no economic link could be established between firm performance and deviations from equal voting rights. Instead of ensuring equal voting rights to attract foreign capital investment, a proposal in mid-2008 is awaited to help small and mid-sized firms to do cross-border transactions. (*Commission gives up on 'one share, one vote' reform*, http://www.euractiv.com/en/innovation/commission-gives-share-vote-reform/article-167354/).

[18] The term *unification* refers to the process of moving away from a dual-share structure, which is shown to have a significant economic impact on share prices for certain firms. Specifically, Pajuste (2005) determines that firms dependent on equity capital experience increased growth after unification in relation to prior to unification. Hence, abandonment of the dual-class share structure per se does not imply increased market value and sales growth. Therefore, Pajuste argues that regulating for the proportionality principle is unmotivated as the equity market will automatically cause firms to unify their shares in order to retrieve external capital.

[19] For more detailed information on voting differences in the Swedish jurisdiction, please refer to 5 § 4 ch. 2005:551. To our knowledge, not many firms fully utilised the previous 1:1000 ratio (LM Ericsson being the commonly referred exception) as it was only allowed for firms founded before the establishment of the old corporate law of 1944.

[20] Although, it should be noted that this restricted was rather weak, due to its dispositive character, i.e. the restriction is not applied if all parties (shareholders) agree to sidestep it.

2.3 Tentative conclusions

Based on the theoretical propositions and the institutional development as described in previous sections, we expect the agency costs associated with controlling minority shareholders in Swedish firms to have decreased since the period 1991-1997, primarily as a consequence of greater transparency in terms of investor protection and a more approving legal climate. However, considering the vague economic implications of deviating from the 1S1V principle presented to date, we do not expect disproportionate ownership to have a significant impact firm value.

3 Methodology

To evaluate what implicit costs are associated with controlling minority shareholders and what implications follow the dispersion between cash flow rights and control rights, we employ a methodology much alike that of Cronqvist & Nilsson (2003), which builds on the work of Himmelberg et al. (1999). In the regression models (see page 7-8), the Tobin's q measure is introduced as a dependent variable, and is considered a proxy for firm value,[21] which captures the contribution of intangible assets (e.g., growth opportunities and human capital). In this context, controlling minority shareholders are assumed to exert significant influence on firm decisions; they are in effect controlling the contribution of intangible assets to firm value. Thus, the q measure captures the expected capitalized value of the controlling shareholders' discretion (i.e., captures the hypothesized agency costs).[22] By addressing the relationship between firm ownership structure and Tobin's q, we are therefore able to derive and quantify the implicit costs of controlling minority shareholders.

To allow for the use of regression models, firms' ownership structures are being discretisized into five different categories of control characteristics, where a *significant share* is considered to be an aggregated block of more than 25% of the voting rights.[23] The classification of controlling owners is based on the ultimate ownership of the firms.[24] In the case of non-founder families, interests are assumed to be aligned amongst controlling entities; block vote ownership of more than 5% (hereafter referred to as a *small* block) are aggregated into a single larger block. Furthermore, by the classification according to Table 1, firms with more than one controlling owner are assumed to adhere to the category associated with the highest block vote ownership. In the regression, the controlling variable itself is not utilised, rather the percentage share of vote ownership controlled by the ultimate owner.

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[21] The use of the Tobin's q measure as a relevant proxy for firm value has been debated. Instead, the use of marginal performance measures is advocated, especially when testing hypotheses about managerial discretion. There are even claimants that hold the use of average performance measures such as Tobin's q responsible for the literature not reaching a greater consensus on the topic (Gugler & Yurtoglu, 2003). The argument stems from the fact that average performance measures are dependent on a fully structural model of the determinants of performance, which specification is non-trivial. For the sub-purpose of this thesis, to evaluate the contemporary validity of previous findings, this irregularity is less of an issue. On the contrary, the use of consistent measures and proxies for firm valuation and performance are a prerequisite for meaningful comparative analysis.

[22] For a more detailed description, please refer to Cronqvist & Nilsson (2003), p. 7.

[23] The results of Cronqvist & Nilsson have been tested against robustness in choice of significant share size; the 25% cut-off point for controlling vote ownership has previously been found to provide stable results in testing, thus providing a good starting point for new research.

[24] This accounts for indirect ownership through pyramidal structures etc. Basically, the controlling owner of one firm is considered to be the controlling owner of any other firm, which the first firm has a significant share in. For further specification, please see the Appendix in Cronqvist & Nilsson.

The ownership structure of firms is categorized according to the following setup:

Controlling owner category	Definition
Founder families	Includes both the occurrence of single individual and closely affiliated group of individuals (e.g., co-founders) which holds a *significant share* of the control rights to the firm.
Non-founder families	Comprises firms where the aggregate block vote ownership (more than 5%) by non-founder families or individuals unaffiliated with the founder control a *significant share* of the control rights.
Corporations	The corporate category includes firms with an external corporation as ultimate controlling owner that is entitled to a *significant share* of the control rights (including governments and firms controlled by non-profit organizations).
Financial institutions	Controlling vote ownership by financial institutions is the block vote ownership (more than 5%) by mutual funds, pension funds, and insurance companies that lack a family as the ultimate controlling owner, but holds a *significant share*.
Disperse ownership	There is no ultimate controlling owner of the firm, which holds a *significant share* of the vote ownership. In effect this category is the residual of previous definitions.

Table 1: Overview of different controlling owner categories.

Notably, the classification of controlled ownership by financial institution differs from the one found in Cronqvist & Nilsson. Based on their reasoning, the incentives of financial institutions are aligned, why their category describing financial ownership allows for aggregated block votes, i.e. smaller control blocks are aggregated into a larger control block. However, we do not find this economically reasonable, as competing corporate entities (mutual funds, etc.) are unlikely to have aligned incentives. Thus, we do not aggregate voting blocks of more than 5% control rights into controlling ownership stakes, as in the non-founder family case. As a consequence, we expect to have a smaller amount of financial institutions in our data sample compared to Cronqvist & Nilsson.

On the issue of the specific endogeneity problems put forward in studies of U.S. data,[25] Cronqvist & Nilsson argue that the same issues are present in non-U.S. data; a fully viable regression model should take into account for a spurious correlation between vote ownership and Tobin's q.[26] Accordingly, we control for observable firm characteristics by including a set of proxies for differences in firms' individual business situations. Furthermore, we consider general variation in market conditions, year-wise as well as industry-wise, by using two sets of control dummies.

To asses what implicit agency costs are associated with controlling minority shareholders we first use the following pooled ordinary least-square (OLS) regression model,

$$q_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Y_{it} + \beta_2 Z_{it} + \beta_3 W_{it} + e_{it} \quad i = 1, \dots, N \quad t = 1, \dots, T \quad (1)$$

where q_{it} is the dependent representation of Tobin's q, β_0 is the intercept, X_{it} is a vector of ownership variables, Y_{it} is a vector of observable firm characteristics, Z_{it} is a vector of year dummies, W_{it} is a vector of industry dummies, and e_{it} is the error term for firm i at time t.

In line with Cronqvist & Nilsson, to address the potential issues of omitted variables, we employ a firm-fixed effect transformation of the regression model under the assumption that

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[25] Demsetz & Lehn (1985) and Himmelberg et al. find that ownership structures vary systematically between firms, and that managerial ownership is strongly influenced by firm characteristics.

[26] For example, as put forward by Cronqvist & Nilsson; a spurious negative correlation between vote ownership and Tobin's q in the event of a positive shock to investment opportunities, which increases the Tobin-measure as well as trigger an equity issue that dilutes non-participating controlling minority shareholder's vote ownership.

unobserved independent variables are firm-specific and that their distribution is time autonomous.[27] This translates into decomposing the error term e_{it} such that

$$e_{it} = u_i + v_{it}$$

where u_i is the unobservable firm-specific effect and v_{it} is a white Gaussian noise term. Substituting into equation 1 and collecting the firm-specific intercept produces the following regression model,

$$q_{it} = \left(\beta_0 + u_i\right) + \beta_1 X_{it} + \beta_2 Y_{it} + \beta_2 Z_{it} + \beta_3 W_{it} + v_{it} \quad i = 1, \dots, N \quad t = 1, \dots, T \tag{2}$$

In this regression the two first terms on the right-hand side, enclosed in parentheses, is firm-specific and time-independent. The main advantage of this model is that correlation between unobserved time autonomous firm heterogeneity with explanatory variables does not cause bias to the estimates (Baltagi, 1995). In the firm-fixed effect model, observations of a single firm will not be considered independent across different years. Thus, the economic implications derived using this regression will provide higher relevance than the results obtained from equation 1.

As a complement to the firm value regressions, as described by equation 1 and 2, we evaluate the distribution of dual-class share structures amongst different ownership categories. In accordance with Cronqvist & Nilsson we employ Wald-tests of pair-wise differences in the estimates from a probit regression to assess the marginal effect of going from disperse ownership to one of the ownership categories as described in Table 1.

4   DATA

Ownership data, according to the specification in Table 1, for 274 firms listed in Sweden during the period 1999-2007, a total of 1 631 firm-year observations, have been collected from SIS Ägarservice.[28] The corresponding financial data have been compiled using DataStream.[29] In cases where firm data have been deficient or incomplete, the observation has been excluded; the resulting data set includes a total of 1 473 firm-year observations.

The potential problem of collecting data from SIS Ägarservice at a given point in time is twofold; only considering currently active firms causes data panels to be unbalanced and introduces a potential survivorship bias in the data set. For large capitalisation firm we would not expect the survivor bias to be much of a problem, however, for smaller firms, especially in fast-growing sectors, this issue is relevant. Concerning issues of unbalanced panel data, a revisited technique has been proposed by Gardner (1998) to allow for efficient estimation in the event of endogeneity problems. However, as we do not expect the unbalance of the data to be correlated with the idiosyncratic error in our regressions, there is little reason to believe that estimators will be biased as an effect. Another, more practical, issue relating to the data set is a subjective indiscretion of categorising firms according to the decision rules presented in Table 1.

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[27] The successful implementation of a firm-fixed effect model is considered one of the main contributions made by the authors, as most other research concerning the explicit relationship between firm value and ownership structure suffers from lower data transparency, disenabling the search for heterogenic time-autonomous variables.

[28] The starting point of the period was chosen mainly because this data is available online through SIS Ägarservice's website: http://www.aktieservice.se/. Although this creates a leap of one year from the previous period 1991-1997, we do not consider this to by an issue for the material implications of our findings. Notably, as we have more firm-year observations than what was examined by Cronqvist & Nilsson, we would expect the results of our empirical study to be at least as viable as for those of the previous period.

[29] For more information on this database, please see http://www.thomsonreuters.com/.

Furthermore, we have recognised that some data provided by DataStream was incomplete. We have attempted to compensate for this by cleaning the data set ex-post. As a consequence, 158 firm-year observations were excluded. However, we have not been able to verify that this exclusion completely exhausted all irregularities of accounting data. A further note on the data is that the set used by Cronqvist & Nilsson (2003) was provided by SIX TRUST[30]. However, we do not this difference to have any material implications for the results derived in this paper, as accounting data should not differ in an unsystematic way amongst databases.[31] Compared to the work of the authors in question, there is yet another aspect worth commenting on. The distribution of sample firms is likely to differ in our data set from that observed in their paper. Cronqvist & Nilsson are not transparent on this part, only stating that 95% of all firms publically traded on the SSE have been observed. In our case, we have effectively excluded firms not traded on the small, medium or large capitalisation lists on the SSE. Thus, there is a likely bias towards relatively large companies in our data set, which has an indirect effect on the comparative analysis of coefficient estimates of previous research.

The data structure for firm-specific variables corresponding to firm-year observations is explained and summarised in Table 2.

Variable	Definition SSE List:	Large	Medium	Small	Full sample
Tobin's q	(Market value of equity + Book value of total debt) / Book value of assets	1.29 (1.54)	1.60 (1.89)	1.70 (2.14)	1.58 (1.95)
Firm size	Book value of total assets as measured of first year in time-series	10.39 (1.07)	7.90 (0.97)	6.08 (1.02)	7.57 (1.95)
Leverage	Book value of non-equity liabilities / Book value of total assets	0.54 (0.18)	0.52 (0.19)	0.43 (0.22)	0.48 (0.21)
Return on assets	Earnings before interest, taxes and depreciation / Book value of assets	0.17 (0.13)	0.15 (0.21)	0.03 (0.30)	0.09 (0.25)
Sales / Total assets	Total sales / Book value of total assets	0.98 (0.71)	1.28 (1.19)	1.44 (1.50)	1.29 (1.29)
CAPEX / Total assets	Total capital expenditure (including R&D) / Book value of total assets	0.07 (0.09)	0.10 (0.30)	0.08 (0.11)	0.08 (0.18)
PP&E / Total assets	Property, plant & equipment / Book value of total assets	0.28 (0.28)	0.32 (0.30)	0.14 (0.16)	0.22 (0.25)

Table 2: Explanation of firm-specific variables including their averages and standard errors in parentheses.

The firm characteristics presented in Table 2 are all in the same range as the findings of Cronqvist & Nilsson (2003), implicating that the average firm characteristics are fairly stable over time, except for the ratios measuring investment activity. The values for this ratio are in the range of half of those values presented by Cronqvist & Nilsson for the period 1991-1997, but there is reason to believe that this deviation is largely explainable by the accounting data in our sample rather than a shift in investment behaviour.[32] As opposed to Cronqvist & Nilsson, we have reported the summary statistics for each SSE stock list. The statistics seems to be in line with the economic expectations for each category of market capitalisation.

When calculating the Tobin's q measure in cases where dual-share structures include non-traded shares,[33] we estimate the unknown market price of shareholders' total equity using the average control premium prevailing each year. The control premium is defined as the excess

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[30] For more information on the SIX TRUST database, please refer to http://www.six.se/.
[31] Note that Pajuste (2005), among others, uses the same DataStream source.
[32] Instead of using DataStream, Cronqvist & Nilsson use the SIX TRUST database. Therefore, it could be some discrepancy in the way accounting data is summarised.
[33] This is consistent with the median case in our data set, as most firms utilising a dual-class share structure does not allow for public trading in high-voting shares. Our estimates indicate that approximately 77% of Swedish firms with dual-class shares had non-traded units during, at least parts of, the period in question.

percentage paid for holding high-voting shares instead of low-voting shares, i.e. the difference in stock price of high-voting shares and low-voting shares.[34] Table 3 exhibits the estimated control premiums for the period 1999-2007.[35]

Variable										
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg.[36]
Control premium	1.80%	5.32%	4.55%	5.94%	3.93%	4.81%	0.74%	2.79%	2.25%	3.57%

Table 3: Estimates of control premiums for the Swedish market, 1999-2007.

In Table 3, the control premium has been calculated for each year, averaging 3.57% for the whole sample period. This can be compared to the control premiums calculated by Cronqvist & Nilsson for the preceding period, which lies in the range of 2%-10% depending on year. Hence, we are observing a somewhat decreased control premium in comparison to historical data. This indicates that the possible extraction of private benefits at the expense of minority shareholders has decreased, leading to a lower value of control. A possible explanation for this observed decrease is the decline in average votes-to-capital ratio for controlling owners (see Table 6 on page 11). Given that the voting power has decreased at the expense of more powerful minority shareholders, private benefits may be harder to extract.

The ownership data have been compiled from firms listed in mid-April 2008.[37] Firms have been categorized according to the setup explained in Table 1. In addition to observable firm characteristics, each observation includes information about the firm's ownership structure and use of dual-class shares as well as the controlling owner's excess vote ratio[38]. Table 4 summarises the ownership data per listing.

SSE List: Controlling owner	Large			Medium			Small			Full sample		
	N	%	Dual	N	%	Dual	N	%	Dual	N	%	Dual
Founder families	104	0.31	0.90	147	0.36	0.69	258	0.36	0.93	509	0.34	0.86
Non-founder fam.	80	0.24	0.89	89	0.21	0.58	143	0.20	0.53	312	0.21	0.64
Corporations	59	0.18	0.58	46	0.11	0.39	52	0.07	0.63	157	0.11	0.54
Fin. institutions	0	0.00	0.00	2	0.00	0.00	12	0.02	0.00	14	0.01	0.00
Disperse ownership	94	0.28	0.32	130	0.31	0.16	261	0.36	0.30	485	0.33	0.26

Table 4: Summary ownership characteristics per listing.

On a related note, we have observed 91 occurrences, corresponding to 6.2% of the data set, of firms transiting from one of the concentrated ownership categories to disperse ownership and v.v. These observations can be used as a validity check for the causality of results.[39] For a more

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[34] In case of dual-class shares in Swedish data, we have not observed any deviations from the maximum allowed 1:10 ratio, 5 § ch. 4 2005:551. Therefore we consider it to be approximately safe to estimate the control premium without regards to any further adjustments.

[35] The control premiums each year have been adjusted for the most extreme outliers, excluding the lowest and the highest observations.

[36] There is an observable trend in high control premiums during the period 2000-2004, possibly due to uncertainties relating to the so-called IT-crash, whereas the subsequent years to date demonstrate significant lower premiums. Accounting for the trend, the estimates suggests that our average control premium is slightly positively biased, although consistent with the estimates presented in the comprehensive cross-country analysis by Nenova (2003).

[37] There are indications in the article by Cronqvist & Nilsson, such as only accounting for the firm value in 1997, suggesting the same approach, although it is potentially vulnerable to a survivorship bias.

[38] The ratio between voting rights and cash flow rights minus one (denoted V/C in Table 6).

[39] Basically, a fundamental problem with the general regression analysis is that causality of the relationship between dependent and explanatory variables is not accounted for. By observing the specific events when explanatory variables

detailed description of within-firm changes of ownership categories, please refer to Table 5. The *Pre* and *Post* specifications refer to firm-year observations where firm ownership is transferred to and from the category respectively, e.g. the number of observations where concentrated ownership was dissolved amounts to 45.

SSE List: Controlling owner	Large			Medium			Small			Full sample		
	Pre	Post	Tot.	Pre	Post	Tot.	Pre	Post	Tot.	Pre	Post	Tot.
Founder families	1	1	2	1	7	8	7	14	21	9	22	31
Non-founder fam.	2	2	4	13	3	16	18	13	31	33	18	51
Corporations	4	5	9	4	8	12	13	8	21	21	21	42
Fin. institutions	0	0	0	2	2	4	3	3	6	5	5	10
Disperse ownership	5	7	12	11	11	22	30	27	57	46	45	91

Table 5: Summary of within-firm changes of ownership category.

By accumulating the data from Table 4, i.e. considering all controlling owner categories as one single category, we obtain estimates for the percentage usage of dual-class shares that are comparable to those of the declining trend as observed by Pajuste (2005), see Table 6.

Variable										
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg.
Dual-class shares	0.69	0.69	0.64	0.62	0.60	0.58	0.55	0.52	0.47	0.60
Non-traded	0.75	0.78	0.79	0.78	0.79	0.78	0.78	0.78	0.71	0.77

Table 6: Trend in usage of dual-class share structures on the SSE, 1999-2007.

Consistent with the findings of a decreased level of dual-class structures in Sweden (Pajuste, 2005), 47.0% of the firms in our data sample had disproportional ownership structure in the end of 2007 (see Table 6). Over the entire sample period, there is a steady decrease in the level of firms utilising dual-class shares. However, Pajuste measured this level to 46.3% in 2001 whereas 64.0% of our firm sample has dual-class shares for the corresponding year. The explanation to this apparent deviation possibly lies in the restricted data set compiled for this study, were banks and other firms where accounting data was missing have been excluded. However, it is not unreasonable to draw a tentative conclusion that the overall level of firms utilising dual-class shares has stabilised, as our firm observations increase over time as data panels stabilise and is particularly well-defined in 2007. Likewise, no more than 8 occurrences of unification, i.e. firms suspending high-voting shares, have been observed during the period. This fraction corresponds to a mere 0.5% percent of the entire data set. Thus, the decreasing trend as shown in Table 6 suggests that new firms entering the market are less prone to employ dual-class share structures rather than a continuing trend of unification.

Over the whole period 1999-2007, the percentage of firms with dual-class ownership structure in our data sample is consistently lower by approximately 10% percentage units than the levels reported by Cronqvist & Nilsson for the years 1991-1997 over all owner categories. This observation is in line with the previously mentioned declining trend in ownership structure. From Table 4, it follows that the number of each observed ownership category over

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change, we will be able to get a more detailed understanding for how they relate to the dependent variable. In our case, this means addressing the change of Tobin's *q* when firms' ownership dissolves using firm-fixed effect regressions.

our period differs slightly from the distribution in 1991-1997.[40] Over 1999-2007, 485 firm-year observations were attributable to a disperse ownership structure whereas the corresponding number in the study by Cronqvist & Nilsson was a mere 167. Part of this deviation is explained by the difference in the definition of financial institution ownership, as we do not aggregate financial owner blocks in cases were multiple financial owners each own more than 5% of the voting rights, but instead account for them in the disperse ownership category. However, even if the categorisation of ownership structure was identical to that of Cronqvist & Nilsson, a significant increase in disperse ownership would still have been observed, as the number reported for their financial ownership category is merely 120.

The following table, demonstrating the ownership concentration, is conditional on firms employing dual-class share structures (denoted *Dual* in Table 4).

SSE List: Controlling owner	Large			Medium			Small			Full sample		
	Cash	Vote	V/C	Cash	Vote	V/C	Cash	Vote	V/C	Cash	Vote	V/C
Founder families	0.32	0.59	1.32	0.33	0.58	0.86	0.33	0.56	1.12	0.33	0.57	1.10
Non-founder fam.	0.23	0.51	1.63	0.27	0.44	0.90	0.31	0.49	0.98	0.27	0.48	1.19
Corporations	0.31	0.52	0.95	0.31	0.41	0.62	0.33	0.42	0.47	0.31	0.46	0.69
Fin. institutions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 7: Controlling owner rights per listing.

As a final comment on the data set, deviations from the previous time period 1991-1997 presented in Cronqvist & Nilsson concerning the usage of dual-class share structures seem dependable on the findings of Pajuste,[41] i.e. new firms are less prone to employ dual-class share structures. However, the distribution of controlling owners among categories appears to be equal over the two time periods,[42] with exception of ownership by financial institutions. This one difference is mainly due to a discrepancy of definitions. In contrast to us, Cronqvist & Nilsson does not separate between aggregate block vote ownership of financial institutions.[43]

All in all, founder families as controlling owners seem to be the most prone to deviate from equal voting rights which is line with historical observations. However, the level of deviation, i.e. the votes-to-capital ratio (see the *V/C* variable in Table 7), is largest for non-founder families. In comparison to the levels presented by Cronqvist & Nilsson,[44] there is an overall decrease over all controlling owner categories. This appears to be an effect of the increased unification of dual-class shares taking place since the preceding period (see Table 6). A less likely explanation is the restriction on the difference between high-voting shares relative low-voting shares imposed 1997, i.e. from a maximum allowed ratio of 1:1000 to 1:10, that directly affect voting power. However, not many firms have deviated from the 1:10 standard prior to passing of the legislative amendment; instead, the legislation is rather a declaration of a changed perception on the issue of disproportionate voting rights.[45]

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[40] These numbers are not reported here, only discussed. Thus, for a more detailed description, please refer to Cronqvist & Nilsson's report.

[41] Pajuste (2005) finds, among other things, that the corporate implementation of dual-class share structures in Sweden has declined from approximately 61.3% in 1995 to 46.3% in 2001.

[42] More elaborate testing for this observation is provided in section 5.2 Control instruments on page 19.

[43] The authors do not find significant estimates for the explanatory variables explaining institutional ownership. In our regressions we explore the possibility that this is due to misspecification of the ownership category *financial institution*, see Table 1.

[44] These values range from 1.69 to 2.66 for the ownership categories in question, where non-founder family owners have the highest votes-to-capital ratio and corporate owners have the lowest votes-to-capital ratio.

[45] As a note on this issue, we only found one observation deviating from the ratio 1:10 during the period 1999-2007.

5 RESULTS AND DISCUSSION

5.1 REGRESSIONS

To evaluate the impact of controlled ownership and dual-class share structures on firm value, linear regressions are conducted with Tobin's q as the dependent variable, previously described in detail in section 3. Three different set of explanatory variables are used, resulting in three different sets of regression, denoted regression I, II and III respectively. The succeeding tables both report the results obtained from our period, 1999-2007, as well as the results derived by Cronqvist & Nilsson (2003) for the period 1991-1997 whenever possible to facilitate comparison. Heteroscedasticity-robust standard errors are reported in parentheses. The squared logarithm of firm size has been introduced as a control variable for non-linear effects.[46] Following each table, the economic implications with regards to the presented theoretical framework and institutional setting presented in section 2 are discussed.

5.1.1 POOLED OLS REGRESSIONS

Table 8 reports the results obtained from the regression of equation 1 in section 3 using pooled ordinary least-square regressions (OLS), repeated below.

$$q_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Y_{it} + \beta_2 Z_{it} + \beta_3 W_{it} + e_{it} \quad i = 1, \dots, N \quad t = 1, \dots, T \tag{1}$$

In the first regression (I), Tobin's q is explained merely by the variables controlling owner vote ownership and controlling owner excess votes, with no account for observable firm-specific characteristics. Both coefficients are found to be negative and statistically significant on a 5% and 10% level respectively. Hence, increased controlling owner vote ownership has a negative effect on Tobin's q which, in line with the argument of Cronqvist & Nilsson, can be interpreted as agency costs of controlling minority shareholders. Also, this particular regression implies that an increase in the deviation from equal voting right has a negative impact on firm value. Compared to Cronqvist & Nilsson, the negative impact of increased controlled ownership on firm value is less than during the period 1991-1997. However, the authors found a statistically non-significant positive value for the coefficient for controlling owner excess vote. These results suggest that there have been a shift towards less agency costs for controlling ownership and a more negative attitude to equal voting rights. Possibly, this effect is best explained in combination, as controlling owners per se may not be seen as a problem as long as a dual-class share structure is not used to obtain it. These findings may indicate that consensus is in line with the views of Burkart & Lee (2007), who argue that in case of a controlling owner, dual-class share ownership structures does not help mitigate value destroying transactions.

When observable firm-specific characteristics are introduced in the second regression (II), the results experience a significant change. The negative impact of controlling ownership is strengthened and now significant at a 1% level, whilst the effect of divergence between cash flow rights and voting rights on firm value becomes insignificant at a 10% level. This change was also observed during the period 1991-1997 when including idiosyncratic control variables; however, the negative impact of controlling ownership in our period is almost twice as high in comparison to the results obtained by Cronqvist & Nilsson. A possible interpretation of this phenomenon is that market consensus, on an aggregated level, is less in favour of controlled ownership as Tobin's q is diminished, which can be seen as the existence of agency costs for

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[46] See, e.g. Himmelberg (1999) for usage of similar control variables when regressing Tobin's q on ownership variables.

controlling minority shareholders. It is also interesting as to why this level of inferred agency cost has increased over time. The globalization of the financial economy and the increased attention from foreign investors may make the installation of controlling owners a more expensive structure than before, as foreign investors, not seldom from an institutional setting with common-law origin, view the 1S1V principle as a good proxy for transparency.

Period:	1999-2007			1991-1997	
Variable **Regression:**	I	II	III	I	II
Controlling owner ownership	-0.421**	-0.572***		-0.572***	-0.311***
	(0.187)	(0.189)		(0.107)	(0.100)
Controlling owner excess votes	-0.095*	-0.047		0.017	-0.002
	(0.049)	(0.048)		(0.012)	(0.011)
Founder family ownership			-0.658***		
			(0.202)		
Non-founder family ownership			-0.119		
			(0.281)		
Corporations ownership			-1.376***		
			(0.252)		
Financial institution ownership			0.327		
			(1.805)		
Founder family excess votes			-0.067		
			(0.061)		
Non-founder family excess votes			-0.106		
			(0.075)		
Corporations excess votes			0.445***		
			(0.148)		
Financial institution excess votes			-0.405		
			(0.497)		
Firm size (logarithm)		-1.256***	-1.252***		-0.592
		(0.289)	(0.291)		(0.382)
Firm size (logarithm)^2		0.069***	0.070***		0.013
		(0.016)	(0.016)		(0.009)
Return on assets		1.288***	1.312***		0.523
		(0.389)	(0.389)		(0.625)
Leverage		-1.508***	-1.538***		-0.824***
		(0.297)	(0.300)		(0.445)
Sales / Total assets		-0.029	0.031		0.030
		(0.034)	(0.035)		(0.056)
CAPEX / Total assets		0.996*	0.960*		0.301***
		(0.573)	(0.564)		(0.152)
PP&E / Total assets		0.166	0.193		-0.548***
		(0.170)	(0.171)		(0.120)
Dummies (year/industry)	Yes/Yes	Yes/Yes	Yes/Yes	No/No	Yes/No
N	1 473	1 473	1 473	1 317	1 317
Adjusted R^2	0.123	0.212	0.218	0.027	0.216

Regressions I, II, and III are derived from equation 1 in section 3, using different sets of explanatory variables, as explained by the variables column. All regressions include dummy variables, which are not explicitly reported in the table, to proxy for contextual cross-industry differences and general year-wise variations in the market climate. Classification for controlling owner variables are explained in Table 1, and summarized in Table 4 and Table 5. For details on firm-specific characteristics, please refer to Table 2.

*, **, and *** denote significant coefficient estimates at the 10%, 5%, and 1% level respectively.

Table 8: Summary statistics from pooled ordinary least-square regressions compared to previous research.

In the third regression (III), we divide controlling minority shareholders into separate categories as described in Table 1. Thus, the results are fully comparable to those of regression (II), with the addition of more detail in the controlling block vote ownership estimate. The explanatory power, as described by the adjusted R^2 measure, of the third regression (III) is in a

reasonably high interval and outperforms the previous regressions (I and II) in that aspect.[47] The regression shows that there are significant differences between ownership categories. Among the significant estimates, corporate ownership is associated with a greater negative correlation with Tobin's q than founder family ownership is. However, in the case of corporate ownership, a dual-class share structure would offset the negative impact on firm value as the regressed coefficient is both positive and statistically significant on a 1% level. We do not find any apparent economic rational for this inconsistency. Furthermore, it is in stark contrast to the theoretical propositions made by Burkart & Lee (2007). Consistent with the results from previous regressions, there is no evident relationship between firm valuation and the divergence of cash flow rights and voting rights.

5.1.1 AGENCY COSTS IMPLIED BY REGRESSIONS

Utilising the outcomes of regression II, it is possible to quantify the agency costs for the median firm by evaluating the implied effect on Tobin's q when controlled ownership is abandoned. In our sample, this agency cost is approximately 20.0% of firm value for the period 1999-2007,[48] well in the range of findings for previous time periods. By reverse engineering using the reported data from Cronqvist & Nilsson, we are able to find the corresponding measure for a median firm during the period 1991-1997.[49] As it turns out, the implied agency cost has increased from approximately 17.5% to 20.0% of firm value for firms with a controlling owner. Our interpretation of this is that these types of concentrated ownership structures are less favoured in the new institutional setting as proxied by a market consensus.

5.1.2 FIRM-FIXED EFFECT REGRESSIONS

The study by Cronqvist & Nilsson has been complemented for achieving significant fixed effects regressions (Adams & Ferreira, 2007).[50] By regressing using firm-fixed effects, each firm is regarded as an individual time series. Any change in a firm over time will therefore be evaluated in relation to its prior statistics. Furthermore, regressing with fixed effects is believed to solve the omitted variable problem when controlling for unobservable firm heterogeneity. In order to address the potential issues of omitted variables, we employ a firm-fixed effect transformation of all regressions under the assumption that unobserved independent variables are firm-specific and that their distribution is time autonomous.

$$q_{it} = \left(\beta_0 + u_i\right) + \beta_1 X_{it} + \beta_2 Y_{it} + \beta_2 Z_{it} + \beta_3 W_{it} + v_{it} \quad i = 1, \dots, N \quad t = 1, \dots, T \tag{2}$$

The results of the regression presented in Table 9. Once again, heteroscedasticity-robust standard errors are reported in parentheses.

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[47] Note that part of this effect is due to a higher number of explanatory variables in regression (III), which does not necessarily correspond to a greater explanatory power per se.

[48] More specifically, this value is calculated as the effect on Tobin's q for the median firm in the sample (equal to 0.980), when reverting from concentrated ownership (see the *controlling owner ownership* variable in Table 8, which is approximately -0.572). In effect, the implied Tobin's q is given by 0.980 minus the prevailing *controlling ownership* of the median firm with controlled ownership (0.343 in our sample) times -0.572. When compared to the median Tobin's q in the sample, a decrease of 20% is observed. Note that the median firm, in this sense, is a fictive firm.

[49] Cronqvist & Nilsson (2003) find that the agency cost associated with controlling minority shareholders lies in the range of 6%-25% for the period 1991-1997 depending on category of ownership. However, data is not reported for a median firm on an aggregated level. By retracing their steps and considering the distribution of their data, we have approximated the implied agency cost to 17.5% of firm value.

[50] This is considered to be one of the main advantages in the data presented in Cronqvist & Nilsson, which allows for testing the relationship between block vote ownership variables and firm valuation proxies, such as the Tobin's q measure, at a greater significance than using pooled OLS regressions.

Period:	1998-2007			1991-1997	
Variable **Regression:**	I	II	III	I	II
Controlling owner ownership	-0.074 (0.356)	0.094 (0.349)		-0.331*** (0.110)	
Controlling owner excess votes	-0.085 (0.073)	-0.050 (0.068)		0.012 (0.020)	
Founder family ownership			0.142 (0.355)		-0.377** (0.183)
Non-founder family ownership			0.238 (0.610)		-0.478*** (0.147)
Corporations ownership			-0.288 (0.395)		-0.302** (0.109)
Financial institution ownership			-0.256 (0.927)		-0.147 (0.104)
Founder family excess votes			-0.049 (0.095)		0.054 (0.058)
Non-founder family excess votes			-0.152 (0.110)		0.007 (0.019)
Corporations excess votes			0.226 (0.139)		0.065 (0.081)
Financial institution excess votes			0.574*** (0.218)		0.019 (0.030)
Firm size (logarithm)		n/a	n/a	-1.095 (1.732)	-1.097 (1.762)
Firm size (logarithm)^2		n/a	n/a	0.027 (0.040)	0.027 (0.040)
Return on assets		1.345*** (0.426)	1.377*** (0.433)	0.754 (0720)	0.749 (0.728)
Leverage		0.665 (0.494)	0.667 (0.496)	-0.122 (0.343)	0.129 (0.345)
Sales / Total assets		0.279** (0.142)	0.279** (0.143)	0.150** (0.034)	0.154** (0.070)
CAPEX / Total assets		0.209 (0.214)	0.212 (0.214)	-0.001 (0.139)	-0.007 (0.140)
PP&E / Total assets		0.911** (0.433)	0.861** (0.426)	-0.286*** (0.091)	0.297*** (0.093)
Dummies (year/industry)	Yes/Yes	Yes/Yes	Yes/Yes	Yes/No	Yes/No
N	1 473	1 473	1 473	1 317	1 317
Adjusted R^2	0.087	0.146	0.149	0.712	0.712

Regressions I, II, and III are derived from equation 2 in section 3, using different sets of explanatory variables, as explained by the variables column. All regressions include dummy variables, which are not reported, to proxy for contextual cross-industry differences and general year-wise variations in the market climate. Classification for controlling owner variables are explained in Table 1, and summarized in Table 4 and Table 5. For details on firm-specific characteristics, please refer to Table 2. Firm size variables have been dropped as they are time-autonomous, see definition in Table 2.

*, **, and *** denote significant coefficient estimates at the 10%, 5%, and 1% level respectively.

Table 9: Summary statistics from firm-fixed effects regressions.

Based on the insignificant coefficient estimates reported in Table 9, we have not been able to reproduce the significant results from the fixed effects regression as for the previous period 1993-1997 presented in Cronqvist & Nilsson.[51] As a result, our estimates do not support a significant effect of controlled ownership, regardless of category, on firm value. The same yields for the effect of the divergence between voting rights and capital rights. This insignificance in the coefficient estimates is not entirely unexpected as merely 9.1% has changed ownership

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[51] Note that most papers studying explicit disproportional ownership structures cannot use firm fixed-effects due to the difficulty in obtaining data (Adams & Ferreira, 2007). However, insufficient data is obviously not the case this time as the regressions (I, II, and III) all have more firm-year observations than Cronqvist & Nilsson (2003).

structure which statistically may be too small a sample to draw conclusive results. However, the obtained magnitudes of the estimates are considerably smaller than those reported by Cronqvist & Nilsson. In effect, the impact of controlled ownership and excess voting rights on firm value is close to zero as opposed to the significant negative impact of controlled ownership during 1991-1997. The transitional insignificance when conducting fixed effect regression compared to the preceding period indicates that a change has indeed occurred in the perception regarding agency costs and controlled ownership structures. Hence, the low significance may not be a problem per se but instead supports the proposition of a decreasing importance of controlling ownership and excess votes on firm value. In other words, the implication is that the agency costs associated with controlling minority shareholders has decreased, or that it is no longer possible to significantly determine any deterioration in firm value, which is much in contrast to the implications of the pooled OLS regression.

5.1.3 DECOMPOSITION OF REGRESSIONS

Regression III has been decomposed further to the stock listings based on market capitalisation currently existing on the SSE. This decomposition has not been conducted by Cronqvist & Nilsson, why there is no adequate frame of reference for our analysis of the correlation between the observed agency costs and the public scrutiny of the firms, based on listings on the SSE. [52]

Clearly, as seen in Table 10, there exist cross-listing differences among the controlling block vote ownership variables as well as between excess vote estimates. Most evident, there is a positive correlation between controlling block vote ownership and firm value on the large capitalisation list whilst there is an observed negative correlation on the small capitalisation list.

When isolating large firms on the SSE, the previously observed negative effect attributable to founder family ownership no longer holds. Instead, for firms on the Large Capitalisation list, controlling founder families have a positive effect on firm value, much in contrast to the significantly negative effect observed for smaller firms. One possible explanation for this phenomenon is that in comparison to the average Swedish firm, the market seems to infer a positive effect of controlling owners in cases of large firms but oppose the use of dual-class share structure. It is possible that firms listed on the Large Capitalisation list, not only attributable to their size, are believed to be under more scrutiny than other firms, and therefore mitigating any possible agency costs associated with having controlled ownership. Instead, only the positive aspects of controlled ownership are inferred, such as higher defence for takeovers and an alignment of interest in firm operations. On the other hand, firms controlled by founder families listed on the Small Capitalisation list are subject to a greater degree of disbelief regarding their interests being aligned with minority shareholders in the firm.

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[52] The results presented by Cronqvist & Nilsson (2003) are not transparent on this part, which evidently can be misleading. Possibly because market capitalization is not the only factor that separates firms on different listings, among other things, we would expect there to be a difference in the degree of public scrutiny. Thus, controlling for observable proxies of these characteristics, such as firm size, might be inadequate.

	Pooled OLS			Firm-fixed effect		
SSE List:	Large	Medium	Small	Large	Medium	Small
Variable **Regression:**	III	III	III	III	III	III
Founder family ownership	0.790**	-0.565	-1.218***	0.928	0.391	0.203
	(0.345)	(0.391)	(0.334)	(0.909)	(0.644)	(0.463)
Non-founder family ownership	0.510**	0.287	-0.461	-3.960*	0.715	0.579
	(0.259)	(0.335)	(0.562)	(2.004)	(0.882)	(0.749)
Corporations ownership	-1.298***	-1.770***	-0.848	0.293	-1.110	0.309
	(0.431)	(0.599)	(0.611)	(0.767)	(0.880)	(0.509)
Financial institution ownership	0.000	3.580***	-4.193***	0.000	0.671	-1.697
	(0.000)	(0.724)	(1.126)	(0.000)	(1.254)	(1.237)
Founder family excess votes	-0.150*	-0.196	0.090	-0.071	-0.426	0.057
	(0.077)	(0.219)	(0.090)	(0.209)	(0.406)	(0.104)
Non-founder family excess votes	-0.172**	-0.291	-0.013	0.291	-0.663***	0.050
	(0.078)	(0.182)	(0.176)	(0.177)	(0.255)	(0.178)
Corporations excess votes	0.239	0.733***	0.213	0.090	0.757***	0.240
	(0.214)	(0.253)	(0.262)	(0.239)	(0.266)	(0.235)
Financial institution excess votes	0.000	0.000	0.572***	0.000	0.000	0.674***
	(0.000)	(0.000)	(0.176)	(0.000)	(0.000)	(0.247)
Firm size (logarithm)	-1.522	-3.910**	-2.369**	n/a	n/a	n/a
	(1.114)	(1.933)	(1.117)			
Firm size (logarithm)^2	0.065	0.216*	0.154*	n/a	n/a	n/a
	(0.052)	(0.117)	(0.090)			
Return on assets	4.493***	1.638*	1.241***	2.702***	2.081**	0.921**
	(0.817)	(0.901)	(0.483)	(0.551)	(1.013)	(0.430)
Leverage	-0.853*	0.875*	-1.076**	1.882***	1.474**	-0.015
	(0.470)	(0.465)	(0.445)	(0.463)	(0.879)	(0.738)
Sales / Total assets	0.007	0.071	-0.002	-0.131	0.149	0.494***
	(0.139)	(0.098)	(0.043)	(0.463)	(0.120)	(0.151)
CAPEX / Total assets	0.557	0.224**	2.564***	-1.022	-0.054	1.366*
	(0.915)	(0.102)	(0.891)	(0.965)	(0.148)	(0.804)
PP&E / Total assets	0.251	0.128	-1.651***	-0.476	2.477***	-0.002
	(0.270)	(0.280)	(0.573)	(0.313)	(0.840)	(0.832)
Dummies (year/industry)	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
N	337	414	722	337	414	722

Both type of regression III (pooled OLS and firm-fixed effect) are derived from equation 1 and 2 respectively in section 3, using different set of explanatory variables, as explained by the variables column. All regressions include dummy variables, which are not explicitly reported in the table, to proxy for contextual cross-industry differences and general year-wise variations in the market climate. Classification for controlling owner variables are explained in Table 1, and summarized in Table 4 and Table 5. For details on firm-specific characteristics, please refer to Table 2.

*, **, and *** denote significant coefficient estimates at the 10%, 5%, and 1% level respectively.

Table 10: Summary statistics from pooled OLS and firm-fixed effects regressions per SSE List.

However, regardless of stock listing, corporations as controlling owners have a negative impact on firm value. Given the specific nature of corporate ownership where corporate owners have the incentives to maximize the total return to their own shareholders, which does not necessarily coincide with the incentives of other minority shareholders in the firm, it is not unreasonable to expect agency costs being taken into consideration when valuing the firm in question. Furthermore, the decomposition of variables reveals that the previously observed inconsistency regarding positive impacts of deviating from the 1S1V principle in case of corporate ownership is isolated to occurrences on the Medium Capitalisation list. Thus, the implied positive impact of disproportional ownership has little economic relevance for the average Swedish firm. Hence, our findings seem to be in line with the economic reasoning of Burkart & Lee (2007).

5.2 CONTROL INSTRUMENTS

Apart from the preceding discussion on the effect of controlled ownership and dual-class share structure on firm value, it is interesting to complement the analysis with an evaluation of the tendency of using dual-class share structure given a transition from disperse ownership to controlled ownership. Given the impact of institutional change on ownership structure over the period 1999-2007, there is reason to believe that the marginal effect of using dual-class share structures may differ from the period 1991-1997. The following overview in Table 11 demonstrates the fundamental results from the probit analysis.[53]

		1999-2007				1991-1997
SSE List:		Large	Medium	Small	Full sample	Full sample
Ownership **Explanatory:**		Dual	Dual	Dual	Dual	Dual
Founder family ownership		0.709*** (0.044)	0.704*** (0.053)	0.546*** (0.031)	0.557*** (0.023)	0.365*** (0.024)
Non-founder family ownership		0.532*** (0.053)	0.488** (0.064)	0.142*** (0.045)	0.306*** (0.028)	0.265*** (0.021)
Corporations ownership		0.202*** (0.075)	0.200*** (0.112)	0.196*** (0.054)	0.190*** (0.039)	0.133*** (0.026)
Financial institution ownership		n/a	n/a	n/a	0.348*** (0.039)	0.086*** (0.032)
Dummies (year/industry)		Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/No
N		337	412	709	1 473	1 317
Pseudo R^2		0.315	0.261	0.273	0.230	n/a

The explanatory (binary) variable denoted *Dual* corresponds to firms that have implemented a dual-class share structure. All regressions include dummy variables, which are not explicitly reported in the table, to proxy for contextual cross-industry differences and general year-wise variations in the market climate, as well as observable firm-characteristic variables.

*, **, and *** denote significant coefficient estimates at the 10%, 5%, and 1% level respectively.

Table 11: Marginal effects of controlled ownership on the probability of dual-class share structure.

By testing the pair-wise differences of estimated coefficients using Wald-tests we conclude that founder family ownership dominates both non-founder family ownership and corporate ownership regardless of capitalization listing. However, we find no significant difference when comparing founder family ownership with institutional ownership. Concerning non-founder families, we find that they are significantly more likely to employ dual-class share structures than corporate owners across all listings.

The probability of dual-class share structure given that the controlling owner is the firm's founder family is around 56%, approximately twice as likely as for non-founder family controlling owners and corporations. Although the marginal effect for financial institutions is highly statistically significant, given the minuscule observations in the sample, this effect cannot be deemed relevant for the average firm and has therefore little economic significance. Overall, the magnitude of the dispersion between the different ownership categories was also observed by Cronqvist & Nilsson. The probabilities of implementing a dual-class share structure only seems to have increased slightly, with exception for founder family controlled ownership. During 1999-2007, a founder family seizing control over a firm is almost twice as likely to implement dual-class share structure as compared to the preceding period 1991-1997. It is probable that the increase in marginal effects can be explained, on the one hand, by the observed

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[53] However, the table does not include any explicit estimates of corresponding Wald-tests, as such presentation obscure the more interesting coefficient estimates. Instead, please refer to the discussion that follows.

decrease of disproportionate ownership in disperse ownership, and on the other hand, the overall increase of firms with disperse ownership.

When isolating firms based on market capitalisation, the marginal effects increases with the rank of the stock listing. This increasing trend in coefficient estimates for marginal effects are however not attributable to firm size as this is separately controlled for in the regression. Instead, the trend might be correlated with the contextual setting of different stock lists.

6   CONCLUSIONS

We have explored the following research questions with regards to institutional changes in Sweden during the past decade:

1. What agency costs are associated with controlling minority shareholders on the Swedish Stock Exchange during the period 1999-2007?

Our pooled OLS regressions suggest that the implied agency costs of the median Swedish firm traded on the SSE concerned with controlling minority shareholders have increased slightly from 17.5% to 20.0% of firm value, measured by the Tobin's q, over the period 1999-2007. Furthermore, our results imply that there are significant differences amongst different categories of controlling ownership structures. On an aggregated level, corporate ownership seems to be the category least favoured by the market. Conditional on the contextual factors associated with different stock lists, such as public scrutiny and accounting transparency, market consensus has an aversion to small firms controlled by so-called founder families and large capitalisation firms under corporate control.

However, when firm-fixed effects are introduced to control for unobserved heterogeneity in the regression, overall estimates are close to zero and no longer significant. This is a great contrast to the findings of Cronqvist & Nilsson (2003), who studied the previous time period 1991-1997. By our interpretation of this, there is no longer a stable relationship between agency costs of controlling minority shareholders and the ownership variables defined in this paper. This lack of significance is no real surprise as only 9.1% of the total data sample accounts for within-firm changes of the different ownership variables. The insignificant estimate for controlling ownership is, however, evidently closer to zero than the estimate obtained from previous period, 0.094 compared to -0.331. Thus, one possible economic interpretation, while not statistically supported in our data set, is that agency costs of controlling minority shareholders de facto have decreased during the period 1999-2007.

Another observation is that the distribution of firms over different ownership categories, which employ dual-class share structures, has remained relatively constant during the past two decades. This suggests that the shift in unobserved firm heterogeneity is not dependent upon the preference of dual-class shares amongst different ownership categories.

As our results are not robust when controlled for firm-fixed effects, the causality of the dependent and explanatory variables can be questioned; we have not been able to determine whether any effect in Tobin's q is a direct consequence of ownership characteristics, or if firms with an inherently low or high valuation is more prone to a specific type of ownership per se.

2. Can the new institutional setting help explain any possible deviations from previous findings?

Considering the institutional changes taken place in Sweden during the past decade, greater transparency has been introduced in the corporate setting and the legal climate has become more approving of foreign ownership. At the same time, the international exposure of Swedish equities has increased as a consequence of the convergence of European markets. In line with our tentative conclusions it can be argued that these factors have driven the agency costs associated with controlling minority shareholders downwards. Possibly, the more intricate setting of financial markets has also distorted the previously stable relationship between agency costs and the ownership variables defined in this paper, why we are not able to derive significant estimates when controlling for unobserved firm heterogeneity.

Relating to an overall increased transparency, it is possible that firm-specific variables controlled for in our regressions have lost some of their prior relevance in the eyes of investors in relation to other intrinsic measures. Another likely explanation to the transitional insignificance when conducting fixed effect regression is the possibility of a deterioration in the Tobin's q measure as a proxy for firm value during the period 1999-2007. In particular, the turbulent stock market in conjunction with inflated sector specific valuations has directly affected the levels of firms' market-to-book values. As an area for future research it would be interesting to validate whether our results have been distorted due to the development of the time period 1999-2007 as such, or if the previously steady relationship between agency costs of controlling minority shareholders and ownership characteristics will remain unstable.

In summary, our results complement those of Cronqvist & Nilsson (2003) mainly in two ways; we have evaluated the consistency and magnitude of agency costs in firms traded on the SSE for a period continuing post 1997, bringing greater transparency to the distribution of deviations in firm valuation and the divergence between cash flow rights and voting rights. Taking into consideration the previous findings in context of the 1S1V debate, we find no significant support for the conjecture that disproportionate ownership has an effect on firm value, and therefore align us to the general consensus.

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