Corporate Control and Value Destruction

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Master's thesis in Finance

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Abstract

Investigating a panel of Swedish public companies from 1986 to 2003 (4543 firm year observations) this paper investigates the effect of control structure and type of controlling owner on investment efficiency. Sweden is characterized by a high prevalence of voting and cash flow rights separation, as well as controlled ownership structures where families are the most recurrent ultimate owners in control. Previous studies have found that these factors have a negative impact on firm value. A recently developed method, marginal q, is implemented to measure the effect of these observed ownership characteristics on investment efficiency. Where controlling owners are either families or widely held corporations, investment efficiency is found to be significantly lower, partly explaining the valuation discount. Previous research suggests that this relates to non-pecuniary private benefits of control, such as prestige, rather than direct expropriation of minority shareholders. The dominant owners in Sweden prefer control to returns.

We would like to thank DHSs Simon Angeldorff and Fredrik Hansson for providing ownership data for the years 1986-1998, Assistant Professor Renée Adams and Professor Sune Karlsson for valuable econometric insights, Researcher Hans Hällefors for help on data collection, Henrik Röhs at Six Market Research for his patience, DHS Carl Settergren for proof-reading, Karl-Johan's parents Cecilia and Lennart and grandmother Karin for use of cabin and car in pristine Falkenberg, and last but not least our tutor Peter Högfeldt for his enthusiasm and guidance throughout.

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1 Introduction

Do family and corporate controlling owners invest less efficiently than other owners? Does the degree of separation between voting and cash flow rights affect the efficiency of investment decisions? These are the main questions posed in this thesis.

1.1 Swedish Family Control Structures and Valuation Discounts

The Swedish economy is dominated by companies controlled by a family owner, which typically uses arrangements such as dual-class shares, cross-holdings and pyramidal structures to exert control beyond what would be warranted by their capital stake.[1] Previous research has found that these types of companies trade at a discount to the value of their assets, as measured by Tobin's q. By examining the investment efficiency of companies based on control structure and type of controlling owner, this thesis aims to explain some of that discount.

1.2 Pecuniary and Non-pecuniary Private Benefits of Control

With a controlling owner, the classical principal agent dilemma between owner and management is not a major problem. Instead, there is a conflict of interest between the controlling and minority shareholders. As the controlling owner holds less than all of the cash flow rights, each benefit that is privately enjoyed by the controlling owner is not paid for in full by him and is thereby a personal gain on his behalf, a *private benefit of control*. As the differential between control rights and cash flow rights decreases, the cost of using the control for such private benefits, rather than for shareholder value maximisation, decreases.[2]

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[1] Sweden is ranked number one in use of dual class shares, number two in pyramid structures and number three in cross-shareholding internationally (La Porta et al, 1999). The Swedish setting is characterized as having especially large ownership concentration as reported by LaPorta, Lopez-de-Silanes and Shleifer (1999). In their sample, a Swedish listed company was typically controlled by a family and there was a high occurrence of control and cash flow rights separation.

[2] Evidence was found of a negative relation between vote-differentiation and ownership concentration on firm value and investment performance in a recent study (Bjuggren et al, 2005).

Depending on institutional framework, the controlling shareholder might be able to extract this value at the expense of the minorities. The value extraction can be performed through a variety of methods such as tunnelling to other companies within their control, extensive compensation packages to shareholder directors and management etc, *pecuniary private benefits of control,* all basically amounting to theft. Although this has been found to be the case in countries with weak institutional frameworks, this is most likely not the case in the Swedish setting.[3] However, controlling owners derive other benefits, such as prestige and social status, pet projects etc from their position, what is termed *non-pecuniary private benefits of control*. Especially family and corporate owners are able to extract such benefits compared to financial investors. The empire building nature of non-pecuniary private benefits of control is likely to give rise to agency costs by overinvestment through control over the internal cash flows of the company. Although this is not theft per se, it can be at least as costly for the minority shareholders specifically, and for the economy in general.

"Managers can lose for shareholders as much as, or more than, they can steal from them." (Roe, 2002).

Furthermore, overinvestment and retention of internal cash flows leads not only to value destroying investments for the company. In the Swedish ownership setting it leads to inefficiencies in the general economy through a lack of funds available for value creating investment opportunities. In short, money stays in historically successful companies rather than being invested in investments in new industries and technologies.

[3] Although the Swedish civil law legal system receives a rather mediocre ranking with regard to investor protection, Sweden scores much higher on the measures based on extra-legal institutions, such as press, tax compliance, organized labour and social norms, as pointed out by Coffee (2001) and Dyck & Zingales (2001). This notion has been further supported by Holmén & Högfeldt (2005) as they conclude that overinvestment rather than expropriation of minority shareholders is a more plausible explanation for the discounts observed in Swedish pyramidal structures.

1.3 Marginal q – Investment Efficiency on the Margin

The definition of inefficient investment used in this thesis is based on the point of view of value maximisation of the company as a whole, rather than maximising the value accruing to specific shareholders. It is measured by whether or not capital is invested at a rate of return equal to or higher than the company's cost of capital. But in order to measure the efficiency of investment a new methodology is used, *marginal q*. This methodology has great similarities with the classical Tobin's q, but rather than measuring the effect of all investment decisions still in effect in a given company, it measures the investment efficiency relating to the existing controlling shareholder on the margin.

Evidence will be shown in this thesis for inefficient investment decision-making in family-controlled Swedish companies. Also, strong arguments will be provided, in terms of theoretical and empirical findings, to suggest that the agency costs involved predominantly relate to non-pecuniary private benefits of control, such as overinvestment, rather than pecuniary private benefits of control, i.e. expropriation of minority shareholders.

1.4 Purpose

The purpose of this study is to investigate if ownership structure and/or type of owner affect the investment efficiency of a firm, more specifically Swedish firms from 1986 to 2003.

1.5 Contribution – Methodology and Data Collection

The foremost measure of agency costs used so far has been Tobin's q, resulting in findings that indicate that firms controlled by minority shareholders and/or by owners that prefer control to returns, trade at a discount to other companies. However, very little has been put forward to explain this discount more specifically. The contribution of this thesis is the use of a more recently developed method, marginal q, to measure and explain agency costs in Sweden. The method permits an estimation of investment efficiency on the margin, rather than across the entire historical investment decisions of a firm, creating a stronger link with the current control structure and predicted agency costs.

If evidence is found in this study that firms controlled by types of owners and/or control structures associated with agency costs invest inefficiently in relation to other firms, that would go a long way to explain previous empirical findings. Furthermore, applying marginal q to Swedish data, a country ripe with control structures that separate voting from cash flow rights and an empirically established bias towards owners that prefer control to returns, contributes not only towards explaining previous empirical findings in regards to Sweden, but should also constitute a valuable contribution in an international setting.

For our analysis we have used data on Swedish listed firms in the period 1985-2003 and created a unique database consisting of 4,543 firm year observations. Our database consists of ownership data from Owners and Power in Sweden's listed companies (Sundin & Sundqvist), 1986-2003 editions and accounting data is retrieved from the accounting database Six Trust (Trust). As such, part of the contribution of our thesis has been the creation of a unique database, which can be used for other studies and developed further. At the time of printing this is already the case, as another thesis in Finance at the SSE, "Valuation of Family Firms" by Magnus Andersson and Anders Nyberg presented June 2005, has used our data as a base for further research.

1.6 Delineation and definitions

Currently, there is a trend in research in finance towards explaining observed market anomalies with behavioural models. The classical assumption of strict rationality among market participants is breaking up in favour of predictive models based on psychological findings. Explanations of behaviour that are prevalent are concepts such as self-serving bias, irrational exuberance, prospect theory and mental accounting.[4]

However, in this thesis that line of inquiry will be disregarded in favour of an assumption of rationality among all economical agents. It is in no way implied that behavioural

[4] For an excellent introduction to this topic, see *Inefficient Markets: An Introduction to Behavioral Finance* by Andrei Shleifer, Oxford University Press (2000)

finance is a fruitless endeavour. Nevertheless, it is a substitute rather than a complement to the explanatory efforts of this thesis.

The agency costs examined in this paper stem from unaligned incentives rather than agents that are unable to make rational, efficient decisions. Consequently, when the terms *inefficient investment, value destruction* and similar idioms are used henceforth they relate to the market value and returns of the capital stake in a company, rather than implying that the agents are making inefficient decisions from their own perspective.

Further, the term *agency costs* could imply a clearly identifiable bearer of these costs. However, assumptions of capital market efficiency and rationality of all economic agents leads to another conclusion. Rational investors in an efficient market demand a discount to compensate for expected agency costs. Controlling owners destroy shareholder value since they extract other benefits from their investment decisions. Consequently, the agency costs identified are borne by society as a whole through inefficient investments and profitable investments never undertaken.

2 Theory and Empirical Setting

In 1932 Adolph Berle and Gardiner Means published *"The Modern Corporation and Private Property"*, in which they presented the notion of dispersed ownership of U.S. firms as the typical structure and that control was concentrated to management. This paper laid the foundation for numerous studies to come on the agency conflicts associated with this ownership structure and set the image of corporations and management held by the public for several years to come. A few decades later studies emerged that began to question the empirical validity of the view of widely held companies and the overall significance of the associated management-owner conflict. Eisenberg (1976), Demsetz (1983), Demsetz and Lehn (1985), Shleifer and Vishny (1986) were among the first to challenge Berle and Means view and documented a slight ownership concentration in the United States, even among the largest firms.

In 1999, LaPorta, Lopez-de-Silanes and Shleifer published *"Corporate Ownership around the World"*, where the authors study ownership structures and concentration of large companies in 27 wealthy economies. In contrast to the widely held view of companies with dispersed ownership, they found that, except in economies with very good shareholder protection, large firms rarely have such ownership structures. On the contrary, firms are typically controlled by families or the state. Moreover, they also document that owners in control typically have control rights far beyond their cash flow rights, i.e. that ultimate owners, through various mechanisms, have more control than granted through their own capital stake vested in the company. The Swedish setting is characterized as having especially large ownership concentration. In their sample, consisting of the 20 largest publicly listed companies in each country, a Swedish listed company was typically controlled by a family and there was a high occurrence of control and cash flow rights separation. On average, Sweden was reported to require the least capital, 12.6%, to control 20% of the votes.

Cronqvist & Nilsson (2000) reports in a study covering 95% of the publicly traded firms on the Stockholm Stock Exchange (SSE) that in nearly 60% of all observations, families hold a controlling stake. According to their definition, which also has been used in this

study, when the largest owner has voting rights equal to or in excess of 25% he is considered to be in control. Moreover, Cronqvist & Nilsson (2000) find that less than 13% lack a controlling owner. In the U.S. on the other hand, Holderness & Sheehan (1988) finds that 13% of the listed companies have a controlling shareholder. The difference between the Swedish setting and the view of the modern corporation presented by Berle & Means in terms of ownership structure and concentration is striking. As such, it is also appropriate to question the importance of management-owner conflicts. While this source of agency costs may be of great importance for understanding corporate governance in the U.S. and countries with similar ownership structures, there are reasons to believe that other agency conflicts may be of greater importance in countries where concentrated ownership along with a divergence between control rights and cash flow rights is more prevalent.

In recent years there have been a number of studies that have addressed the agency conflicts and costs that are associated with controlling minority shareholders (CMS), i.e. shareholders that are in control but are minority shareholders in terms of their capital stake. Bebchuk, Kraakman & Triantis (2000) discuss the different arrangements used for separating control rights from cash flow rights, namely dual-class shares, pyramids and cross-holdings. As such separation effectively can be achieved with either of these arrangements, they are virtually perfect substitutes in this regard. With dual-class share structures, separation is accomplished through the issuance of two or more classes of shares with differential voting rights. In pyramids, controlling ownership in a chain of companies is the mechanism that leads to the very same result. In ownership structures with cross-holdings, a group of companies holds equity stakes in each other, vertically as well as and horizontally. As cross-holdings leads to a reduced free-float of the equity issued by the companies within the group structure, only a smaller stake in one or several of the companies is required in order to exercise complete control of the group[5]. The authors continue with analyzing the consequences and agency costs associated with these

[5] For a more elaborate discussion on the different mechanisms used to separate control from cash flow rights, see "Mechanisms for Separating Control and Cash Flow Rights" in the Appendix.

arrangements and conclude that such ownership structures have the potential to result in significant agency costs. They specifically point out that as the capital stake held by the owner in control decreases, the scope for agency costs increase significantly and exponentially rather than linearly. Interestingly, a recent study on the Swedish setting found of a negative relation between vote-differentiation and ownership concentration on firm value and investment performance (Bjuggren et al, 2005).

The agency costs referred to relate to the private benefits of control that controlling owners may enjoy. More specifically, the controlling shareholder may extract certain benefits from the company, benefits that are private to the controlling owner and thereby do not accrue to the minority shareholders in accordance with their capital stake. As the controlling owner holds less than all of the cash flow rights, each benefit that is privately enjoyed by the controlling owner is not paid for in full by the same and is thereby a personal gain on his behalf.

When choosing between investment projects, the controlling shareholder's concern is not only the shareholder value appreciation associated with each project, but also the private benefits. Moreover, as the capital stake held by the controlling owner decreases, investment decisions will be more biased towards projects that include high private benefits of control rather than high shareholder value appreciation. Denoting the capital stake held by the controlling owner with α, the total shareholder value associated with a project with *S* and the private benefits related to the same with *B*, the value of a project for the controlling owner is $\alpha S + B$. It is clear that as α decreases, the private benefits become increasingly important.

Decisions relating to the scope of investments will also depend on the capital stake held by the controlling owner and existing private benefits of control. When considering an investment, the actual cost for the controlling owner is limited to his capital stake in the company. However, due to private benefits of control, the gain outweighs his share of the equity value associated with this investment. Here $\alpha S + B$ is set against αP, where P are the proceeds distributed if not invested. Also in this case, the private benefits increase in

importance as α decreases. An analogous argumentation can be used for explaining how the controlling owner's incentives are distorted when a spin-off of company assets are in consideration. Also in decisions on scope, a smaller capital stake will enhance the importance of private benefits relative to shareholder value.

These private benefits may be either pecuniary or non-pecuniary in nature. Pecuniary benefits can best be described as expropriation from other shareholders. Family owners in control are thought to have high possibilities to extract pecuniary private benefits, especially family owners affiliated with the company (Cronqvist & Nilsson, 2000). Being involved in the operations of the company should grant a family owner greater opportunities to extract these benefits. Pecuniary benefits include corporate perks, compensation packages above market rate, transactions at non-market terms and tunnelling (Mueller, 2003). Transactions at non-market terms may occur in a parent's dealings with a subsidiary at terms only beneficial to the parent, which implies that also corporations as the controlling owner have high possibilities to extract pecuniary private benefits (Cronqvist & Nilsson, 2000) and (Johnson et al, 2000). Tunnelling is an extreme case, where wealth is transferred from one entity in a group structure or a pyramid to another, either to bail out troubled group members or as way of transferring wealth to an entity where to controlling owner has more cash flow rights. Tunnelling transactions have been shown to exist within group structures and pyramids in various parts of the world, such as Korea, Italy, India and a number of emerging markets (Bae et al, 2002), (Betrand et al, 2000), (Bigelli et al, 1999) and (Lins et al, 2002).

Non-pecuniary benefits include the prestige and social status of controlling a company/group of companies and especially apply to situations where family owners, affiliated or unaffiliated, are in control. It can also be argued that non-pecuniary private benefits may be prevalent when controlled by companies with dispersed ownership, as management in these companies may enjoy non-pecuniary benefits of such control, which not only affects decisions made by the controlling company but also the controlled entity. Mueller (2003) argues that non-pecuniary private benefits even may be of greater importance than pecuniary private benefits. These private benefits of control can be

particularly strong if the owner is the founder of the company or if the company has been controlled by the family's owner for a long time. In such instances, the closeness between owner and company is stronger, why non-pecuniary benefits are of greater importance. Due to the existence of non-pecuniary benefits of being in control, the controlling owner strives towards maintaining that control. One way this is materialized is in the capital structure of companies controlled by owners that exhibit high non-pecuniary private benefits of control. As external equity would dilute their controlling position and thereby also risk the non-pecuniary private benefits of control, this source of funds is rarely used in order to finance investments. Instead internal funds and debt are more heavily relied upon (Hansson, 2003, Mueller, 2003 and Bennedsen et al, 2000). Non-pecuniary private benefits thus imply that companies may forgo profitable investment projects if forced to resort to equity markets. The only instances when these types of owners will resort to external equity is either when investment opportunities are sufficiently large to outweigh the loss of private benefits or when the survival of the firm is at stake. Moreover, these companies will also have a tendency to invest rather than distribute, i.e. over invest, as control over these funds then will remain in the hands of the controlling owner and the risk of a future forced equity issue is diminished. In other words, maintaining and being in control of the company's cash flows is priority for the controlling owner.

While controlling owners that extract pecuniary private benefits also would aim for a similar capital structure and have similar investment behaviour, the controlling owner's objective here is to expropriate other shareholders. When the driver is non-pecuniary private benefits, the controlling owner merely aims at maintaining that control. In the first case, there are real actual costs involved, as the owner in fact steals from other shareholders. In the latter case however, it is rather a story of inefficient investment decision making.

Since the extraction of pecuniary benefits of control can be defined as theft, the legal setting in which companies operate partly determine controlling owner's possibilities to carry out such actions. Non-pecuniary costs on the other hand cannot be regarded as theft and possibilities for extraction of such benefits can hardly be limited by the legal setting.

In 2000, LaPorta, Lopez-de-Silanes and Shleifer published *"Investor Protection and Corporate Governance"*, a paper in which the authors rated the legal systems with regard to investor protection of a broad set of countries. Specifically, the authors rank the various countries with respect to the protection minority shareholders receive through the legal system from being expropriated by managers and controlling shareholders. The Swedish civil law system was found to be somewhere in the world average, above countries such as Belgium, France and Germany, but below a large group of countries, including the U.S., UK, Canada and Australia. This notion along with the observed characteristics of Swedish ownership structures reported by LaPorta et al (1999) and Cronqvist & Nilsson (2000), both referred to above, imply that the potential for agency costs in Swedish companies with CMSs are large. Specifically, high ownership concentration along with prevalent use of instruments separating control rights from cash flow rights in the Swedish setting along with an average protection for minority shareholders point to large possibilities for controlling owners to extract pecuniary private benefits of control.

Cronqvist & Nilsson (2000) estimated the agency costs of CMSs in Sweden and concluded that there are significant costs associated with such ownership structures and these are especially high if the controlling owner is a family rather than a widely held corporation, which in turn exhibited higher agency costs compared to companies controlled by a financial institution.

Other studies have confirmed that the implications of controlled ownership structures are far more significant than earlier anticipated. Hansson (2003) analyzes ownership structures and capital structures for Swedish listed companies in the period 1986–1997 and concludes that there is significant support for a positive relationship between ownership concentration and leverage. Controlling owners have a desire to stay in control which is why debt is preferred to equity as this source of financing does not dilute their control to the same extent. Another interesting finding was that companies with families as controlling owners where found to be significantly more levered than companies

controlled by other owner types. This finding implies that private benefits of control are stronger where this owner type is in control. Oborenko (2004) adds further support to the notion that ownership concentration is strongly related to capital structure as he presents evidence that market timing, in terms of equity issuance and repurchase, is far less important in Sweden than in the United States. Instead profitability is shown to be the most important determinant and driver of capital structure of Swedish IPOs. Compared to the United States, the interaction between internal and external markets in Sweden is materially different. Due to the high agency costs, external equity is very expensive and Swedish firms thus rely more heavily on internally generated funds and debt.

While these earlier studies provide evidence for how ownership concentration and type of owner relate to agency costs and capital structure decisions, there are still questions left unanswered. They all point to the existence of private benefits of control, but do not relate to the source of these private benefits. Cronqvist & Nilsson (2000) documents highly statistically and economically significant results on agency costs and type of CMS. However, they fail to explain the nature of the private benefits relating to the agency costs found evidence for. Although pecuniary as well as non-pecuniary benefits of control both lead to agency costs, assessing whether or not the owner in control actually expropriates other minority shareholders or simply make inefficient investment decisions due to a desire to remain in control should be of interest. The private benefits argued for in their paper appear to be predominantly pecuniary in nature, which would be in line with the documented fact that the Swedish setting exhibits high degree and prevalence of separation between control and cash flow rights along with only a world-average legal system for protection for minority shareholders.

In addition to a country's legal system, minority shareholders' interests are, as pointed out by Coffee (2001) and Dyck & Zingales (2001), also protected by extra-legal institutions. Such institutions include the press, tax compliance, organized labour and social norms. The authors stress that such institutions may be equally important for protecting minority shareholders. Interestingly, while the Swedish civil law legal system receives a rather mediocre ranking with regard to investor protection, Sweden scores

much higher on the measures based on extra-legal institutions. Holmén et al (2002) find, by studying Swedish mergers, that shareholders owning shares in both the bidder and the target, dual shareholders, do not make pecuniary gains at the expense of minority shareholders. They find no direct evidence for direct transfers of wealth from minority shareholders to controlling owners. In other words, tunnelling is not prevalent in Sweden. As such, the objectives of dual shareholders are other than pecuniary. The author concludes that the extra-legal institutions in Sweden prevent controlling shareholders from making such wealth transfers. This notion has also been supported by Holmén & Högfeldt (2004a) as they do not find evidence for tunnelling within Swedish pyramidal structures. As such, other than pecuniary benefits of control must explain the agency costs in controlled Swedish ownership structures.

Evidence has thus been found that pecuniary private benefits of control cannot explain agency costs in controlled Swedish ownership structures. While Swedish investors thus are protected from pure expropriation from controlling owners, they are still exposed to decisions made by entrenched owners. If evidence for inefficient investment decision-making by controlling owners were to be found, such findings would contribute significantly to current research in explaining the agency costs already identified.

The measure traditionally used to identify agency costs is Tobin's q (for instance Holmén & Högfeldt (2004a), Holmén & Högfeldt (2004b) and Cronqvist & Nilsson (2000)). Although this measure has provided evidence for the existence of agency costs, it fails to explain the nature of these. A related measure, marginal q, serves this purpose. While Tobin's q is the average q of all company investments, marginal q is the q relating to the marginal investments. If controlling owners can be shown to invest inefficiently, it can be concluded that *part* of the discount given by Tobin's q is explained by their investment decisions. Although marginal q, just as Tobin's q, fails to specify the nature of these private benefits, previous research in the Swedish setting provide strong implications against the existence of extraction of pecuniary private benefits by controlling owners. These findings, along with Sweden's evidently strong extra-legal institutions, imply that in case controlling owners are found to make inefficient investment decisions, this would

relate to non-pecuniary private benefits of control rather than pecuniary private benefits of control.

Marginal q was first developed by Mueller & Reardon (1990) and has later been applied in other studies. In one such study, Gugler, Mueller and Yrtoglu (2003b) hypothesize that companies with agency costs on average invest at a rate of return lower than their cost of capital. Moreover, investments financed with either internal funds or equity will earn a lower return than investments financed with debt. A low return on investments financed with internal funds relates to the controlling owner's desire to invest rather than distribute, i.e. over-invest. In addition, due to the controlling owner's desire to retain control, accessing equity markets rarely occurs in response to the emergence of profitable investment projects, but rather in situations of crisis, when external equity is the last resort to ensure the survival of the firm.

2.1 Theory and Empirical Setting - Summary

In this section it has been shown that significant theoretical support exist for why an ownership structure including a controlling owner holding less than 100% of the cash flow rights may incur agency costs (Becht, 2002 and Cronqvist & Nilsson, 2000). Moreover, as the capital stake held by the controlling owner decreases, the potential for agency costs increase sharply. With the use of dual class shares, pyramiding and cross-ownership, separation between control rights and cash flow rights can be achieved which further increases the potential for agency costs (Bebchuk et al, 2000).

Empirical evidence reveals that separation between control rights and cash flow rights is highly prevalent in Sweden (Cronqvist & Nilsson, 2000). Moreover, the authors find that CMS structures lead to agency costs, costs that are particularly high when family owners with affiliation are in control. In addition to affiliated family owners, theoretical and empirical evidence for high agency costs where the controlling owner is either unaffiliated family owners or corporations has been provided.

Furthermore, empirical studies on the Swedish setting reveal that private benefits enjoyed by controlling owners do not appear to be pecuniary in nature but rather non-pecuniary. By using marginal q instead of the more popular and widespread measure Tobin's q, the evidence of agency costs provided by earlier empirical studies can be related to the efficiency of investment decisions made by companies with different controlling owners.

Following the rationale presented by Gugler, Mueller and Yurtoglu (2003b), companies with agency costs make value-destroying investments on average and even more so when retained earnings or external equity is used as source of finance. As companies controlled by either family owners or corporations evidently lead to high agency costs, the pattern hypothesized by Gugler, Mueller and Yurtoglu (2003b) can be expected.

3 Hypotheses

Ceteris paribus, whether or not the largest owner in respect to voting rights controls a company is not a relative term. Either that owner is in control, or it is not. Bebchuk et al (2000) base their analysis regarding capital stake and investment decisions on the assumption that the CMS is in absolute control. The agency costs in their analysis therefore depend solely on capital stake. However, in the real world, control is on a sliding scale. The larger the voting stake, the more control and consequently the greater the manoeuvrability of the controlling shareholder. It could therefore be argued that the agency costs relating to separation between control and cash flow rights depend on voting as well as capital stake. The difference between voting and cash flow rights would then be a more appropriate predictor of the size of agency costs. The effect of such a variable can not be expected to be linear. Bebchuk et al (2000) argues that agency costs increase exponentially as the capital stake decreases. Assuming fixed voting rights as capital stake decreases, and consequently an increasing difference between voting and cash flow rights, leads to the conclusion that the effect of such a variable on agency costs should be positive and increasing. Consequently, *the difference between voting and cash flow rights should have a positive and increasing effect on agency costs. More specifically, as that difference increases, investment efficiency should decrease.*

Controlling owners that can extract private benefits of control, pecuniary or non-pecuniary, are expected to take decisions that are detrimental to shareholder value. By prioritizing preservation of control, these owners' decisions are biased towards non-dilutive financing and an investment strategy that ensures survival of the company rather than maximizes shareholder value. This has major consequences for a company's operational decision making. First, to ensure survival, to maintain funds within the company and to avoid future dilutive equity issues, these companies should tend to over invest. Second, due to the unwillingness to use external financing, profitable investment opportunities will be forsaken when internal funds are insufficient. The consequence of such a strategy can only be inferior investment returns. Consequently, *companies controlled by owners that can extract private benefits of control should exhibit lower investment efficiency than other companies*.

Different types of owners can extract different amounts and types of private benefits. Family owners affiliated with management can extract pecuniary benefits (management compensation packages, private jets, tunnelling) to a higher degree than family owners without affiliation, Also non-pecuniary benefits are enjoyed by affiliated family owners to a higher extent, as the closeness between the family owner and the company is closer compared to family owners without affiliation.. The managers of widely held corporations can enjoy the thrills of controlling a large company, while the corporation itself and its shareholders can profit from uncompetitive transactions between subsidiaries. Financial owners, such as mutual funds, banks et cetera, and owners of a company with dispersed ownership on the other hand, should have very limited opportunities to extract private benefits of control. The larger the potential for benefit extraction, the larger the effect on shareholder value should be. Consequently, *investment efficiency should be lower for family and corporate controlled companies than others. Furthermore, a company controlled by a family affiliated with management should exhibit lower investment efficiency than other family firms.*

The agency conflicts discussed so far are between dispersed shareholders and management and between controlling and minority shareholders. Obviously, the objectives of management and shareholders are not completely aligned with debt holder's. However, the covenants relating to the debt holder's claims and the precedence of lenders in the case of liquidation limits the manoeuvrability of management and controlling shareholders regarding the use of debt, especially in relation to the discretionary funds stemming from operations and equity issues. Consequently, *in a value destroying company, the efficiency of investments financed by debt should be higher than that of equity and internal funds (discretionary funds).*

3.1 Summary - Hypotheses

i) As the difference between voting and cash flow rights of the largest voting owner increases the efficiency of investments should decrease.

ii) Investment efficiency should be lower for family and corporate controlled companies than others.

iii) A company controlled by a family affiliated with management should exhibit lower investment efficiency than other family firms.

iv) In a company burdened with agency costs, the efficiency of investments financed by debt should be higher than that of equity and internal funds (discretionary funds).

The last hypothesis is not testable on a standalone basis. In the other hypotheses, it is tested whether or not companies predicted to exhibit agency costs actually invest less efficiently. As such, the last hypotheses more provides a framework for the others, and it can then be "tested" when looking at the other results.

4 Methodology

The Tobin's Q measure (average q), first introduced in Brainard and Tobin (1968) and Tobin (1969), or most often a proxy for it, has been the traditional method for measuring investment efficiency. Although it might be an appropriate way to measure the value of a firm's assets inside the company relative to their replacement costs, and thereby the overall investment efficiency of the firm, it is a blunt instrument for measuring investment efficiency on the margin. In effect, it evaluates *all* investment decisions still in effect ever taken by the firm.

A more appropriate method to measure investment efficiency in relation to corporate governance, and more specifically ownership structure, is marginal q. It measures the efficiency of investments taken by the company by relating the increase in market value of the firm to investments made during a given time period. Consequently, it evaluates decisions of current controlling owners and/or management, rather than relating aggregate, historical and current, returns to current decision makers. According to Gugler and Yurtoglu (2003) there are three additional technical advantages with marginal q in this setting.

i) Endogeneity is not likely to be a problem. Besides providing a more accurate measure of investment efficiency, marginal q also reduces endogeneity. Low *average* q for companies with a large difference between voting and capital rights does not necessarily mean that the owners are making poor investment decisions, since it could also be the result of them reducing their capital stake based on inside information regarding the firm's outlooks. A lower *marginal* q for high voting difference companies, however, means that the controlling shareholders are making poor investment decisions on *the margin.*

ii) It is not necessary to calculate the cost of capital for a company. As will be described below, it is only necessary to calculate the *ratio* between investment return and cost of capital, i.e. marginal q.

iii) The method allows for different degrees of risk between companies. Any investments made must give a sufficient return in relation to risk, otherwise

the market value will increase with a lower amount than what was invested, which in turn will result in a relationship between returns and cost of capital lower than one.

The marginal q methodology was first introduced in Mueller and Reardon (1990) and has been further developed and implemented in, among others, Mueller and Yurtoglu (2000) and Gugler, Mueller and Yurtoglu (2003a-e and 2004).

4.1 Marginal q – the Mechanics[6]

The calculation of the present value, *PV*, of a firm's investment *I* at time *t* that produces the cash flows *CF* with a discount rate of *i* is the following:

Equation 1

$$PV_t = \sum_{j=1}^{\infty} \frac{CF_{t+j}}{(1+i_t)^j}$$

The present value can also be calculated by relating the pseudo-permanent return *r* to the firms cost of capital, *i*, and multiplying it with the investment made. The ratio between *r* and *i* is what is called marginal q, or *qm*.

Equation 2

$$PV_t = \frac{I_t r_t}{i_t} = q_m I_t$$

The market value of the firm, *M*, at time *t* is then a function of *M* at time *t-1*, the present value of cash flows stemming from investments made during the year, the depreciation of the market value of the assets during the year and lastly the markets error in evaluating *M* at time *t*, μ_t.

Equation 3

$$M_t = M_{t-1} + PV_t - \delta \cdot M_{t-1} + \mu_t$$

Subtracting M_{t-1} from both sides and replacing *PV* with $q_m I_t$ yields

[6] The presentation of the marginal q methodology in this section is more or less a summary, with some further clarifications, of a similar section in Gugler and Yurtoglu (2003).

Equation 4.

$$M_t - M_{t-1} = q_m \cdot I_t - \delta \cdot M_{t-1} + \mu_t$$

Equation 4 is the distillation of the marginal q method. While Tobin's q relates the total market value of the firm to its capital stock, i.e. evaluates *all* investment decisions ever made still in effect, marginal q relates the change in market value to the investments that brought it about, i.e. evaluating only the investment decisions made at time *t*. To clarify this, look at the Tobin's q as it is most often defined in practice, and relate it to a simplified version of marginal q:

$$Tobin's\_q = \frac{MV_t}{BV_t} \qquad\qquad q_{mt} = \frac{\Delta MV_t}{I_t}$$

In accordance with capital market efficiency, the expected value of the error term μ_t is zero. Equation 4 can consequently be used to calculate δ and *qm*. Dividing both sides of equation 4 gives us

Equation 5

$$\frac{M_t - M_{t-1}}{M_{t-1}} = -\delta + q_m \cdot \frac{I_t}{M_{t-1}} + \frac{\mu_t}{M_{t-1}}$$

The rearrangement in equation 5 has two advantages. First of all, it means that there is no lagged dependent variable among the explanatory variables, greatly simplifying parameter estimation in panel data regressions. Second, it reduces potential heteroskedasticity.

In order to estimate the coefficients, data on the market value of the firm and investments undertaken is needed. Market value is estimated with market value of equity and book value of outstanding debt. Investments should encompass resources spent on a longer time horizon then the size of *t*, i.e. a year. This leads to the following definition:

Equation 6

$$I_t = NetIncome + Depreciation - Dividends + \Delta D + \Delta E + R\,\&\,D + ADV$$

ΔD and ΔE is capital raised through new debt and equity issues. Since the two income statement expense items R&D and advertising are long term investments that increase the market value of the firm, but are not capitalized, they should also be included. In order to

be able to tell whether or not a firm invests efficiently, that investment returns are greater than the cost of capital and consequently whether or not *qm* is greater than 1, it is necessary to include these items.

However, the data availability on R&D and advertising is poor. Since the focus of this study is to investigate if ownership structure affects investment efficiency, it is not essential to find the absolute level of *qm*, rather to see if it differs substantially in relation to the ownership structure variables. Consequently, it is possible to disregard these items within this setting.[7]

Due to the fact that there is no data in Trust on dividends that are actually paid out, only proposed dividends at *t-1*, and the fact that equity issue data is unreliable, new equity issues less dividends is approximated by the difference between opening and closing balance equity less net income. ΔD is calculated as difference between opening and closing balance debt. Disregarding R&D and advertising, and taking into account the limitations imposed by the Trust database, the definition of investments consequently becomes the following;

Equation 7

$$I_t = \underbrace{\underbrace{NetIncome_t + Depreciation}_{Internal\_Funds} + \underbrace{(E_t - E_{t-1} - NetIncome_t)}_{Equity}}_{Discretionary\_Funds_t} + \underbrace{(D_t - D_{t-1})}_{New\_Debt}$$

With this definition, it is possible to estimate the parameters in equation 5. The *qm* parameter obtained in such an estimation provides a measure of investment efficiency that can primarily be used to compare companies with different ownership structures, rather than provide information on absolute level of investment efficiency. However, the fact that non-capitalized investments are not included only limits the possible conclusions in one direction. It is not possible to say that a marginal q *higher* than one is an indication of investment efficiency. It *is* possible to conclude that companies with a marginal q *lower* than one invest inefficiently.

[7] Potential problems with this approach are discussed in the analysis and conclusion sections.

5 Data

5.1 Data Collection and Selection

Data is collected from two sources. Ownership data comes from *Owners and Power in Sweden's listed companies* (Sundin & Sundqvist), 1986-2003 editions (Owners and Power). Accounting data is retrieved from the accounting database *Six Trust* (Trust).

The base sample of firms is the set of Swedish companies listed on the Stockholm stock exchange from December 1985 through December 2002. Consequently, companies listed domestically but based outside of Sweden are excluded. This sample constitutes 4543 firm year observations.

Banks and insurance companies have a qualitatively different capital and asset structure, rendering them ineffectual for the marginal q methodology and this study. Consequently, the relevant 160 firm year observations are excluded.

The accounting data necessary for the marginal q methodology is retrieved from Trust. Trust does not supply data for companies listed on the Nordic Growth Market, excluding 100 firm year observations. Due to difficulties in identifying the relevant company ticker or due to missing data points for one or more of the necessary variables the sample is reduced by a further 711 observations. Lastly, since the marginal q methodology requires opening and closing balance of some of the variables, a further 485 observations are excluded. This leaves a sample of 3087 firm year observations.[8]

Owners and Power report ownership, voting rights as well as cash flow rights, on the 25 largest identifiable owners for all Swedish companies listed on the Stockholm Stock Exchange yearly. For the purpose of the variable difference between voting and capital rights, shares held by relatives or close affiliates are grouped into one record. Furthermore, the authors report the ultimate owner, in case there is a chain of ownership,

[8] For a detailed description, please see appendix "Data Collection Method"

as in pyramids. As such, direct ownership as well as indirect ownership is accounted for. Consequently, when identifying the largest owner, direct and indirect holdings have been taken into consideration. However, following this reporting methodology, the actual separation between voting and cash flow rights is not complete in all instances. For instance, in pyramid structures where an entity at the bottom of the pyramid structure correctly is reported to be controlled by the ultimate controlling owner of the pyramid, the figures of cash flow rights held fails to give an accurate measure on the separation. For example, assume a pyramid consisting of two layers where the controlling owner, X, holds 50% in the company at the top of the pyramid, company Y, which in turn holds 50% in the second company of the pyramid, company Z. For simplicity, assume that none of the companies have dual-class share structures. Following the methodology used by Cronqvist & Nilsson, X would be reported to hold 50% of the cash flow rights in company Y as well as company Z. However, in order to capture the separation between voting rights and cash flow rights, a more appropriate way of reporting would be to say that X holds 50% of the voting rights and cash flow rights in Y and 50% of the voting rights but only 25% of the cash flow rights in Z. Since many of the ownership structures are far more complex than this example, making such calculations would demand much time and effort. As a result, the ownership figures reported by Sundin & Sundqvist (1986-2003) have been used in this study. Finally, following the definition used by Cronqvist & Nilsson (2000), when the largest owner holds voting rights equal to or greater than 25% he is considered to be in control.

5.2 Descriptives

Ownership in Sweden is highly concentrated. Only a quarter of the companies in the sample stand without a controlling owner. Furthermore, about 55% are ultimately controlled by family owners. The remaining fifth is split evenly between corporate and financial owners.

Table 1. Type of owner and control method*. Distribution over firm year observations 1986-2003. Control method signifies structures in place that create a separation between voting and cash flow rights. VC Difference is the absolute difference, on company level, between voting and cash flow rights for total holdings of the largest shareholder in regards to votes. It does not display the total separation, since it disregards further wedges introduced by pyramid and cross shareholding structures.*

		Family	Corporate	Financial	Dispersed	Total
	% of total	54,1%	9,9%	10,5%	25,5%	100,0%
Control structure	None	9,9%	36,2%	14,1%	41,8%	21,1%
	Dual	69,0%	44,4%	20,0%	32,6%	52,1%
	Pyramid	6,8%	6,7%	17,9%	10,4%	8,9%
	Both	14,3%	12,7%	48,0%	15,2%	17,9%
VC Difference	Median	18,0	1,8	7,1	0,0	8,9
	Average	17,8	9,1	11,5	2,6	12,4

It is interesting to note that the predominating control method is through dual class shares alone, especially regarding family controlled firms. Among corporate controlling owners it is relatively less common with dual class shares and/or pyramid structures, and the difference between votes and cash flow rights is comparatively small. Financial owners exercise control through both control methods, and maintain a considerable difference between votes and cash flow rights, although nowhere near that of family owners. As can be expected, companies with dispersed ownership exhibit very little in the way of control structures and votes to capital differences.

Looking at the evolution of differences between voting and cash flow rights, it is evident that there has been a considerable decline from the mid 1990s up until now. Only family owners maintained a non-zero median at the beginning of 2003.

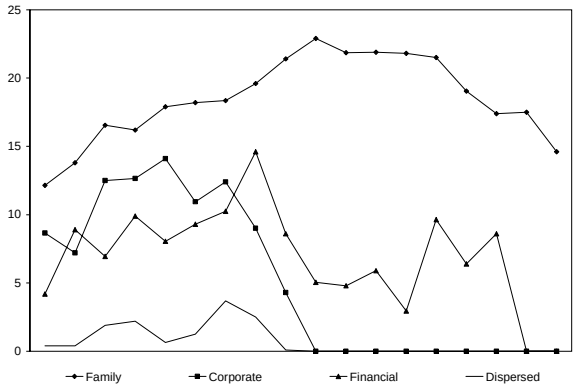

Figure 1. Median *difference between voting and cash flow rights by type of owner 1986-2003.*

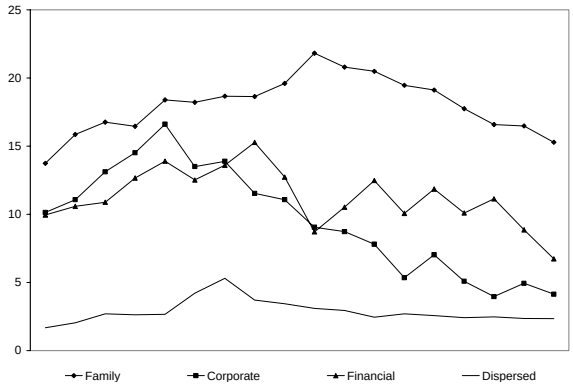

Figure 2. Average *difference between voting and cash flow rights by type of owner 1986-2003.*

The historical distribution of type of owner shows that the amount of financial and corporate owners has remained more or less constant over time, while number of family owners exhibits a trough spanning the 1990s. Companies with dispersed ownership met an increase in 1993 which has been steady up until the end of the sample in 2003.

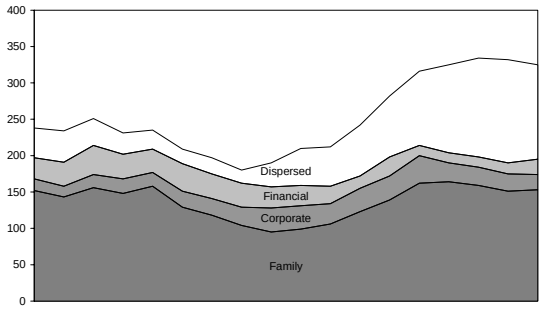

Figure 3. Distribution of type of owner 1986-2003.

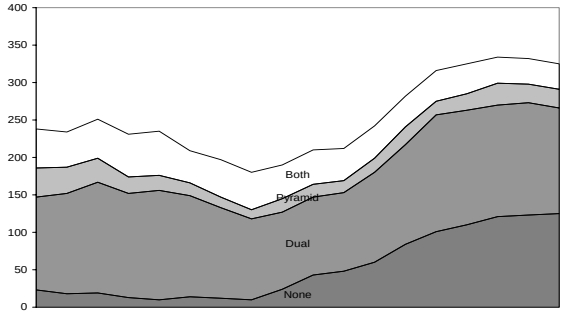

Figure 4. Distribution of control method 1986-2003.

The number of companies with some kind of control structure in place has been fairly constant over the chosen time period, also in relative terms. Instead, the increase in amount of companies 1993-2003 has been met with an increase in companies without any control structure at all.

6 Results

In this section the results from the regressions will be presented.

6.1 Statistical Characteristics of the Sample

6.1.1 Choice of estimator

It could be argued that the control structure variables vary little over time, since Swedish owners tend to stay in control, only changing their holdings on the margin. Since a within estimator such as LSDV uses differences from a units mean to estimate parameters, this could imply that the dynamics of different control structures are lost in such an estimation. However, for all regressions except regression 1, it is rejected on a 1% significance level that the firm specific effects are uncorrelated with the explanatory variables.[9] Since this means that a regression where firm specific effects are treated as random may estimate biased parameters, fixed effects regressions will be the focus of the following analysis.

6.1.2 Depreciation of assets - δ

An overall result in all of the regressions is a small, positive and statistically insignificant intercept. The intercept is the market depreciation of assets in place, δ in equation 5 in the methodology section. Given that the firm does not invest at all during the year, the market value of its assets will depreciate with that factor. In the conventional definition of marginal q, this parameter should definitely be negative and significant. However, since R&D and advertising are not included in the regression, no absolute assumptions can be made regarding the value of δ. In the regressions performed in this thesis, the intercept signifies the change in market value of the firm given that no *capitalized* investments are made. Consequently, the intercept incorporates the average effect of non-capitalized investments as well as market value depreciation of assets in place. Given the consistent characteristics of this parameter, it will be ignored in further discussions, since no major conclusions can be drawn from it.

[9] The Hausman test is used to examine this. The null can not be rejected on a 10% significance level for regression 1.

6.2 Regressions

In regression 1, the marginal q defined in the methodology section is examined on a standalone basis. As mentioned previously, with the definition of investments (equation 7) used in this thesis, it is not meaningful to examine if the absolute value of this parameter is greater than one, since it does not encompass non-capitalized investments. It is however interesting to note that the overall marginal q estimated in this regression is not far from one.

Table 2. Regression 1 results*; Fixed effect panel data regression of marginal q of total investments of all sample firms.*

	Coefficient	p-value	(1)
Rho	0,01	0,438	
Total investment	1,06	0,000	***
R^2	67,7%		
Adjusted R^2	61,1%		

(1) * Significant on a 10% level
** Significat on a 5% level
*** Significant on a 1% level

Stronger conclusions can be drawn from regression 2, which estimates the marginal qs of different sources of funds. It is not meaningful to conclude that companies are value creating from an estimated marginal q greater than one. However, a parameter that is less than one means that the companies are value destroying even when some investments are not taken into account. In line with hypothesis, investments funded with debt exhibit a marginal q parameter well above one.[10] Meanwhile, the parameters of internal funds are far lower than one, and those of equity are more or less equal to one. Given the definition of investments in this thesis, in a sample dominated by companies with small or no agency costs one would expect the marginal qs of investments funded by internal funds and equity to be greater than one. Only in a sample dominated by companies burdened by agency costs would one expect to find marginal qs on discretionary funds to be lower than that of debt.

Table 3. Regression 2 results*; Fixed effect panel data regression of marginal q by source of funds of all sample firms.*

	Coefficient	p-value	(1)
Rho	0,01	0,226	
Internal funds	0,67	0,000	***
Equity	1,01	0,000	***
Debt	1,08	0,000	***
R^2	68,0%		
Adjusted R^2	61,4%		

(1) * Significant on a 10% level
** Significat on a 5% level
*** Significant on a 1% level

[10] It is not unreasonable to argue that this parameter would have been close to one if R&D and advertising had been included in the investments definition.

In regression 3, the effect of the difference between voting and cash flow rights on marginal q is examined. The simple, squared and cubed difference is interacted with investments in order to capture the predicted non-linear effect of the variable. This method was used in Gugler, Mueller and Yurtoglu (2003d) to measure the non-linear effect of insider ownership and management entrenchment on marginal q. Although the parameter of the simple difference is insignificant, the square and cube of the difference exhibit a high statistical significance, where the magnitude of the negative square parameter dominates that of the positive cube.[11] However, the size of the parameters denotes an extremely low economical significance. The existence of a pyramid control structure is not found to have a statistically significant impact on the investment efficiency of the firm.

Table 4. Regression 3 results*; Fixed effect panel data regression of marginal q across all sample firms, where total investment is interacted with the simple, squared and cubed absolute difference between voting and capital rights for the largest owner and a dummy variable signifying whether the company is held within a pyramid control structure or not.*

	Coefficient	p-value	(1)
Rho	0,01	0,591	
Total investment	1,11	0,000	***
VC*Total investment	0,00	0,866	
VC^2*Total investment	-0,00	0,001	***
VC^3*Total investment	0,00	0,010	**
Pyramid dummy*Total investment	-0,03	0,586	
R^2	67,8%		
Adjusted R^2	61,2%		

(1) * Significant on a 10% level
** Significat on a 5% level
*** Significant on a 1% level

[11] The actual figures not evident in table 4 are -0,000285944 for the square and 0,00000617462 for the cube parameters in the fixed effect regression

The results from regression 4, where the difference variables are interacted with the different sources of funds, are orthogonal to expectations.[12] An economically and statistically significant *positive* effect on investment efficiency is identified regarding the VC difference interacted with internal funds. Even more astonishing is the fact that the pyramid dummy interacted with internal funds exhibits a positive effect on marginal q equal to 0,43. These two findings would indicate that companies controlled via a pyramid and/or by an owner with a higher degree of separation between voting and cash flow rights invest discretionary funds *more* efficiently than other companies.

Table 5. Regression 4 results*; Fixed effect panel data regression of marginal q by source of funds interacted with the simple, squared and cubed absolute difference between voting and capital rights for the largest owner and a dummy variable signifying whether the company is held within a pyramid control structure or not.*

	Coefficient	p-value	(1)
Rho	0,01	0,412	
Internal funds	0,71	0,000	***
Equity	1,05	0,000	***
Debt	1,18	0,000	***
Pyramid dummy*Internal funds	0,43	0,093	*
Pyramid dummy*Equity	0,02	0,903	
Pyramid dummy*Debt	-0,09	0,110	
VC*Internal funds	0,07	0,020	**
VC^2*Internal funds	-0,01	0,002	***
VC^3*Internal funds	0,00	0,002	***
VC*Equity	0,02	0,055	*
VC^2*Equity	-0,00	0,006	***
VC^3*Equity	0,00	0,037	**
VC*Debt	-0,02	0,028	**
VC^2*Debt	0,00	0,061	*
VC^3*Debt	-0,00	0,106	
R^2	68,4%		
Adjusted R^2	61,7%		

(1) * Significant on a 10% level
** Significat on a 5% level
*** Significant on a 1% level

[12] In the random effect regression, the pattern identified in regression 3 is found only regarding internal funds. The actual figures not evident in table 1 are -0,00233635 for the square and 0,0000406942 for the cube parameters

In regression 5, the type of owner dummy variables are interacted with different sources of funds. The owner types that can extract private benefits of control, family with and without management affiliation and widely held corporations, all exhibit economically and statistically significant negative parameters regarding discretionary funds, except for unaffiliated family owners regarding equity. Financial owners on the other hand exhibit no statistically significant effects. Although all parameters relating to debt are negative, none are in the order of magnitude of the discretionary fund parameters.

Table 6. Regression 5 results; *Fixed effect panel data regression of marginal q by source of funds interacted with type of controlling owner.*

	Coefficient	p-value	(1)
Rho	0,01	0,167	
Internal funds	1,02	0,000	***
Equity	1,22	0,000	***
Debt	1,24	0,000	***
Affiliated family owner*Internal funds	-0,38	0,053	*
Affiliated family owner*Equity	-0,45	0,000	***
Affiliated family owner*Debt	-0,14	0,059	*
Unaffiliated family owner*Internal funds	-0,86	0,000	***
Unaffiliated family owner*Equity	-0,02	0,918	
Unaffiliated family owner*Debt	-0,26	0,003	***
Corporate owner*Internal funds	-0,82	0,001	***
Corporate owner*Equity	-0,51	0,012	**
Corporate owner*Debt	-0,29	0,003	***
Financial institution owner*Internal funds	0,04	0,890	
Financial institution owner*Equity	-0,12	0,521	
Financial institution owner*Debt	-0,10	0,280	
R2	68,8%		
Adjusted R2	62,2%		

(1) * Significant on a 10% level
** Significat on a 5% level
*** Significant on a 1% level

Table 7. *Estimated marginal qs from regression 5 per source of financing. Internal ranking signifies the relation of marginal qs for each type of owner separately. E.g., for companies controlled by a corporation, debt had the highest marginal q (1) and internal funds the lowest (3).*

Type of owner	Source of funds	Estimated qm	Internal ranking
Overall	Internal funds	1,02	1
	Equity	1,22	2
	Debt	1,24	3
Affiliated family	Internal funds	0,64	2
	Equity	0,77	3
	Debt	1,10	1
Non-affiliated family	Internal funds	0,15	3
	Equity	1,20	1
	Debt	0,98	2
Corporation	Internal funds	0,19	3
	Equity	0,71	2
	Debt	0,94	1
Financial	Internal funds	1,06	1'(1)
	Equity	1,10	2'(1)
	Debt	1,14	3'(1)

(1) Since these results where highly insignificant the internal rankings are meaningless

Looking at table 7, besides the conclusion that overall expectations regarding owner type and marginal qs relating to discretionary funds are met, three things are worth emphasizing. First, regarding controlling family owners not affiliated with management, marginal qs on equity are ranked first and that for internal funds last. This pattern should only emerge for subsamples that contain companies *with* agency costs *as well as without*, since no plausible argument can be presented where a company is predicted to invest one type of discretionary funds efficiently and the other inefficiently. Second, widely held corporations are unambiguously worst in class, exhibiting the predicted rankings and a marginal q on internal funds not far from zero. Third, controlling family owners affiliated with management exhibit higher marginal qs for internal funds and debt relative to other family owners, which is not in line with predictions.

The results give no reason to reject the second hypothesis, *investment efficiency should be lower for family and corporate controlled companies than others*.

The results regarding the third hypothesis, a *company controlled by a family affiliated with management should exhibit lower investment efficiency than other family firms*, are inconclusive. The ranking of marginal qs for internal funds contradict the hypothesis, whilst those of equity do not.

The findings do not motivate a rejection of the fourth hypothesis, *in a company burdened with agency costs, the efficiency of investments financed by debt should be higher than that of equity and internal funds (discretionary funds)*, rather the opposite.

7 Analysis

In this section the results are discussed regarding the total sample and in relation to our initial hypotheses.

7.1 Overall Investment Efficiency and Presence of Agency Costs

In the first regression, overall marginal q is estimated for the total sample and found to be 1,06, slightly above 1. As discussed previously, marginal q higher than 1 does not necessarily mean that the sample firms invest efficiently, since R&D and advertising expenses are not included in the investment definition. However, considering the R&D and advertising intense nature of the Swedish economy (e.g. major Swedish companies such as Ericsson, Volvo, H&M etc), it could be speculated that a similar estimation that included those items would result in a coefficient of less than one. This, in turn, would mean that Swedish companies invest at a return lower than the cost of capital, i.e. they are value destroying. This proposition is further strengthened by the results from regression 2, where the pattern expected in a sample ridden with agency costs is identified. Now, what is the nature of these agency costs?

7.2 Separation between Voting and Cash Flow Rights

When marginal q is estimated interacting the simple, squared and cubed absolute difference between voting and cash flow rights for the controlling owner, statistically and economically significant effects are identified, indicating that voting and cash flow rights separation *increases* investment efficiency. The conclusion from regression 3 would be that controlling owners with a large difference between voting and cash flow rights squander internal funds but take more care in regards to equity, relative to other firms. Looking at regression 4, the tables are turned. Here the exact inverse of the hypothesized results is exhibited. Companies where the difference between voting and cash flow rights is great invest discretionary funds more efficiently than other firms, especially so regarding companies where the largest voting owner exercises further control through a pyramid structure.

Why would this be? A clue towards understanding these results can be found in the difference between pecuniary and non-pecuniary private benefits of control. Whilst controlling owners trying to extract pecuniary private benefits of control behave in a classical utility-maximizing way that is easy to quantify, behaviour of owners more interested in non-pecuniary benefits are more out of the ordinary. Their benefits are not so much project specific as generally related to the actual control of the firm. Although they will still invest inefficiently, this behaviour will not be related to the separation between voting and cash flow rights. They do not care about cash flow, they care about control. More than 60% of the sample is controlled by owners that are associated with agency costs. Other studies have found evidence against the existence of extraction of pecuniary benefits in Sweden. These two facts would indicate that the sample is dominated by owner types that extract non-pecuniary benefits. This in turn would explain why no evidence of agency costs is identified relating to differences between voting and cash flow rights.

However, the pattern of the results indicates that firms controlled by owners with a high VC and/or through a pyramid structure invest *more* efficiently than others. A high VC indicates that the controlling owner holds a high voting share. The higher the voting share, the less worried a control oriented owner should be about losing control. He should therefore be more willing to go to equity markets to capitalize on profitable investment opportunities than an owner less secure in his position.

Still, the positive effect of VC and pyramid structures on investment efficiency on internal funds remains to be explained. Since this study does not control for industry effects, and disregards R&D and advertising, this effect could be due to high VC and pyramid companies being overrepresented in R&D and advertising intense industries. An interesting example of this is Ericsson;

i) Extreme separation between voting and cash flow rights
ii) Controlled through a pyramid structure
iii) Active in a highly R&D intense industry

Ericsson exhibited extreme market movements from 1998 through 2001. Although the absolute market value of the company does not affect the result due the fact that all values are devalued by opening balance market value, the extreme movements in relative terms could have an effect.

From the reversed and economically and statistically significant results in regression 4, it must be concluded that the first hypothesis, *as the difference between voting and cash flow rights of the largest voting owner increases the efficiency of investments should decrease,* is rejected.

7.3 Type of owner

As expected, investments made in companies with a CMS are value-destroying on average when the CMS is either a widely held corporation or one of the two family categories. Widely held corporations and family owners make inferior investment decisions both in absolute terms and relative to financial institutions and companies without a controlling owner. Contrary to expectations and the findings of Cronqvist & Nilsson (2000), family owners without affiliation make the most value-destroying investment decisions, while it was hypothesized for this to be true for family owners with affiliation.

Villalong & Amit (2004) find, using data on all Fortune-500 companies during 1994-2000, that family ownership create value when the founder serves as CEO or chairman. However, when descendants of the founder serve as CEO, firm value is destroyed. In line with Hansson (2003) and Cronqvist & Nilsson (2000) this study specified two types of family owners, family owners with affiliation and family owners without affiliation. As such, it may be the case that family owners with affiliation indeed make the most value-destroying investment decisions, if a further separation is made between founder and non-founder family owners with affiliation.

Also regarding the order between family owners and widely held corporations the results stand in contrast with those reached by Cronqvist & Nilsson (2000). Nevertheless, there

is indeed theoretical and empirical support for why also widely held corporations as controlling owners can result in significant agency costs. Examples such as pecuniary benefits (transactions at non-markets rates, tunnelling) but most importantly non-pecuniary, such as empire building, may explain why widely held corporations as controlling owners make the most value-destroying investments.

8 Conclusions

In this study, strong evidence has been found for inefficient investment decision making in Swedish companies controlled by either family owners or widely held corporations. Since other studies have found no evidence of expropriation by controlling owners, factors that influence such owner's decision-making can be assumed to be non-pecuniary, for instance social prestige of being in control. These owners prioritize control over returns, which in turn makes them

i) over invest internal funds, since they prefer retention of capital within their control to distribution

ii) forgo profitable investment opportunities due to a reluctance to raise new equity

While other studies have been able to document discounts on companies controlled by these types of owners, they have been unable to relate these to corporate decision-making. The results of this study go a long way to explain the observed discount and higher book returns with inefficient decision making and hence expected future value destruction.

9 Further Research

The results indicate that companies where the largest owner exhibits a large degree of separation between voting and cash flow rights were found to actually invest more efficiently than others. The conclusion drawn from this is not evident. The most probable explanation is that this study fails to capture industry effects and returns on non-capitalized investments such as R&D and advertising. Dominant companies in regards to market movements, such as Ericsson and a number of IT companies, both known to exhibit a large degree of separation between voting and cash flow rights as well as a high R&D expenses, could drive the results. Extending the database developed for this thesis to take these effects into account would most likely provide further valuable insights about the impact of corporate control on value creation.

10 References

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11 Appendices

11.1 Clarification of Regression Approach

For each unique set of explanatory variables, one random and one fixed effects regression is performed. The fixed effects regression is estimated with the Least Square Dummy Variables (within) estimator.

The first step is to perform a random effects regression maximum likelihood estimation of regression 1, including time effects and year dummies interacted with investments. Interacted year dummies 1997, 2001 and 2002 are found to be significant at a 5% level or less, and are consequently included in all other regressions but not presented. All variables are deflated with opening balance market value, as discussed in the methodology section.

11.2 Data Collection Method

In order to obtain accounting and market data from *SIX Trust* (Trust), it is necessary to identify the latest ticker used by the relevant companies. This is not possible for 76 firm year observations. Furthermore, Trust has certain problems with ticker change history. The database has a function that identifies the largest notation for each ticker, thus obtaining firm-level data historically regardless of changes in ticker due to moves between different share classes. However, this function is not infallible. Therefore, variable 152, total equity, is obtained in order to test which one of (1) latest ticker and (2) largest notation ticker retrieves the most data. The ticker function with the most observations for each company is then selected.

With the optimal tickers given the Trust circumstances identified, the other relevant variables are retrieved. Only firm year observations with complete data for all variables can be included in the final sample. Consequently, any observations that lack data for one or more variables are excluded.

11.3 Variables

The same classification used by Hansson (2003) when defining owner types is used in this thesis. Following this classification, four different types of controlling owners have been identified. These are family owners with affiliation, family owners without affiliation, corporations and financial institutions. Family owners with affiliation are owners where the owner himself or someone closely affiliated is either the CEO, the chairman or both. In the other category of family owners, there is no such close affiliation between the controlling owner and the CEO or chairman. The third category, corporations, includes widely held corporations, government agencies and other public organizations that lack an ultimate owner. The final category, financial institutions, includes insurance companies and banks lacking an ultimate owner as well as mutual funds and pension funds. Following Cronqvist & Nilsson (2000), an owner is considered being in control if the share of control rights held is equal or greater than 25%.

Table 8. Six Trust variables.

	Variable label	Trust description
Net Income	var319	Årets resultat / Nettoresultat
Depreciation	var229	Avskrivningar som belastar rörelseresultatet totalt
Total equity	var152	Summa eget kapital
	var92	Summa kortfristiga skulder
Debt	var102	Summa långfristiga skulder
	var483	Summa avsättningar
Market value of equity	var493	Börsvärde bokslutsdagen

Separation is defined as the difference between voting rights and cash flow rights held by the controlling owner. Due to the reporting method used by Sundin & Sundqvist (1986-2003), this is more of a lower boundary rather than an exact measure of actual separation (for more information, see Data section). Also a dummy variable has been defined, taking the value one for companies within a pyramid structure and zero otherwise.

11.4 Summary of Relevant Findings

11.4.1 Swedish setting

Study	Main findings
Cronqvist & Nilsson (2000)	CMS-structures more commonly applied by families than other owner categories. Estimated agency costs highest for family CMSs.
Hansson (2003)	Significant support found for a positive relationship between ownership concentration and leverage.
Holmén & Högfeldt (2004)	The valuation discount observed in Swedish pyramidal structures explained by overinvestment rather than tunnelling.
Bjuggren et al (2005)	Dual-class shares and ownership concentration has a negative impact on investment performance and firm value.

11.4.2 International Setting

Study	Main findings
Mueller & Reardon (1990)	Methodology developed evaluate the investment efficiency. Measures the efficiency of investments taken by the company by relating the increase in market value of the firm to investments made during a given period.
LaPorta et al. (1999)	Firms are typically controlled by families or the state, rather than widely held by the public. Sweden is found to have especially high ownership concentration and separation between cash flow and control rights.
Bebchuk, Kraakman & Triantis (2000)	Dual class shares, pyramiding and cross-holdings are all ways to achieve effective separation between cash flow and control rights, they are all perfect substitutes, and they all have the potential to lead to significant agency costs.
LaPorta et al (2000)	International study that shows Sweden ranks in the middle of the chosen set of countries in terms of investor protection by the legal system, ranking below countries like UK, US, Canada and Australia, but above countries like Belgium, France and Germany.
Coffee (2001)	International study suggesting that Sweden ranks high in terms of investor protection, not as a result of its legal system, but due to the extra-legal institutions such as press, tax compliance, organized labour and social norms.
Mueller (2003)	Non-pecuniary private benefits affect the capital structure of companies. External equity rarely is used, since this source would dilute the CMS's controlling position, and investments are more heavily financed with internal funds and external debt (study on the UK setting).
Gugler, Mueller & Yrttoglu (2003)	Companies with agency costs invest at a rate of return lower than their cost of capital. Moreover, investments financed with either internal funds or equity will earn a lower return than investments financed with debt.

11.5 Mechanisms for Separating Control from Cash Flow Rights

There are different mechanisms for separating control rights from cash flow rights. Regardless of what arrangement is used the effect is essentially the same. By successfully separating control rights from cash flow rights a shareholder can effectively maintain the control in a company while holding less than a majority of the cash flow rights.

There are essentially three different mechanisms that are used in order to achieve control while retaining only a fraction of the cash flow rights in a company; dual class-share structures, stock pyramids and cross-ownership ties (Bebchuk et al, 2000). These can best be described as the basic building blocks for separating voting rights from cash flow rights, but in many cases a combination of these three mechanisms is implemented.

Dual-class share structure: In this structure a firm simply issues two or more classes of shares with differential voting rights. With this structure there is, at least theoretically, no limit for how severe this separation can be. In practice though, regulation often restricts both the voting ratio between the different classes of shares and the numerical ratio between the different classes a company is allowed to issue. This mechanism is not the most prevalent, but very common in South Africa and Sweden in particular (LaPorta et al, 1999). In Sweden the typical classification is A-shares for high voting shares and B-shares for low voting shares.

Example: As of December 31, 1997, Ericsson had 82,027,330 A-shares and 892,468,729 B-shares outstanding. The voting power was 1 per A-share and 0.001 per B-share. In terms of votes, each A-share corresponds to 1000 B-shares. The implication of this dual-class structure is that while the investors in A-shares only contribute with around 8% of the capital, they control 99% of the votes in Ericsson. At this point the Wallenberg sphere held 16.6% of the control rights and 1.4% of the cash flow rights directly in the family or through foundations in Ericsson. In addition, Investor, in which the Wallenberg family and foundations held 41.7% of the control rights and 19.6% of the cash flow rights,

owned 22.2% of the control rights and 2.9% of the cash flow rights in Ericsson. Given the Wallenberg family's control of Investor, the Wallenberg sphere effectively controlled 38.8% of the control rights while only holding 2% of the cash flow rights.

Pyramids: In pyramids control rights are separated from cash flow rights by pyramiding ownership structures. A plain vanilla example of a pyramid structure is when a company holds a majority stake in a holding company, which in turn holds a majority in an operating company. In this way the company at the very top can in effect control the operating company while only holding minority stake of its cash-flow rights. If the pyramid is extended with further layers, the separation between control and cash flow rights increases further. This mechanism is also the most common of the three (La Porta, Lopez-de-Silanes, and Shleifer 1999) and prevalent in Asian and European countries, including Sweden (Attig et al, 2002).

Example: As of December 31, 1997, Mats Qviberg and Sven Hagströmer together controlled 32.5% of the control and cash flow rights in the holding company Öresund.[13] *Among Öresunds holdings the company held a controlling stake in another holding company, Custos, 36% of the control rights and 27.9% of the cash flow rights. If we go further down the pyramid, Custos held 25% of the control rights and 6.2% of the cash flow rights in Skanska. As a final step in this pyramid Skanska held 57% of the control rights and 27.4% of the cash flow rights in the real estate company JM. In effect, through the pyramidal structure, Mats Qviberg and Sven Hagströmer controlled the entire chain of companies. By multiplying the cash flow rights held in each stage of the pyramid, we get the actual cash flow rights held by Mats Qviberg and Sven Hagströmer in JM. The cash flow rights held by Mats Qviberg and Sven Hagströmer amount to 0.15%.*

Cross-ownership: While pyramid structures concerns one-way vertical ownership, cross-ownership involves horizontal ownership within a group of companies. Apart from the

[13]Following Cronqvist & Nilsson, an owner with 25% or more of the firm's voting rights is considered to be a controlling owner

pyramidal structure where voting rights are assigned to one entity or shareholder, the voting rights are here distributed over group. Due to cross-holdings within the group, a smaller control stake in one or several of the companies is required to exercise full control over the entire group. While calculating the degree of separation between control rights and cash flow rights is very straightforward in the case of dual-class shares and straight pyramids, cross-holdings can quickly become very complex as the number of companies in the group increases. The effect, however, is exactly the same as if the two other methods are used. The three methods are, in other words, perfect substitutes, which also have been pointed out by Bebchuck et al (2000) and Cronqvist & Nilsson (2000). Just as pyramids, also cross-holding structures are common in Asian and European economies (LaPorta et al, 1999).

Example: As of December 31, 2000, the Stenbeck sphere exhibited quite extensive cross-ownership. This ownership structure enabled Jan H Stenbeck to exercise complete control of the entire group of companies. In the part of the sphere that is relevant for this example, which can be seen in the figure below, Jan H Stenbeck controlled all four companies, a direct effect of the extensive cross-holdings. If we take the example of NetCom below, Jan H Stenbeck owned 10.2% of the control rights and 3% of the cash flow rights directly. In addition, Jan H Stenbeck also controlled 43.5% of the control rights and 23.8% of the cash flow rights in Invik, which in turn held 32.2% of the control rights and 13.5% of the cash flow rights in Kinnevik. Adding Jan H Stenbecks personal stake in Kinnevik, 24.5% of the control rights and 7.7% of the cash flow rights, we find that, in effect, Jan H Stenbeck, directly and indirectly, held 56.7% of the control rights in Kinnevik. Similarly, given Kinnevik's ownership in Invik, 7.4% of the control rights and 4.1% of the cash flow rights, Jan H Stenbeck held 51.2% of the control rights in Invik. As a final step Jan H Stenbeck held directly 2.9% of the control rights and cash flow rights in MIC and another 33.6% via Kinnevik, adding up to 36.5%. Although 36.5% per se does not imply complete control, we would argue that it does in this case as Stenbeck and Kinnevik together was the by far largest owner. Going back to the example of NetCom, we find that Stenbeck, directly and indirectly, controlled 69.8% of the control rights. The cash flow rights held in NetCom, however, amounted only to 6,9%.

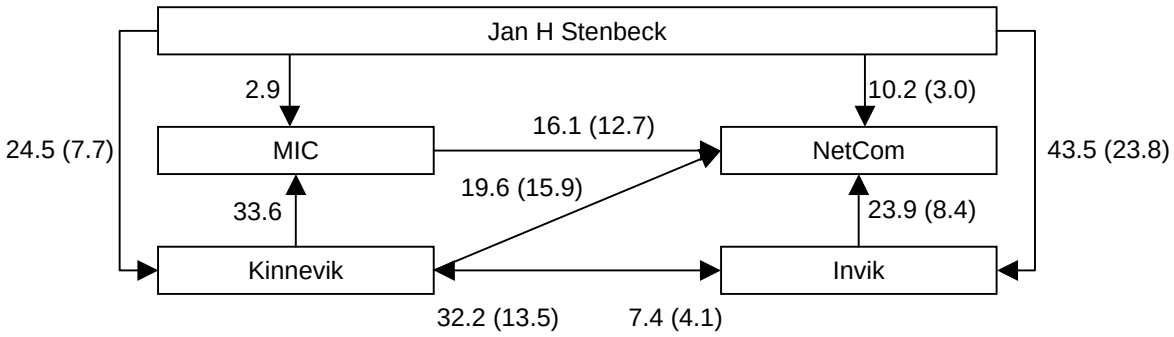

Figure 1. Part of the Stenbeck sphere as of December 31, 2000*. The figures outside the brackets represent control rights held and those within brackets cash flow rights held.*

Following the discussion and examples above, it is clear that an extensive separation between control rights and cash flow rights can be achieved if either of the methods is used or, even more, if a combination of them is used. In Sweden the use of dual-class shares is widely accepted and used in 70% of the firm year observations as way of separating control rights from cash flow rights, based on the sample of this thesis. Although Bebchuk et al (2000) and Cronqvist & Nilsson (2000) both argue that these three above mentioned mechanisms are perfect substitutes, there is reason to believe that extreme separations are more prevalent in Sweden than elsewhere. Since there is such widespread use of dual class shares, whenever there is a pyramid or a cross-holding structure in Sweden, the separation between control rights and cash flow rights is magnified further.

In addition to the above mentioned mechanisms, there are also other arrangements that, although not directly serve to separate control rights from cash flow rights, still serve CMSs' purpose of keeping a lock on control. Cronqvist & Nilsson (2000) report that over 70% of the Swedish companies with dual class shares have non-traded high voting shares. This feature makes it impossible for takeover attempts of the high voting shares without negotiations with the current holder. In addition, in 35% of the cases with non-traded high voting shares, there is a right of pre-emption amendment in the corporate charter. This enables owners of high voting shares to buy back high voting shares that

have been sold to a third party by a coalition member. Another feature is voting restrictions, typically 20%, which means that no shareholder may vote for more than 20% of the number of shares represented at the general meeting. This feature can make it virtually impossible for shareholders of low voting shares to take over the firm, even if the holder of high voting shares has less than a majority of the control rights.