CORPORATE OWNERSHIP

A STUDY OF CONTROLLING AND INSTITUTIONAL OWNERSHIP IN SWEDISH LISTED FIRMS 1985-2005

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MANUSCRIPT FOR LICENTIATE THESIS

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ABSTRACT

This licentiate thesis aims to add to the knowledge and understanding of ownership structures of corporations. Ownership of firms listed at the Stockholm stock exchange is studied, based on a set of data ranging from 1985 to 2005.

Controlling as well as institutional ownership is examined with respect to evolvement over time, firm size (market capitalization), firm risk (market-to-book ratio) and industry sector (manufacturing and service). Methodologically, the data is divided into groups and means of voting and capital shares are compared using the Mann-Whitney U-test.

It is concluded that controlling ownership has decreased and institutional ownership increased over time, that there has been a relationship between on the one hand firm size and market-to-book ratios, and on the other hand ownership structure in terms of controlling and institutional owners. The study does not provide with strong support for a relationship between industry sector and ownership. One of the more unexpected findings is that the relationship between firm size and controlling ownership has diminished over time and is non-existent for the last years studied.

Keywords: Corporate ownership, ownership structure, ownership concentration, controlling owners, institutional owners, corporate control, corporate governance, Sweden

JEL-codes: G20, G32, G34, K22, K23, L6, L8

PREFACE

In your hands you hold the result of much anxiety. The source to this angst is a combination of never ending possibilities for improvement and a continuously decreasing amount of time to deadline. There is more literature to read, more questions to ask and more data to collect; but even though it is hard to leave it at that, it will have to wait to later work. However, it is also the result of joy. It has been a privilege to have this time, however limited, to be in academia with the stated purpose of promoting knowledge and good arguments. More than anything, I have enjoyed the discussions with fellow doctoral students and faculty — discussions I certainly would not have experienced in any other kind of work place.

It has been my ambition to write something that is readable for the professional used to the academic liturgy, as well as for the layman with a general interest in governance of corporations. It is of course an act of balance as there is a limit to the adaptations one can make to increase the potential circle of readers, before the academic quality is starting to suffer. It is my sincere hope that my desire to include all will not result in the satisfaction for none.

Considering how solitary this work is, it is remarkable the number of persons to whom I am indebted. Ted Lindblom, my supervisor, has encouraged and helped me to maintain course. Mattias Hamberg has followed my work closely, read and re-read my manuscripts and supported me with advice. Anders Sandoff was the one who first introduced me to this trade, and our conversations have been a constant source of inspiration and motivation. Also, Stefan Sjögren has taken an active interest in my work, and his comments and advice have been very beneficial for this thesis.

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With all due respect to the individuals mentioned, most important though has been the patience shown and kind support given by my wife Katarina – to whom my gratitude is surpassed only by my love, respect and admiration.

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1. INTRODUCTION

This thesis is a study of ownership in Swedish listed corporations. Studying corporate ownership has full relevance since investors' allocation of capital and the ownership structure in corporations affect cost of capital and corporate performance (Markowitz (1952), Sharpe (1964), Jensen and Meckling (1976)). Obtaining an optimal ownership structure would therefore be a component of the more general problem to maximize shareholder value (Jensen and Meckling, 1976). Given that the ordinary market assumptions are true, shareholder wealth maximization coincides with societal wealth maximization — i.e. there will be an efficient allocation of resources. However, the view of the corporation as a machine with the single purpose of generating maximal returns for its shareholders has been questioned, both for its predictive power (Cyert and March, 1963), as well as for its normative underpinnings (Donaldson and Preston, 1995). Nor does a doctrine of shareholder value maximization in the real world take into account market failures such as social costs (Coase, 1960), which of course should be considered in the societal cost-benefit analysis. These objections do not diminish the importance of ownership structure; with social costs and the lack of a single corporate objective, the question of how corporations are owned and controlled ought to be of even greater importance.

How ownership affects corporate conduct is not merely a matter of economic modelling. In the early 2000s we experienced a number of high-profile corporate scandals[1] which rejuvenated the public debate on how corporations are owned and controlled, and among other tings caused the implementation of the Sarbanes-Oxley Act. The

[1] Parmalat, Enron, WorldCom and AOL Time Warner being among the more noteworthy cases.

connection between ownership and the likelihood of such scandals have been claimed for instance by Coffee (2005) as he argues that earnings management is more common in firms with dispersed ownership, whereas corporate governance systems with concentrated ownership are more likely to experience the seizure of private benefits to the detriment to minority owners.

As ownership matters for how firms perform and behave, i.e. owners are vital for the governance of corporations, it is also relevant to investigate how ownership structures themselves are determined. Over the last couple of years a stream of law and finance literature has convincingly shown that a country's legal system is of great importance for the formation of ownership (LaPorta *et al* (1999), Claessens *et al* (2000), Faccio and Lang (2002)), but recent literature on how firm and industry specific forces affect ownership is scarce. By studying how controlling as well as institutional ownership evolve over time in Swedish corporations listed at the Stockholm Stock Exchange (SSE), this study aims to add to the existing literature on how ownership structure is shaped with respect to size, risk and industry sector. By studying corporations from one country only, rather than a set of corporations from a larger number of countries, one can compare firms subject to the same legislative system — which in turn makes an analysis of ownership structure and firm characteristics less vulnerable to contextual differences.

1.1. CONTROL, RISK AND OWNERSHIP STRUCTURE

Prima facie, to own something ought to be synonymous with controlling it. For instance, Pejovich (1990) explains the exclusivity of ownership as the owners' right to decide what to do with an asset, how to use it and who is to be given access to it – a description that implies that the concept of control is contained in that of ownership. However, when studying corporations with multiple owners the coupling between ownership and control

is no longer a matter of course.

The importance of ownership structure in corporations from a research perspective was emphasised early on by Berle and Means (1932). This form of "organizing economic life" has rendered in what they call the *quasi-public corporation*, (i.e. the former nucleus of property has been split into nominal ownership and the authority once coupled with it (Berle and Means, 1932:6)). The separation of ownership and control paves way not only for corporations of considerable size as raising capital for huge investments is made possible by adding on large numbers of investors, but also for a secondary market for its securities where the "the investing public" (Berle and Means, 1932:5) can exchange beneficial property rights efficiently. As ownership is increasingly dispersed, the opposite is true for control as it is increasingly concentrated:

> "Economic power, in terms of control over physical assets, is apparently responding to a centripetal force, tending more and more to concentrate it in the hands of a few corporate managements. At the same time, beneficial ownership is centrifugal, tending to divide and subdivide, to split into even smaller units and to pass freely from hand to hand" (Berle and Means, 1932:9)

The concern of Berle and Means is primarily one of power balances. The separation of ownership and control allows corporations to evolve into substantial economic powers, as well as to transfer the power from a large number of proprietors into the hands of a few managers. The issue of power makes continuous examination of ownership of corporations important and should therefore be of interest for any student of society, or put more elegantly;

> "…the fundamental concept in social science is Power, in the same sense in which Energy is the fundamental concept in physics." (Russell, 1938:10)

Although power considerations make studies of ownership structure in corporations highly relevant from a political or sociological point of view, economists were not as intrigued. Perhaps this can be explained by the fact that there, in economic theory, was no clear connection between ownership structure and the more traditional economic focal point of wealth maximization. Not only were there no clear connection between ownership and efficiency; financial portfolio theory, introduced by Markowitz (1952) and developed and applied by Tobin (1958), Sharpe (1964) and others, even suggests that the rational investor *should* prefer to diversify his holdings to reduce unsystematic risk. This, of course, speaks in favour of a highly dispersed ownership structure. The notion of preference for risk diversification is further emphasized by the literature on efficient markets as put forward by Fama (1965, 1970). In efficient capital markets, Fama (1970) concludes, all relevant information is fully reflected in security prices and all changes in prices should be the result of new information which in turn is revealed randomly. One of the implications of this is that it would not be possible to generate abnormal returns over time and the rational investor should therefore replicate the market portfolio.

Having said that, it is far from true that all investors hold replicates of the market portfolio or that all corporations are lacking large owners. On the contrary, corporations tend to be owner controlled (Demsetz (1983), Demsetz and Lehn (1985), Shleifer and Vishny (1986), La Porta *et al* (1999), Claessens *et al* (2000) and Faccio and Lang (2002)). This is not in accordance with standard portfolio theory and alternatives for predicting ownership structure are therefore needed. With the introduction of *agency theory,* first formalized by Ross (1973) but with roots in the literature on moral hazard (e.g. Arrow, 1963) and information asymmetries (e.g. Akerlof, 1970), the relation between owners and managers becomes highly interesting also out of efficiency concerns. Ross (1973) defines an agency relationship as a relation between two (or more) parties where one, the *agent*,

acts on behalf of the other, the *principal*, within a certain area of decisions. Agency theory is universal insofar that it is applicable in any, implicit or explicit, contractual relation containing an agent. Jensen and Meckling (1976) focus on the special form of agency relationship between owners (principals) and management (agents) which results from the separation of ownership and control as described by Berle and Means (1932). If both parties are utility maximizers there is reason to believe that the managing director will act in the best interests of the owners only when the interests of the latter converge with those of his own. If the agent maximizes his own utility rather than the utility of principals it gives rise to *agency costs*. Agency costs are simply speaking the difference in value for the principals when the firm is managed in their best interests and when it is not. The existence and (assumed) importance of such costs would speak in favour of a more concentrated ownership structure so that the owner can engage in monitoring and bonding activities. Already from the basic economic concepts of diversification and monitoring we can deduce that different owners differ from each others in terms of how they choose to invest.

1.2. OWNERS

To describe owners in general terms is not easy as every owner is unique. Despite that, some uncontroversial points of departure should be possible to establish concerning the characteristics of owners. First, owners generally engage in enterprises for a purpose — i.e. they pursue some *utility*; different owners perceive utility differently. Second, the corporate form allows multiple owners and an owner's influence on corporate decisions depends on how much she invests. Third, firms are owned by persons. These may be *natural* persons or *legal* persons. Legal persons are, in turn, owned by natural and/or legal

persons. Generally, corporations are *ultimately* owned by natural persons[2]. This is the same as to say that firms can be owned *directly* or *indirectly*. These points of departure open up for a discussion on owner characteristics.

To start with, owners can be discussed in terms of their utility functions. The minority owner with no real power on how corporations are run would most likely see that the stock price and dividends are as great as possible, whereas individuals with significant voting power in a company can fulfil their consumption goals directly through the firm (Jensen and Meckling (1976), Demsetz and Lehn, (1985)) rather than awaiting dividends subject to taxation. When legal persons are large owners in a particular firm utility is often achieved through possible synergies[3] (Berkovitch and Narayanan, 1993).

Furthermore, the different utility functions — in combination with the multitude of owners — create a *collective action problem* (Olson (1965, 1971), Hardin (1982)). That is, it is increasingly difficult to agree on some objective(s) as the number of persons involved increases. As previously mentioned, a number of alternatives on what the objective is that drives the firm have been put forward. The neo-classical assumption of the profit maximizing firm is still strong, now in the form of the corporate finance objective of shareholder wealth maximization (e.g. Jensen and Meckling, 1976). Further, when owners have different utility functions a maximization of shareholder value could serve as a least

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[2] Foundations are a possible exception, as they legally lack owners and instead exist for some pre-defined purpose and circle of beneficiaries. However, although Swedish legislation does not allow the founder to possess *total* control of the foundation, there is still much room for a founder to stipulate that control of the foundation will remain within a limited group of individuals (Lundén, 2005). In 2007 the largest or second largest owner in 16 companies listed at the Stockholm stock exchange was a foundation (Fristedt and Sundqvist, 2007). In about half of these foundations, the founding individual(s) or relatives to the founding individual(s) had dominant positions.

Moreover, states and municipalities are legal persons and citizens are generally not viewed as "owners". However, in democracies elections look a lot like general meetings and dictatorships many times seem privately owned.

[3] Private equity and venture capital firms are examples of legal persons that often take large stakes in firms and not primarily seek possible synergies; rather they invest in growth firms and rely on exit strategies.

common denominator that could be a way out of the collective action problem. Moreover, under the assumption that all other claims on the firm's assets are fixed and have priority over the shareholders' residual claim maximizing shareholder value is in the best interest of all (Fama and Jensen (1983), Jensen (2002)). In order to gain predictive power, the objective of shareholder wealth maximization has been contrasted by more managerial orientated suggestions; e.g. maximization of sales (Baumol, 1959, 1966) or firm growth (Marris, 1963), as well as the satisfaction of various goals out of which the profit goal is only one (Cyert and March, 1963, 1992). It is it is reasonable to believe that when ownership becomes dispersed, both managerial objectives and shareholder value maximization will be more accentuated compared to when there is a dominant shareholder, powerful enough to promote his own utility.

Multiple owners in combination with intermediary ownership give rise to yet another potential problem — that of double agency (*Quis custodiet ipsos custodes?*[4]). When discussing institutional investors Gillian and Starks (2003) put the problem as that there are differences between the monitoring abilities and incentives of institutional investors and large non-institutional owners. The difference in ability could be understood as an amplification of the agency problem described by Jensen and Meckling (1976). If an intermediary owner (a legal person) has multiple owners, its own internal agency problems might impede the effectiveness of the monitoring. The difference in incentive would then be a matter of different utility functions. This problem was treated already by Plato in *The Republic*, and his way out of it was that the guards should guard themselves; this would be made possible by telling them the noble lie that they are superior — a God fashioned them out of gold and they have endured a rigour upbringing — therefore they

[4] "But who is to guard the guards themselves?" (Juvenal, Satires 6, O31)

will make the interests of the state their owns as they rule out of duty, not desire. In economic literature the element of duty is not very accentuated; instead focus has been placed on aligning manager interests with shareholder interests through incentive-based compensation (c.f. Prendergast, 1999).

Returning to the choice between diversification of risk over a large number of securities and to possess enough power to impose your will upon corporate operations, yet another way to make a distinction between owners with separate investment strategies is possible. Using the nomenclature of Hirschman (1970) these strategies can be denoted *exit* and *voice*[5]. Translating the concepts of exit and voice into patterns of ownership of corporations an exit strategy would indicate that in the case that a firm is expected to perform poorly the owner using the exit strategy will simply sell his shares. The exit investor will not spend time and resources trying to enforce his will upon management, he will simply leave which results in a diminished relative demand of the company's shares. Owners utilizing the voice strategy will not sell in case of decline as a first choice of action; instead they will express their opinion and they will use the means of power available to enforce their will. Success of such a strategy depends *ultimately* on the number of votes the owner can mobilize on the general meeting, making a voice strategy incompatible with holding efficient portfolios. The risk diversifying investor that aims to hold a close to efficient portfolio will not be able to hold enough shares in a single firm to guarantee any influence on corporate action and, vice-versa, the share of votes necessary to make a major impact on a firm's activities makes an exit strategy unfeasible[6].

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[5] Besides the strategies of exit and voice, Hirschman (1970) also describes a concept of loyalty. Loyalty is discussed primarily in relation to the options of exit and voice, and it is understood that higher degrees of loyalty creates barriers to exit and at the same time increases the usage of voice.

[6] Primarily out of liquidity concerns, see below.

1.2.1. *A TYPOLOGY OF OWNERS*

From the discussion on owner characteristics a tentative typology of owners can be depicted (Figure 1-1). Certainly, this taxonomy is neither exclusive nor complete but it provides us with a way to look at owners that can be helpful for understanding what the foci of different investors are. In any case, four *type owners* are identified; (1) *institutional owners*, (2) *industrial owners*, (3) *capitalists* and (4) *individual persons*. At the top of the figure we find utility maximizing individuals — natural persons that ultimately are the ones to be found behind chains of legal entities. Individuals invest directly in companies or through some intermediaries that in turn own other firms.

Agency conflict	Utility maximizing individuals			
	Investors acting on behalf of others		*Investors acting in their own interest*	
	Institutional owners	**Industrial owners**	**Capitalists**	**Individual persons**
Insider /Influence	No	Yes	Yes	No
Utility	Shareholder Value Maximization	Synergies	Personal Utility Maximization	Shareholder Value Maximization
Diversification	Yes	Rarely	Rarely	Vary
Skills	Financial skills	Managerial skills	Managerial skills	Typically not
Examples	Investment funds Hedge funds Insurance companies	Conglomerates Investment firms States	Families Individuals	Households

Figure 1-1 A tentative typology of owners
This figure is an illustration of how owners can be categorized with respect to agency, whether they are insiders or not, what utility they seek, diversification strategies and what sort of skills that forms the basis for their investments.

When investing through intermediaries individuals are subject to additional agency costs but benefit from some abilities of the intermediary they lack themselves. As to the owners that act on behalf of others, we distinguish between institutional owners and industrial owners as they differ in several respects.

Institutional owners are professional investors such as mutual funds and insurance companies. They can be described as being based on a financial logic, relying on well diversified portfolios and aiming at achieving utility through shareholder value

maximization. Their small relative shares in particular firms leave little room to influence corporate decisions.

Industrial owners have another approach to their holdings in companies. Typically, they take larger positions in firms allowing them to influence decisions. Rather than pursuing the maximization of share price they are striving for synergies, and their skills are managerial rather than financial. The preference for larger positions makes industrial owners less diversified. Among industrial owners we find conglomerates, investment companies and private equity firms (although the stated objective of private equity firms normally is to generate maximal returns the investment strategy resemble more of an industrial owner than an institutional investor).

With *capitalists* we refer to wealthy individuals with a strong presence in industry. For instance, it can be entrepreneurs that have created their own wealth, or families that have spent generations in building dynasties. They are "captains of industry" insofar that they possess managerial skills and seek to control enterprises. A maximization of share price is not necessarily their best interest. Instead they strive for some personal utility maximization (e.g. power, private benefits or entrepreneurial satisfaction). Often, they regard themselves as focusing on long-term value creation as in contrast to what is perceived as the short-termism of institutional investors. They are seldom well diversified in terms of spreading their wealth over a multitude of securities — instead, diversification is habitually sought *within* firms (e.g. over a wide range of business lines).

As can be seen in Figure 1-1, *states* (what is said here is applicable for municipalities as well) are situated between industrial owners and capitalists. They share with both groups

a will to influence the firms they hold[7]. As for capitalists they have a utility function that could be called "personal", i.e. their ownership is motivated by some political reason rather than a strictly financial one. On the other hand, states share with industrial owners the feature that they act on behalf of others, which gives rise to the double agency problem. Therefore, states are not easily situated in any one of the identified types.

Individual persons have so little wealth that their influence on how corporations are run is insignificant. They are not in a position where they can extract perks from the firm, and they are left to hope for as large dividends and share price increases as possible. Certainly, there are private persons that out of loyalty (Hirshman, 1970) hold their shares independent of how share prices develop, but as a general rule and when looking at the vast majority of private persons a maximization of shareholder value would be of foremost interest for this group of investors. This is the owner category that is the most vulnerable, regardless if the company is "manager controlled" or held in tight reign by some majority owner.

The company *Scania* can serve as an illustrative example when discussing owner categories. In March 2008 Volkswagen AG purchased the Scania shares held by the Wallenberg sphere, ending a somewhat turbulent struggle between owners MAN AG and the Wallenberg sphere, where MAN AG earlier tried to take control of Scania (Johansson and Carlsson, 2008). In Figure 1-2 the ownership structure of Scania as of 31 January 2008 is shown. The largest owner was Volkswagen AG, followed by the Wallenberg sphere and MAN AG. All of these three major owners held well above ten percent of votes and capital. The next owner in terms of size was JP Morgan Chase Bank with

[7] Here, we do not refer to state pension funds or sovereign wealth funds that are identical to (and also classified as) institutional investors. Rather, reference is made to corporations where a state or municipality has an insider position for some political purpose — where the very idea with its ownership is to pursue some other objective than a strictly financial one.

4.2 % of the capital and, in comparison with the three largest owners, a modest 1.1 % of the votes. The dominating owners in Volkswagen (who is also the largest owner in MAN AG with 21.6 % of the shares) are the State of Lower Saxony and the Porsche and Piëch families through Porsche Automobil Holding SE. With the nomenclature used in the typology (Figure 1-1) we denote Volkswagen AG as well as MAN AG *industrial owners*, JP Morgan Chase Bank as *institutional owner*[8] and the Wallenberg sphere as well as the Porsche and Piëch families as *capitalists*.

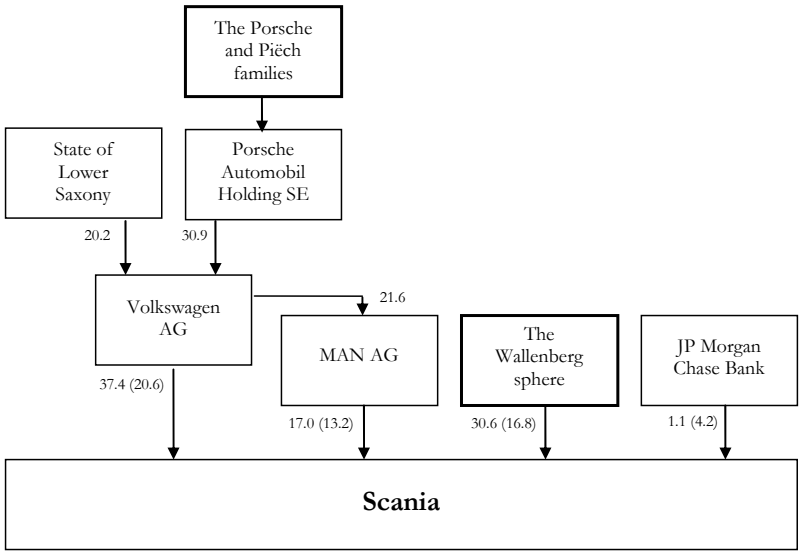

Figure 1-2 Main owners in Scania as of 31 January 2008

This figure is an illustration of the largest owners in Scania in 31 January 2008. The numbers indicate the percentage voting shares and capital shares are expressed in parenthesis (Fristedt and Sundqvist (2007), Scania (2008), Volkswagen (2007a, b).

The case of Scania also illustrates how the controlling owners can further their personal utility in ways that are not possible for minority owners. The Wallenberg sphere's shares were purchased at SEK 200 and under normal conditions Volkswagen would have been required to make an offer to other shareholders for the same price. In this case, however, Volkswagen had been granted exemption from the mandatory offer requirement leaving

[8] Part of the shares held by JP Morgan Chase Bank are in reality held by nominee shareholders which should be considered individual persons rather than institutional owners, but as they are not identifiable they are here considered to form part of the holdings of the institutional owners.

minority shareholders with shares worth SEK 138 immediately after the deal in question, indicating a control premium of some 45 % in this case (Nachemson-Ekwall, 2008).

In this thesis two sorts of owners are of primary concern; the owners that control corporations and the owners that trade the company shares the most. The owners that control corporations are to be found primarily among industrial owners and capitalists (including states being somewhere in between), not to say that all industrial owners and capitalists are also controlling owners. In the example of Scania, Volkswagen and MAN (industrial owners) as well as the Wallenberg sphere (capitalists) should be considered controlling owners. As for identifying the controlling owners of Volkswagen both the State of Lower Saxony (state) and the families of Porsche and Piëch (capitalists) qualify. However, the majority of transactions at stock exchanges are done by institutional owners. Moreover, in the United States institutional owners as a group has grown the most in importance over the years on an aggregated level (Edwards and Hubbard (2000), Gompers and Metrick (2001)), and the trend is similar in OECD countries as a whole (Li *et al*, 2006)). The strong presence of aggregated institutional ownership makes an inclusion of institutions highly relevant in any study of ownership structure.

1.2.2. CONTROLLING OWNERS

As illustrated in the Scania case, a controlling owner is an owner that in a particular firm holds a substantial influence in terms of voting power. Moreover, Scania is not unique insofar that it is owner controlled, and the empirical validity of the Berle and Means (1932) proposal of a management regime has come into question. A number of studies (i.e. Demsetz (1983), Demsetz and Lehn (1985) and Shleifer and Vishny (1986)) establish that the rough majority of American corporations are owner controlled. Leaving the shores of the United States the picture of controlling owners becomes yet more vivid. In

a number of studies investigating ultimate ownership in a large number of corporations around the world (La Porta *et al* (1999), Claessens *et al* (2000), Faccio and Lang (2002)) it is clearly established that corporations are generally owner controlled. Certainly, by using a definition of ultimate owner voting power of less than 20 % La Porta *et al* (1999:491) find that all of the 20 largest corporations in the UK, 18 out of 20 in Japan and 16 out of 20 in the US are to be considered as widely held. Despite of this they conclude that the notion of management controlled firms is misleading. More interesting though, is that the degree of control by owners vary between countries, giving rise to the question why this is the case. The controlling owners that are found in the various studies could be regarded as owners adopting a voice strategy — i.e. owners that want to be able to exercise a direct influence on the firm through the voting power they hold. As already stated, they are to be found among industrial owners, capitalists and states.

1.2.3. INSTITUTIONAL OWNERS

When Black (1990) and Roe (1991) discuss institutional owners they are aiming at pension funds (corporate and public), commercial banks, insurance companies, mutual funds and investment banks. These owners are professional investors acting as trustees for a large number of other investors, relying to a large extent on diversification. They have a reputation of adopting exit strategies or being "passive"; where the small relative size of the particular investor in combination with a collective action problem makes investor activism costly and inefficient (Black, 1990). Investments made by these groups of investors have increased significantly all around the world (Li *et al*, 2006). Edwards and Hubbard (2000) as well as Gompers and Metrick (2001) show that institutional ownership in the U.S. equity market has risen enormously during the last couple of decades. Gompers and Metrick (2001:257), when studying all large U.S. financial institutions between 1980 and 1996, establish that this group of investors more or less

doubled their market share. By 1996 they controlled about half of the equity market. However, while institutional ownership has grown significantly on an aggregate level, Edwards and Hubbard (2000) conclude that there is little evidence that institutional owners have acquired the concentrated ownership holdings necessary for controlling the governance process. In any case, financial institutions have generally been a group that more than any other identifiable group of owners have pursued an exit strategy that, together with the growth on an aggregated level, makes them attractive to study as a contrast to the controlling owners.

1.3. RESEARCH QUESTION AND PURPOSE

The issue of ownership of corporations has far reaching consequences for power structures in society as well as for general wealth growth. There is reason to believe that a dispersed ownership structure would be desirable to allow investors to reduce unsystematic risk through diversivication. Such a regime would increase the capital mobility, where financial strength would be channelled towards more productive investments. However, the gains of a diversified ownership are to some extent deteriorated by the problems of agency, where agents further their own interests rather than the interests of their principals. The relative strengths of these two forces depend on the context in which corporations operate, as can be seen from the large differences around the world.

A stream of cross-country law and finance studies has provided with convincing evidence that the sophistication of a country's legal system is related to the ownership structures of companies in that country (e.g. LaPorta *et al* (1998, 1999, 2000a) and Li *et al* (2006)). This thesis contrasts the now dominating international perspective through an intra-country analysis, to investigate other factors than strictly legal ones. By studying Swedish

corporations the legal context is held constant as the Swedish legislation is generally the same for all corporations studied[9]. By doing that, focus can be placed on the importance of factors such as firm size, industry sector and risk for determining investor preferences.

It is a fairly straightforward choice to have listed firms as objects of study, rather than firms in general. Relevant data is accessible for listed corporations and the size and multitude of investors make them interesting for academic investigation. Sweden constitutes an interesting country for studies of this sort as the "Scandinavian corporate governance system" has been described as an alternative way to the otherwise dominating Anglo-Saxon, German and Japanese systems (La Porta *et al* (2000a)). The advocacy for a study on Swedish data is further strengthened by the fact that ownership data on Swedish listed firms is very rich in an international comparison[10].

This introductory chapter has indicated that the ownership of corporations have far-reaching consequences for wealth generation as well as allocation of power. Therefore, continuous, and continuously improved, investigation of the composition of ownership in corporations is much needed. In striving to contribute to such surveying this thesis therefore addresses the question:

Does ownership structure in terms of controlling and institutional ownership vary with firm- and industry specific factors, and how has the aggregated power of these owner groups developed over time?

The *purpose* of this thesis is to add to our understanding of ownership structures in corporations. In this introductory chapter two types of owners are identified to be of

[9] Of course, this is not conceptually true when comparing ownership patterns between years as legislation is altered over time.

[10] The data is presented in detail below. As an interim explanation, the data possess at least two characteristics that make it appealing. First, it goes beyond nominal ownership and address power to "real" owners. Second, it includes not only the largest or up to five largest owners, instead it includes the up to 25 largest owners – which in most cases represent more than 50 % of the votes.

special interest – controlling owners and financial institutions. The ambition is to increase our understanding for in what corporations one tends to find these two kinds of investors.

We ask in which corporations in terms of firm size, firm risk and industry sector one finds the higher levels of controlling ownership and institutional ownership respectively[11]. Also, an answer to how the presence of these owner categories has changed over the studied time period is wanted. At the end of the chapter on literature a number of hypotheses are presented that in themselves will narrow down the research question further.

1.4. THE SUBSEQUENT OUTLINE OF THE THESIS

After this introductory chapter a chapter on literature related to corporate ownership is given. The chapter commences with a brief recapitulation of the law and finance research connected to ownership issues, and thereafter with a discussion on what other forces might influence ownership structures. The chapter on literature will also provide with a brief discussion on Swedish particularities and ends with theoretically deduced hypotheses.

The chapter on literature is succeeded by a chapter on research design. In this chapter the data used is presented, owner categories as well as a categorization of listed corporations are defined and the method for analysis is presented.

Following the chapter on research design, a chapter presenting the results is given. The presence of controlling, institutional and foreign ownership is shown with respect to time, size, risk and industry.

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[11] The probable correlation between these characteristics is not examined in this thesis.

In the final chapter an attempt to tie together the study is made. Conclusions are made and these conclusions forms basis for a wider discussion on corporations and future research.

Figure 1-3 Outline of the thesis

2. LITERATURE

One of the main benefits with conducting an intra-national study is the possibility to detach contextual differences between countries, such as for instance different legal systems. Nevertheless, it is still the case that this thesis reaches over a time period of more than twenty years. During such a long time period laws are changed and that will also render in consequences for ownership patterns in listed corporations. Therefore, when examining changes over time one must also consider the dynamics of the legal and institutional context that exists in the particular country. Most of the literature on what drives ownership structure has a clear focus on legal or institutional settings, and less on what firm or industry specific factors that are involved. In this chapter an attempt is made to summarize the most relevant studies, as well as to provide with a sketch of the development of the institutional factors in Sweden that ought to affect the forming of corporate ownership.

2.1. LEGAL AND CONTEXTUAL FORCES

Over the years a stream of law and finance literature has evolved that emphasise the importance of the legal framework for forming ownership structure of corporations. With the lack of concentrated institutional ownership (as a way to combine investors' risk diversification and efficient monitoring) in mind both Black (1990) and Roe (1991), argue that it is the legal constraints that prevent financial institutions to take controlling positions in corporations[12]. Coffee (1991) disagrees with the thesis that institutional passivity is explained solely (or even primarily) by regulatory legislation. When comparing

[12] However, while Black (1990) states that institutional owners might act as monitors of management under a different legal regime, Roe (1991) argues that concentrated ownership by financial institutions is the major alternative to the fragmented ownership structure in the United States.

American legislation with those of Germany and Japan (among others) he finds that similar legal constraints have not had the similar impact on institutional ownership structure.

The importance of the legal system for the development of corporate governance systems was also the focus in a series of papers by LaPorta *et al* (1998, 1999, 2000a, 2000b, 2002). By making international comparisons they evaluated the importance of legal aspects as for instance rules of protection for shareholders and creditors, the origin of such rules and the quality of legal enforcement. The implicit claim made by LaPorta *et al* is that the legal origin forms the corporate law, which shapes the financial arrangements, which in turn outlines the corporate behaviour that at the end of this argumentative chain will have major impact on the economic growth (Berglöf and von Thadden, 2000). A good legal system, which contains strong shareholder protection, should therefore be not only in shareholders' interests – but in the interests of all members of society.

Claessens *et al* (2000) draw on LaPorta et al (1999) as they improve and apply their methodology when studying the separation of ownership and control in listed corporations of nine East-Asian countries. Among their findings are that more than two-thirds of all firms are controlled by a single shareholder (although Japanese firms generally are widely held and state ownership is common in Indonesia) and that older firms are generally family-controlled which contradicts the idea that ownership becomes dispersed over time. Claessens *et al* (2000) tend to emphasize the importance of economic development for the evolution of ownership structure and legal frameworks in their conclusion, rather than the importance of legal structure for the economic development as proposed by LaPorta *et al* (1999).

Faccio and Lang (2002), in their analysis of 5,232 firms in 13 Western European countries, conclude that firms are typically widely held (defined as a company where no shareholder holds more than 20 % of votes) or family controlled. They establish that financial and large firms tend to be widely held whereas small and non-financial firms are more often family controlled. Moreover, a difference between countries is identified as widely held firms are more common in the UK and Ireland, whereas the opposite is the case in continental Europe.

A more pluralistic theory of optimal corporate governance systems that could be feasible is offered by John and Kedia (2005). They differentiate between three main governance structures; bank-based, market-based and family-based governance structures. All three of these governance structures impede agency costs, but to different monitoring costs. Monitoring costs in turn depend on the legal regime, effectiveness of the takeover market, effectiveness of bank monitoring and the effectiveness of large shareholder monitoring. They continue by deducing that concentrated ownership and monitored debt occur together (insider systems) as do dispersed ownership and takeovers (outsider systems), and the entrepreneur's choice between the two corporate governance systems depends on the degree of development of financial markets as well as on the level of investment and firm growth. This model potentially helps explain optimal choices of governance structures and investment levels in different economies as well as cross-sectional and inter-temporal variations within economies. It predicts that where financial markets are less developed insider systems will prevail, and in economies with developed financial markets small-scale investments will remain with insider systems whereas large-scale investments will turn to outsider systems. Finally, high growth implies that firms will tend to move toward outsider systems.

Li *et al* (2006) also emphasise the macro environment when they study *financial institutions'* propensity to take large holdings in corporations. They choose to focus on financial institutions because these are perhaps the most obvious examples of *outside minority owners* which could be interpreted to be the authors' primary concern. The study is based on a large set of ownership data (19,883 non-financial firms in 45 countries) and they find, not very surprisingly, that institutional investors tend to have larger shareholdings in countries with strong shareholder rights, effective legal enforcement and extensive financial disclosure. Somewhat more surprising, though, is that economic and stock market conditions do not seem to have any significant influence on the patterns of institutions' holdings.

2.2. FIRM AND INDUSTRY SPECIFIC FORCES

Demsetz and Lehn (1985) look at some of the broad forces forming the ownership structure in corporations conceptually, as well as empirically by studying more than 500 large American enterprises. They start by identifying three forces that they consider to be of special interest – (i) the *value-maximizing size* of the firm, (ii) the *control potential* and (iii) *systematic regulation*. Further, they consider (iv) the *amenity potential* of a firm as a potentially important force in the shaping of ownership structure. Regarding *value-maximizing size of the firm* it can be expected that as firm size increases, the risk-neutral[13] and risk-aversion[14] effects of larger size lead to increased dispersion in ownership. *Control potential* is defined as the gains in wealth that can be achieved through a more effective monitoring of management, and rests therefore on agency theory and the assumption that owners

[13] Demsetz and Lehn (1985:1158) argue that the larger a firm is, the larger is the price of a give fraction of the firm's equity. Furthermore, for a given degree of control the required share of equity decreases with firm size. Both these effects, termed *risk-neutral effects*, indicate that the degree of ownership concentration decreases with firm size.

[14] As owners are required to commit a larger share of their wealth to maintain a concentrated ownership in larger firms, risk aversion implies that they will do so only at lower prices (Demsetz and Lehn, 1985:1158).

believe that they can affect corporate performance. Here, it is argued that ownership will tend to be more concentrated if *information- and transaction costs* in the market for corporate control are high. Control potential is also thought to be linked with *firm-specific uncertainty*, meaning that in industries characterized by stable prices, stable technology and so forth, monitoring becomes far easier and allows for increased dispersion in ownership. Further, *regulation* of industries is viewed as putting constraints on the area of possible actions that management can take, leading to less need for monitoring (the authors exemplify with the banking sector). The more regulated an industry is the less do owners need to engage in costly monitoring. Finally, the *amenity potential* is put forward by the authors as one potential driving force for a more concentrated ownership. In a company with high amenity potential the owner is able to achieve consumption goals better within the company than by maximizing the pecuniary residual. Media companies in particular are mentioned as typical examples of companies with high amenity potential — in such companies owners are thought to value control higher than dividends. They are therefore reluctant to let go of control rights. To summarize, from Demsetz and Lehn (1985) it can be assumed that the scope for concentrated ownership will decrease with firm size, increase with uncertainty and that the industry sector also matters.

Examining institutional ownership, in relation to ownership structure, Coffee (1991), and later Bhide (1993) as well as Bolton and von Thadden (1998), emphasize the importance of the choice between liquidity and control. Any attempt by an institutional investor to gain control over corporations will render in a sacrifice of liquidity. Historically U.S. institutional investors have preferred liquidity over control while the holdings of financial institutions in Germany and Japan lack the degree of liquidity shown by their American

peers[15] (Coffee, 1991). The liquidity preference of American institutional investors is further supported by Gompers and Metrick (2001:257) as they conclude that large institutions prefer to invest in large, liquid stocks with low past returns.

Following the article by Demsetz and Lehn (1985), Bergström and Rydqvist (1990) study determinants of corporate ownership by turning to Swedish data and examine all firms listed at the SSE and Over the Counter (OTC) for the years 1968, 1972, 1977, 1981 and 1986. They conduct a multiple regression analysis where ownership concentration is the dependent variable (as proxy they look at the equity fraction of the two largest shareholder coalitions[16] of each company) and as independent variables they include firm size (market value of equity), firm-specific risk (error variance of all monthly returns that are available for each firm) and also whether the company is a bank or insurance company (dummy variable)[17]. Bergström and Rydqvist (1990) conclude that ownership concentrations of Swedish firms decrease with firm size and increases with firm-specific risk.

Pedersen and Thomsen (1999) also take the study of Demsetz and Lehn (1985) as a point of departure when they investigate causes of ownership concentration in the largest companies in a dozen European countries (among them Sweden). An initial sample of

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[15] More important than regulatory constraints for explaining differences in choices between liquidity and control in different countries, Coffee (1991) argues, is access to internal and external capital markets, which is described more thoroughly below. Of course, that raises the question if access to eternal capital markets in turn is dependent on the legal system.

[16] Shareholder coalition is more or less synonymous with the tem *control sphere* used in this study. Separate nominal owners are collapsed into larger owner groups. E.g. members of the same family are aggregated into one owner for analytical purposes as they are assumed to advocate the same agenda with respect to other stakeholders.

[17] This is the base case analysis. The authors also establish a strong negative correlation between firm size and firm-specific risk, indicating that the positive correlation between risk and ownership concentration may result from the correlation between size and risk. As a way to approach this statistical problem they try to substitute risk with the quadrate of size and as a consequence they get stronger statistical significance (higher t-values). Bergström and Rydqvist (1990) also test the relationship between free cash flows and ownership concentration as well as between differential voting rights and ownership concentration.

599 companies is reduced to 518 companies, of which 47 are Swedish. They examine to what extent the voting share of the largest owner is related to factors such as company size, return on equity, profit volatility as well as to variables such as industry sector, nation, size of local economy and market liquidity[18]. For this thesis, the most interesting findings are that ownership concentration is negatively related with firm size and positively related with earnings volatility. Moreover, it is interesting that the authors can not find support for industry effects and that there is a strong nation effect.

In a companion paper, covering 1,200 companies (the 100 largest companies in 12 European countries), Thomsen and Pedersen (1998) look specifically on the relationship between industry and ownership structure. Here, rather than defining corporate ownership in nominal concentration terms, they classify owners in six owner categories (such as "personal/family majority ownership" and "dominant minority ownership"). The companies are then placed in one out of a total of 63 industry categories, and the relationship between ownership category and industry affiliation is then sought for. Based on this approach the authors conclude that industry affiliation has a significant effect on ownership structures in corporations.

A more recent study encompassing determinants of ownership structure is provided by Helwege *et al* (2007) as they investigate why firms after initial public offerings (IPO) tend to become widely held. They study the evolution of inside ownership in IPO-firms for more than 30 years and establish that the majority of these firms have less than 20 % inside ownership ten years after the IPO (in line with the definition for widely held firms used by for instance LaPorta *et al* (1999)). When searching for explaining factors,

[18] Noteworthy is that Pedersen and Thomsen (1999) used accounting variables such as total assets for determining company size, profits before tax and dividends divided by shareholders funds for return on equity and standard deviation of ROE for profit volatility. In addition, these values are extracted from yearly observations 1990-1993.

Helwege *et al* (2007) find that inside ownership decreases in stocks that are highly valued, liquid and show a good track record in performance.

To summarize, the literature seems to suggest that there are other factors than a country's legal and institutional milieu that determine how ownership patterns evolve. It is for instance indicated that controlling owners tend to be more present in small firms than in large firms, as well in firms with more specific risk than in less risky firms. There is also some support for the notion that industry sector would have an effect on the ownership structure. Concerning institutional owners there seems to be a clear preference for large firms with a high degree of liquidity in the trading of its stock.

2.3. SWEDEN – A SKETCH

Before turning to the formulation of hypothesises a note on the case of Sweden is needed. For this reason, an attempt is made to provide a stylized summary on the research on ownership structure in Swedish corporations. Also, the development of the Swedish institutional landscape is sketched out.

2.3.1. RESEARCH ON OWNERSHIP STRUCTURE IN SWEDISH CORPORATIONS

As previously mentioned, Bergström and Rydqvist (1990) conducted an analysis of ownership concentration in Swedish corporations with respect to firm size and risk between 1968 and 1986. In addition to the evidence given for size and risk effects on ownership concentration, the paper also demonstrates how ownership concentration has evolved during the time period studied. In 1968 the largest shareholder coalition controlled, on average, 30 % of the votes while the corresponding figure for 1986 was almost the double – 57 %. The trend was the same concerning capital fractions, although not as strong. In 1968 the largest shareholder coalition held about a quarter of the total equity on average, whereas that number had increased to 43 % in 1986. The

difference between vote fractions and equity fractions (both in terms of levels and growth), indicates that voting influence to large extent is achieved through the usage of control enhancing mechanisms[19]. This is illustrated in Table 2:1.

Table 2:1 Vote and equity fraction of the largest shareholder coalition
The table is extracted from Bergström and Rydqvist (1990:262), and shows the vote fraction and equity fraction of the largest shareholder coalition (owner sphere). "Number studied" indicate the number of firms included in the study for each year, and "Total listed" indiates the number of companies listed on the SSE, the List of Swedish Association of Stock Brokers or OTC on January 1 respective year.

	1968	1972	1977	1981	1986
Vote fraction					
Mean	0.30	0.31	0.35	0.39	0.57
Standard deviation	0.22	0.22	0.22	0.22	0.22
Min	0.00	0.00	0.00	0.00	0.11
Max	0.94	0.92	0.92	0.92	0.96
Equity fraction					
Mean	0.26	0.26	0.27	0.31	0.43
Standard deviation	0.19	0.19	0.19	0.18	0.20
Min	0.00	0.00	0.00	0.00	0.04
Max	0.75	0.78	0.87	0.75	0.87
Number studied	137	125	122	122	204
Total listed	146	134	130	128	217

Through a historical examination, covering the period 1920 – 1990, Glete (1994) analyzes the larger owner constellations and bank spheres in Sweden. He concludes that the industrial breakthrough resulted in social networks that lead the Swedish industrial sector, and that these networks have demonstrated an increasing inability to create new enterprises. Further, the author states that the power over the large industrial corporations has been moved from strong professional industry leaders to a few large owners as well as to institutional owners – and that this could be a problem insofar that these owners are incapable of taking initiatives to restructure Swedish industry. Perhaps the central thesis is that older companies are dominating in mature industries; those industries are dynamic and compete successfully on international markets but the

[19] Control enhancing mechanisms (CEMs) refer to constructions that allow someone to exercise a greater influence on corporate operations than is motivated by their capital share. Examples of CEMs include for instance differentiated voting rights, voting ceilings, pyramidal structures and cross-ownership.

problem is that few new companies are created in growth industries. Högfeldt (2007) supports this view as he describes the Swedish ownership structure as being formed of a small number of families and banks controlling large parts of the corporate landscape. He concludes that the strong presence of the social democratic party is the very reason why the Swedish ownership structure looks like it does, and that the biased support to large corporations has rendered in an ageing industry structure leaving little room for outsiders to create new firms and fortunes.

More recent research where data is presented on Swedish ownership structure is limited. LaPorta *et al* (1999), based on data from 1995 for the twenty largest Swedish listed firms, lend support to the picture of Sweden as a country where ownership is concentrated. When using a 20 % threshold only a quarter of the studied Swedish corporations are widely held, which is low in comparison with other rich countries, and family ownership in particular is common. This picture is further supported when relaxing the criterion for controlling owners from twenty to ten percent voting power. In the latter case, none of the twenty largest companies are considered to be widely held; instead they are owned by families or widely held financial institutions.

In Faccio and Lang (2002) Sweden is one of the 13 Western European countries studied. The sample is larger than the one found in LaPorta *et al* (1999) as 245 firms are included and also the data is more recent (1998). With their definition (a 20 % control threshold), they conclude that 18 of the 20 largest corporations are widely held, one firm family controlled and one controlled by the state. Also in the middle-range nearly half of the companies are widely held, whereas some 42 % are considered family controlled. In the group with the smallest corporations almost one third are widely held and 63 % family controlled.

It is noteworthy that 80 % of the largest firms are considered widely held by Faccio and Lang (2002), whereas the corresponding figure is 25 % in LaPorta *et al* (1999) when using the same threshold (20 %) and with only three years (1995 and 1998) separating the samples. Such a dramatic change is probably not to be found in reality[20]; rather this difference is likely to emanate from how data is collected. Faccio and Lang (2002) rely on annual reports only, whereas LaPorta et al (1999) have consulted Sundin and Sundqvist (1996) when investigating ownership structure. That means that parallel ownership and pyramidal structures are taken into account in the LaPorta *et al* study but not by Faccio and Lang. Put differently, concerning examination of ownership in Swedish listed firms it can be concluded that whereas the sample is limited to the twenty largest firms in LaPorta *et al* (1999) the level of controlling ownership is systematically underestimated in Faccio and Lang (2002).

2.3.2. CHANGES IN THE CORPORATE LANDSCAPE

As illustrated above, the research made on the vast majority of Swedish listed firms is based on data reaching to 1986 (Bergström and Rydqvist, 1990), or possibly 1998 (Faccio and Lang, 2002). Glete (1994) provides with a broader historical analysis for the time period between 1920 and 1990, and he identifies and classifies the largest shareholder for the 25 largest corporations in 1925, 1945, 1967 and 1990. It is reasonable to explore the developments (i.e. a number of trends that to a large degree are intertwined and mutually dependent) since the 1980s so that some preconceptions on what changes in ownership structure one ought to see in a broader examination on Swedish data, a necessary prerequisite for formulating hypotheses.

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[20] Faccio and Lang (2002) themselves argue that ownership patterns are stable over time, which also is the reason why they can use data from 1996 to end 1999 for different countries.

Legal factors

As is clearly indicated by the law and finance literature, legal factors are important for determining ownership structures in corporations. In the late 1980s and early 1990s Sweden, like many other countries, experienced a wave of market liberalizations – among them the liberalization of the capital market. For the purpose of this study, two aspects of the legal regime ought to be of special importance for the forming of corporate ownership; the legislation on *international investments* and the legislation on *investments made by financial institutions.*

The scope for trans-national ownership (i.e. Swedish investments abroad as well as foreign ownership in Sweden) has historically been constrained by Swedish legislation. Swedish investors' acquisitions of foreign securities were limited by the Exchange Control Act[21], and ownership of Swedish stocks by foreigners was regulated by the Corporate Purchase Act[22]. Both laws have been present for most part of the last century, but were abolished in the early 1990s.

The Exchange Control Act was adopted 1939, and was a law concerned with activities between Sweden and abroad regarding payments and securities. The primary purpose of the law was to impede financial instability, but to some degree also to restrain tax evasion. It was an enabling statute, and since 1957 the Act was administered by the Riksbank[23], meaning that the many liberalisations that took place mainly during the 1980s did so without any changes in Swedish law. The primary focus of the Exchange Control Act was to harness portfolio investments made by foreigners; to make direct investments approval was required. In principle, foreign owners were not allowed to buy and sell

[21] Swedish code of statutes 1939:350 (Valutalagen)

[22] Swedish code of statutes 1982:617 (Företagsförvärvslagen)

[23] The Swedish central bank.

Swedish securities. However, by the time the law was implemented there was a significant cross-national ownership and foreigners were therefore allowed to buy securities provided that they at the same time sold other securities – i.e. they had the right to *switch* securities. This switch right was also transferable, meaning that it was *de facto* a currency in its own right. The constraints imposed by this law were gradually relaxed. From 1979 firms could apply for export of its own securities if this was regarded to be beneficial for export of goods or for the supply of capital, and from 1986 listed companies were given such permits automatically when applying. In 1988 the permit requirement was abolished. (Didner, 1993)

The Corporate Purchase Act also contributed to the limitations of foreign ownership. A predecessor to this law was first introduced in 1916[24] as a means to prevent foreigners from exploiting Swedish forests and minerals, and therefore they were not allowed to own real property or mines. In addition, Swedish corporations were also prevented from possessing such assets, unless they inserted restrictions in their articles which stipulated that foreigners could hold no more than 40 % of the capital and 20 % of the votes. From 1983, with the introduction of the Corporate Purchase Act, "subjects of control"[25] needed authorization for buying shares in Swedish companies if they with the transaction would pass any of the limits of 10, 20, 40 or 50 % of either capital or votes. As a consequence, practically all companies had reservations on foreign ownership. The shares that subjects of control were allowed to purchase were called "free shares" and the shares available for Swedes only were denominated "tied shares". The Corporate Purchase Act

[24] Swedish code of statutes 1916:156

[25] That is, foreigners and Swedish companies that had not implemented constraints on foreign ownership in their articles.

was abolished in 1992 and from 1993 companies were no longer allowed to impose restraints on foreign ownership in their articles. (Didner, 1993)

Naturally, the relaxation of restraints on foreign financial investments was followed by a large inflow of foreign capital. Figure 2-1 shows how the market share of foreign ownership increased from 8 % in 1985 to over 35 % in 2005 (with a maximum level of 39 % in 1999 and 2000). This increase is partly due to the fact that Swedish investors invest abroad making the relative size of foreign ownership of Swedish equity larger[26], but this fact is of course accompanied by a real increase of foreign investments in absolute values. The increase of foreign ownership is interesting for this study because it is to a large degree likely to be explained by investments made by financial institutions, which implies that the overall level of institutional ownership has increased. These changes also open up for that some of the post-liberalization controlling owners are foreign rather than domestic, but that does not mean that the level of controlling ownership as such has changed.

[26] At least two motives for this financial emigration are possible. First, it would be rational to go abroad for purposes of international risk diversification or a plain search for increased productivity which in turn would lead to an increase in relative size of foreign ownership. Second, as there are national differences in tax legislation Swedish investors have a financial motive to channel their ownership through foreign bodies. This would indicate that part of the increase in share of foreign ownership is explained by tax planning Swedes.

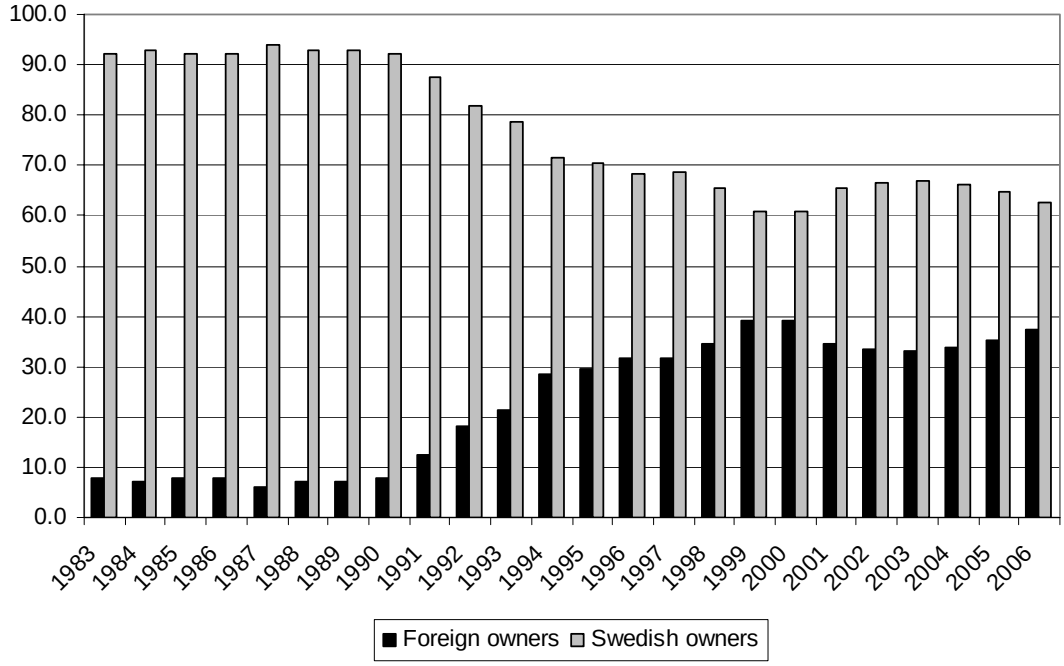

Figure 2-1 Domestic and foreign ownership
This figure shows ownership of all companies listed at a Swedish exchange between 1983 and 2006 is divided between Swedish owners and foreign owners. The values indicate the percentage share of total market value for these companies for each owner category and year. (Source: Statistics Sweden)

In addition to the international liberalization of financial markets, the Swedish legislation has also changed in a way that has promoted increased financial investments insofar that regulation of disclosure and financial institutions' asset allocation has made the position of the small investor more predictable. In 1983 the Swedish Industry and Commerce Stock Exchange Committee imposed rules on disclosure of major changes in shareholdings (NBK, 1994). In 1991[27] a law was imposed on trade with financial assets, and in 1993 it was supplemented with rules on disclosure. With the abolishment of the stock exchange monopoly a new law[28] was passed which embraced all companies traded at any authorized Swedish market place. The rules on disclosure stipulates among other things that an owner that passes any five percent limit in either capital or voting shares

[27] Swedish code of statutes 1991:980

[28] Swedish code of statutes 2000:1087

must make it public and that insiders must register any changes in their holdings in the particular company.

Besides more stringent rules on disclosure, the regulation of institutional investors has become more elaborated. The Investment Funds Act[29] stipulates that mutual funds need authorization, that shares in any single firm may not exceed ten percent of the fund value and that a mutual fund can not own enough voting shares in a single firm to exercise a significant influence over the firm (in the former Mutual Funds Act[30] an explicit five percent limit of voting power in any single firm). The Insurance Business Act[31] establishes that concession is required for insurance companies and that capital used for solvency requirements shall be well diversified. The Banking and Financing Business Act[32] states that a permit is required for conducting business and that securities from a single issuer may not exceed ten percent of the bank's capital.

In addition to the laws already described, laws have been implemented on investor protection[33], financial advisory to consumers[34] and initial public offerings[35] to mention some. The regulation and standardization of financial services ought to have a positive effect on the propensity to engage in well diversified investment strategies. The legal development regarding financial markets and companies that is observed should therefore leave some mark also on the level of institutional ownership. By prolongation

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29 Swedish code of statutes 2004:46

30 Swedish code of statutes 1990:1114

31 Swedish code of statutes 1982:713

32 Swedish code of statutes 2004:297

33 Swedish code of statutes 1999:158

34 Swedish code of statutes 2003:862

35 Swedish code of statutes 2006:451

this development should *ceteris paribus* somewhat dampen the need of controlling owners engaging in costly monitoring.

Improved Information and Communication Technology

Certainly, the accelerating progress of the Information and Communication Technology (ICT) industry has brought huge consequences for economic life in general, and the capital markets in particular. The internet as a platform has made it more cost efficient to exercise market monitoring and financial assets are more easily traded through virtual market places. The progress in ICT in conjunction with the international deregulation of capital markets have also rendered in mergers of many financial marketplaces creating international more liquid markets with larger scope for further risk diversification. Further, the ICT industry has also supplied with an extraordinary increase in computing power, which in turn facilitates effective portfolio management and pricing of risk. There are many studies that show how ICT has created benefits within the financial services (e.g. Banker and Kauffman (2004), Humphrey *et al* (2006) and Schmiedel *et al* (2006)). As there are observable effects on the financial markets there ought to be consequences also for how corporations are owned. The lower transaction costs and the increased market liquidity that follow from the ICT development should increase the scope for exit strategies, which in turn would speak for an augment in the level of institutional ownership.

Changed attitudes towards ownership and control

Over the years there seems to have been a shift in the views on how corporations ought to be owned and controlled. More focus is placed on companies' core businesses and conglomerates seem to have declined over the years. This can be seen for instance in the broad dismantling of pyramidal structures and cross-holdings, as well as in the decline of

listed holding companies. Also, the difference in voting power between dual class shares seems to have decreased over the years. Earlier, one could witness cases where strong shares outweighed weak shares with a factor of one thousand — something that is not present for any of the currently listed firms. In 2006, only one listed Swedish company had a dual class structure where the voting power ratio between strong and weak shares exceeded ten (Fristedt and Sundqvist, 2006). This is not driven by legislation[36]; instead it has to be attributed to some change in opinion.

This decline in usage of control enhancing mechanisms (CEMs) together with the increased focus on core operations ought to have consequences also for how corporations are owned. It is a straightforward conclusion that a decrease in the usage of CEMs will also render a decrease in overall level of controlling ownership — otherwise they should not be control enhancing in the first place. With a reduction of a firm's business lines it is reasonable to guess that monitoring becomes less costly and that the scope for diversification outside the firm increases. In turn this should speak in favour of augmenting institutional ownership.

Changes in industry composition

As has been put forward by, for instance, Glete (1994) Swedish industry structure has been characterized by large owners relying on the manufacturing industry. However, there is an increase in the number of firms within the service industry. Certainly, this is partly due to what was described in the above paragraph – namely the rapid

[36] The subject of differentiated voting power is mentioned in Swedish legislation. From 1910 the guiding principle was that all shares should have equal voting right unless other was stipulated in the articles of association. In 1944 this was changed so that shares with strong voting power could outperform shares with weak voting power no more than tenfold. However, a general exception from this rule was made for all companies that already had imposed such differentiation. Certainly, the decline in voting rights differentiation is partly due to the fact that no new companies can impose such differences, but the decline in gap between dual class shares post 1990 must also partly be explained by other than legal factors as companies with large gaps have chosen to approach the one share — one vote principle.

developments in the ICT industry. The ICT industry has like few other innovations, besides increasing efficiency in industries, opened up for a new plethora of service lines as well as developed new streams of revenues within existent service industries. Looking at the manufacturing as well as the service providing firms included in the data for this study (Figure 2-2) a substantial increase is witnessed in the number of companies in the service sector during the late 1990s. In 1985 there were 22 companies to compare with over 60 from year 2000 and onwards. Furthermore, in 1985 there were more than 2.5 manufacturing firms for every service company; twenty years later the corresponding number was less than 1.9. In 2002 that figure was even below 1.5.

Figure 2-2 Number of manufacturing and service providing firms
This figure sows the number of firms, classified as either manufacturing or service providing, included in the data of this study for the time period between 1985 and 2005.

The traditional manufacturing industry has been accompanied by a large service oriented industry sector. As new industries surge, free from historical facts, the scope for alternative ownership structures is likely to be present to a larger extent.

2.4. FORMULATION OF HYPOTHESES

It is clear that the ownership structure of companies is very much affected by contextual forces, understood as legal, political and macro-economic factors. However, a growing mass of literature suggests that the ownership structure also differ between companies acting in the same institutional setting. Of the determinants that have been discussed previously, *firm size*, *firm risk* and *industry sector* will be studied in this thesis.

2.4.1. CONTROLLING OWNERSHIP

Based on previous literature it can be expected that the level of controlling ownership will vary with a number of factors. First, in the light of the development of financial markets with internationalization, lower costs for transactions and information as well as the tendency to dismantle control enhancing mechanisms, it is reasonable to propose that the need for controlling ownership has decreased over the last twenty years or so.

Second, as companies will grow in size it will be increasingly difficult for investors to obtain controlling positions. As stated by Berle and Means (1932), the corporate form as such enables immense increases in firm size through multiplication of owners. As firms grow in size the likelihood that they will remain in the hands of controlling owners decreases; in general it can be assumed that it is more difficult for individuals to raise the financial strength necessary to control larger corporations. This is analogous with what Demsetz and Lehn (1985) denote the value-maximizing size of the firm. It is therefore expected that the level of controlling ownership will be larger in smaller companies than in larger ones.

Third, in line with Demsetz and Lehn (1985), the control potential increases with firm-specific uncertainty. As uncertainty increases contractual arrangements become more

difficult and costly, and the need of controlling owners increases.

Finally, there are reasons to believe that also the type of industry sector will influence the degree of controlling ownership. Demsetz and Lehn (1985) offer some potential reasons for why industry sectors could affect ownership structure in firms indirectly. Amenity potential is one such factor, but to test this empirically is not easy as it is difficult to establish a good proxy. More interesting then in the scope of this study is the control potential that might vary between industries. It can be assumed from the arguments on firm-specific risk and agency theory that less controlling ownership will be found in firms with larger proportions of tangible assets. In fact, Helwege *et al* (2007) use a proxy "hard assets" which is the ratio of property, plant and equipment to total assets expecting that firms with more hard assets would tend to be more widely held. Although they could not find any significant evidence that it should drive ownership structure, it is still interesting to incorporate this reasoning into this study — but translated into industry sectors. It could therefore be expected that manufacturing firms would show less controlling ownership corporations in the service industries. On the other hand, based on for instance Glete (1994) who argues that Swedish industry traditionally has been in the hands of a few controlling owners together with the fact that a large proportion of new companies are to be found within the service industry, there is reason to believe that novelties in how firms are owned and controlled are most likely to be found in newly listed companies. It therefore remains an open question how the type of industry sector, if at all, will affect the level of controlling ownership.

Based on the above discussion on what forms controlling ownership it can be expected that *the level of controlling ownership in firms change over time and depends on firm-size, firm risk and industry sector*. This can be formulated as four (mutually related) hypotheses:

H1a: The level of controlling ownership has decreased over time.

H1b: The level of controlling ownership is negatively related with firm size.

H1c: The level of controlling ownership is positively related with firm specific risk.

H1d: The level of controlling ownership differs between industry sectors.

2.4.2. INSTITUTIONAL OWNERSHIP

Institutional ownership is not an opposite of controlling owners (insofar that one finds a large level of institutional ownership in companies with low levels of controlling ownership and vice versa), but they seem to be in contrast in at least some respects. This should not be controversial; as one owner group decreases in relative size another will increase. As with the case of controlling ownership there is reason to believe that one can see significant changes over time. The internationalization of capital markets as well as the increased legal framework defining some common rules for banks, funds and other institutional owners has to a large degree widened the possibilities for this type of ownership. This phenomenon is further strengthened by the advances one can see in information and communication technology which facilitates efficient portfolio management. It is therefore reasonable to expect that the level of institutional ownership has increased significantly in Swedish listed firms.

Furthermore, it is reasonable to believe that institutional investors will prefer larger corporations than smaller ones. As firms become larger they will be more actively traded, i.e. the liquidity will improve[37]. For an institutional investor, relying on an entry/exit strategy, this should be an appreciated feature. We can therefore expect to find higher degrees of institutional ownership in larger firms than in smaller ones.

[37] This is not always the case as there are examples of stocks of large companies that historically have been much less liquid than smaller stocks, but the normal case is that size and liquidity go hand in hand.

As discussed above, more risk might increase the need for controlling owners engaging in costly monitoring, but there is no clear analogy between controlling owners and institutional owners in this case. Given that there is an active monitor of the company there is no reason to believe that an institutional owner would avoid investing in it. After all, the institutional investors are presumably well diversified and would therefore not be repelled by firm-specific risk. It should therefore be no reason to assume any difference in the scope for institutional investments between lo risk firms and high risk firms.

In line with the assumed risk diversifying behaviour of institutional owners, the industry sector to which a company belong should be of no importance. Investments in different industries should therefore be equally interesting to the institutional owner as the firm specific risk is diversified away. Consequently, it can be expected that no differences in levels of institutional ownership will be established when studying Swedish listed companies with respect to industry sector.

From what has been discussed, and as in the case of controlling ownership, a preconception could be that *the levels of institutional ownership in firms change over time, depends on firm size and is independent of firm risk and industry sector*. This statement can be formulated as hypotheses as follows:

H2a: The level of institutional ownership has increased over time.
H2b: The level of institutional ownership is positively related with firm size.
H2c: The level of institutional ownership should therefore be independent of firm risk.
H2d: The level of institutional ownership is the same in different industry sectors.

3. DATA AND RESEARCH DESIGN

This thesis moves beyond the scope of ultimate ownership and encompasses the composition of major owners. Not only is the largest owner of interest when analyzing corporations, rather the interplay between major investors ought to be of importance. The research design adopted makes an attempt to consider this aspect of larger sets of key owners. As has been stated previously, the aim is to study controlling as well as institutional ownership in Swedish firms listed at the SSE, with respect to firm size, firm risk and industry sector. For this reason, the general research design consists of dividing the data into groups in line with these aspects and to compare them with each other. Accordingly, firms are divided into "large firms" and "small firms", "high risk firms" and "low risk firms" as well as into manufacturing and service industries[38]. In this chapter the data used is described, the definitions of owner categories as well as for firm characteristics are explained and the method of analysis presented.

3.1. DATA

Emphasis is put on the ownership data as this data is not present in other studies, nor widely available for other researchers. The presentation of the ownership data is followed by an introduction to accounting and capital market data.

[38] This means that the number of firms analyzed in an industry perspective is less than when testing for firm size and market-to-book ratios as firms also can be classified as trading as well as financial services and real estate.

3.1.1. OWNERSHIP DATA

Ownership data for all listed Swedish companies is available in the book series *"Ownership and Power in Sweden's Listed Companies"*[39] which provides annual data for the largest shareholders in each company listed at the Swedish stock exchange from 1985 until present. Besides the largest shareholders (which represent the bulk of voting power and cash flow rights), information on relative strength between dual class shares as well as level of foreign ownership is presented. However, the major contribution by Sundqvist *et al* (1986-2006) is the identification of *control spheres*. They have identified the lines of control through pyramidal and cross-ownership structures and addressed power to various control spheres, such as families and other compounds of common interests. This contribution is willingly taken advantage of in this study.

A potential problem of general character is identified in the data set. It is not perfectly clear of which date ownership data for each particular company is declared. It is stated that ownership data is based on all *available* data as of a specific date for each particular year. This date is somewhere in mid-January for the years 1986-1993 and in mid-February from 1994 and onwards. The primary source of information in *Ownership and Power* is the Nordic Central Securities Deposit[40] (NCSD) where ownership data is given as of the last trading day in each calendar year. This information is then complemented with additional data from the Stockholm Stock Exchange, the Finance Inspection Board, the companies themselves and by investigating journalism. This means that the ownership data for a particular corporation and year is extracted somewhere between the last of

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[39] Sundqvist (1985 – 1993), Sundin and Sundqvist (1994 – 2002), Fristedt, Sundin and Sundqvist (2003) and Fristedt and Sundqvist (2004 – 2007)

[40] Värdepapperscentralen (VPC) in Swedish. Before, the English term of this organizational body was the Swedish Securities Register Centre (SSRC). In December 2004 SSRC purchased its Finnish equivalent and operations were soon merged; hence "Nordic".

December and the stated date in January or February. There is no way to know exactly for which date the company-specific data is extracted. Although, the dates of data observations may differ between companies it is reasonable to believe that any potential effect on data quality is negligible. The time window is less than two months and there is no reason to believe that any systematic bias will arise from this.

Collection of ownership data

The collection of data on ownership has been made in two different ways depending on for which time period data is gathered. For the first period, 1985-1999, data has been gathered by manually photocopying the actual books, and thereafter convert them into digital format. For the other period 2000-2005, information has been extracted from a database accessible at the SIS homepage[41] (SIS), where ownership information is digitally stored for these years. Both periods are in this section described more in detail.

Period 1985-1999

As already mentioned, the data for this first period 1985-1999 is gathered by manually photocopying the Sundqvist *et al* (1986-2000) books, scanning them into pdf-format and thereafter converting them, through usage of optical code recognition (OCR) software, into Excel-spreadsheets. The data in its original format is organized in such a way that each company is presented in a separate table in which the 25 largest owners are listed with their names, the number of shares they possess, their proportion of cash-flow rights and also their voting power. In the cases where there are more than one class of shares, each class is presented separately for each of the 25 owners. The owners are in these tables sorted by the voting power, where the owner with the most votes appears first,

[41] http://www.aktieservice.se/ which is the homepage of the company SIS Ägarervice, founded by Sven-Ivan Sundqvist. Access to the database requires password.

followed by the second largest one and so on. In conjunction with the tables information is also provided on where the company is listed, the names of the managing director and the chairman of the board and also the total number of shares. Further, the relative voting power between dual class shares is given and information is also provided of the total number of shares that are held by foreign investors.

Foreign owners are presented in the tables as if they where a special owner sphere. When reading the book it is understood that they are to be considered as separate individuals with separate agendas, but in the digital treatment they risk to be misinterpreted as one single investor sphere. This is taken into account by collapsing the "spheres", so that individual foreign investors are placed in the table according to voting power and that data on the total shares of foreign votes and capital is withdrawn from the table on the largest owners.

The claim that data for the 25 largest owners is present in the material is in need of clarification. Indeed, the 25 largest owners are shown, but in the firms with control spheres present some of the owners are collapsed into larger groups leaving fewer individual owners visible in the particular company. However, this fact should not seriously endanger the quality of the study. It does not at all affect the measurement of controlling owners (an owner that controls ten percent of the votes are never excluded). To some degree, the owner category measurement of institutional owners is affected though, is the proxy of institutional ownership (described below) as it indicates institutional investors among top 25 owners. This means that in corporations partly held by owner spheres with multiple nominal owners, institutional ownership tends to be systematically underestimated. The relative effect, however, is not believed to endanger the results of the study as the size of the last institutional owner accounted for is small

and should normally not lead to any substantial consequences.

As the data has been collected partly through optical code recognition, and there is a risk of some problems in the transition from pictures into digital information. The accuracy of the data has been examined through a number of mechanisms controlling for some properties that should be present in the data. First, neither the sum of cash-flow rights nor the sum of voting power should exceed 100 %. Second, as owners are ordered by their voting power, it should always be the case that not any owner should ever have a voting power exceeding the voting power of the preceding owner. This means that the third largest owner cannot have a voting power larger than the second largest owner who, in turn, cannot have a voting power larger than the largest owner. Finally, the sum of the number of shares, cash-flow rights and voting power hel by the individual owners included in the table should be equal to the corresponding sum that is stated by Sundqvist *et al* (1986-2000) in the same page (allowing for some slack due to round-off errors and other small discrepancies[42]). If an observation fails to meet up to any of these criteria an error message is returned and the observation in particular is evaluated and corrected. In the majority of the error cases a problem arises due to errors in scanning and/or the optical code recognition; these cases are easily corrected. In some cases there is a misprint in the books and values need to be recalculated based on the total number of shares as well as the number of shares held by the individual owners. In extremely rare cases further investigation outside the books of Sundqvist *et al* (1986-2000) must be conducted to get accurate data.

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42 These smaller discrepancies follow from that the fact that figures for control spheres and the sum of their declared elements sometimes differ somewhat. That is, a control sphere containing some nominal owners might have a larger vote and capital share than what follows from the shares given for the nominal owners. This is due to the fact that not all nominal owners are declared in the table (as they are regarded too small) while the shares presented for the sphere include them.

Table 3:1 Ownership in SKF in early 1997

This table shows the total number of both classes of shares, as well as the difference in voting power between them, for SKF in early 1997. Also, the top 25 owners, their number of A-shares and B-shares, and their capital and voting shares are shown for the same company and year. The table is extracted from Sundin and Sundqvist (1997:247) and freely translated from Swedish by the author.

Owner	Number of A-shares	Number of B-shares	Percent of capital	votes
Wallenberg-sphere	15 500 152	141 524	13.8	31.4
of which				
Investor	14 955 052	34 900	13.3	30.3
Wallenberg foundations	539 100	106 624	0.6	1.1
Wallenberg Marcus	6 000	0	0.0	0.0
Custos-sphere				
Skanska	9 870 000	0	8.7	20.0
Foreign owners	8 102 040	36 720 376	39.7	16.5
of which				
Foreign trustees	6 104 980	32 501 404	34.2	12.4
Phildrew Fund	1 926 126	707 827	2.3	3.9
Swan Marianne	41 334	0	0.0	0.1
Scudder funds (USA)	29 600	3 511 145	3.1	0.1
SPP	2 308 136	3 270 400	4.9	4.7
Fourth AP Fund	1 976 800	0	1.7	4.0
Nordbanken funds	1 962 900	4 190 400	5.4	4.0
Kunskap och kompetens foundation	760 000	0	0.7	1.5
Fifth AP Fund	704 320	0	0.6	1.4
Skandia	603 774	1 129 194	1.5	1.2
AMF pension insurance	550 000	0	0.5	1.1
S-E-B sphere	400 840	202 500	0.5	0.8
of which				
SB foundation	400 000	161 000	0.5	0.8
S-E-Bank	840	41 500	0.0	0.0
SHB sphere	352 875	1 315 333	1.5	0.7
of which				
SHB funds	275 099	762 500	0.9	0.6
SHB	77 776	64 233	0.1	0.2
SHB life insurance	0	388 600	0.3	0.0
SHB pension foundation	0	100 000	0.1	0.0
Sparbank sphere	248 800	5 713	0.2	0.5
of which				
Sparbanken Sverige	248 800	913	0.2	0.5
Sparinstitutens pens kassa	0	4 800	0.0	0.0
SKF fund	223 700	2 396	0.2	0.5
Trygg-Hansa Insurance	200 000	1 910 000	1.9	0.4
Sum 25 owners	43 764 337	48 887 836	82.0	88.8
Others	5 491 995	14 855 388	18.0	11.2
Total	49 256 332	63 743 224	100.0	100.0
Votes per share	1	0.001		

For illustrative purposes, the table for SKF[43] in early 1997 is presented in Table 3:1. It shows that the largest owner at the beginning of 1997 was the Wallenberg sphere, who

[43] SKF is a world leading manufacturer of bearings and supplier of related services.

controlled 31.4 % of the votes through their investment company Investor, various foundations and to a minor degree also directly. The second largest owner was the Custos sphere, who through Skanska held 20 percent of the votes. It also shows that in this particular case the difference in voting power between A-shares and B-shares by any comparison is to be considered as very high – The A-share outweigh the B-share with a factor of 1,000. Also, the example illustrates the point on foreign investors in the above paragraph; the total voting power possessed by foreign investors equals 20.0 %, however, no single foreign investor controls more than 3.9 % (the Phildrew fund) of the votes. With these modifications, the corresponding table used for analysis in this thesis is shown in Table 3:2. In it, we can see how the number of owners presented decreases from 25 to 17 when collapsing owners into control spheres.

Table 3:2 A modified table of ownership in SKF in early 1997

This table shows the total number of both classes of shares, as well as the difference in voting power between them, for SKF in early 1997. Also, the top 17 owners (spheres bold), their number of A-shares and B-shares, and their capital and voting shares are shown for the same company and year. The table is extracted from Sundin and Sundqvist (1997:247), modified in line with how it is analyzed and freely translated from Swedish by the author.

Owner	Number of A-shares	Number of B-shares	Percent of capital	votes
Wallenberg-sphere	15 500 152	141 524	13.8	31.4
Custos-sphere	9 870 000	0	8.7	20.0
SPP	2 308 136	3 270 400	4.9	4.7
Fourth AP Fund	1 976 800	0	1.7	4.0
Nordbanken funds	1 962 900	4 190 400	5.4	4.0
Phildrew Fund	1 926 126	707 827	2.3	3.9
Kunskap och kompetens foundation	760 000	0	0.7	1.5
Fifth AP Fund	704 320	0	0.6	1.4
Skandia	603 774	1 129 194	1.5	1.2
AMF pension insurance	550 000	0	0.5	1.1
S-E-B sphere	400 840	202 500	0.5	0.8
SHB sphere	352 875	1 315 333	1.5	0.7
Sparbank sphere	248 800	5 713	0.2	0.5
SKF fund	223 700	2 396	0.2	0.5
Trygg-Hansa Insurance	200 000	1 910 000	1.9	0.4
Swan Marianne	41 334	0	0.0	0.1
Scudder funds (USA)	29 600	3 511 145	3.1	0.1
Sum 17 owners	37 659 357	16 386 432	47.5	76.3
Others	11 596 975	47 356 792	52.5	23.7
Total	49 256 332	63 743 224	100.0	100.0
Votes per share	1	0.001		

Period 2000-2005

For the period 2000-2005 ownership data was collected digitally directly from the SIS homepage. The data is in shape almost identical to the data of the former period; the largest owners are listed according to size with their respective number of outstanding shares at the time, cash-flow rights, voting rights and total number of shares possessed by foreign investors. However, the data retrieved from the database differs from the data retrieved from the books insofar that foreign investors are not presented as a sphere as in the case of the former period, instead they are presented individually. Nevertheless, information on the total number of shares and proportion of votes held by foreign owners is available. For this period it is still possible to distinguish the 25 largest owners even after collapsing some of them into control spheres. This is due to the fact that the 200 largest shareholders are registered in the database.

The SIS database is not constructed to meet up to the demands of researchers that want to study markets over time, rather emphasis is placed on traders concerned with corporations traded on the exchanges today. Therefore, the database in question suffers from a *survivorship bias* as companies no longer listed at the stock exchange are not included. This has to be taken into account as such a bias is not acceptable for the purposes of this and later studies. The data retrieved from the homepage is therefore complemented with missing observations extracted from the corresponding books in the same fashion as for the period 1985-1999, i.e. tables are photocopied, scanned and code recognized.

3.1.2. DATA ON CORPORATIONS

Accounting and capital market data is gathered from the SixTrust database for the period 1985-2005. Variables used in this study are market capitalization as of April and book

value of equity as given in annual reports. All companies have been classified as belonging to one out of four industry sectors; (1) manufacturing, (2) trading, (3) services and (4) financial services and real estate.

In Table 3:3 the data used is summarized, and it includes a total of 4,158 firm-year observations for the period between 1985 and 2005. The number of trading firms has been more or less constant over the whole period and there are small relative changes in the number of manufacturing firms and companies in the sectors of financial services and real estate – whereas the number of service corporations has increased substantially. Further, when comparing mean and median values for market capitalization as well as for market-to-book ratios (ME/BE)[44], it is established that mean values are systematically larger than median values, indicating that normality can be assumed only with great difficulty.

Table 3:3 Firm-year observations used in the study

This table shows descriptive statistics on the firms on a yearly basis included in the study, based on what industry sector the firms belong to, as well as the market capitalization and the market-to-book ratios of the firms.

	Number of firms	Industry sector				Mrkt Cap (M SEK)			Market-to-book		
		Manufact.	Trading	Services	Fin. serv. & real est.	Mean	Std Error	Median	Mean	Std Error	Median
All years	4 158	2 210	297	878	773	5 779	490	630	2.54	0.06	1.81
1985	190	111	16	22	41	1 027	149	252	2.44	0.12	2.06
1986	188	109	15	23	41	1 480	236	275	2.67	0.21	2.19
1987	196	109	16	29	42	1 851	266	383	3.45	0.21	2.70
1988	181	100	13	30	38	2 095	311	398	2.95	0.27	2.61
1989	192	105	14	30	43	2 867	421	548	3.36	0.18	2.67
1990	170	92	13	25	40	3 339	512	758	3.17	0.37	2.33
1991	158	83	13	25	37	2 995	569	492	1.02	0.81	1.54
1992	156	86	11	23	36	3 069	613	290	1.28	0.08	1.06
1993	152	83	11	24	34	3 348	764	280	1.05	0.11	0.79
1994	164	90	13	23	38	4 488	916	592	1.58	0.09	1.32
1995	176	99	11	28	38	4 735	1 052	579	1.45	0.08	1.22
1996	177	102	12	32	31	6 133	1 496	711	1.76	0.15	1.21
1997	184	102	13	35	34	8 353	2 012	1 221	2.45	0.13	1.88
1998	211	114	16	47	34	8 983	2 340	1 063	3.05	0.22	2.18
1999	222	116	14	55	37	6 791	1 974	693	2.37	0.17	1.62
2000	230	113	12	70	35	13 600	6 563	1 207	4.48	0.52	2.48
2001	246	116	17	76	37	7 448	2 100	770	2.85	0.21	1.77
2002	251	118	17	79	37	7 345	1 802	587	2.43	0.39	1.90
2003	243	122	16	71	34	4 805	1 000	401	1.76	0.14	1.22
2004	241	123	17	68	33	7 564	1 835	719	2.67	0.17	2.03
2005	230	117	17	63	33	12 374	2 586	1 421	3.63	0.22	2.91

[44] ME/BE is the proxy for risk that is used in this study. See below.

3.2. DEFINING OWNERS

Taxonomy of ownership is here established so that one finds the categories *controlling owners* and *institutional owners*. Before doing that, some basic concepts are needed. The most basic unit of analysis is the specific owner for a specific firm and year. The owner holds a share of the total votes as well as a share of the total capital of the firm. With the existence of control enhancing mechanisms the voting share and the capital share held by an investor are not necessarily equal.

3.2.1. CONTROLLING OWNERS

A definition is needed for when to consider anyone a controlling owner. Berle and Means (1932) established that a firm is *management controlled* if there was no owner holding 20 % of the votes or more. Cubbin and Leech (1983) summarizes a survey of twenty studies concerning ownership and corporate control, and lay down that the upper limit for when corporations should be considered to be management controlled ranged between 25 % and 4 % holdings of voting shares; the most common limits being 5 % and 10 %. The view on when to consider firms as owner controlled, or having controlling owners, is even more disparate, ranging from holdings of voting shares of between 4 % and 80 %.

In more recent studies LaPorta *et al* (1999) used control thresholds of 20 % and 10 %, thresholds adopted and somewhat elaborated on by Claessens *et al* (2000). Faccio and Lang (2002) use a 20 % threshold when defining when a firm is controlled by someone directly and 5 % for each link if a firm is controlled through multiple control chains.

In this paper *a controlling owner is considered to be any owner that holds 10 % or more of the voting power in a firm*. It is assumed that if one holds a position of such a size it is most likely that a desire exists of having the possibility to influence corporate strategy, i.e. making

ones voice heard. A ten percent limit in voting power is consistent with the lower threshold used by LaPorta *et al* (1999) as well as some judicial and regulatory aspects[45]. Having determined what a controlling owner is, it follows that the *level of controlling ownership* in a firm at a given point in time equals the total voting power held in the company at that point in time by the controlling owners. As voting power and capital share are broken up the total *capital* share held by the controlling owners might be different than the total *voting* share held. From the definition of controlling shareholders the first hypothesis (H1a) can be operationalized:

H0: The mean voting share held by controlling owners is unchanged or has increased over time.
H1a: The mean voting share held by controlling owners has decreased over time.

Tests of average capital shares held by controlling owners over time are performed as well, but presented separately in appendix B.

3.2.2. INSTITUTIONAL OWNERS

In line with for instance Black (1990) and Roe (1991), the term institutional owners in this study refer to owners such as pension and mutual funds, commercial and investment banks and insurance companies. The guiding principle for determining whether an owner is institutional is that the owner is a financial intermediary, a large and professional investor that acts on behalf of others (they are not just principals but also agents), and that it holds relatively well diversified portfolios with a limited position in any given company. Venture capital/private equity funds are not considered as institutional owners, even though they act as financial intermediaries, since they often take control positions when investing.

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[45] For instance, an owner holding ten percent of the company shares is said to hold a corner position, meaning that a compulsory share purchase can not be forced by some other owner since that requires 90 % of the outstanding shares (Swedish code of statutes 2005:551).

A relevant operational definition *could* have been that institutional owners are owners offering financial services that according to Swedish law require permits issued by the Swedish Financial Supervisory Authority. However, such a definition of institutional owners is problematic. The primary reason for this is that this thesis examines ownership over a period of some twenty years and the legal conditions have been quite different over time — indicating that there are different standards for determining institutional owners within the same study. Furthermore, using such a definition would exclude foreign funds, banks and insurance companies as the permit is required for companies acting in Sweden on behalf of Swedish clients. For example, a foreign mutual fund may offer financial services to clients in its country of residence and not to Swedish clients, but still invest in Swedish securities.

For this study, the exact definition of institutional owners must be somewhat tautological, i.e. an institutional owner is an owner that is regarded to be an institutional owner. For transparency a full list of which owners are regarded as institutional owners is provided in Appendix A. It should be noted that the list only includes institutional owners that at any point in time between 1985 and 2006 have been among the up to 25 largest owners in any listed firm included in this study. There are other investors that should be regarded institutional owners in line with the above discussion, but they are excluded as they hold smaller positions and remain unknown to us. This means that smaller institutional investors are not taken into account in the evaluation of companies. The total proportion of institutional investors would have been seriously and systematically underestimated if its aim would have been to capture *all* institutional owners. However, as a *proxy* for the presence of institutional investors rather than an actual description it has great value when comparing firms.

Put together, the requirements for an owner to be regarded an institutional owner in a particular firm and year is that she belongs to a larger set of institutional investors *and* that he belongs to the 25 largest owners in the specific firm-year observation. Having defined the institutional owner, the *level of institutional ownership* in a firm is defined as the sum of shares (capital and voting shares respectively) held by institutional owners.

As for controlling owners the hypotheses of how institutional ownership has evolved over time (H2a) is operationalized:

H0: The mean capital share held by institutional owners is unchanged or has decreased over time.
H2a: The mean capital share held by institutional owners has increased over time.

Tests of average voting shares held by institutional owners are also performed; the results are presented separately in appendix C.

3.3. GROUPING CORPORATIONS

As declared in the opening of this chapter, corporations are divided into size groups, risk groups and industry sectors (in addition to time). Here, the groups are defined for operational purposes. This way of conducting research is in line with for instance Fama and French (1992) as they divide their data into size and ME/BE groups and construct portfolios subject to testing for differences in earnings and returns. LaPorta *et al* (1999) also analyze firm ownership in various countries by dividing their panels into two groups according to size defined as market capitalization of the stocks.

3.3.1. FIRM SIZE

To test whether ownership structure depends on firm size, all companies will be separated into two groups for each year so that the ownership structure can be compared between them. In this study, the measure chosen to define the size of a company is the market capitalization of the company, rather than for instance some accounting value

such as total assets or book value of equity. Neither is the market value of debt considered when defining size. Considering that the purpose is to study ownership structure market capitalization seems more relevant than the value of all assets. More specifically, this is done by dividing the observations into two size groups; large companies and small companies where the particular company is defined a *small firm* if its market capitalization is lower than the median value of market capitalization of all included firms for a given year. Firms that are not considered small firms (i.e. firms with a market capitalization equal to or above the median value) are to be considered *large firms*. An operationalization of the hypotheses concerning firm size is done as follows:

> *H0: The mean voting shares held by controlling owners are unrelated or positively related with the market capitalization of equity.*
> *H1b: The mean voting shares held by controlling owners are negatively related with the market capitalization of equity,*

and

> *H0: The mean capital shares held by institutional owners are unrelated or negatively related with the market capitalization of equity.*
> *H2b: The mean capital shares held by institutional owners are positively related with the market capitalization of equity.*

3.3.2. MARKET-TO-BOOK

The *proxy* for risk adopted is the market-to-book ratio (ME/BE), i.e. the market capitalization of a company is divided by its book value of equity[46]. This measure is methodologically attractive as it is an actual indicator of the market's (assumedly forward

[46] A common measure of risk otherwise is volatility, which can be estimated either by looking at historical values or by looking at the implied volatility of securities. When using the historical volatility, historical share prices for some time are analyzed to determine the variance. One conceptual and one practical problem arise from this. Conceptually the historical risk is per definition backward looking while owners' investment decisions should be forward looking. Practically, by looking backwards for an amount of time this will lead to that, depending on how far back you look, a number of observations must be dropped as there is not enough historical market data available. Newly listed companies will always be excluded as they do not have a history. Implied volatility is conceptually very desirable as it is forward looking and one could get a volatility measure as estimated by the capital market. However, it is not practically feasible in this study. To find out the implied volatility for a stock, a derivative must be traded and priced by a reasonably liquid market. This is the case only for a minority of the firms included in this thesis; meaning that using implied volatility would lead to that the bulk of the observations at hand would be excluded.

looking) valuation of the stock in relation to its book value at the particular point in time we see the ownership constellation.

Firms with high ME/BE are often referred to as "growth shares" or "glamour shares", whereas firms with low ME/BE are called "value shares", and these two separate groups of shares have become significant in the trade of stock picking. "Value investing" then indicates the preference to invest in low ME/BE shares. Conventional wisdom would suggest that growth shares are more risky and therefore a higher return on investment is expected, while value shares indicate more stable earnings and therefore ought to be considered less risky. However, this conventional wisdom has been challenged as a *negative* relationship between ME/BE ratios and average stock returns has been documented in several papers (e.g. Rosenberg *et al* (1985), Chan *et al* (1991), Fama and French (1992)). Companies with low ME/BE demonstrate on average higher returns on capital. This peculiarity has become known as the "value premium". With rational pricing ME/BE must therefore be related to common risk factors in returns (Fama and French, 1992). The theoretical foundation for why this is the case is not yet totally clear. For example, it has been suggested that the results of Fama and French (1992) most likely emanated from data snooping (e.g. Black, 1993 and Conrad *et al*, 2003). Other tentative explanations for the value premium that have been put forward include mispricing which in turn follows from behavioural and institutional reasons (Lakonishok *et al*, 1994), as well as from limits of arbitrage (Shleifer and Vishny, 1997). In any case, it seems to be generally agreed upon that value strategies have rendered in superior returns, and the debate has first and foremost been on the theoretical explanation of the phenomenon. The view of Fama and French (1992), and which motivates its usage of ME/BE as proxy in this study, is that low-ME/BE companies perform better because they are riskier in some sense.

In the same way as was done for firm size, corporations are divided into two groups depending on the ME/BE ratios, *high-ME/BE firms* (low risk) and *low-ME/BE firms* (high risk), depending on whether the firms show a ME/BE ratio below or above or equal to the median value. For purposes of statistical testing, the hypotheses on the relationship between ownership and risk are specified further:

> *H0: The mean voting shares held by controlling owners are unrelated or positively related with market-to-book ratios.*
> *H1c: The mean voting shares held by controlling owners are negatively related with market-to-book ratios,*

and

> *H0: The mean capital shares held by institutional owners are unrelated with market-to-book ratios.*
> *H2c: The mean capital shares held by institutional owners are not unrelated with market-to-book ratios.*

Note that it is expected that there should be no difference in the level of institutional ownership depending on firm specific risk, despite the fact that the alternative hypothesis expressed here indicates a difference. This is because the null hypothesis shall be falsifiable.

3.3.3. INDUSTRY SECTOR

Firms are classified as belonging to one of the following four industry sectors; (1) *manufacturing*, (2) *trading*, (3) *services* or (4) *financial services and real estate*. These classifications are exclusive insofar that a firm can not be considered to belong to more than one category.

When comparing between industries in this thesis, only firms classified as belonging to the sets of *manufacturing* and *services* are included, and subsequently firms belonging to sets

trading and *financial services and real estate* are excluded from the industry analysis. Analogously to what has been done previously, hypotheses *H1d* and *H2d* are operationalized for statistical testing:

> *H0: The mean voting shares held by controlling owners are the same in manufacturing firms as in service providing firms.*
> *H1d: The mean voting shares held by controlling owners are not the same in manufacturing firms as in service providing firms,*

and

> *H0: The mean capital shares held by institutional owners are the same in manufacturing firms as in service providing firms.*
> *H2d: The mean capital shares held by institutional owners are not the same in manufacturing firms as in service providing firms,*

As for the hypothesis on institutional owners and market-to-book ratios, the expected result from the tests on a relationship between institutional owners and industry sector is expressed in the null hypothesis.

3.4. METHOD FOR ANALYSIS

The means of the various constructed groups as described above are compared. Large firms are compared with small firms, high-ME/BE firms are compared with low-ME/BE firms and manufacturing firms are compared with service firms. The vast majority of all possible firm-year observations of Swedish firms listed at the Stockholm stock exchange are included in this study, but not *all* possible firms. The data is therefore treated as random samples.

As the mean is consistently higher than the median value (see Table 3:3), i.e. the data is skewed, there is no reason to assume that the sample is normally distributed. Instead, the

samples are treated as independent random samples taken from two populations, assuming that the population distributions are identical. Therefore, when comparing means between different groups a non-parametric test is needed and the choice falls on the Mann-Whitney U test[47].

[47] The Mann-Whitney test is described in numerous text books. The description here is based on Aczel (1999). The Mann-Whitney test statistic is defined as:

$$U = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1$$

where n_1 and n_2 are the numbers of observations for the first and second populations respectively and R_1 the sum of ranks of the observations from the first population. If *H0* is that the central locations of the two populations are the same is true, Than the random variable U has the mean

$\mu_U = \frac{n_1 n_2}{2}$ and variance $\sigma_U{}^2 = \frac{n_1 n_2 (n_1 + n_2 + 1)}{12}$.

With a large sample the distribution of U approaches normality and the distribution of the random variable Z is defined as:

$$Z = \frac{U - \mu_U}{\sigma_U}$$

With a two-sided alternative hypothesis, *H0* is rejected if

$$\frac{U - \mu_U}{\sigma_U} < -z_{\sigma/2} \text{ or } \frac{U - \mu_U}{\sigma_U} > z_{\sigma/2}$$

4. RESULTS

In this chapter the results for the examination of whether there is a relationship between controlling ownership and institutional ownership on the one hand, and firm-size, market-to-book ratios and industry sector on the other is presented. This is done for each hypothesis by first discussing the data, and graphs that can be depicted from them, in general terms – and then by testing for differences statistically by using the Mann-Whitney U-test. The analysis is disposed in line with how the hypotheses were formulated, i.e. the chapter first concerns controlling owners followed by an analysis of institutional owners.

4.1. CONTROLLING OWNERS

It is expected that *the level of controlling ownership in firms has changed over time and depends on firm-size, market-to-book ratio and industry sector.* More specifically, it is anticipated that (H1a) the level of controlling ownership has decreased over time, (H1b) the level of controlling ownership is negatively related with firm size, (H1c) the level of controlling ownership is negatively related with market-to-book ratio and, finally, (H1d) the level of controlling ownership in manufacturing firms is different from that in service firms.

4.1.1. CONTROLLING OWNERS OVER TIME (H1A)

For controlling owners as a whole there is a clear downward trend, where the controlling owners on average held over 60 % of the votes in 1985, and some 40 % in 2005. In other words, during a twenty year period controlling ownership has been reduced by a third. This is illustrated in Figure 4-1 (yearly average and median values are shown in Table 4:2). The figure shows that the controlling ownership has declined gradually between the early 1990s and year 2000. From 2000 the level of controlling ownership has remained

relatively stable. It is also evident that there is a gap between voting shares and capital shares held by the controlling owners, a gap that converged somewhat over the years from over 15 percentage points in 1985 to less than 11 percentage points in 2005 This gap indicates, in line with what was apparent from Bergström and Rydqvist (1990), that control over Swedish corporations is to a large degree remained through the usage of control enhancing mechanisms.

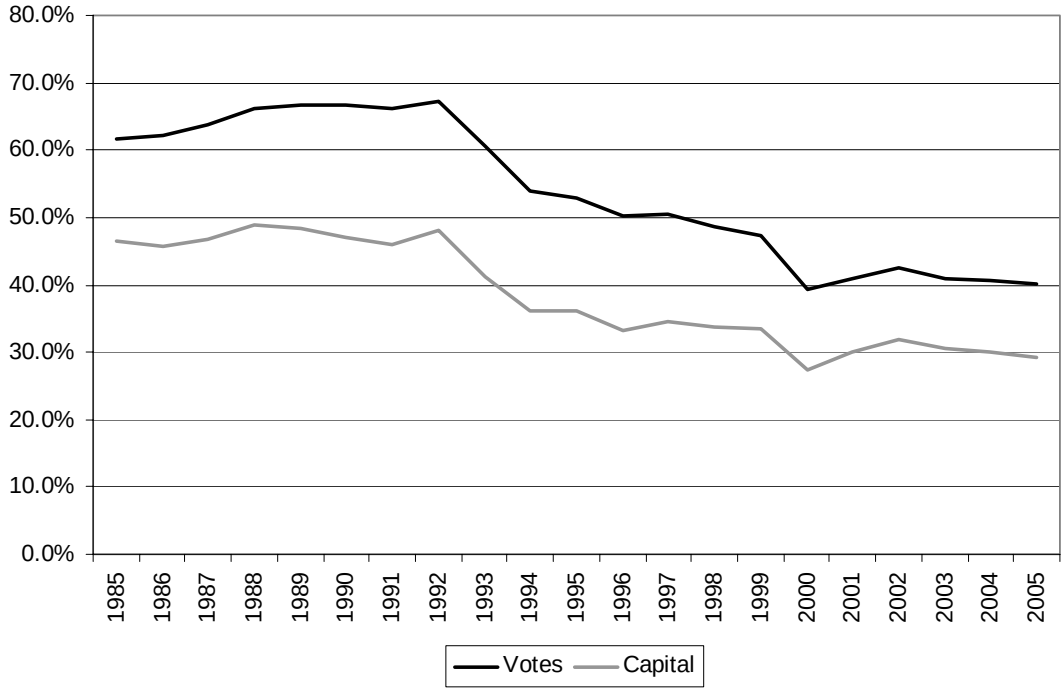

Figure 4-1 Graph on controlling ownership over time
This figure illustrates how mean voting and capital shares of controlling owners (voting power of ten percent or more) in Swedish corporations listed at the Stockholm exchange have evolved over time.

Significant changes in the levels of controlling ownership from one year to the next are unusual. Rather, changes tend to become manifested over several years. This is specially the case for the 1980s and for the new millennium when it is difficult to see any real changes at all. On the other hand, some quite remarkable changes took place in the early 1990s. Between 1992 and 1994 a decrease took place in the mean controlling ownership level from 67.3 % to 53.8 %. As shown in table Table 4:1, differences in mean values of

the controlling owners' voting power are tested for the years 1985, 1990, 1995, 2000 and 2005. Each point in time is compared with all consecutive points in time, i.e. 1985 is compared with 1990, 1995, 2000 and 2005 while 2000 is compared with 2005 only. In all cases but two the decrease in controlling ownership levels is found to be significant in a statistical sense (α=0.05). Only when comparing 1985 with 1990 as well as 2000 with 2005 a decrease in controlling ownership cannot be supported (i.e. the null hypothesis of a *status quo* or increase in levels of controlling ownership can not be falsified)[48].

Table 4:1 Mann-Whitney U-test: Changes in controlling ownership over time
This table shows the results when comparing mean voting shares held by controlling owners for all firms through the rank based Mann-Whitney U-test. The years 1985, 1990, 1995 and 2000 are compared with all of the consecutive years 1990, 1995, 2000 and 2005. Mean ranks and number of observations (*N*) for the base year and corresponding compared year (t) are shown. Also, the P-value (2-tailed) and the large sample test statistic *Z* are given. For α=0,05 the null hypothesis is rejected if Z<-1,645.

		t	**1990**		**1995**		**2000**		**2005**	
1985	Mean rank 85	Mean rank t	170.75	191.39	202.98	162.47	265.90	164.74	263.81	166.46
	N	N	190	170	190	176	190	230	190	230
	P	Z	0.060	1.879	0.000	-3.660	0.000	-8.502	0.000	-8.182
1990	Mean rank 90	Mean rank t			204.89	143.18	269.27	149.67	267.40	151.05
	N	N			170	176	170	230	170	230
	P	Z			0.000	-5.738	0.000	-10.229	0.000	-9.951
1995	Mean rank 95	Mean rank t					239.27	176.13	237.11	177.78
	N	N					176	230	176	230
	P	Z					0.000	-5.375	0.000	-5.050
2000	Mean rank 00	Mean rank t							228.13	232.87
	N	N							230	230
	P	Z							0.702	0.383

4.1.2. CONTROLLING OWNERS AND FIRM SIZE (H1B)

When dividing controlling owners into two groups for each year according to size, it is obviously the case that controlling ownership is more prominent in smaller corporations than in larger ones. For all years (Table 4:2) controlling owners hold on average 48 % in large firms, whereas the corresponding figure is almost 57 % in small firms. This finding is expected, as the literature suggests that an increase in the size of a company makes the

[48] In fact, for these two periods the data lean towards the opposite, that controlling ownership increases.

number of investors with the necessary financial power for taking control positions becomes smaller.

However, something very surprising is observed as companies are followed over time. As presented in Table 4:2 and illustrated in Figure 4-2 small and large companies converge in terms of controlling ownership, and after year 2000 large companies even tend to show a higher degree of controlling ownership in terms of mean voting power.

Table 4:2 Descriptive statistics of controlling owners and firm size

This table shows the voting and capital shares of controlling owners (voting power of ten percent or more) in Swedish corporations listed at the Stockholm exchange on a yearly basis. Two groups of firms are formed for each year, (1) large size firms and (2) small size firms, based on whether the market capitalization of the firm is above or below the median value.

	All firms						Large size firms						Small size firms					
	Votes			Capital			Votes			Capital			Votes			Capital		
Year	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median
All years	52.5%	0.4%	55.2%	37.5%	0.3%	35.9%	48.1%	0.4%	50.1%	33.5%	0.3%	30.9%	56.9%	0.4%	63.8%	41.5%	0.4%	41.5%
1985	61.6%	1.6%	66.8%	46.4%	1.6%	48.7%	54.3%	1.6%	55.5%	39.4%	1.5%	0.0%	68.9%	1.5%	70.9%	53.5%	1.5%	56.0%
1986	62.3%	1.7%	63.9%	45.7%	1.6%	45.6%	56.7%	1.6%	60.4%	40.3%	1.5%	0.0%	67.9%	1.6%	72.0%	51.1%	1.7%	55.4%
1987	63.8%	1.6%	68.3%	46.7%	1.6%	47.7%	58.6%	1.6%	60.3%	41.9%	1.5%	0.0%	69.0%	1.6%	73.1%	51.4%	1.6%	52.9%
1988	66.2%	1.6%	71.8%	48.8%	1.6%	50.8%	59.8%	1.6%	62.4%	43.7%	1.7%	0.0%	72.8%	1.5%	78.9%	54.0%	1.5%	58.1%
1989	66.7%	1.5%	71.1%	48.3%	1.5%	47.6%	60.5%	1.4%	62.1%	43.8%	1.5%	0.0%	72.8%	1.5%	76.7%	52.7%	1.4%	50.5%
1990	66.7%	1.4%	68.9%	47.1%	1.5%	46.8%	62.2%	1.3%	63.3%	44.1%	1.5%	0.0%	71.1%	1.4%	75.2%	50.0%	1.4%	51.5%
1991	66.2%	1.5%	67.8%	45.9%	1.5%	44.4%	61.3%	1.5%	62.4%	41.5%	1.5%	0.0%	71.1%	1.4%	73.5%	50.2%	1.5%	50.3%
1992	67.3%	1.5%	69.5%	48.1%	1.6%	47.6%	61.2%	1.5%	62.8%	43.3%	1.6%	0.0%	73.4%	1.3%	75.4%	53.0%	1.6%	52.4%
1993	60.6%	1.9%	63.2%	41.3%	1.8%	39.7%	54.0%	1.8%	55.7%	36.3%	1.7%	0.0%	67.1%	1.8%	71.7%	46.3%	1.8%	44.4%
1994	53.8%	1.9%	56.6%	36.1%	1.6%	35.3%	51.5%	1.7%	52.9%	33.2%	1.5%	0.0%	56.2%	2.0%	60.4%	39.0%	1.7%	38.2%
1995	53.0%	1.8%	54.8%	36.1%	1.5%	34.3%	49.4%	1.7%	52.6%	32.0%	1.4%	0.0%	56.6%	1.8%	59.9%	40.2%	1.5%	40.9%
1996	50.3%	1.9%	53.2%	33.3%	1.6%	30.6%	45.9%	2.0%	50.2%	30.5%	1.6%	0.0%	54.8%	1.8%	57.5%	36.2%	1.6%	35.8%
1997	50.5%	1.8%	53.1%	34.5%	1.5%	31.6%	46.5%	1.8%	49.3%	31.7%	1.5%	0.0%	54.4%	1.8%	57.7%	37.4%	1.5%	35.5%
1998	48.8%	1.7%	50.1%	33.9%	1.4%	32.4%	46.6%	1.6%	47.4%	32.4%	1.4%	0.0%	51.0%	1.7%	53.1%	35.3%	1.4%	35.8%
1999	47.4%	1.6%	49.7%	33.6%	1.4%	31.9%	42.8%	1.7%	45.0%	30.0%	1.4%	0.0%	52.0%	1.6%	55.1%	37.2%	1.3%	37.2%
2000	39.3%	1.7%	38.4%	27.3%	1.3%	24.4%	36.1%	1.6%	34.4%	25.1%	1.2%	0.0%	42.6%	1.7%	43.7%	29.6%	1.3%	27.2%
2001	40.9%	1.6%	40.0%	30.1%	1.3%	28.6%	41.4%	1.6%	41.0%	29.6%	1.3%	0.0%	40.4%	1.7%	38.7%	30.5%	1.4%	30.0%
2002	42.4%	1.6%	42.4%	32.0%	1.4%	30.7%	42.7%	1.6%	43.6%	31.2%	1.3%	0.0%	42.1%	1.7%	42.3%	32.9%	1.4%	30.7%
2003	41.0%	1.7%	40.0%	30.6%	1.3%	28.5%	43.2%	1.7%	41.0%	31.3%	1.4%	0.0%	38.7%	1.6%	36.4%	29.8%	1.3%	28.6%
2004	40.7%	1.7%	38.9%	30.1%	1.3%	28.1%	43.3%	1.6%	41.3%	31.0%	1.3%	0.0%	38.1%	1.7%	33.6%	29.3%	1.3%	27.6%
2005	40.2%	1.7%	39.3%	29.2%	1.3%	27.9%	40.9%	1.6%	40.3%	29.6%	1.3%	0.0%	39.5%	1.7%	38.9%	28.8%	1.4%	28.0%

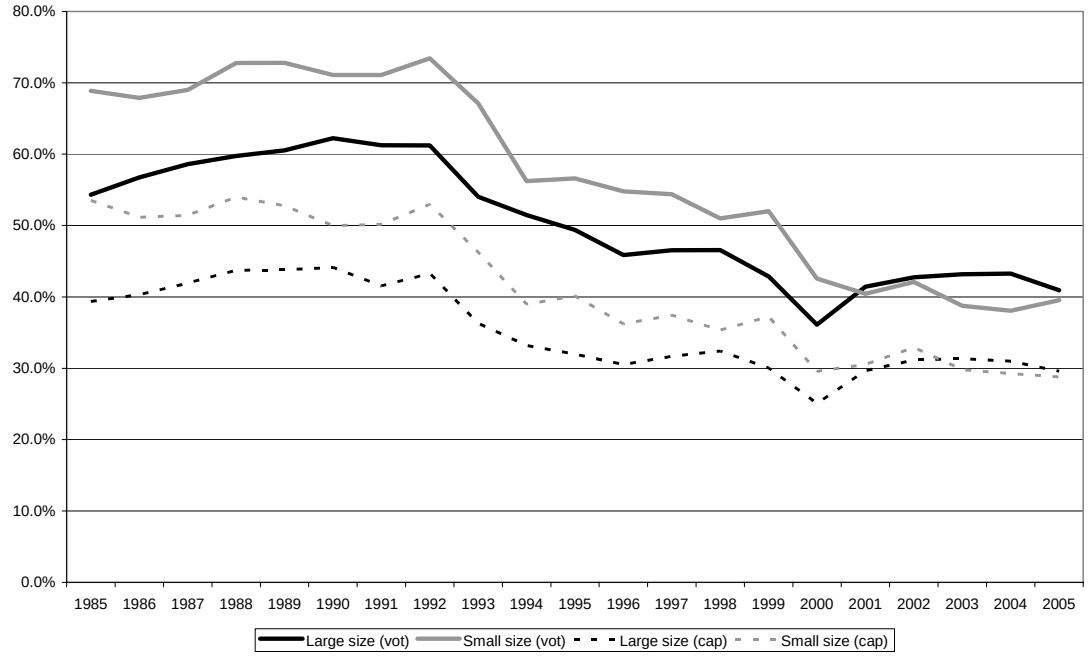

Figure 4-2 Graph on controlling owners and firm size

This figure illustrates how mean voting and capital shares held by controlling owners (voting power of ten percent or more) in Swedish corporations listed at the Stockholm exchange have evolved over time. Two groups of firms are formed for each year, (1) large size firms and (2) small size firms, based on whether the market capitalization of the firm is above or below the median value.

The convergence between small and large corporations is statistically supported by the Mann-Whitney U-tests. As shown in Table 4:3, between 1985 and 2000 the difference between large and small corporations is significant, but thereafter they cannot be separated statistically. The reversed situation after year 2000 with less controlling ownership in small firms cannot be claimed with statistical certainty, but the convergence is highly interesting in itself.

Table 4:3 Mann-Whitney U-test: Controlling owners and size

This table shows the results when comparing mean voting and capital shares held by controlling owners in small size firms and large size firms through the rank based Mann-Whitney U-test. For all years aggregated as well as for the individual years 1985, 1990, 1995, 2000 and 2005 mean ranks and number of observations (*N*) for small companies (defined as corporations with market capitalization below the median value) and large companies (defined as market capitalization equal or above the median value) are shown. Also, the P-value and the large sample test statistic *Z* are given. For α=0,05 the null hypothesis is rejected if Z< -1,645.

	Average voting share, controlling owners			**Average capital share, controlling owners**		
	Mean Rank Small	*N*	*P*	*Mean Rank Small*	*N*	*P*
	Mean Rank Large	*N*	*Z*	*Mean Rank Large*	*N*	*Z*
All years	2 238.66	2 082	0.000	2 232.46	2 082	0.000
	1 919.88	2 076	-8.563	1 926.10	2 076	-8.229
1985	114.47	95	0.000	113.11	95	0.000
	76.53	95	-4.755	77.89	95	-4.413
1990	100.16	85	0.000	93.25	85	0.040
	70.84	85	-3.883	77.75	85	-2.052
1995	97.37	88	0.021	99.22	88	0.005
	79.63	88	-2.310	77.78	88	-2.790
2000	124.14	115	0.049	123.50	115	0.068
	106.86	115	-1.972	107.50	115	-1.825
2005	113.83	115	0.704	114.28	115	0.780
	117.17	115	0.380	116.72	115	0.279

4.1.3. CONTROLLING OWNERS AND MARKET-TO-BOOK RATIOS (H1C)

Comparing controlling ownership in firms with respect to market-to-book ratio it is reasonable to expect that average controlling ownership would be larger in low-ME/BE firms than in high-ME/BE. This would be in line with the increased need for monitoring that follows in riskier firms. In line with what is expected, when looking at the mean values for all years a difference between high-ME/BE firms and low-ME/BE firms (Table 4:3) is discernable. High-ME/BE firms tend to show less controlling ownership (the mean voting power held by controlling owners equals 51.6 %) than low-ME/BE firms (53.3 %). Moreover, when looking at the mean values over time (Figure 4-3) one can establish that for almost all years post 1990 low-ME/BE firms show higher mean controlling ownership levels than the high-ME/BE firms do.

Table 4:4 Descriptive statistics of controlling owners and market-to-book ratios

This table shows the voting and capital shares held by controlling owners (voting power of ten percent or more) in Swedish corporations listed at the Stockholm exchange on a yearly basis. Two groups of firms are formed, (1) high market-to-book firms and (2) low market-to-book firms, based on whether the ratio of market capitalization to book value of equity of the firm is above or below the median value.

	All firms						High market-to-book firms						Low market-to-book firms					
	Votes			Capital			Votes			Capital			Votes			Capital		
Year	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median
All years	52.5%	0.4%	55.2%	37.5%	0.3%	35.9%	51.6%	0.4%	54.9%	37.2%	0.4%	35.8%	53.3%	0.4%	55.5%	37.8%	0.3%	35.9%
1985	61.6%	1.6%	66.8%	46.4%	1.6%	48.7%	67.8%	1.5%	70.7%	51.8%	1.6%	55.6%	55.4%	1.6%	55.5%	41.0%	1.6%	40.5%
1986	62.3%	1.7%	63.9%	45.7%	1.6%	45.6%	64.0%	1.8%	69.5%	47.5%	1.7%	47.2%	60.6%	1.6%	61.0%	44.0%	1.6%	42.3%
1987	63.8%	1.6%	68.3%	46.7%	1.6%	47.7%	68.8%	1.5%	74.5%	51.2%	1.5%	53.1%	58.8%	1.7%	61.8%	42.2%	1.6%	39.6%
1988	66.2%	1.6%	71.8%	48.8%	1.6%	50.8%	70.5%	1.4%	74.6%	51.9%	1.6%	55.1%	61.9%	1.8%	65.2%	45.7%	1.7%	47.9%
1989	66.7%	1.5%	71.1%	48.3%	1.5%	47.6%	68.5%	1.4%	74.2%	50.6%	1.4%	50.5%	64.9%	1.6%	67.7%	45.9%	1.6%	43.9%
1990	66.7%	1.4%	68.9%	47.1%	1.5%	46.8%	67.8%	1.4%	70.1%	46.5%	1.4%	48.9%	65.6%	1.4%	67.4%	47.6%	1.5%	46.7%
1991	66.2%	1.5%	67.8%	45.9%	1.5%	44.4%	66.6%	1.4%	68.6%	43.4%	1.5%	42.3%	65.8%	1.6%	66.5%	48.3%	1.5%	49.5%
1992	67.3%	1.5%	69.5%	48.1%	1.6%	47.6%	64.3%	1.6%	65.7%	44.9%	1.7%	42.0%	70.4%	1.3%	72.4%	51.3%	1.5%	51.2%
1993	60.6%	1.9%	63.2%	41.3%	1.8%	39.7%	58.8%	2.0%	60.7%	39.4%	1.7%	35.9%	62.3%	1.9%	65.5%	43.1%	1.8%	42.2%
1994	53.8%	1.9%	56.6%	36.1%	1.6%	35.3%	51.9%	1.8%	55.9%	34.2%	1.5%	32.5%	55.8%	1.9%	58.0%	37.9%	1.6%	38.2%
1995	53.0%	1.8%	54.8%	36.1%	1.5%	34.3%	48.9%	1.9%	52.1%	32.3%	1.4%	32.8%	57.1%	1.6%	59.6%	39.8%	1.5%	38.8%
1996	50.3%	1.9%	53.2%	33.3%	1.6%	30.6%	45.6%	2.0%	50.0%	28.4%	1.5%	26.0%	55.0%	1.8%	58.2%	38.4%	1.6%	37.8%
1997	50.5%	1.8%	53.1%	34.5%	1.5%	31.6%	49.3%	1.9%	51.6%	32.8%	1.5%	29.3%	51.7%	1.7%	53.5%	36.3%	1.5%	32.9%
1998	48.8%	1.7%	50.1%	33.9%	1.4%	32.4%	46.2%	1.7%	48.0%	32.3%	1.4%	31.2%	51.3%	1.6%	53.3%	35.4%	1.4%	33.0%
1999	47.4%	1.6%	49.7%	33.6%	1.4%	31.9%	43.9%	1.7%	45.9%	31.0%	1.4%	29.3%	50.9%	1.5%	52.5%	36.2%	1.3%	35.2%
2000	39.3%	1.7%	38.4%	27.3%	1.3%	24.4%	31.4%	1.7%	28.7%	21.6%	1.3%	16.7%	47.3%	1.5%	45.0%	33.0%	1.2%	27.9%
2001	40.9%	1.6%	40.0%	30.1%	1.3%	28.6%	36.4%	1.6%	34.4%	26.9%	1.3%	26.2%	45.5%	1.6%	47.7%	33.3%	1.3%	32.2%
2002	42.4%	1.6%	42.4%	32.0%	1.4%	30.7%	38.2%	1.6%	38.4%	29.0%	1.3%	28.9%	46.7%	1.6%	48.1%	35.1%	1.4%	32.7%
2003	41.0%	1.7%	40.0%	30.6%	1.3%	28.5%	42.4%	1.7%	41.0%	32.4%	1.3%	33.6%	39.5%	1.7%	36.7%	28.8%	1.3%	24.4%
2004	40.7%	1.7%	38.9%	30.1%	1.3%	28.1%	35.9%	1.6%	32.1%	27.5%	1.3%	24.5%	45.5%	1.7%	46.7%	32.7%	1.4%	30.7%
2005	40.2%	1.7%	39.3%	29.2%	1.3%	27.9%	35.8%	1.6%	34.0%	26.7%	1.2%	27.3%	44.6%	1.7%	43.1%	31.7%	1.4%	28.7%

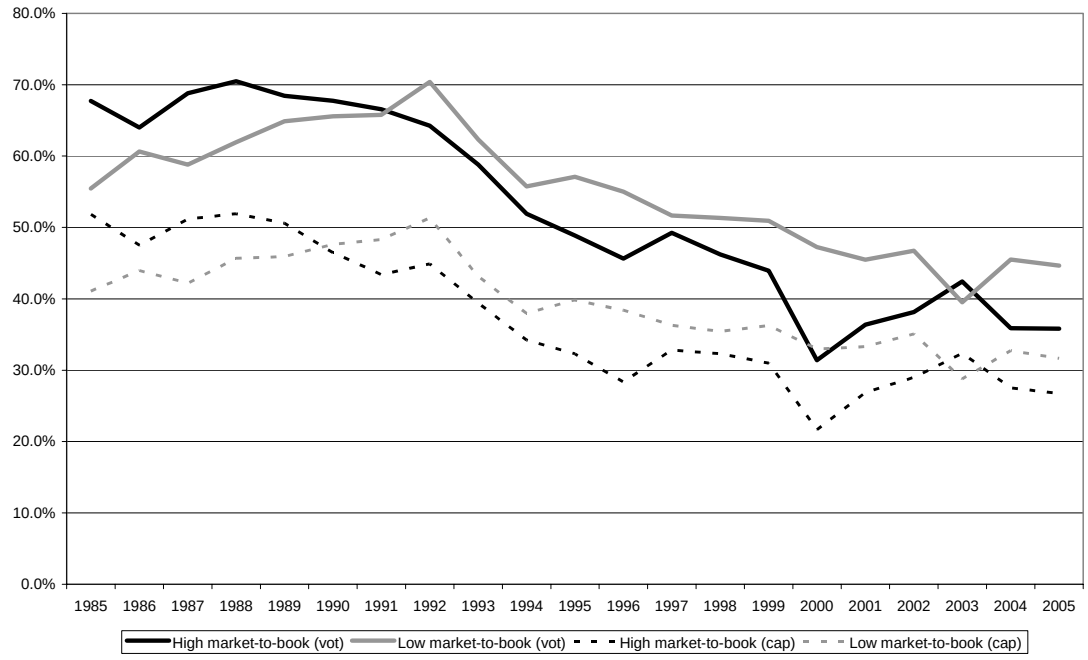

Figure 4-3 Graph on controlling owners and market-to-book ratios

This figure illustrates how mean voting and capital shares held by controlling owners (voting power of ten percent or more) in Swedish corporations listed at the Stockholm exchange have evolved over time. Two groups of firms are formed for each year, (1) high market-to-book firms and (2) low market-to-book firms, based on whether the ratio of market capitalization to book value of equity of the firm is above or below the median value.

Testing the data with the Mann-Whitney U-test (Table 4:5), this result is further streghtened as this rank based test also show that low-ME/BE companies are showing higher levels of controlling ownership than high ME/BE firms do. When testing for differences for the years 1985, 1990, 1995, 2000 and 2005 it is established that a negative relationship between ME/BE and controlling owners' voting share is statistically significant (α=0,05) for the years 1995, 2000 and 2005. However, for 1985 and 1990 this is not the case. In fact, looking at the z-value (2,903) it could be stated that the opposite is true for 1985.

Table 4:5 Mann-Whitney U-test: Controlling ownership and market-to-book ratios
This table shows the results when comparing mean voting and capital shares held by controlling owners in high-market-to-book firms and low-market-to-book firms through the rank based Mann-Whitney U-test. For all years as well as for the years 1985, 1990, 1995, 2000 and 2005 mean ranks and number of observations (*N*) for high market-to-book companies (defined as corporations with a market-to-book ratio equal to or above the median value) and low market-to-book companies (defined as a market-to-book ratio below the median value) are shown. Also, the p-value and the large sample test statistic *Z* are given. For α=0,05 the null hypothesis is rejected if Z>1,645.

	Average voting share, controlling owners			**Average capital share, controlling owners**		
	Mean Rank High ME/BE	*N*	*P*	*Mean Rank High ME/BE*	*N*	*P*
	Mean Rank Low ME/BE	*N*	*Z*	*Mean Rank Low ME/BE*	*N*	*Z*
All years	2 025.54	2 082	0.004	2 019.15	2 082	0.001
	2 133.62	2 076	2.903	2 140.02	2 076	3.247
1985	111.63	95	0.000	109.10	95	0.001
	79.37	95	-4.042	81.90	95	-3.409
1990	89.18	85	0.330	84.68	85	0.829
	81.82	85	-0.974	86.32	85	0.217
1995	80.14	88	0.029	79.91	88	0.025
	96.86	88	2.178	97.09	88	2.237
2000	95.01	115	0.000	95.00	115	0.000
	135.99	115	4.675	136.00	115	4.678
2005	104.82	115	0.015	109.20	115	0.150
	126.18	115	2.436	121.80	115	1.438

4.1.4. CONTROLLING OWNERS AND INDUSTRY SECTOR (H1D)

Concerning the relationship between ownership structure and industry sector, the level of controlling ownership is compared between manufacturing firms and service companies. The hypothesis is that the differences in industry contexts result in different degrees of controlling ownership when comparing the two categories. Looking at all years (Table 4:6) it can be seen that controlling owners are more present in

manufacturing firms (53 % of voting power) than in service providers (47 %). However, when looking at each and every year for the examined time period the results are more uncertain. From Figure 4-4 it is apparent that the levels of controlling ownership in manufacturing and service firms have been quite similar for the 1980s as well as for the lion part of the 1990s. Only from year 2000 and onwards is there a clear difference in levels between manufacturing firms and service firms, where the latter show a substantially lower degree of controlling ownership in terms of voting power.

Table 4:6 Descriptive statistics of controlling owners and industry sector

This table shows the voting and capital shares, on a yearly basis, held by controlling owners (voting power of ten percent or more) in Swedish corporations listed at the Stockholm exchange. Two groups of firms are shown based on industry sectors (1) manufacturing and (2) services. Industry sectors trading as well as financial services and real estate are excluded.

	Manufacturing						**Services**					
	Votes			**Capital**			**Votes**			**Capital**		
Year	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median
All years	53.0%	0.4%	56.2%	37.2%	0.4%	34.7%	47.0%	0.4%	49.6%	33.2%	0.3%	31.0%
1985	60.9%	1.6%	64.6%	45.0%	1.7%	45.2%	66.2%	1.9%	71.6%	54.8%	1.3%	58.3%
1986	62.1%	1.7%	63.9%	45.4%	1.7%	47.6%	63.4%	1.9%	70.6%	46.8%	1.5%	50.8%
1987	63.6%	1.7%	68.2%	46.1%	1.7%	47.7%	62.7%	1.9%	71.4%	43.6%	1.5%	44.3%
1988	64.5%	1.8%	72.7%	47.5%	1.8%	51.5%	68.4%	1.6%	72.9%	49.2%	1.5%	47.3%
1989	65.0%	1.7%	69.4%	47.7%	1.7%	45.0%	68.5%	1.6%	74.8%	47.4%	1.3%	44.2%
1990	65.5%	1.6%	69.2%	46.9%	1.6%	47.5%	66.8%	1.7%	70.1%	45.9%	1.6%	49.3%
1991	65.4%	1.6%	66.9%	46.1%	1.7%	47.8%	65.4%	1.7%	71.1%	43.0%	1.7%	37.5%
1992	66.7%	1.6%	68.8%	48.1%	1.8%	47.9%	65.6%	1.4%	66.6%	44.4%	1.4%	42.2%
1993	60.2%	2.0%	62.6%	40.2%	1.9%	38.4%	55.1%	2.0%	60.5%	33.9%	1.6%	35.1%
1994	53.5%	2.0%	58.2%	34.4%	1.7%	31.5%	52.0%	1.9%	54.6%	31.0%	1.4%	31.0%
1995	52.4%	1.9%	56.3%	34.2%	1.6%	32.4%	51.9%	1.8%	55.2%	32.5%	1.3%	29.5%
1996	49.0%	2.1%	53.2%	30.9%	1.7%	27.0%	52.9%	1.8%	54.1%	35.6%	1.7%	29.7%
1997	50.8%	2.0%	53.7%	33.1%	1.6%	29.3%	53.1%	1.6%	56.3%	36.6%	1.4%	32.8%
1998	49.0%	1.8%	50.4%	32.7%	1.4%	29.1%	48.2%	1.6%	48.7%	34.5%	1.4%	34.4%
1999	47.9%	1.7%	46.8%	33.4%	1.4%	29.3%	45.5%	1.6%	50.8%	31.9%	1.3%	32.1%
2000	42.2%	1.7%	40.9%	28.2%	1.3%	23.3%	32.4%	1.6%	32.9%	22.3%	1.2%	20.6%
2001	42.8%	1.6%	40.3%	30.5%	1.3%	25.4%	35.0%	1.6%	33.6%	25.4%	1.3%	26.1%
2002	43.2%	1.6%	41.1%	31.2%	1.4%	28.3%	39.1%	1.6%	42.5%	30.1%	1.4%	30.2%
2003	42.3%	1.7%	40.1%	30.8%	1.3%	28.3%	37.1%	1.6%	38.5%	27.3%	1.3%	27.8%
2004	41.2%	1.6%	37.5%	29.8%	1.3%	27.4%	36.7%	1.6%	39.8%	27.1%	1.4%	24.2%
2005	40.9%	1.7%	39.6%	29.3%	1.4%	27.6%	34.6%	1.5%	37.0%	24.4%	1.2%	25.0%

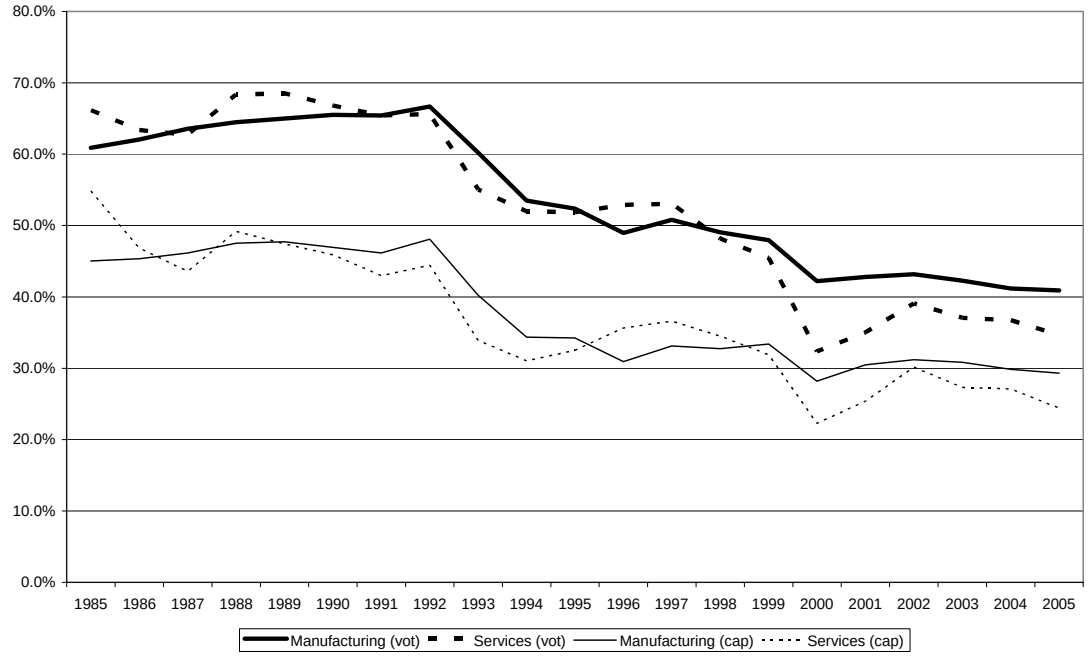

Figure 4-4 Graph on controlling owners and industry sector

This figure illustrates how mean voting and capital shares held by controlling owners (voting power of ten percent or more) in Swedish corporations listed at the Stockholm exchange have evolved over time. Two groups of firms are formed based on industry sectors (1) manufacturing and (2) services. Firms in trading and financial services and real estate are excluded.

When testing for differences in levels of controlling ownership in manufacturing firms and firms in the service industry (Table 4:7), it is established that there is a statistical difference looking at all observations put together. With a p-value of zero and a z-value of -5.56 there is little room for questioning the statistical significance. However, even though the statistical significance is certain, the substantial significance might still be open for discussion. The test results are most likely driven by a large number of observations together with a real difference only during later years. Looking at differences in controlling ownership between manufacturing and service firms for each fifth year between 1985 and 2005, it is only for year 2000 that a statistically significant difference can be shown. It is also worth mentioning that although a difference can be discerned in Figure 4-4 for all years after the millennium; the null hypothesis of equality cannot be falsified statistically for year 2005.

Table 4:7 Mann-Whitney U-test: Controlling ownership and industry sector

This table shows the results when comparing mean voting and capital shares held by controlling owners in manufacturing firms and service providing firms through the rank based Mann-Whitney U-test. For all years aggregated as well as for the individual years 1985, 1990, 1995, 2000 and 2005 mean ranks and number of observations (*N*) for manufacturing firms and service firms are shown. Also, the P-value and the large sample test statistic *Z* are given. For α=0,05 the null hypothesis is rejected if Z<-1,96 or Z>1,96.

	Average voting share, controlling owners			**Average capital share, controlling owners**		
	Mean Rank Manufacturing *Mean Rank Service*	*N* *N*	*P* *Z*	*Mean Rank Manufacturing* *Mean Rank Service*	*N* *N*	*P* *Z*
All years	1 600.74 1 402.93	2 210 878	0.000 -5.563	1 583.66 1 445.93	2 210 878	0.000 -3.873
1985	64.98 77.18	111 22	0.175 1.357	64.20 81.11	111 22	0.060 1.880
1990	58.37 61.32	92 25	0.700 0.386	59.44 57.38	92 25	0.788 0.269
1995	64.47 62.34	99 28	0.787 -0.270	64.55 62.07	99 28	0.753 -0.314
2000	99.46 79.95	113 70	0.015 -2.424	97.75 82.72	113 70	0.062 -1.867
2005	94.43 83.20	117 63	0.167 -1.382	94.09 83.83	117 63	0.206 -1.263

4.1.5. CONTROLLING OWNERSHIP RECAPITULATED

To summarize, the overall degree of controlling ownership, as measured in this study, has decreased over the time period examined. It is also shown, historically, that there is a negative relationship between firm size and controlling ownership. However, this relationship becomes less clear over time and for later years it can not be seen at all when comparing Swedish listed corporations.

Regarding the relationship between controlling ownership and market-to-book ratios, the results are ambiguous. A higher degree of controlling ownership can be established in low market-to-book firms with statistical certainty for the years 1995, 2000 and 2005. However, it should also be noted that the opposite is true for 1985.

Finally, when comparing manufacturing firms with service providers the data suggests that the degree of controlling ownership has been quite similar until the beginning of the new millennium. From year 2000 and onwards there is a decrease in controlling

ownership levels for service providing firms. However, the statistical support for this decrease is not complete.

4.2. INSTITUTIONAL OWNERS

To repeat, regarding institutional owners it is anticipated that *the level of institutional ownership in firms has changed over time, depends on firm-size and is independent of market-to-book ratio and industry sector*. In more detail it is expected that the level of institutional ownership has increased over time (H2a), the level of institutional ownership is positively related with firm size (H2b), the level of institutional ownership is the same in firms with high market-to-book ratios than in firms with low market-to-book ratios (H2c) and the level of institutional ownership in manufacturing firms is the same as in service providing firms (H2d). In accordance with the analysis of controlling owners the hypotheses are addressed respectively in this section.

4.2.1. INSTITUTIONAL OWNERS OVER TIME (H2A)

The mean values of institutional ownership do not increase *uninterruptedly* over time (Figure 4-5 and Table 4:9). Rather, in 1989 there was a sharp decline in the level of institutional ownership, followed by a substantial augment again in 1991. Thereafter, a continuing increase until 1997 is observed when the trend turned downwards again. From 2001 and onwards institutional ownership has increased steadily. The 1989 dip in institutional ownership is probably best understood in the light of the Swedish currency deregulation orchestrated by the Swedish Riksbank. On 19 January 1989 the limitations for Swedish investors to purchase foreign equity were abolished (TT, 1989), and this resulted in an immediate and massive capital outflow. Only during the first two months succeeding the decision, Swedish investors purchased foreign equity for SEK 5.3 billion, which corresponded to the contemporary total monthly turnover of the Stockholm Stock

Exchange; during the same period the net export of Swedish shares was modest, reaching a mere SEK 0.1 billion (Tham, 1989). It is reasonable to assume that a large part of these capital outflows were due to portfolio composition changes of institutional investors. For the augment in 1991 a tentative explanation is to be found in the news stream; it seems that the increase in institutional ownership is due to what has been called a "campaign" carried out by foreign investors anticipating the abolishment of the restricted shares stipulated by the Corporate Purchase Act[49] (Isacson (1991), Svensson (1992)).

It is also clear that institutional owners are the mirror image of controlling owners in that respect that the mean capital share held by institutional owners is consistently higher than the mean voting share, whereas the opposite is true for controlling owners (see Figure 4-1). This is very much in line with our presumption that institutional owners are exit-oriented and primarily interested in getting a risk-optimal return on their invested capital rather than enforcing their wills on corporate managers.

[49] The Corporate Purchase Act is descried in Chapter 2.3.2.

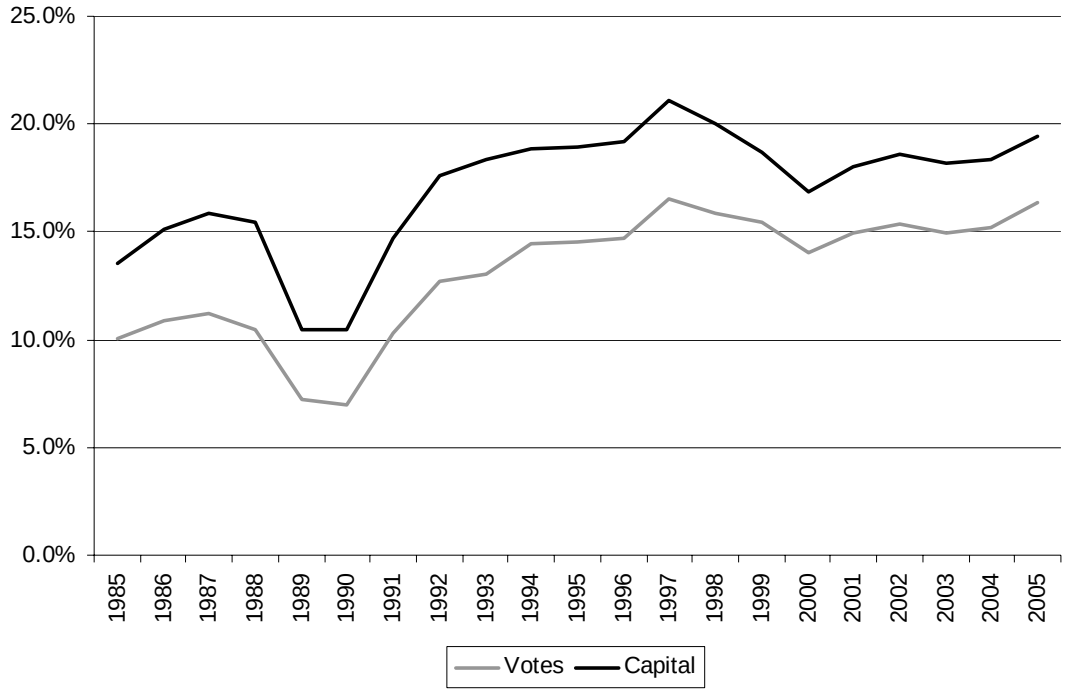

Figure 4-5 Graph on institutional ownership over time

This figure illustrates how mean voting and capital shares held by institutional owners (as defined in Appendix A) in Swedish corporations listed at the Stockholm exchange have evolved over time.

The ocular analysis in Figure 4-5 and Table 4:9 is supported when submitting the data to statistical testing. As was done for controlling owners, differences over time are tested for every five years between 1985 and 2005 by using the Mann-Whitney U-test. Table 4:8 presents evidence for that the long-term increase in institutional ownership (in terms of mean capital share) is statistically significant, as are the dips between 1985 and 1990 as well as between 1995 and 2000.

Table 4:8 Mann-Whitney U-test: Changes in institutional ownership over time

This table shows the results when comparing mean capital shares held by institutional owners for all firms through the rank based Mann-Whitney U-test. The years 1985, 1990, 1995 and 2000 are compared with all of the consecutive years 1990, 1995, 2000 and 2005. Mean ranks and number of observations (*N*) for the base year and corresponding compared year (t) are shown. Also, the P-value (2-tailed) and the large sample test statistic *Z* are given. For α=0,05 the null hypothesis is rejected if Z>1,645.

		t	**1990**		**1995**		**2000**		**2005**	
1985	Mean rank 85	Mean rank t	195.54	163.69	161.55	207.20	193.39	224.63	178.49	236.94
	N	N	190	170	190	176	190	230	190	230
	P	Z	0.004	-2.901	0.000	4.124	0.009	2.625	0.000	4.912
1990	Mean rank 90	Mean rank t			137.94	207.85	164.30	227.26	151.41	236.79
	N	N			170	176	170	230	170	230
	P	Z			0.000	6.501	0.000	5.386	0.000	7.303
1995	Mean rank 95	Mean rank t					214.72	194.92	200.18	206.04
	N	N					176	230	176	230
	P	Z					0.092	-1.685	0.618	0.498
2000	Mean rank 00	Mean rank t							216.02	244.98
	N	N							230	230
	P	Z							0.019	2.336

4.2.2. INSTITUTIONAL OWNERS AND FIRM SIZE (H2B)

When looking at the relationship between presence of institutional owners and firm size, the results are unambiguous. Comparing all years together (Table 4:9) it is established that the mean capital share held by institutional investors, as previously defined, reaches 22.8 % in large firms while the corresponding figure for small firms is 11.5 %. Also when examining how differences between large and small firms have evolved over time (Figure 4-6) it seems that they have not – large companies have consistently shown a higher degree of institutional ownership than smaller firms. The overall trend is very similar for both large and small companies but it is striking how they are almost parallel in feature. These results are expected as previous research has shown quite unison that institutional owners tend to seek for large corporations that are liquid.

Table 4:9 Descriptive statistics of institutional owners and firm size

This table shows the voting and capital shares of institutional owners (as defined previously) in Swedish corporations listed at the Stockholm exchange on a yearly basis. Two groups of firms are formed, (1) large size firms and (2) small size firms, based on whether the market capitalization of the firm is above or below the median value.

	All firms						Large size firms						Small size firms					
	Votes			Capital			Votes			Capital			Votes			Capital		
Year	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median
All years	13.3%	0.2%	9.1%	17.2%	0.2%	14.5%	18.1%	0.2%	15.5%	22.8%	0.2%	22.1%	8.5%	0.2%	4.3%	11.5%	0.2%	8.0%
1985	10.0%	0.7%	7.3%	13.6%	0.8%	11.6%	14.8%	0.7%	12.9%	18.6%	0.8%	18.1%	5.2%	0.5%	2.5%	8.5%	0.7%	5.2%
1986	10.8%	0.9%	7.1%	15.1%	0.9%	12.6%	15.0%	0.8%	14.3%	19.6%	0.9%	19.2%	6.7%	0.8%	2.9%	10.7%	0.9%	7.9%
1987	11.2%	1.0%	6.4%	15.9%	1.1%	12.4%	15.1%	0.9%	14.1%	20.3%	1.0%	19.5%	7.3%	0.9%	2.1%	11.4%	1.1%	5.0%
1988	10.5%	0.9%	5.8%	15.4%	1.1%	11.6%	15.8%	0.9%	13.6%	21.4%	1.1%	20.0%	5.1%	0.7%	2.3%	9.4%	0.8%	5.2%
1989	7.2%	0.7%	3.4%	10.5%	0.8%	6.4%	10.6%	0.7%	8.6%	14.5%	0.8%	14.1%	3.8%	0.7%	1.3%	6.5%	0.7%	3.8%
1990	7.0%	0.6%	3.9%	10.5%	0.8%	7.6%	10.5%	0.7%	8.8%	15.1%	0.8%	14.1%	3.4%	0.5%	1.1%	5.9%	0.6%	3.0%
1991	10.3%	1.1%	5.6%	14.7%	1.1%	11.7%	15.1%	1.0%	11.6%	21.2%	1.2%	21.9%	5.5%	1.0%	1.9%	8.1%	0.9%	4.3%
1992	12.7%	1.3%	7.7%	17.6%	1.3%	14.2%	16.9%	1.0%	12.1%	23.9%	1.1%	23.2%	8.6%	1.4%	2.3%	11.4%	1.2%	5.4%
1993	13.0%	1.1%	8.5%	18.3%	1.2%	15.9%	17.5%	1.0%	15.3%	23.9%	1.1%	22.0%	8.6%	1.0%	3.9%	12.7%	1.0%	8.9%
1994	14.4%	1.0%	10.9%	18.9%	1.0%	17.4%	18.5%	0.9%	15.7%	23.9%	0.9%	24.5%	10.4%	1.0%	5.9%	13.8%	1.0%	11.9%
1995	14.6%	1.0%	11.8%	18.9%	1.0%	16.5%	18.8%	0.9%	16.9%	24.1%	0.9%	23.3%	10.3%	0.9%	5.5%	13.7%	0.9%	11.3%
1996	14.7%	1.0%	11.2%	19.2%	1.0%	18.9%	19.6%	1.0%	18.1%	24.2%	0.9%	24.6%	9.7%	0.8%	5.7%	14.1%	0.9%	11.5%
1997	16.5%	1.0%	12.2%	21.1%	1.1%	19.7%	22.2%	1.1%	19.7%	27.3%	1.0%	26.3%	10.8%	0.8%	7.5%	14.8%	0.9%	11.1%
1998	15.9%	1.0%	11.1%	20.0%	1.1%	17.5%	23.3%	1.0%	20.3%	28.5%	1.0%	27.6%	8.4%	0.7%	4.9%	11.4%	0.8%	7.5%
1999	15.4%	1.0%	10.0%	18.7%	1.0%	14.9%	22.1%	1.0%	19.1%	25.8%	1.0%	26.5%	8.7%	0.7%	5.1%	11.5%	0.7%	9.6%
2000	14.0%	0.8%	10.1%	16.9%	0.8%	14.9%	18.7%	0.9%	16.5%	21.7%	0.9%	21.1%	9.3%	0.6%	5.9%	12.0%	0.7%	10.1%
2001	14.9%	0.9%	11.1%	18.0%	0.9%	15.6%	20.9%	0.9%	18.5%	25.1%	0.9%	23.8%	8.9%	0.6%	5.6%	11.0%	0.7%	7.5%
2002	15.4%	0.9%	11.4%	18.6%	0.9%	15.7%	20.6%	0.9%	17.4%	25.0%	0.9%	23.1%	10.1%	0.7%	5.8%	12.2%	0.8%	8.6%
2003	15.0%	0.9%	11.1%	18.2%	0.9%	15.9%	19.3%	0.9%	16.0%	23.8%	0.9%	22.0%	10.6%	0.7%	7.2%	12.5%	0.8%	8.3%
2004	15.2%	0.8%	12.4%	18.3%	0.9%	17.2%	19.4%	0.8%	15.8%	23.7%	0.8%	22.6%	11.0%	0.7%	7.8%	12.9%	0.8%	10.0%
2005	16.3%	0.8%	13.8%	19.5%	0.9%	18.3%	19.9%	0.9%	17.3%	23.8%	0.8%	25.2%	12.8%	0.7%	10.2%	15.1%	0.8%	13.0%

Figure 4-6 Graph on institutional owners and firm size

This figure illustrates how mean voting and capital shares held by institutional owners in Swedish corporations listed at the Stockholm exchange have evolved over time. Two groups of firms are formed for each year, (1) large size firms and (2) small size firms, based on whether the market capitalization of the firm is above or below the median value.

The impression from Table 4:9 and Figure 4-6 is further strengthened when subjecting the data to statistical testing (Table 4:10). For all years jointly, comparing mean capital shares held by institutional owners in small and large firms respectively shows that the probability that institutional ownership levels are equal for small and large corporations equals zero with a z-value higher than 28. The corresponding p-values for *each* of the tested years also equals zero. If anything, one could perhaps argue that z-values have declined gradually from 6.875 in 1985 to 5.180 in 2005 — to be compared with 1.645 which is the critical value that has to be exceeded to reach statistical certainty (α=0.05).

Table 4:10 Mann-Whitney U-test: Institutional owners and size

This table shows the results when comparing mean voting and capital shares held by institutional owners in small size firms and large size firms through the rank based Mann-Whitney U-test. For all years aggregated as well as for the individual years 1985, 1990, 1995, 2000 and 2005 mean ranks and number of observations (*N*) for small companies (defined as corporations with market capitalization below the median value) and large companies (defined as market capitalization equal or above the median value) are shown. Also, the P-value and the large sample test statistic *Z* are given. For α=0.05 the null hypothesis is rejected if Z > 1,645.

	Average voting share, institutional owners			**Average capital share, institutional owners**		
	Mean Rank Small	*N*	*P*	*Mean Rank Small*	*N*	*P*
	Mean Rank Large	*N*	*Z*	*Mean Rank Large*	*N*	*Z*
All years	1 556.11	2 082	0.000	1 553.90	2 082	0.000
	2 604.40	2 076	28.158	2 606.62	2 076	28.277
1985	65.83	95	0.000	68.08	95	0.000
	125.17	95	7.440	122.92	95	6.875
1990	59.58	85	0.000	62.27	85	0.000
	111.42	85	6.877	108.73	85	6.162
1995	66.89	88	0.000	66.45	88	0.000
	110.11	88	5.628	110.55	88	5.742
2000	89.63	115	0.000	90.61	115	0.000
	141.37	115	5.898	140.39	115	5.673
2005	96.93	115	0.000	92.77	115	0.000
	134.07	115	4.232	138.23	115	5.180

4.2.3. INSTITUTIONAL OWNERS AND MARKET-TO-BOOK RATIOS (H2C)

If the difference in levels of institutional ownership between large and small companies is a clear-cut case, the opposite is true when comparing firms with high ME/BE with low-ME/BE firms. There is basically no difference between high-ME/BE firms and low-ME/BE firms in mean capital shares held by institutional owners (Table 4:11) when looking at all years. The mean capital share in high ME/BE firms is 17.2 % to

compare with 17.1 % in low ME/BE firms. In addition, the voting shares held by institutional owners are very similar between the two groups.

Further, when investigating the differences between the two groups over time (Table 4:11 and Figure 4-7) the picture is yet more complicated, the mean capital shares held by institutional owners are higher in high-ME/BE companies for the lion part of the 1990s, but before as well as after it is not at all clear how institutional investors prefer to allocate their funds.

Table 4:11 Descriptive statistics on institutional owners and market-to-book ratios
This table shows the voting and capital shares held by institutional owners in Swedish corporations listed at the Stockholm exchange on a yearly basis. Two groups of firms are formed, (1) high market-to-book firms and (2) low market-to-book firms, based on whether the ratio of market capitalization to book value of equity of the firm is above or below the median value.

	All firms						High market-to-book firms						Low market-to-book firms					
	Votes			Capital			Votes			Capital			Votes			Capital		
Year	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median
All years	13.3%	0.2%	9.1%	17.2%	0.2%	14.5%	13.2%	0.2%	9.5%	17.2%	0.2%	14.6%	13.4%	0.2%	8.9%	17.1%	0.2%	14.4%
1985	10.0%	0.7%	7.3%	13.6%	0.8%	11.6%	8.2%	0.6%	5.4%	12.0%	0.7%	11.0%	11.8%	0.8%	9.2%	15.1%	0.9%	13.7%
1986	10.8%	0.9%	7.1%	15.1%	0.9%	12.6%	9.7%	0.7%	6.9%	14.8%	0.9%	12.5%	12.0%	1.0%	7.9%	15.5%	1.0%	13.3%
1987	11.2%	1.0%	6.4%	15.9%	1.1%	12.4%	10.9%	1.1%	5.7%	16.7%	1.2%	12.1%	11.5%	0.8%	7.0%	15.0%	0.9%	12.9%
1988	10.5%	0.9%	5.8%	15.4%	1.1%	11.6%	9.4%	0.9%	5.2%	15.2%	1.1%	10.9%	11.6%	0.9%	6.9%	15.6%	1.0%	13.3%
1989	7.2%	0.7%	3.4%	10.5%	0.8%	6.4%	6.7%	0.8%	2.8%	10.3%	0.9%	5.7%	7.7%	0.7%	4.1%	10.7%	0.7%	8.2%
1990	7.0%	0.6%	3.9%	10.5%	0.8%	7.6%	7.8%	0.8%	3.7%	11.8%	0.9%	8.5%	6.1%	0.5%	4.0%	9.1%	0.6%	7.3%
1991	10.3%	1.1%	5.6%	14.7%	1.1%	11.7%	10.1%	0.8%	6.4%	16.0%	1.1%	12.5%	10.5%	1.3%	4.1%	13.3%	1.2%	9.1%
1992	12.7%	1.3%	7.7%	17.6%	1.3%	14.2%	14.3%	1.1%	9.5%	21.1%	1.2%	20.1%	11.1%	1.4%	4.3%	14.2%	1.3%	8.7%
1993	13.0%	1.1%	8.5%	18.3%	1.2%	15.9%	15.6%	1.1%	11.3%	22.0%	1.2%	21.1%	10.4%	1.0%	4.9%	14.6%	1.0%	12.2%
1994	14.4%	1.0%	10.9%	18.9%	1.0%	17.4%	15.5%	1.0%	12.5%	19.8%	1.0%	18.8%	13.4%	1.0%	9.2%	17.9%	1.0%	15.7%
1995	14.6%	1.0%	11.8%	18.9%	1.0%	16.5%	15.4%	0.9%	13.3%	20.0%	1.0%	18.0%	13.7%	1.0%	10.2%	17.9%	1.0%	15.7%
1996	14.7%	1.0%	11.2%	19.2%	1.0%	18.9%	17.2%	1.0%	15.1%	21.4%	1.0%	23.5%	12.2%	0.9%	9.0%	16.9%	0.9%	16.0%
1997	16.5%	1.0%	12.2%	21.1%	1.1%	19.7%	17.1%	1.0%	13.4%	22.0%	1.1%	21.1%	15.9%	1.1%	11.4%	20.1%	1.1%	19.3%
1998	15.9%	1.0%	11.1%	20.0%	1.1%	17.5%	16.8%	1.0%	11.9%	20.6%	1.1%	17.7%	15.0%	1.0%	9.6%	19.4%	1.0%	17.0%
1999	15.4%	1.0%	10.0%	18.7%	1.0%	14.9%	15.6%	1.0%	10.1%	18.4%	0.9%	13.6%	15.3%	1.0%	9.9%	19.0%	1.0%	15.7%
2000	14.0%	0.8%	10.1%	16.9%	0.8%	14.9%	13.3%	0.8%	10.1%	15.3%	0.8%	13.2%	14.8%	0.9%	10.2%	18.4%	0.9%	17.1%
2001	14.9%	0.9%	11.1%	18.0%	0.9%	15.6%	16.1%	0.8%	13.8%	19.3%	0.9%	16.7%	13.7%	0.9%	8.7%	16.8%	0.9%	13.2%
2002	15.4%	0.9%	11.4%	18.6%	0.9%	15.7%	16.2%	0.8%	12.8%	19.7%	0.9%	17.5%	14.5%	0.9%	10.1%	17.5%	0.9%	14.3%
2003	15.0%	0.9%	11.1%	18.2%	0.9%	15.9%	14.6%	0.8%	10.2%	18.4%	0.9%	16.9%	15.4%	0.9%	11.6%	18.0%	0.9%	15.3%
2004	15.2%	0.8%	12.4%	18.3%	0.9%	17.2%	15.3%	0.8%	13.0%	18.3%	0.8%	18.1%	15.0%	0.9%	12.0%	18.3%	0.9%	16.2%
2005	16.3%	0.8%	13.8%	19.5%	0.9%	18.3%	17.3%	0.8%	13.9%	20.5%	0.9%	20.6%	15.3%	0.8%	13.7%	18.4%	0.8%	16.8%

Figure 4-7 Graph on institutional owners and market-to-book ratios
This figure illustrates how mean voting and capital shares held by institutional owners in Swedish corporations listed at the Stockholm exchange have evolved over time. Two groups of firms are formed for each year, (1) high market-to-book firms and (2) low market-to-book firms, based on whether the ratio of market capitalization to book value of equity of the firm is above or below the median value.

When testing for differences the results are even more uncertain (Table 4:12). On the one hand, when looking at all firm-year observations the statistical evidence suggests that institutional owners prefer stocks with high market-to-book ratios. With a p-value of 0.003 and a z-value of -2.995 a significant difference can be stated between the two groups. On the other hand, for the *individual* years tested not a single year shows a significant difference in mean capital shares held by institutional owners. When comparing *voting* shares, only one year (1985) shows a significant difference in institutional ownership levels (α=0.05) – and for that year the results are the opposite of what is the case when comparing all years. It is therefore doubtful whether one can say that the statistical difference also means that there is a substantial difference — as the difference in mean capital share was only one tenth of a percentage point when examining all years (Table 4:11).

Table 4:12 Mann-Whitney U-test: Institutional ownership and market-to-book ratios

This table shows the results when comparing mean voting and capital shares held by controlling owners in high-market-to-book firms and low-market-to-book firms through the rank based Mann-Whitney U-test. For all years as well as for the years 1985, 1990, 1995, 2000 and 2005 mean ranks and number of observations (*N*) for high market-to-book companies (defined as corporations with market-to-book ratio equal to or above the median value) and low market-to-book companies (defined as market-to-book ratio below the median value) are shown. Also, the p-value and the large sample test statistic *Z* are given. For α=0,05 the null hypothesis is rejected if Z<-1,96 or Z>1,96.

	Average voting share, institutional owners			Average capital share, institutional owners		
	Mean Rank High ME/BE	*N*	*P*	*Mean Rank High ME/BE*	*N*	*P*
	Mean Rank Low ME/BE	*N*	*Z*	*Mean Rank Low ME/BE*	*N*	*Z*
All years	2 131.17	2 082	0.005	2 135.17	2 082	0.003
	2 027.68	2 076	-2.780	2 023.67	2 076	-2.995
1985	85.95	95	0.017	88.50	95	0.079
	105.05	95	2.394	102.50	95	1.755
1990	85.78	85	0.942	88.28	85	0.461
	85.22	85	-0.073	82.72	85	-0.736
1995	93.65	88	0.180	92.52	88	0.295
	83.35	88	-1.342	84.48	88	-1.047
2000	113.51	115	0.651	107.33	115	0.063
	117.49	115	0.453	123.67	115	1.861
2005	120.82	115	0.226	121.29	115	0.187
	110.18	115	-1.212	109.71	115	-1.320

4.2.4. INSTITUTIONAL OWNERS AND INDUSTRY SECTOR (H2D)

The level of institutional ownership is also examined with respect to industry sectors, where manufacturing firms are compared with corporations in the service industry. As indicated in Table 4:13, when taking all firm-year observations into account the mean capital share held by institutional investors is higher in manufacturing firms than in service providing firms. Institutional owners' mean capital share in manufacturing firms was 17.5 %, whereas the corresponding figure for service companies was 15.5%.

When focusing on development over time also, the picture is to a large extent similar (Table 4:13 and Figure 4-8). For most of the years, manufacturing firms show a higher level of institutional ownership, but for a period between 1991 and 1995 service providers show higher mean values for institutional owners' capital shares. However, even though we detect some institutional preference towards manufacturing firms from an ocular examination (Figure 4-8), it is only in the 1980s, as well as for a period between 1996 and 2000, that we find clear differences between the two industry categories.

Table 4:13 Descriptive statistics on institutional owners and industry sector

This table shows the voting and capital shares, on a yearly basis, of institutional owners in Swedish corporations listed at the Stockholm exchange. Two groups of firms are shown based on industry sectors (1) manufacturing and (2) services. Industry sectors trading as well as financial services and real estate are excluded.

	Manufacturing						Services					
	Votes			Capital			Votes			Capital		
Year	mean	std err	median	mean	std err	median	mean	std err	median	mean	std err	median
All years	13.5%	0.2%	9.7%	17.5%	0.2%	15.5%	12.5%	0.2%	8.6%	15.5%	0.2%	12.7%
1985	10.5%	0.7%	7.4%	14.1%	0.8%	13.0%	4.6%	0.5%	1.6%	6.5%	0.6%	3.6%
1986	11.0%	0.8%	8.3%	15.4%	0.9%	13.3%	7.0%	0.8%	2.3%	10.2%	0.8%	7.0%
1987	11.8%	0.9%	6.9%	17.2%	1.1%	14.7%	6.9%	1.0%	1.8%	9.2%	1.0%	3.9%
1988	11.7%	0.9%	8.1%	16.6%	1.0%	13.7%	6.5%	1.0%	1.6%	9.8%	1.1%	4.0%
1989	7.7%	0.8%	3.5%	10.9%	0.8%	7.3%	5.3%	0.7%	1.6%	8.1%	0.7%	4.8%
1990	7.2%	0.6%	3.8%	10.6%	0.8%	7.3%	6.2%	0.7%	4.4%	9.7%	0.8%	8.5%
1991	11.1%	1.1%	5.6%	15.4%	1.2%	11.6%	10.2%	1.5%	5.1%	14.0%	1.1%	12.0%
1992	11.5%	1.0%	6.6%	16.5%	1.1%	15.5%	13.7%	1.7%	6.5%	18.2%	1.2%	14.2%
1993	12.1%	1.0%	8.1%	17.3%	1.2%	14.3%	12.9%	1.1%	8.0%	18.0%	1.0%	15.9%
1994	13.8%	0.9%	10.5%	18.2%	0.9%	18.3%	14.5%	1.1%	10.1%	19.8%	1.1%	16.2%
1995	13.8%	0.9%	11.0%	18.0%	0.9%	16.2%	13.4%	0.9%	11.5%	18.5%	0.9%	15.4%
1996	15.2%	1.0%	12.1%	19.7%	1.0%	20.0%	11.4%	0.8%	8.9%	16.2%	0.8%	16.1%
1997	16.7%	1.1%	12.0%	21.6%	1.1%	19.6%	13.0%	0.8%	11.5%	16.9%	0.9%	14.0%
1998	17.0%	1.1%	12.1%	21.2%	1.1%	18.9%	11.8%	0.8%	8.3%	15.1%	0.8%	13.2%
1999	15.7%	1.0%	11.7%	19.2%	1.0%	15.6%	13.0%	0.9%	8.5%	15.2%	0.8%	11.2%
2000	14.6%	0.9%	10.3%	17.6%	0.9%	16.1%	12.7%	0.8%	10.1%	14.5%	0.7%	12.3%
2001	14.9%	0.8%	10.6%	18.1%	0.9%	15.8%	15.0%	0.8%	12.2%	17.5%	0.8%	14.5%
2002	15.5%	0.8%	11.8%	19.1%	0.8%	17.9%	15.0%	0.9%	10.3%	17.5%	0.9%	14.1%
2003	15.6%	0.9%	12.7%	19.0%	0.9%	18.7%	14.5%	0.9%	11.6%	17.0%	0.9%	13.7%
2004	15.4%	0.8%	13.3%	18.7%	0.8%	18.1%	15.2%	0.8%	12.4%	17.5%	0.8%	16.0%
2005	16.8%	0.9%	13.8%	20.0%	0.9%	19.8%	16.6%	0.8%	13.6%	19.2%	0.8%	18.5%

Further, the graph can be interpreted as if the overall dip in institutional ownership that took place in 1989 was an event specific to manufacturing firms, and that the surge that followed was unbiased regarding industry sectors. As discussed in the section on overall development of institutional ownership over time, in conjunction with the liberalizations in early 1990s, a massive outflow of Swedish capital took place and which later was followed by an inflow of foreign capital. When comparing industry sectors the data insinuate that Swedish institutional investors were somewhat biased towards manufacturing firms, whereas this was not the case for foreign institutional investors.

The divergence at the end of the 1990s remains to be explained, and it can be noted that

it coincides with an increase in the number of service firms (see Figure 2-2) and the surge of the IT-industry. If we were allowed to speculate freely, and under the assumption that a characteristic of these firms was that they were owned by institutional owners to a lesser degree, the decline in mean institutional ownership shares might depend on a growth in the number of service companies with different ownership compositions.

Figure 4-8 Graph on institutional owners and industry sector
This figure illustrates how mean voting and capital shares of institutional owners in Swedish corporations listed at the Stockholm exchange have evolved over time. Two groups of firms are shown based on industry sectors (1) manufacturing and (2) services. Industry sectors "trading" as well as "financial services and real estate" are excluded.

The statistical testing somewhat confirms the impression that the difference in level of institutional ownership is existent when looking at all years, but less obvious when examining individual years. Certainly, for all firm-year observations there is a statistically significant difference (α=0.05) between the two groups, where institutional owners have preferred manufacturing firms over service providers. On the other hand, when comparing manufacturing and service firms, only one of the years tested (1985) shows a significant difference. For no other year a difference in levels of institutional ownership

between manufacturing and service industries can be established with statistical certainty (α=0.05).

Table 4:14 Mann-Whitney U-test: Institutional ownership and industry sector
This table shows the results when comparing mean voting and capital shares held by institutional owners in manufacturing firms and service providing firms through the rank based Mann-Whitney U-test. For all years aggregated as well as for the individual years 1985, 1990, 1995, 2000 and 2005 mean ranks and number of observations (*N*) for manufacturing firms and service firms are shown. Also, the P-value and the large sample test statistic *Z* are given. For α=0,05 the null hypothesis is rejected if Z<-1,96 or Z>1,96.

	Average voting share, institutional owners			Average capital share, institutional owners		
	Mean Rank Manufacturing *Mean Rank Service*	*N* *N*	*P* *Z*	*Mean Rank Manufacturing* *Mean Rank Service*	*N* *N*	*P* *Z*
All years	1 570.01 1 480.29	2 210 878	0.012 -2.523	1 584.52 1 443.77	2 210 878	0.000 -3.958
1985	71.60 43.80	111 22	0.002 -3.092	71.90 42.27	111 22	0.001 -3.295
1990	60.23 54.48	92 25	0.452 -0.753	59.89 55.72	92 25	0.585 -0.546
1995	64.70 61.52	99 28	0.686 -0.404	63.60 65.43	99 28	0.816 0.233
2000	94.42 88.09	113 70	0.432 -0.785	96.81 84.23	113 70	0.118 -1.562
2005	89.85 91.70	117 63	0.821 0.226	91.01 89.55	117 63	0.857 -0.180

4.2.5. INSTITUTIONAL OWNERSHIP RECAPITULATED

Contrary to what can be seen for controlling ownership, the overall level of institutional ownership has increased significantly. It is also clear that the mean capital share held by institutional investors systematically exceeds the mean voting share for each and every year studied.

It is laid down in the analysis that institutional investors clearly prefer large firms over small firms. Moreover, the data suggests that institutional owners prefer value shares to glamour shares and manufacturing firms over service companies, but when looking at the data on a yearly basis it is somewhat difficult to support such results with statistical significance. In short, the results concerning institutional owners are in line with what was expected.

5. CONCLUSIONS AND FURTHER RESEARCH

5.1. CONCLUDING DISCUSSION

This study rests partly on an overall preconception that ownership structure of corporations might depend on, in addition to legal and other institutional forces, some firm and industry specific factors. The changes in legal frameworks and institutional milieu that have occurred during the time period studied also give rise to the question of how ownership structure has evolved over time. Based on this the overall research question was formulated:

Does ownership structure in terms of controlling and institutional ownership vary with firm and industry specific factors, and how has the aggregated power of these owner groups developed over time?

Besides legal and macro-economic factors, the financial literature also suggests a number of firm and industry specific factors that might be of importance for determining ownership structure. Based on this literature two hypotheses were formulated that predicted that the level of controlling ownership (first hypothesis) as well as the level of institutional ownership (second hypothesis) depends (or does not depend) on (a) time, (b) the firm size, (c) the firm's market-to-book ratio and (c) what industry sector to which the firm belongs.

It can be firmly concluded that the scope for both controlling and institutional ownership has changed substantially over *time*. The overall propensity to take controlling positions (i.e. voting power of ten percent or more) in corporations has declined over the time period studied as institutional ownership has increased. Considering the changes in legal frameworks and decreased transaction costs (including information costs) that follow from advances in technology (especially within information and communication

technology), this confirms conventional wisdom and it is in line with our expectations.

Firm size has evidently been important for the shaping of ownership structure. There is among institutional owners a clear preference for large firms over small firms, which is true for all years included in the study. This is a confirmation of earlier literature emphasizing the importance of liquidity (which is highly correlated with firm size) of a company's stock for investor sentiments (Coffee (1991), Bhide (1993), Bolton and von Thadden (1998), Gompers and Metrick (2001)), where institutional owners show a clear preference for liquidity over control. More surprisingly, though, and perhaps one of the main findings of this thesis, is the results on the relationship between firm size and the level of controlling ownership. It was anticipated that there should be a clear negative relationship between market capitalization and level of controlling owners (Demsetz and Lehn (1985), Bergström and Rydqvist (1990), Pedersen and Thomsen (1999)), but although this is true historically, this study reveals that this relationship is disappearing for Swedish listed companies. Over time the mean voting and capital shares held by controlling owners in small versus large firms have converged – lately it is even the case that controlling ownership tend to be more present in larger firms than in smaller firms.

This unanticipated convergence in level of controlling ownership between large and small firms contradicts former theory and empirical findings, and some explanation of why we see these results is needed. A tentative historical explanation could be that the overall need for controlling owners has decreased as information costs have decreased, the scope for institutional investors have increased, and that larger firms have not adjusted as quickly as have smaller firms. The reason for this, in addition to the simple fact that changes take more time in large organizations, could partly be that larger firms also tend to be "older" firms with established ownership structures that are changed with more

friction than in "younger" firms. These are mere speculations and the phenomenon is certainly in need of further systematic examination.

When looking at the relationship between *risk* and ownership structure we find some evidence for a negative relationship between market-to-book ratios and level of controlling ownership, at least for the post-1990 period. This is what was expected from existent theory stating that the scope for controlling ownership increases with firm risk (Demsetz and Lehn (1985), Bergström and Rydqvist (1990), Pedersen and Thomsen (1999)). When interpreting the statistical results from tests of relationship between market-to-book ratios and institutional ownership it must be concluded that the evidence for a difference in mean levels is weak, especially when looking at individual years. The lack of evidence for some firm specific risk preference among institutional investors is in line with what is predicted by traditional finance theory — investors only take systematic risk and eliminate firm-specific risk through diversification (Sharpe, 1964).

When investigating the importance of the industry sector for determining the presence of controlling and institutional ownership it was anticipated that the level of controlling ownership should somewhat depend on industry sector whereas institutional owners, in line with what has been said about firm specific risk, would be indifferent to industry sector. For instance, Demsetz and Lehn (1985) have proposed that amenity potential and industry specific regulations cause differences between industries in terms of ownership structure. Furthermore, Helwege *et al* (2007) have suggested that the degree of asset tangibility could have consequences for whether firms become widely held, which would imply that manufacturing firms would tend to be more widely held than service providers. In this study it can not be concluded that, apart from the last years in the studied time period, the industry sector to which the firm belongs to is of any significant

importance for determining the degree of controlling ownership. When it comes to institutional owners and industry sectors they have tended to be somewhat biased towards manufacturing firms over service providing firms. However, this result is not entirely clear when looking at individual years and before accepting such a relationship when the evidence is that weak the correlation between industry sector and firm size should be investigated. It is not improbable that manufacturing firms tend to be also large firms, and that the difference between industries are explained by firm size rather than the industry sector itself.

To return to the initial question, it can be concluded that ownership structure definitely is related to the size of the firm and also to some degree to market-to-book ratios. On the other hand it is doubtful that this study has shown that industry sector is of much importance for determining ownership structure. The most prominent factor though in this study is time. It is clearly the case that over the years studied the extent of controlling ownership has decreased significantly and at the same time institutional ownership has increased.

How should we put these findings into context then? One way of looking at it could be that the institutional framework surrounding capital investments has improved over time, so that the situation of the minority owner is better today than yesterday. The lower search costs for information, the improved functioning of financial markets, the increased protection for small investors that follows from a more regulated financial industry and more elaborated corporate governance systems are examples of changes that have made the minority owner an easier role to play. Minority owners have usually been in the most troublesome position as they lack the influence possessed by both management and majority owners. With better minority protection and transparency the

scope for placing your savings in company shares, directly or through financial intermediaries, increases – and the results of this study could be a sign for that this actually is the case. If so, it could be argued that we should be content as we have witnessed an increase in the protection of the weakest part in the contractual relations in a joint stock company. This should also be beneficial for society at large, as the decreased risk faced by small investors convey the consequence that the overall cost of capital becomes cheaper due to the increase in supply of finance. In turn, this would be beneficial for societal growth.

Another way of approaching the findings of this study is that the dispersion of ownership together with the collective action problem could lead to further enhancement of a *shareholder wealth maximization* objective when evaluating company performance. The view stating that as the shareholders bear the *residual* risk and all other stakeholders have *fixed claims* on the corporate assets the maximization of shareholders' utility would also lead to the satisfaction for other stakeholders (Fama and Jensen, 1983). With such a view and where the ownership consists in a multitude of individual investors the least common denominator in terms of utility for shareholders would most likely be dividends and increases in share price. This could be desirable, Jensen (2002) argues that shareholder wealth maximization coincides with social wealth maximization and should therefore be strived for. However, even he admits that such a conclusion rests on the absence of monopolies and externalities[50]; and when considering the environmental problems facing us today such a thesis is questionable to begin with. Another reservation,

[50] What Jensen (2002) literary writes is: *"When monopolies or externalities exist, the value-maximizing criterion does not maximize social welfare. By externalities I mean situations in which the decision-maker does not bear the full cost or benefit consequences of his or her choices, water and air pollution are classic examples. But the solution to these problems lies not in telling firms to maximize something else, but in defining and assigning the alienable decision rights necessary to eliminate the externalities."* However, Jensen (2002) does not provide with an explanation how such alienable decision rights should be addressed in a just and morally acceptable way. The rights to breathe clean air and drinking non-poisonous water are generally considered human rights, and how it is possible to discuss property rights and at the same time ignoring other human rights is not entirely clear from reading his text.

somewhat related to the former, towards shareholder wealth maximization is to be found in *stakeholder theory* (e.g. Freeman (1984) and Donaldson and Preston (1995)) that has become the main conceptual contender to the shareholder wealth maximization objective. The core reasoning is that a corporation can not be run only in the shareholders' best interest. Instead everyone that holds stakes in the corporation (e.g. employees, creditors, suppliers, customers and society at large) deserves to be considered in its own right, rather than as a mean to further the interests of shareholders (Donaldson and Preston, 1995). From such a point of view it could be stated that the shift in ownership structure is not entirely positive, but results in some drawbacks as well. For instance, concerns have been expressed in the public debate that a lack of dominating owners also makes it more difficult to address responsibility when firms are perceived as not fulfilling their obligations towards others than shareholders. This is not a thesis on what the objective of the firm should be, but if a decrease in controlling ownership and an increase in institutional ownership lead to the adoption of a shareholder view, then it is relevant to take this kind of argumentation into account if we want to evaluate whether the development of ownership structure is desirable or not.

Without any doubt, the findings of this thesis can be understood in different ways depending on perspective and preconceptions (as illustrated in the above paragraphs). There are yet many questions to be asked and answered and, as stated already in the beginning of the thesis, a continuous study of causes and consequences of corporate ownership is much needed. Potential questions involve such meta-questions like how ownership of corporations affect society at large or for certain groups that are considered to be of special interest, as well as questions encompassing the companies *per se*. This particular study opens up for a lot of exciting research problems — especially of the latter kind.

5.2. FURTHER RESEARCH

This licentiate thesis is not merely a product that stands alone. It can also be described as an investment for coming studies. In other words, the gains of the work done on collecting and arranging ownership data are not limited to this thesis — it can also be used to analyze an array of research questions encompassing ownership and various aspects of corporate characteristics or behaviour.

At least two main, and conceptually different, streams of further research may be regarded as of vital importance. *First*, the examination of determinants of ownership structure can be enhanced, for instance, concerning the choice of variables included (e.g. liquidity and volatility) as well as the choice of methodology. *Second*, and perhaps more interesting, we can move from studying the determinants of ownership structure to study how ownership structure determines corporate behaviour and performance.

Regarding further study of the determinants of ownership structure this thesis has investigated the importance of firm size, market-to-book ratios and industry sector by comparing means using the Mann-Whitney U-test. An improved study could be based on multivariate analysis where the variables are analyzed simultaneously, and correlation between variables controlled for. Further, the choice of independent variables would be revised. As discussed in this thesis the choice of market-to-book ratio as a proxy of risk is in line with for instance the series of papers by Fama and French (e.g. 1992, 1995) that have given rise to a continuously increasing mass of research on risk and return. However, a developed study could, besides size and ME/BE, also include beta (despite the methodological concerns expressed on volatility measures previously) and momentum effects (c.f. Jegadeesh and Titman, 1993) so that a more complete set of risk factors are taken into account. Other variables could be included in the search for

determinants of ownership structure, e.g. more detailed industry specificities (as in Thomsen and Pedersen, 1998) or proxies of hard assets (as used by Helwege *et al*, 2007).

Although there is room for further research on the determinants of ownership, the real opportunity most likely lies within the study of how ownership structure affects firms' performance and behaviour. If anything the existent literature has shown that corporate governance matters for how firms perform, and the ownership of corporations is a vital part of the governance structure as a whole. It would therefore be of interest to fully take advantage of the data and investigate how ownership patterns influence corporate financial performance in terms of returns, investments, dividends, and capital structure to mention some. Further, the increasing quantification of non-financial aspects of corporate behaviour opens up for studies on the relationship between ownership structure and aspects of corporate life such as for instance gender equality, employee healthcare and sustainability policies.

To summarize, this thesis opens up for a great many potential studies where ownership may be studied empirically in relation to virtually any quantifiable variable to ask questions that previously has been restrained to a more qualitative research methodology.

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APPENDIX A: INSTITUTIONAL OWNERS

The following owners are in this study identified as institutional owners. They appear as they are named in the books of Sundqvist *et al* (1986-2006), which means that the same owner might appear several times as the name has changed more or less between different years in the books.

1818 Fund II L P
3C fonder
Abacus Ltd
ABB pensionsstiftelse
ABB pensionsstiftelser
Abelia Investments Ltd
Aberdeen fonder (Lux)
ABG Securities
ABN AMRO Bank NV
ABV: Allmänna pens stift
ABV:s aktiefonder
ACH Securities AB
ACM Global Inv (Lux)
Acorn International
ADIG fonder (Tyskland)
Advantus fonder (USA)
Advokatsamfundet fond
Aeltus fonder (USA)
Aetna Fonder (USA)
AFA Försäkring
Aga:s aktiesparfond
Agria Försäkring AB
AIB Securities Serv (Irl)
AIM Fonder (Texas)
AIM fonder (USA)
Akelius Insurance fonder
Akron pensions stiftelse
Aktie-Ansvar fonder
Aktieinvest
Aktieinvest Andelsägare AB
Aktiv Placering
Aktiv Placering AB
Alandia Försäkrings AB
Alanford Ltd
Alaska Perm fonder (USA)
Albany Intl Assurance Ltd
Aldan Holding BV
Alecta
Alfa Laval pens stift
Alfred Berg Finland fonder
Alfred Berg Fonder
Alfred Berg Fondkommission
Alfred Berg SE
Alfred Berg Svenska Fond AB
ALKA Forsikrings A/S (Dan)
Allchurches fonder
Alliance Capital Partner AB
Alliance fonder (USA)
Alliance Intl Fin Serv Ltd
Allstate Insurance Co (US)
Alpha Insurance Ltd
Amco Holding S/A
America Global opportunities
American Europe Fund
American Expr fonder (USA)
American Express Retr Plan
American Finance Serv Inc
American Insurance Group
AMF Försäkring AB
AMF Pension
AMF Pension fonder
AMF pensionsförsäkr AB
AMF sjukförsäkring AB
AMF TFA Försäkring AB
Amplus fond
Andelsbanken A/S (Danmark)
Andra AP-fonden
Ansvar aktiefond
Ansvar Försäkring AB
Ansvar Försäkrings AB
Ansvar Ömsesidig
Anticimex aktiesparfonder
AP Pension Livfors A/S
AP Pension Livförsäkr
AP Pension Livsfor A/S
Ape Invest Aps
Apotekets pensions st
Apotekets pensionsstiftelse
Apoteksbolagets pens stift
Aragon fonder
Aragon Fondkommission
Aragon Fondkommission AB
Aragon Fondkommission Ab/nb
Aragon Holding S/A
Aragon Holding SA
Arbitrage Ltd
Arja Ltd
Armerad Betongs pens stift
Armour Capital Partners LP
Arnold C&J Revocable Trust
Aromaizels AB
Aros Securities AB
Arrow Partners LP
Article Fourth Trustees
Asea:s aktiesparfond
Assurans-Compagniet Baltica
Ataren Holding BV
Atlas aktiesparfond
Atlas Copco Fond AB
Atlas återförsäkringar
Atle Förvaltnings AB
ATP Danmark
ATP Fondsektion
Australian Eagle Life Ltd
Australian Intl Fund
Avanse fonder
Avanza Pension Försäkring AB
Avenir fonder (Finland)
AXA Group
AXP fonder (USA)
Azimut Gestione fonder (It)
B&B Fondkommission AB
B.E. Kapitalförvaltning AB
Baep Nord LLC (USA)
Bahco
Baille Gifford fonder
Baltica Bank A/S
Banc Cantrade AG (Schweiz)
Banco aktiefonder
Banco fonder
Bankers Trust Ltd (London)
Banque Cantrade Schweiz
Banque Carnegie Lux fonder
Banque Invik Luxembourg Fil
Banque Invik Luxembourg Sa
Banque pour l'Industrie
Banque Scandinave en Suisse
Barclays Global Investors
BarkwoodTrading Ltd
Basildon Investments Ltd
BBH fonder (USA)
BBVA fonder
Bear & Stearns Sec
Begab AB pensionsstiftelse
Beijer Capital
Beijer Utdelningsfond
Belgacom SA Pension Fund
Berg fondkommission

Bergen fonds (Norge)
Bikuben Girobank
Björkhaga Plantskola pen st
Björkhem Finans
BlackRock fonder (USA)
Bliwa Livförsäkring
Blue Ship Securities Ltd
Bofors AB personalstiftelse
Bohnstedt von Horn fond
Bohusbanken
Borgen Värdepappersfond
Boston Safe D&T Co (USA)
Bowater Inc Pension Trust
BPMT fonder (Holland)
Brandförsäkringsverket
Brandkontoret i Sthlm
Brandkontoret i Stockholm
Brideglen Impex Ltd
Britannia Life fonder (UK)
Britel Fund
Brunei Investment Agency
BS Pension Fund
BT Baltrade Ltd.
BT fonder (Aus)
BT International Funds
BT Intl Funds (Aus)
BT Pension Scheme
Buckden Ltd
Buhrman Pensioenfonds
Bylock Invest SA Geneve
Cabanco Fondkommission AB
Caesar Fund Ltd
Camelot fond
Cape World Investments Ltd
Capital Group fonder
Capital House Inv Mgt Ltd
Carlson Investment Mgt AB
Carnegie
Carnegie FK Finland AB
Carnegie fonder
Carnegie fonder (Luxemburg)
Carnegie Fondk pens st
Carnegie Fondkommission AB
Carnegie Investment Bank AB
Carneige/Sveabank aktiefond
Cartos Finans AB
Case Asset Management fonder
Catella aktiefonder
Catella fonder
Catella Holding AB
Catena
Cazenove fonder
CDC fonder (Lux)
CDC Ixis fonder
Cellwood Leasing AB
CF fonder (GB)
CF Odey European Trust
CFS fonder
Charterhouse Bank
Charterhouse Bank Ltd (GB)
Charterhouse Finance
Cibc Wood Gundy Plc
Citadel fonder
Citadel fonder (CA)
Citi New York Group Trust
Citibank (London)
Citibank London fonder
CitiBank Lux fonder (Lux)
Citigroup Global Markets Ltd
City Börsplanering
Coeli fonder
Cogent fonder (Aus)
College Retirement Eq Fund
Columbia fonder
Commerz-Invest fond
Comp Financiere Montchoisi
Concita fond
Congen AB
Consensus allemansfond
Consensus Fondkommission
Constructor Finans AB
Control Investment Ltd
Coutts & Co (London)
Coutts fonder (UK)
Credit Suisse
Credit Suisse First Boston
Credit Suisse First Boston Ltd
Credit Suisse fonder (CH)
Cref Lending SA
CREF New York
CRM
CS Intl Eq Fund (Japan)
CTCL-Partners European Fund
D. Carnegie
D. Carnegie AB
Daiwa Bank fonder (Japan)
Dalaney Investments Ltd
Dalarnas Försäkringsbolag
Dan Assurance Consult A/S
Danica Livforsikring AS
Dansk Sjöassurance
Danske Bank AS
Danske Invest fonder
Delphi fonder
Delta Master Trust (USA)
Den Danske Bank fond
Den Danske Bank Sthlm
Den Norske Bank (Oslo)
Den Norske Bank filial
Den Norske Creditbank
Dendron Investments BV
Deutsche Bank
Deutsche Bank AG
DFA fonder (USA)
Didner & Gerge aktiefond
DLG aktiefond
DnB Investor fonder
DnB Investor fonder (Norge)
DnB Investors fonder
DnB NOR fonder
DnB/Carlson fonder
Dodgebridge Ltd
Dreyfus Management (USA)
Dunbar Allied Intl
Dutch-Nordic Insurance
Eagle Star Investment
East Capital fonder
Edison Venture Fund
Edisson Venture Fund
EDM fonder (Lux)
EFG Investment Bank AB
Egerton fonder
Egerton fonder (Irland)
Eikos fond
Ekorren Trygghetsfond
Electrolight Investment Ltd
Enact Holdings Ltd
Ensk Bankens pens st
Enskilda Fondkommission
Enskilda Securities AB
Enter fonder
Enterprise Funds (USA)
Equity Trust Co NV
Erik Penser Fondkommission
Esab aktiesparfond
Eureka fonder
Euroc Kapitalsparfond
Eurocs aktiefonder
Eurofondo FIM (Spanien)
Europe Fund Inc (USA)
European Equity Partners BV
European Financial Services
European Growth Fund (USA)
Federated fonder (USA)
Femte AP-fonden
Fidelity fonder
Fidelity fonder (England)
Fidelity fonder (Kanada)
Fidelity fonder (Luxemburg)
Fidelity fonder (USA)
Fides Fondförvaltning AB
Fiduciary Trust
Finans inst for Industri
Finanssektorns pens st
Finanz Capital Ltd
Finnmezzanie fonder
Finska statens pensionsfond
Finter Bank Zurich
First Eagle SoGen fonder
Firstnordic fonder
Fischer Capital Ltd
Fischer Partner Fondkommission
Fischer Partner Fondkommission AB
Fischer Partners FK AB
Fisher Capital Ltd
Fisher&Partner fonder

Fjärde AP-fonden
FK fonder
Flemings fonder
Folksam
Folksam aktiefonder
Folksam fonder
Folksam Försäkring
Folksam Försäkring AB
Folksam inkl AMFsjuk
Fond 92-94
Fonden Aktiv Förmögenhetsf
Fondfinans A/S
Fondspar/Fondinvest
Fort Ord Investment Ltd
Foxx & Sisler BV
FPG/AMFK
Frame Financial Inc England
France BBL (Frankrike)
Franklin Mutual Series Fund
Franklin-Templeton fonder
Fristående Sparbanker
Futuris fond
Fyrspannet fond
Förbundsdepå Robur
Förbundsfonden
Förenade Liv
Föreningsb Försäkr AB
Föreningsbank aktiefonder
Föreningsbanken
Föreningsbanken aktiefonder
Föreningsbankens Allemansf
Föreningsbankerna
Föreningsbankernas bank
Föreningsspar (inkl option
FöreningsSparbanken
Förs bransch pens kassa
Första AP-fonden
Första Sparb aktiefonder
Första Sparbank aktiefonder
Försäkringsbol pens kassa
Försäkringsbransch pens st
Försäkringsbranschens pensionsstift
G E Capital
Gabelli fonder (USA)
Gadd & Co fond
Galaxy Foundation Ltd
GAM fonder (USA)
Gartmore fonder
GCG Trust fonder (USA)
Genchem fonder (Kan)
General Electric Pens Plan
General Electric pens trust
General Electric Pension Tr
General Motors pens fond
General Motors pens fund
Geveran Trading Co Ltd
GIMV (Belgien)
Gjensidige Livforsikring
Glaxo Wellcome Pension Plan
GLG fonder (Irland)
GLG Performance Fund
Global Health Sciences Fund
Global small Cap Fund Inc
Globe Investment Trust (GB)
GMO International Funds
Goldman Sachs
Goldman Sachs fonder
Goldman Sachs International
Good Hope Foundation Trust
Gota Bank
Gota Bank (via HäPo)
Gota Trygg aktiefonder
Gotabanken
Gotabanken handelslager
Gotabankens aktiefonder
Gotabankens pensions stift
Government of Kuwait
Govt of Singapore
Govt of Singapore Inv Corp
GP Börsmaeglerselskab A/S
Greater Europe Fund (USA)
Greig Middleton Co Ltd
Griffin fonder
GT Europe Fund NV
GT European Fund Luxemburg
Gudme Raaschou fonder
Gustavus Capital fonder
GWC Invest pension stift
Götabankens pensions st
Göteborgs Kommun fonder
H&H Northern Europe BVBA
H&Q pensionsstiftelse
Hafnia Forsikring
Hafnia Forsikring A/S
Hagströmer Fondkomm pens st
Hagströmer Fondkommission
Hagströmer&Qviberg aktief
Hagströmer&Qviberg FK
Hansard International Ltd
Harbor Funds Inc
HBK Master Fund LP
Heine Securities Corp
Helsingfors Sparbank
Henderson Investors
Henderson London
Heritage Finance & Trust Co
Hermes Focus Asset Mgmt
Hermes Investment Mgmt Ltd
Highfields Funds
Hillside Ind o Wellb Trust
Holding Aps (Danmark)
Horsens Sparekasse (Norge)
Hotchkis&Wiley fonder (USA)
HQ fonder
HQ.SE fonder
HSBC fonder
HSBC fonder (USA)
HSBC Investment Bank Plc
Hägglöf&Ponsbach FK
Hägglöfs fondkommission
If Försäkring AB
If Skadeförsäkring AB
Ikea Finance S/A
Ilmarinen Försäkring AB
Inceptor Investment 1995 Lt
Industri Kapital 1989 I-IV
Industriforsikring
ING fonder (USA)
Ingeniör Pensionskasse
Institutionella investerare
Intermediate Cap Inv Ltd
Interpais Beheer(Amsterdam)
Intrinsic aktiefonder
Invesco fonder (USA)
Investeringsbanken
Investeringsfinans AB
Invit Aktiefond
Invit fonder
Invit Fonder AB
IPG Interactive Inv Corp
Irish Life Insurance Co
Ivy fonder (USA)
Ivy International Fund
J Baer fonder (Lux)
Janus Fonder (USA)
Japan Associated Finance
Japo fondkommission
Jokkmokks Sparbank
JP Morgan Securities
Jp Nordiska
JP Nordiska Bank
JPMorgan Asset Management
JRIA JRIML fonder (Irland)
Julius Baer fonder (Lux)
Jurister o Ekonomer p st
Jämtl Folkb vinstandel st
Kammarkollegiets fondförv
Kauphting Bank Sverige AB
Kauphting fonder
Kaupthing Bank HF
Kempen & Co NV fonder
KF:s pensionsstiftelser
K-fondene AS
KNP BT Pensioensfonds
Kommunals Pensionsstiftelse
Kommunernas Försäkrings AB
Kommunernas pensionsförsäkr
Kommunernes Förs Selskab
Kommunernes pens förs
Kommunförb pens stift
Kooperativa pensionsfonder
KP Pension & Försäkring
KPA Fond & Finans
La Poya Investment Ltd
Laegarnas Pensionskasse
Lafarge UK Pension Plan

LAL Partner AB
pensionsstiftelse
Landia Försäkring
Lannebo fonder
Laxey Partners (UK) Ltd
Lazard fonder (USA)
Lazard Freres et Cie, Paris
LD fonder
Lehman Brothers
Lerche&Co
LGT Asset Mgmt Plc
Livia Livförsäkringsbolaget
Livkronan Försäkring
LK Kapitalfonds (Lux)
Lloyds Bank PLC London
Lombard Odier&Cie
Longmoor Trading Ltd
LRF Försäkring AB
Läkarförbundets pens stift
Läkartjänst pensions stift
Länsförsäkring Bergslagen
Länsförsäkring Blekinge
Länsförsäkring Gotland
Länsförsäkring Gästrikland
Länsförsäkring Gävleborg
Länsförsäkring Göinge
Länsförsäkring Göteb&Bohus
Länsförsäkring Halland
Länsförsäkring i Vill
Länsförsäkring Jämtland
Länsförsäkring Jönköping
Länsförsäkring Kalmar
Länsförsäkring Karlstad
Länsförsäkring Kronoberg
Länsförsäkring Liv
Länsförsäkring N V Skåne
Länsförsäkring Norrbotten
Länsförsäkring NV Skåne
Länsförsäkring nya Liv
Länsförsäkring S Skåne
Länsförsäkring Skaraborg
Länsförsäkring Skåne
Länsförsäkring Sverige
Länsförsäkring Södermanland
Länsförsäkring Uppsala
Länsförsäkring Wasa fonder
Länsförsäkring Värmland
Länsförsäkring Västerbotten
Länsförsäkring Västernorrla
Länsförsäkring Västmanland
Länsförsäkring Älvsborg
Länsförsäkring Örebro
Länsförsäkringar
Länsförsäkringar Bergslagen
Länsförsäkringar fonder
Länsförsäkringar Gotland
Länsförsäkringar Gävleborg
Länsförsäkringar Göinge
Länsförsäkringar Jönköping
Länsförsäkringar Kronoberg
Länsförsäkringar Skåne
Länsförsäkringar
Södermanland
Länsförsäkringar Villands
Länsförsäkringar Västerbott
Länsförsäkringar Västernorrl
Länsförsäkringar Älvsborg
Länsförsäkringsbolag
Länsförsäkringsbolag (10st)
Länsförsäkringsbolag (12st)
Länsförsäkringsbolag (4st)
Länsförsäkringsbolag (6st)
Länsförsäkringsbolagen
Länsförsäkringsbolagens AB
Länsförsäkringsgruppen
Länsförsäkrings-Sfären
Lärernes Pensions A/S
Lärerstandens Brandforsikr
Lönmodtagarnes Dyrtidsfond
Löntagarfonder
M&G Innovator Fund
Magistrenes Pensionskasse
Magistrenes Pensionskasse
(Dk)
Mandatum fonder
Manenda Trading Ltd
Mangold Fondkommission
AB
Manticore fond
Marathon Asset Management
Marathon Asset Mgt
Mariann AB
Marshall fonder (USA)
Massmutual Inst Funds
Matheson Investm Ltd
Matteus Fondkommission AB
Maxine Holdings Ltd
Meiji Life Insurance Comp
Melchior fonder
Mentor fonder (USA)
Merchant fonder (Danmark)
Merchant fondkommission
Merchant Fondkommission
AB
Mercury fonder (USA)
Meridian fonder (USA)
Merita AB pensionsstiftelse
Merita AB:s Pens stiftelse
Merita AB:s Pensionskassa
MeritaNordb (inkl option)
MeritaNordbanken
Merlin fond
Merril Lynch fonder
Merrill Lynch fonder (USA)
Merseyside Pension Fund
Mersy Investment Co Ltd
Metzler Intl Investment Plc
MFS fonder (USA)
Midt-Norge Fonds A/S
Minnesota State pens fond
MLC Life Ltd
Moderna Försäkringar AB
Moderna Försäkringar Liv AB
Monetary Auth of Singapore
Montagu fondkommission
Morgan Grenfell London
Morgan Stanley Equity
Finance AB
Mourant & Co Trustee Ltd
Murray Europan Fund
Murray Funds
Murray Johnstone Ltd
Mutual Life&Citizens Ass
N Applegate fonder (USA)
National Westminster Jersey
Nations Intl fonder (USA)
Nationwide fonder (USA)
NCB Stockbrokers Ltd
NCC pensionsstiftelse
NCR Pension Trust (USA)
Nektar Fond
Nelson Gunnar AB pens stift
Net Fondkommission AB
Net Fonds ASA
New Economy Fund (USA)
New Europe Fund
Newton IM fonder
NFU Mutual fonder
Njord Försäkrings AB
NOM (Holland)
Nomura fonder (Japan)
Nomura International Plc
Nordbanken
Nordbanken pensonsstift
Nordbankens aktiefond
Nordbankens aktiefonder
Nordbankens pensions st
Nordbankens pensions stift
Nordea
Nordea Bank
Nordea Danmark fonden
Nordea fonder
Nordea Invest fonder (DK)
Nordea Livförsäkring
Nordea pensionsstiftelse
Nordea Securities
Nordea Securities AB
Nordia Fondkommission AB
Nordic Hedge Fund Ltd
Nordic Recovery Fund
Nordiska Fondkommission
Nordnet Pensionsförsäkring
AB
Nordnet Securities Bank AB
Norgeinvestor Verdi ASA
Norse Securities A/S
Norske Liv Livforsikring
Northern Trust (GB)
Northwest Mutual Life Ins
Northwestern fonder (USA)
Nortwestern fonder (USA)
Norum Invest AB
Nothern Light Fund Ltd

Nove Capital fond
Novitus kapitalförv AB
Oakmark International
Odey fonder (GB)
Odin Fondene Oslo
Odin fonder (Norge)
Omega Invest Pensionsstift
Oobab Trading AB
Oppenheimer & Co
Oppenheimer fonder (USA)
Oppenheimer Fund
Oppenheimer Global Fund
Optimalia Försäkrings AB
Optionsavanz I Stockholm
OZ Holding
Painwebber fonder (Boston)
Parcitas Investment SA
Pavilion Life Insurance Ltd
PCM Global Growth Fund
Pecunia fond
Pecunia Investment Corp
Pembroke Inv Mgmt Ltd
Penser Capital AB
Penser fonder
Penser Fondkommission AB
Pensioenfonds PGGM (Hol)
Pensioensfonds PGGM (Hol)
Pensions Management Ltd
Pensionservice A/S (Dk)
Pensions-Fennia Öms Förs
Pensionskassernas Adm kont
Persson&Co fondkommission
PFA Pension (Danmark)
PGM Partners Trust
Pharmacia Fond
Pharos aktiefond
Phildrew Fund
Philip&Drew Fund
Philips pensionsfond
Phoenix fonder (USA)
Phoenix Funds
Pictet & Cie
Pictet fonder
Pictet fonder (USA)
Pierson Holding&Pierson NV
Pilgrim fonder (USA)
Pioneer fonder (USA)
Pioneer Investment fonder
PKbankens aktiefonder
Pkbankens pensions stift
Pkbankens pensionsfond
Placeringsfonden FBF-risk
PM Fondkommission AB
Pohjola Försäkring AB
Porjeskog Liv
Posten pensioensstiftelser
Posten pensionsstiftelser
Praktikerfinans AB
Praktikerinvest AB
Praktikertj pens stiftelser
Praktikertjänst pens stift
Preferred fonder (USA)
Premier Life Ltd
Price Waterhouse pens stift
Prim Wayne (USA)
Prime Selection Int Ltd
Principal fonder
Principal Group (USA)
Prioritet Capital
Privatbanken A/S (Danmark)
Procuritas Cap Partners II
Prudent Bear fonder
Prudential fonder (USA)
Putman Global Growth Fund
Putnam Fonder (USA)
PWC Sverige AB pensionsst
PVF Nederland N.V.
Quaestus Ltd
Quantum Fund
Radar fond
Railways Pension Company
RAM One fond
Ramius Fund Ltd
Rayman Finance Ltd
Raystar Investment Ltd
Reabourne Melin Life Inv Tr
Redarnas Försäkring (Fin)
Reeves Bros Pens Pl (USA)
Reiten & Co ASA
Reservoiren pensionsstiftelse
RG Europa Fund NV
RG Europe Fund NV
RG fonder (Holland)
Riserva Ltd
RKA Ömsesidig Livförsäkring
RMI Försäkring AB
Robur fonder
Robur Förbundsfond
Robur Sparfond
Roburs aktiefonder
Roburs förbundsdepå
Rolinco N V Holland
Rolinco NV (Holland)
Rosebud Corp (CH)
Royal Bank of Canada
Royal Bank of Scotland
Royale Belge AS
Safe International Förs AB
Sal Oppenheimer & Cie
SalusAnsvar
SalusAnsvar Öhman fonder
Sampo fonder
Sandberg&Ahrsjö
Sar:s pensionskassa
Sarasin&Cie
Sarcelle Ltd (Irland)
Saudi Aramco Trust Co
SCA Capital fonder
SCA pensionsstiftelse
SCA pensionsstiftelser
SCA Personal stiftelse
SCA:s aktiesparfond
Scan Finansförvaltning AB
Scancem fonder
School Emp Retrm Sys
Schroder fonder
Schroder Invest Mgm (GB)
Schroder Investment
Scottish Amicab Trust (UK)
Scudder fonder (USA)
Seattle City Empl Ret Sys
SEB
SEB fonder
SEB Företagsinvest AB
S-E-Banken
S-E-Bankens aktiefonder
SEBankens pensions st
S-E-Bankens pensions st
S-E-B-Sfären
SEB-Trygg Försäkring
Sector Management fonder
SEI fonder (USA)
Seligson fonder (Fin)
Servisen Fondkommission
Setton AB pensionsstiftelse
SHB
SHB (inkl option)
SHB (Luxemburg)
SHB fonder
SHB fonder & Livförsäkring
SHB Livförsäkring AB
SHB pensionskassa
SHB Pensionsstiftelse
SHB personalstiftelse
SHB/SPP fonder
SHB:s aktiefonder
SHB:s Livförsäkrings AB
SHB:s pensions stiftelse
SHB:s pensionskassa
SHB:s pensionsstiftelse
SHB:s personalstiftelse
Shell Pensioenfonds
Shousen Corp
Shousen Corporation
SII Funds (USA)
Simms fonder (Lux)
Simplicity fonder
Sirios Capital Management
Sirius
Sirius International AB
SJ A/S
SJP fonder (GB)
Sjunde AP-fonden
Sjöbefälets pensionskassa
Skagen fonder (Norge)
Skand Bankens pensions st
Skandia
Skandia Aktiesparfondförv
Skandia Carlson fonder
Skandia fonder
Skandia Global Funds
Skandia International
Skandia Investment AB

Skandia Liv
Skandia pensionsstiftelse
Skandia stiftelser o fonder
Skandiakonc pens st
Skandifinanz AG
Skandifinanz AG Schweiz
Skandinavian Fond
Skanska pensionsstiftelser
Skanskas pensionsstiftelse
Skaraborgsb aktiesparklubb
Skaraborgsbank pensions st
Skaraborgsbanken
Skaraborgsbankens Fondförv
Skrindan AB pensionsstiftelser
Skånska Ba vinstandel stift
Skånska banken
Skånska Bankens pens fond
Skånska Bankens pensions st
Smallcap World Fund
SocGen fonder
Societe de Banque Schweiz
Sound Investm Company
South Dakota Inv Council
Sparb+Föreningsb fonder
Sparbanken Falkenberg
Sparbanken Finn
Sparbanken Gripen
Sparbanken Kronan
Sparbanken Skåne stiftelse
Sparbanken Sverige
Sparbanken Sverige AB
Sparbanken Syd
Sparbanken Väst
Sparbankernas aktiefonder
Sparbankernas bank
Sparbanksstiftelserna
Sparinstitutens pens kassa
Sparkassan Funds
Sparliv Försäkring AB
Sparliv Livförsäkring
Spear Leeds&Kellogg
Spectra Kapitalförv AB
Spectra Kapitalförvaltning
Spiltan & Pelaro fonder
SPP
SPP aktiefonder
SPP fonder
SPP Livförsäkring AB
St Teachers Ret Sys of Ohi
State of New Jersey Pension
Stichting Pensioenfonds ABP
Stockholm Fondkommission AB
Storebrand fonder
Sturdy Investments Ltd
Sundsvallsbankens pens st
Suomi Livförsäkring AB
Sv A Assuransförening
Sv Föreningsbankers Förbund
Sv Ångfart Assuransförening
Sveabanken-Carnegie fond
Swedbank Fondkommission
Swedbank Fondkommission AB
Svedelius fonder
Svensk Fondförvaltning AB
Svenska International
Svenska Kredit
Svenska Kredit i konkurs
Swishtrade AB pensionsstift
Swiss Bank Corporation
Sydbank
T Rowe Price fonder
Tandläkartjänst pens stift
Tanglin fond
Tapiola Försäkring
Tapiola Försäkring (Fin)
Tax LLC (USA)
TCO-S aktiefond
Telia pensionsstiftelser
Telias Pensionsstiftelser
Tema Finans AB
Templeton fonder
Templeton Growth Fund Ltd
Terra fonder
Texas Teacher Retirem Syst
The Mitsubishi Bank
Thenberg & Kinde Fondkommission AB
Third Avenue fonder
Threadneedle Inv Fund
Tileny fonder
Tjänstemännen Trygghetsfond
Tobaksbolagens pensions st
Tobaksbolagets pens st
Top Man fonder (Lux)
TopDanmark Livförs
Traction
Traction Nouveau AB pens st
Traction Nouveau p stift
Traction pensionsstiftelse
Transferarator Fondkommission
Tredje AP-fonden
Trevise fonder
Trevise Fondförvaltning AB
Tryg Baltica (Danmark)
Trygg aktiefonder
Trygg Stiftelsen
Trygg-Hansa
Trygg-Hansa Försäkring
Trygg-Hansa Liv
Trygghetsfonden SAF-LO
UBAM fonder
UBAM fonder (Lux)
UBS Eucalyptus Fund LLC
UBS Schweiz Stockholm
UBS Warburg Stockholm
UMWA 1974 Pension Trust
UN Joint Staff Pensionfund
UN Joint Staff P-fund (Ty)
Uni Storebrand
Uni Storebrand (Norge)
Unibank (Danmark)
Unibank A/S
Unidanmark Trust
Uni-Invest fonder (Danmark)
Unilevers pensioen fonds
Union Bank (Finland)
Union Bank of Switzerland
United Trust
UNWA 1974 Pension Trust
Upland Securities AB pen st
Upplandsbankens pens st
UTTD53 England
Waddell&Reed fonder (USA)
Valand
Valartis Bank AG
Van Kampen fonder (USA)
Wanger Asset Management
Vanguard fonder (USA)
Warburg & Co
Warburg Securities (GB)
Wasa aktiefonder
Wasa Försäkring
Waverton fonder
Vegete
Wellington fonder
Verdandi Försäkring (Fin)
Wermlandsbankens Pens stift
Vesta Försikring A/S
WestmaWernerska fonden
Victorian fonder (Aus)
Victory Life&Pension As Ltd
Wijk fonder 2st
Wingate Capital Ltd
Vital Insurance
Vitruvius fonder
Volvo pensionsstiftelse
Volvo pensionsstiftelser
Volvokoncernens Pensionsst
Volvos aktiesparfond
Vontobel fonder (USA)
World Folio Mutual Fund
Värkstedsfunktion Pensionsk
Xact fonder
Yield aktiefond
Zenit Fond
Återförsäkringar AB
Återförsäkrings AB Sverige
Öhman fonder
Öhman Fondkommission
Öhman Fondkommission AB
Öhman Resultatandel 1983
Öhmans Aktiefonder
Öhmans Allemansfond
Ölands Försäkringsbolag
Östgöta Brandstodsbolag
Östgöta Enskilda Bank
Östgöta Enskilda fonder
Östgöta Enskilda pens stift
SEB aktiefonder
Pensioenfonds PGGM (Hol}

IMF iadb IBRD
Zenith Europe (USA)
Duncan-Hurst fonder (USA)
Rosenberg fonder (USA)

KP Invest Placeringsf (DK)
Variable Life fonder (USA)
Danica Livsforsikring AS
Copernicus fonder

St Teachers Retr Sys Ohio
First Eagle fonder
Kaupthing fonder

APPENDIX B: CAPITAL SHARES OF CONTROLLING OWNERS OVER TIME

Mean values of capital shares held by controlling owners.

			t	1990		1995		2000		2005	
1985	Mean rank 85	Mean rank t		180.02	181.04	206.85	158.29	265.11	165.38	259.49	170.03
	N	N		190	170	190	176	190	230	190	230
	P	Z		0.926	0.093	0.000	-4.388	0.000	-8.382	0.000	-7.519
1990	Mean rank 90	Mean rank t				200.22	147.69	261.35	155.53	255.25	160.03
	N	N				170	176	170	230	170	230
	P	Z				0.000	-4.884	0.000	-9.051	0.000	-8.144
1995	Mean rank 95	Mean rank t						234.09	180.09	226.68	185.76
	N	N						176	230	176	230
	P	Z						0.000	-4.597	0.000	-3.483
2000	Mean rank 00	Mean rank t								223.45	237.55
	N	N								230	230
	P	Z								0.255	1.139

APPENDIX C: VOTING SHARES OF INSTITUTIONAL OWNERS OVER TIME

Mean values of voting shares held by institutional owners.

			t	1990		1995		2000		2005	
1985	Mean rank 85	Mean rank t		198.47	160.42	164.16	204.38	189.33	227.99	174.21	240.48
	N	N		190	170	190	176	190	230	190	230
	P	Z		0.001	-3.466	0.000	3.634	0.001	3.249	0.000	5.569
1990	Mean rank 90	Mean rank t				137.20	208.56	156.56	232.97	143.30	242.78
	N	N				170	176	170	230	170	230
	P	Z				0.000	6.636	0.000	6.537	0.000	8.510
1995	Mean rank 95	Mean rank t						207.59	200.37	192.24	212.12
	N	N						176	230	176	230
	P	Z						0.539	-0.614	0.091	1.692
2000	Mean rank 00	Mean rank t								215.69	245.31
	N	N								230	230
	P	Z								0.017	2.389