Institutional Owners and Firm Performance; The Impact of Ownership Categories on Investments

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Abstract

Examining a large number of Swedish listed firms from an investment performance perspective, this paper analyses how different ownership types influences the investment decisions and subsequently performance. During the last decades the ownership structure of Swedish firms has undergone dramatic changes: institutional and foreign investors have been increasing their stakes, whereas Swedish households have decreased in significance. Controlling owners, often founding families, remain in control by resorting to an extensive use of dual-class shares. This paper examines the impact various ownership categories have on investment decisions and firm performance. To measure investment performance Mueller and Reardon's (1993) marginal q is used. Marginal q measures the ratio of the return on investments to the cost of capital. We find that institutional and foreign owners positively influence the performance of firms. Furthermore, the results support findings in other studies that the relation between ownership concentration and performance is non-linear due to the nonlinear incentive structure associated with ownership. Finally we also observe that the practice of dual class-shares which separate cash-flow rights and control rights are an important determinant of firm performance.

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1. Introduction

A distinctive feature of the continental European governance system, and particularly the Swedish, is the strong concentration of ownership. Pyramids, cross-holdings and vote-differentiation of shares are three common methods used to maintain ownership whilst attract new capital. In Sweden this system has produces remarkable persistent ownership structures, in combination with a relatively vital capital market. The resulting system is thus characterized by very concentrated ownership in firms where the founding family has often remained in control across generations.

Distinguishing for the Swedish financial system is thus the combination of many features from both the Continental European as well as the Anglo-Saxon systems. As in most Continental European countries, large commercial banks have played, and still play, a fundamental role. However, over the last few decades the role of other institutional investors has grown dramatically. Along with the increased importance of this kind of investors have followed an increased interest in the role, and effect's, of this "anonymous-capital".

In popular media institutional investors are often called upon to solve and minimize the managerial discretion problems through their role as large and influential owners. Yet these problems do not seem to diminish, instead managers seem to be surprisingly successful in maintaining their benefits, and ownership remains as entrenched as ever. The institutional investors failure to distribute shareholder wealth is however not a surprise, since many institutional investors suffer from the same managerial incentive, moral hazard and principal-agent problems as the individual firms. The problem with institutional investors as owners, apart from their own inherent agency problems, is that they often own relatively small stakes in the individual firms in their investment portfolios. Even though, they might exercise substantial pressure on managements, the costs of monitoring often seem to outweigh the benefits.

This paper studies the impact of ownership characteristics on firm performance. In particular the influence of institutional investors is investigated. As a measure of firm performance a marginal q developed by Mueller and Reardon, 1993) is used.

Section 2 gives a short description of the Swedish Corporate ownership structure in general. In section 3 institutional investors are discussed, both from an incentive and an agency-problem perspective. Methodology and a short derivation of the marginal q measure are given in section 4. Variables and descriptive statistics is presented along a discussion about the data in section 5. Section 5 then follows with the empirical results and analysis. Conclusions end the paper in section 6.

2. Corporate Ownership in Sweden

Following the repeal of restrictions on foreign ownership in 1993, international institutional investors have bought into the leading companies on a scale surpassed by few European countries. Currently, see table 1, foreigners own around one-third of the outstanding equity on the Stockholm Stock Exchange (Statistics Sweden, Share ownership statistics nov-2006).

Table 1. Ownership of Shares listed on a Swedish Stock Exchange

Share of market value in per cent



The Stockholm Stock Exchange is also dominated by a few very large firms, and the Swedish corporate governance system seems to have been remarkably successful in generating large, internationally competitive firms. Most firms, even many very large firms, are closely held. A large fraction of the listed firms is therefore privately controlled, often by a family. Bebchuk *et al.* (1999) describes the typical owner as a controlling minority shareholder that contributes less than half of the capital but controls the majority of the votes. The main devises for private control in the very large firms are pyramidal holding companies (closed-end investment funds) combined with dual-class shares (Angblad *et al.* 2001). Especially, the widespread use of dual-class share have received a lot of criticism in the last years, and some firms have abolished these systems in response to the demands of the institutional and foreign investors, however, many firms retain both systems. La Porta *et al.* (1999) report that Sweden is among the few countries that allow both dual-class share systems and pyramidal ownership structures.

Proponents of the Swedish governance system often argue that significant ownership stakes and control in the hands of one or few owners is vital in order to create correct incentive structures of entrepreneurs and managers. There is however no research which indicate support for these claims.

Equity stakes may tilt management's incentives towards the pursuit of share-price maximizing strategies, but substantial management ownership could also lead to expropriation of minority shareholders, as shown by Jensen and Meckling (1976). Thus, large voting stakes held by insiders may not necessarily lead to performance improvement. In fact, McEachern (1975) argued that large shareholdings in the hands of the managers might actually worsen the performance of the firms. Since then more studies, such as Morck, Shleifer and Vishny (1988) and Gugler, Mueller and Yurtoglu (2002), have been carried out on the relationship between managerial ownership and firm performance.

Despite the dominance of a few large firms and despite the stringent ownership structure, the financial market in Sweden is vigorous and it is approaching the level of development of its counterparts in the United Kingdom and the United States. According to Agnblad *et al.* (2001), the market for corporate control, Initial Public Offerings (IPO's) and Seasoned Equity Offerings (SEOs) are active by European standards, and the markets for standardized derivatives are sophisticated and active. Still, this is by European standards where hostile takeovers are very rare, IPOs done mainly by fairly mature firms, and securitization of loans has just begun to develop.

The UK is still therefore the only country in Europe with an active, hostile market for corporate control (Frank and Mayer, 1995), which might be an important disciplinary factor on managements'. This idea, that the market for corporate control will

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eventually discipline managers who perform poorly, was originally presented by Manne (1965). If a company does badly then it should be profitable for an investor to take control and increase shareholder value by replacing the management. However, researchers have questioned the disciplining role of takeovers (Mueller, 2003), especially, regarding the improved profitability of the firms which have been taken over.

While ownership and control arrangements may provide incentives for controlling owners, they are also potential instruments for minority abuse. Nevertheless, many investors do not seem to hesitate from taking minority positions, especially not institutional investors such as foreign mutual funds, which even seems to prefer short, liquid positions. Even so, significant discounts (20-30%) on firms where a private owner controls a large majority of the votes, and on closed-end investment funds, suggest conflicts between controlling owners and minority shareholders (Angblad *et al.* 2001).

Another effect of the Swedish corporate governance model with its strong separation of ownership and control is that it locks in owners for long periods of time. The widespread use of dual-class shares and pyramid structures can thus have substantial costs in terms of loss of dynamics in ownership and control. Due to these minority control arrangements hostile takeovers for example, have gone from very few in the late 1980s to virtually none. Moreover, the costs of rising outside capital may significantly constrain growth options open to the Swedish firms. The Swedish corporate governance model is thus facing several challenges, the recent inflow of capital from international institutional investors, and the rapid structural changes in the global economy are threatening to undermine its foundation. The transition from very high ownership concentration dominated by private persons to more disperse ownership with large and rather anonymous institutional investors is occurring rapidly. Institutional and foreign investors are less likely to share the implicit basic values and to trust the informal arrangements. They expect the same formal rules and associated sanctions they know from the corporate governance systems in their home countries, primarily the United States and the United Kingdom.

3. Institutional Investors

Institutional investors may be defined as specialized financial institutions, which manage savings collectively on behalf of other investors toward a specific objective in terms of acceptable risk, return maximization, and maturity of claims (Davis, 2001). However, this definition might be somewhat limited, as institutional investors differ significantly, both internally and externally. An alternative wider definition, based fundamentally on the theory of the firm, would be that institutional investors are investment cooperation's set up to reduce transaction costs between investors, and managed in a professional approach.

The view of institutional investors in this way, as a contractual arrangement between different parties, is similar to Ronald Coase (1937) and Oliver Williamson's (1975) theory of the firm. However, with perfect and efficient capital markets there would be no transaction costs and thus no need to form these kinds of arrangements; since every investment or transaction can be made directly on the spot market, at the same price,

and based on the same information for all parties. Consequently we cannot assume both that the market is efficient and that institutional investors exist to minimize transaction costs. If we assume instead, that the capital markets are not perfectly efficient, transaction costs may help to explain the presence of institutional investors. It is consequently the existence of transaction costs, which advances the existence of both firms per se, and specifically in our case institutional investors.

Institutional investors are therefore in place to reduce transaction costs of various kinds between investors and the capital markets. From this relationship we might also deduce the agency problem between the institution (agent) and the primary investor (principal). Jensen and Meckling (1976), who pioneered this field of research divided the agency costs in three broad categories; (1) Monitoring costs of principals, (2) Bonding costs of agents and (3) Dead weight losses. Without going in to depth with these definitions it is sufficient to say that principal-agent problems exist between institutional investors and their clients. These agency problems might be quite severe and as the transaction costs increases it is easy to see how the principal-agent problems intensify.

As the transaction costs are different for different types of investors, various types of institutional investors have developed. Today, different kinds of institutional investors deal with various markets and clients, and for various purposes. Many act on several markets simultaneously and the competition is fears for market power and clients. Hence, institutional investors are a far from homogeneous group. They differ in terms of contractual relations between the owners of the assets and the asset managers, that is, the rules determining the distribution of risk and return, as well as in the definition

of their liabilities. The main types of institutional investors that this paper concerns can be summarized as pension funds, life insurance companies, and different forms of mutual funds¹.

Common features to all institutional investors mentioned above is that they provide a form of risk pooling for small investors, hence providing a better trade-off of risk and return than what is achievable via direct holdings. The cost of this service can then be said to be a premium on diversification.

Another factor favouring institutional investors relative to individuals is their ability to absorb and process information. In many cases it is this informational advantage that the consumer pays for. This advantage has also given rise to the expression "informed investors" which distinguish this type of professional investor from the average individual. However, the information advantage might be large or small depending on the type of institution, and the type of information. Banks for instance rely more on private information than many other institutional investors. But again the overall competitive advantage compared to individuals is evident.

With the size of many institutions also follows the potential for improved control over companies in which they invest. Thus reducing the effect of adverse incentive problems. Hirschman (1970) showed how "exit and voice" behaviour might work to reduce moral hazard problems of this kind. Berle (1960) also argued that institutional investors might discipline managers through their importance as market participants; Berle (1960) described this as "power without property" (Mueller, 2003). Institutional

¹ Direct redemption of holdings (**open-end funds**) or via the ability to trade shares in the funds on exchanges (**closed-end funds**).

investors might for that reason be well apt to minimize the problems associated with the separation of ownership and control, originally presented by Berle and Means (1932). However, it is important to note once again that the institution in it self suffer from the same incentive problems between its owners and managers. These kinds of incentive problems may also arise between other parties related to, and within the institution; for instance, between the board of directors and the asset management. This leads us to another characteristic of the institutional investors, the asset management.

With asset management is meant the management of an investment portfolio on behalf of a client. This may be undertaken by the institutional investor itself (internal management) or by a separate institution such as a specialist fund manager, a life insurer, or the asset management arm or subsidiary of an investment bank or commercial bank (external management).

As mentioned briefly there are different incentive problems in the asset management relationship. On the one hand, it gives rise to an essentially fiduciary relationship to the ultimate investor, a relationship that often entails a degree of caution in the portfolio strategy and a desire to limit risks incurred. But then again, such delegation raises principal-agent problems. So, unless the fund manager is perfectly monitored and/or a foolproof contract is drawn up, the fund manager may act in his or her own interests (e.g., in generating excessive commission income) or, particularly in Europe and Japan, in the interest of financial institutions related to them. These objectives may even be contrary to those of the liability holders or at least not direct in line with their interests (Davis and Steil, 2001).

Despite the very high percentage of the total market capitalization controlled by institutions, they are not major players from an ownership perspective (Goergen and Renneboog, 2001), although their accumulated share holdings are significant, shareholdings in individual companies are small. The aggregate institutional shareholdings average around ten per cent in the Swedish listed firms. Hence the potential benefits from active monitoring can hardly outweigh the costs for institutional investors. This prompts institutions to free ride on corporate control (Shleifer and Vishny, 1997). Furthermore, some institutional investors, such as some mutual funds, invest in accordance with low-cost passive strategies and thus lack the resources for active monitoring of the large number of companies in their portfolios. In order to remain cost-efficient, rather than engage in active monitoring, institutional investors prefer to simply "vote with their feet's" and sell of poorly performing firms. A third reason for the low institutional involvement in corporate governance issues is insider-trading regulations (Goergen and Renneboog, 2001). If the institutional investors do not want to immobilize parts of their portfolios, they might have to restrict active involvement in corporate strategies.

It is interesting to note that most of the institutional involvement in firms is in later stages of the Schumpeterian business cycle. Young firms seems to have very little to do with institutional investors (other than banks) as capital suppliers, and rely more on private capital in the form of loans from friends and family, as evidenced by the Global Entrepreneurship Monitor, 2003.

To test the impact of institutional ownership on firm performance we apply a methodology, marginal q, developed by Mueller and Reardon (1993). The marginal q is essentially a marginal version Tobin's q. This is a more correct measure to use when evaluating firm performance since it is the return on the marginal investment rater than the average that show weather the firm over- or under-invest relative to its cost of capital.

4. Methodology

Tobin's average q, q_a , is defined as the market value, M_t , divided by the replacement cost of the firm capital, K_t :

$$M_t / K_t = q_{a,t} \tag{1}$$

This measures the average return on the capital over its cost of capital. If q_a is above one this implies that the firm should be investing further. However for adjustments of the capital stock the marginal return on capital is more relevant. Marginal q measures the marginal return on capital, i.e. investments. Marginal q, q_m , can be derived from Tobin's average q. The marginal return on capital is then:

$$q_{m} = \frac{\partial M_{t}}{\partial K_{t}} = \frac{M_{t} - M_{t-1} - \delta M_{t-1}}{K_{t} - K_{t-1}}$$
⁽²⁾

where $-\delta$ is the depreciation rate. Since the market value in period t can be written as:

$$M_{t} = M_{t-1} + PV_{t} - \delta M_{t-1} + \mu_{t}$$
(3)

where PV_t is the present value of the cash flows that investments in period *t*, I_t , generates. The net present value rule of investments stipulates that investments should be made up to the point where $PV_t = I_t$. This implies the $PV_t/I_t = 1$, which can be rewritten as $PV_t/I_t = q_m$.

$$M_{t} = -\delta + M_{t-1} + q_{m} \frac{I_{t}}{M_{t-1}} + \frac{\mu_{t}}{M_{t-1}}$$
(4)

By dividing both sides of (4) with M_{t-1} and rearranging we get an empirically testable equation:

$$\frac{M_{t} - M_{t-1}}{M_{t-1}} = -\delta + q_{m} \frac{I_{t}}{M_{t-1}} + \frac{\mu_{t}}{M_{t-1}}$$
5)

Equation (5) assumes that the capital market is efficient in the sense that future cash flows are unbiased estimates. As *t* grows larger the term μ_t / M_{t-1} will approach 0.

The marginal q, q_m , has a number of advantages. Above all a marginal performance measure is more appropriate than an average Tobin's q, when testing hypotheses about managerial discretion, since average measures of performance confuse average and marginal returns. Secondly, q_m has a straight forward interpretation. If managers invest in a project that yields a return that is less than the cost of capital ($r_t < i_t$), q_m will be < 1, which means that managers are over-investing. Thus for the firm to be a profit maximizer, q_m must be equal to one. Conversely, if $q_m > 1$ managers are not making enough investments. (Projects that earns returns higher than the cost of capital.)

To estimate equation (5) we need data on the market value of firms and their investments. The market value of a firm is defined as all debt plus the total value of all its outstanding shares at end of t.

Finally a few words about how investment is calculated. According to the originators, Mueller and Reardon (1993), and Gugler, Mueller and Yurtoglu (2002), the investment is calculated as: $I = After \ tax \ profits + Depreciation - Dividends + \Delta Debt$ + $\Delta Equity + R\&D + ADV.$

where ΔD and ΔE are funds raised using new debt and equity issues. R & D and ADV (advertising expenditures) are also forms of investment, which may contribute to a company's market value and they are therefore included in the investment function.

5. Data and variables

All data on the firms' market values and investments is provided by Standard and Poor's Compustat Global database. The period covered by the data is 1999 until 2005. The time period covered in the regressions is 2000-2005, due to the first difference in the dependent variable. In order to produce a balanced panel, with the same individual firms studied each period, all firms had to provide data for the entire period. Furthermore, financial firms where removed form the sample, due to the particular nature of their investments. The ownership data is provided by SIS-Ägarservice, which is a unique database covering ownership structure, on a yearly basis, of more than 300 Swedish listed firms (all firms listed on one of the three major lists at the Stockholm stock exchange).²

All things considered, the set up requirements produced a sample of 110 Swedish firms, for which data was reported from 1999 until 2005. The sample firms correspond to an aggregate share of more than 85% of the total market capitalisation

² These firms have all reported their ownership structure to VPC, which operates under the supervision of the Swedish Financial Supervisory Authority and is authorised as a central securities depository and clearinghouse.

at the Stockholm stock exchange, and approximately 75% of the total Swedish export value.

The variable institutional ownership is made up of the aggregate ownership controlled by institutions, both in terms of cash flow rights (IC) and control rights (IV). Belonging to the group of institutional investors are, banks, pension and mutual funds, insurance companies and endowment foundations. A list of the variables used in the regressions, together with their definitions is provided in table 2.

Variable name	Definition
$M_{t}-M_{t-1}/M_{t-1}$	Change in total market value
I_t/M_{t-1}	Investments normalized by market value previous period
C1	Share of capital owned by the largest owner (cash-flow rights)
V1	Vote rights controlled by the largest owner
C5	Share of capital owned by the five largest owners
V5	Vote rights controlled by the five largest owners
FC	Share of capital owned by foreign investor's
FV	Vote rights controlled by foreign investor's
IC	Share of capital owned by institutional investor's
IV	Vote rights controlled by institutional investor's
SC	Share of capital controlled by Swedish ownership-sphere
SV	Share of votes controlled by Swedish ownership-sphere
Vote-diff	Dummy variable for vote-differentiated shares. 1 if dual-class shares, 0 if one-
Inst. dummy	share-one-vote. Dummy variable controlling for firms where the largest owner is an institution.
Sales	Total sales

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Descriptive statistics for the variables in the regressions is provided in table 3. In addition to the variables used in the regressions descriptive statistics of the firms Sales/Turnover is provided in table 3.

	Mean	Std. dev.	Min	Max	Observations
${{M_{t}}\text{-}{M_{t-1}}}/{{M_{t-1}}}$	0.128	0.468	-0.941	2.874	660
${I_t}/{{M_{t-1}}}$	0.316	0.382	-1.118	3.539	660
C1	23.41	15.51	1.0	74.5	660
V1	35.69	20.22	2.5	89.5	660
C5	47.67	19.15	6.4	95.4	660
V5	60.04	20.72	6.4	97.9	660
FC	21.50	18.36	0.3	91.1	660
FV	18.79	19.19	0.1	93.5	660
IC	13.99	12.00	0	55.5	660
IV	10.65	10.42	0	54.9	660
SC	9.17	14.29	0	74.5	660
SV	13.06	20.66	0	84.9	660
Vote-diff	0.70	0.46	0	1	660
Inst. dummy	0.30	0.46	0	1	660
Sales (milj SEK)	13189.4	31688.5	0.04	250780.7	660

Table 3. Descriptive statistics

It is interesting to note the share of control rights controlled by the largest shareholder, V1. On average, the largest shareholder in the sample firms control 35.69 per cent of the votes in the firm, see table 3. This concentrated ownership is as mentioned in the introduction remarkable, not only because of the relative level compared to other European and Anglo-Saxon countries, but also because of the relative size of the Swedish firms in the sample (mean Sales 13189.4 million SEK). The sample of firms is therefore consistent with the view that the Swedish economy to a large extent is dominated by tightly held, relatively large, often old industrial and multinational firms (Agnblad et al., 2001, Högfeldt, 2004, Jakobsson and Henrekson, 2006).

When considering cash flow-rights (C1), the share controlled by of the largest owner is on average 23.41 per cent, substantially lower than the control rights (V1=35.69), but still relatively high in an international comparison.

For the Foreign and Institutional owners cash flow rights seem to be more important than control. The ownership of control rights (FV=18.79% and IV=10.65%) is substantially below the level of cash flow rights (FC=21.50% and IC=13.99)). For both ownership types the difference is around three per cent, which also support the hypothesis that the two ownership types are in fact very similar. That is, the overwhelming majority of the foreign owners are in fact institutions. The incentive structure and the influence of ownership on the performance should therefore typically look the same for foreign and institutional investors.

An additional ownership category, Sphere-ownership was motivated by the widespread use of both vote-differentiation and pyramidal ownership structures as control instruments in the Swedish corporate governance system. The descriptive statistics also support the idea that this typical Swedish ownership phenomenon is related to control rather than cash flow investments. Like for the largest controlling owner the sphere-ownership of control rights (SV=13.06) is higher than the level of cash flow rights (SC=9.17). Sphere-ownership is also significantly and positively correlated to the use of vote-differentiated shares (vote-diff.), as shown in the correlation matrix in table 4.

The correlation matrix in table 4 also confirms the negative relationship between both foreign and institutional ownership vis-à-vis control instruments such as votedifferentiation and sphere-ownership.

Table 4. Correlation ma	atrix
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	Sales	$\mathrm{M_{t}\text{-}M_{t-1}}$	I_t/M_{t-1}	C1	V1	C5	V5	FC	FV	IC	IV	SC	SV	Vote- diff.
Sales	1.00													
$\mathbf{M}_{t}\text{-}\mathbf{M}_{t\text{-}1}/\mathbf{M}_{t\text{-}1}$	- 0.059	1.00												
I_t/M_{t-1}	- 0.017	0.614*	1.00											
C1	- 0.112*	0.016	0.043	1.00										
V1	- 0.023	0.019	0.100*	0.764*	1.00									
C5	- 0.185*	0.001	0.052	0.801*	0.658*	1.00								
V5	- 0.014	- 0.022	0.066	0.590*	0.801*	0.782*	1.00							
FC	0.241*	0.046	- 0.025	- 0.118*	- 0.170*	- 0.187*	- 0.213*	1.00						
FV	0.072	0.053	- 0.024	- 0.058	- 0.219*	- 0.108*	- 0.250*	0.928*	1.00					
IC	0.205*	- 0.057	- 0.005	- 0.200*	- 0.130*	- 0.199*	- 0.144*	- 0.044	- 0.036	1.00				
IV	0.232*	- 0.046	- 0.009	- 0.212*	- 0.281*	- 0.231*	- 0.306*	0.020	0.036	0.894*	1.00			
SC	0.097*	- 0.044	- 0.004	0.070	0.196*	0.061	0.214*	- 0.170*	- 0.165*	0.058	0.069	1.00		
SV	0.344*	- 0.060	- 0.004	- 0.013	0.223*	0.086*	0.228*	- 0.045	- 0.151*	0.104*	0.063	0.847*	1.00	
Vote-diff.	0.174*	- 0.021	0.064	- 0.112*	0.385*	- 0.185*	0.462*	- 0.064	- 0.154*	0.049	- 0.151*	0.097*	0.344*	1.00

* indicates significance at 5 percent level

6. Results Panel Estimations

In order to test the impact of different type of owners in the sample of Swedish firms a panel data estimation was constructed. With an emphasis on data where the crosssectional dimension is larger than the time dimension, a panel data model can be constructed to follow the same individual firm over the entire period. The major motivation for using a panel data model in this way is the ability to control for possibly correlated, time-invariant heterogeneity without observing it.

Imagine a simple regression model, $y = \beta x + u$, with a variable y dependent on variable x, and u being a customary error term. Ideally, and for the purpose of any correct policy recommendations, we would like y and x to be totally interdependent. However in real samples we know that that is rarely the case. Both y and x are related to the sample-individuals' (firms) and thus not totally interdependent, but correlated. The simple model then look something like; $y = \beta x + \eta + u$, where η is the individuals' potentially correlated effect with x, sometimes referred to as a fixed-effect.

When testing the functional relationship of ownership types and performance of firms one would then like to control for the firm specific effects. In order to test our assumptions regarding ownership structure and firm performance a fixed-effects model with period and firm effects was thus formulated. For all the estimations a balanced panel data set consisting of 651 observations was used.

In the regressions the change in market value from period t-1 until t $(M_t - M_{t-1})/M_{t-1}$ is the dependent variable. The ratio of investments in t to market value in t-1 (I_t/M_{t-1}) is used as an explanatory variable. In addition to the

explanatory variable, interaction terms of I_t/M_{t-1} and relevant ownership variables (measured in percentage) are employed in order to test the effects of ownership concentration and vote-differentiation.

Thus, the equations estimated has the following general form: $Y = \beta_1 + \beta_2 X + \beta_3 XZ$ and the marginal effect (dY/dX) is therefore $\beta_2 + \beta_3 Z$ which in this case has the economic interpretation marginal q, q_m .

The equations where then estimated both in terms of cash-flow rights (Capital, C) and control rights (Votes, V), for each ownership type. The functional form of the impact of ownership on performance is then tested by incorporating the squared and cubic ownership of each type interacted with I_t/M_{t-1} .

The use of vote-differentiated shares (VOTDIF) is expected to have a negative impact in all estimations. The significance and robustness of this impact is then tested by adding the interacted dummy variable vote differentiation as it is, but also by allowing it to interact both with the interacted ownership variable.

The intercept δ is, as noted earlier, the rate of depreciation and therefore not relevant for the interpretation of q_m^{3} .

Table 5 presents regressions with ownership concentration, both in terms of cash-flow rights (CR1 and CR5) and in terms of control rights (VR1 and VR5). Table 5 also show the estimated effect of vote-differentiate shares (Vote-diff).

³ Note that when differentiating with respect to investments, I_t , the deprecation rate, δ , disappear, and hence have no relevance for the interpretation of q_m .

Since we suspect that the separation of cash-flow rights and control rights alters the incentive of owners and thereby affects investment decisions negatively we take the difference between control rights and cash-flow rights (VR1 and VR5) and (CR1 and CR5). The results of this additional test of the effect from a separation of control and cash-flow rights are presented in table 6.

The results for the estimation of institutional ownerships impact on performance and its functional form is given in table 7. For foreign ownership and sphere-ownership the result tables are provided in Appendix A.

Dependent variable: (M _t -M _{t-1})/M _{t-1}	5A	5B	5C	5D	5E	5F
Constant, δ	- 0.011 (0.015)	- 0.015 (0.015)	- 0.027* (0.016)	- 0.028* (0.016)	- 0.012 (0.015)	-0.010 (0.015)
$I_t / M_{t\text{-}1}$	0.999*** (0.041)	1.256*** (0.117)	1.106*** (0.133)	0.967*** (0.167)	1.235*** (0.135)	1.101*** (0.195)
Vote- differentiation	-	- 0.288** (0.123)	- 0.247** (0.124)	- 0.287** (0.123)	N.A.	N.A.
CR1	-	-	0.008** (0.004)	-	-	-
CR5	-	-	-	0.008** (0.003)	-	-
VR1	-	-	-	-	- 0.005* (0.003)	-
VR5	-	-	-	-	-	- 0.002 (0.003)
q_{m}^{a}	0.999					
\mathbf{R}^2	0.54	0.54	0.55	0.55	0.53	0.54
\mathbf{R}^2 within	0.53	0.53	0.54	0.54	0.53	0.53
R ² between	0.60	0.61	0.63	0.63	0.58	0.59
No. observations	647	647	647	647	647	647
No of firms	110	110	110	110	110	110

Table 5, Ownership concentration and dual-class shares

*, ** and *** indicates significance at 10, 5 and 1 percent level respectively.

Dependent variable: $(M_t-M_{t-1})/M_{t-1}$	6A	6B
Constant, δ	- 0.029* (0.016)	- 0.026* (0.016)
I_t/M_{t-1}	1.309*** (0.091)	1.282*** (0.093)
(VR1 – CR1)	- 0.010*** (0.003)	-
(VR5 – CR5)	-	- 0.012*** (0.004)
$q_{\rm m}^{\ a}$		
\mathbf{R}^2	0.55	0.55
\mathbf{R}^2 within	0.54	0.54
R ² between	0.60	0.61
No. observations	647	647
No of firms	110	110

Table 6, Divergence of cash flow rights and control rights

*, ** and *** indicates significance at 10, 5 and 1 percent level respectively.

Dependent variable: (M _t -M _{t-1})/M _{t-1}	7A	7B	7C	7C
Constant, δ	- 0.037** (0.016)	- 0.039** (0.016)	- 0.039** (0.016)	- 0.038** (0.016)
I_t/M_{t-1}	0.873*** (0.050)	0.728*** (0.065)	0.886*** (0.048)	0.783*** (0.056)
IC	0.023*** (0.006)	0.068*** (0.014)	-	-
IC ²	-	- 0.001*** (0.000)	-	-
IV	-		0.031*** (0.007)	0.078*** (0.015)
IV ²	-		-	- 0.002*** (0.000)
$q_{\rm m}^{\ a}$				
\mathbf{R}^2	0.55	0.55	0.54	0.56
\mathbf{R}^2 within	0.54	0.55	0.55	0.56
R ² between	0.56	0.57	0.56	0.58
No. observations	647	647	647	647
No of firms	110	110	110	110

*, ** and *** indicates significance at 10, 5 and 1 percent level respectively.

As can be seen in table 7 the results support the hypothesis that institutional ownership has a significant positive effect on firm performance. Weather this effect is manly due to signalling effects or to real actions is left unspoken.

The results also confirm the idea that the use of vote differentiated shares lower the performance of firms. This effect is probably due mainly to the agency conflicts that arise from the additional separation of ownership and control in these firms.

Looking at control rights (IV) institutional ownership is again significantly positively related to the performance of the firms.

The results in both tables are remarkably stable with respect to the structural form of the model. The average firm with institutional control-ownership around ten percent ($IV_{average}$ =10.65), without vote-differentiated, has a marginal-q of 1.2. This indicates a good investment performance and marginally positive market value net investments. For the average firm with vote-differentiation the effect of institutional ownership is positive, however, the negative effect related to the use of vote-differentiated shares is predominant. The average firms' marginal-q with vote-differentiation is thus 0.8, substantially below 1.2 and also below 1, which means over-investment vis-à-vis the shareholders, and a return on investments below the cost of capital. This result consequently support the proposed inferior investment performance associated with the increasing agency problems due to entrenchment of ownership.

7. Conclusions

We argue that the agency-costs associated with concentrated ownership, on average, are sufficiently high to incur a stock market valuation discount on investments. Conversely, low control incentives, often associated with institutional owners, seem to be out weight by the disciplining effect that these influential investors have on the management and performance of the firms. Furthermore we find that the increasing institutional ownership has had a positive (non-liner) impact on firm performance. In part, some of this effects is most likely also related to a kind of signalling effect about the quality and performance of the firms chosen for investment by the institutions. Regarding ownership concentration we find a positive influence the performance of firms by improving investment decisions. However we also find that ownership concentration and control that is attained trough use of dual-class shares which separates cash-flow rights and control rights have a negative impact on performance. This has important policy implications since founding families and entrepreneurs often resort to these mechanisms in order to remain in control.

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