

Ratio Working Paper No. 208

Institutional Ownership and Returns on Investment

Per-Olof Bjuggren*

Johan E. Eklund**

Daniel Wiberg***

*per-olof.bjuggren@ratio.se, The Ratio Institute, P.O. Box 3203, SE-103 64 Stockholm, Sweden and Department of Economics, School of Technology and Business Studies, Dalarna University, SE-781 88 Borlänge, Sweden.

** johan.eklund@entreprenorskapsforum.se Swedish Entrepreneurship Forum, Jönköping International Business School (JIBS), and Centre of Excellence for Science and Innovation Studies (CESIS), Royal Institute of Technology, Stockholm.

*** Swedish Ministry of Finance.



Institutional Ownership and Returns on Investment¹

Per-Olof Bjuggren, Johan E. Eklund, and Daniel Wiberg²

Abstract

This paper examines how institutional investors influence investment decisions and returns on investment. To measure investment performance we used a measure of marginal q which measures the ratio of the investment returns to cost of capital. Institutional owners are found to have had a positive effect on performance, with a marginally diminishing effect of institutional ownership concentration. We used longitudinal data on Swedish firms for the period 1999-2005, during which their ownership structure underwent dramatic changes: Institutional investors increased their ownership share, while ownership by Swedish households decreased. However, controlling owners - often founding families - remained in control by resorting to extensive use of dual-class shares, control rights, which separate from cash-flow. This was an important determinant of firm performance, eradicating the positive influence of institutional ownership.

JEL Codes: G 30, C 23, L25

Keywords: Corporate governance, institutions, ownership, performance, Tobin's q , marginal q .

¹ Financial support from Torsten and Ragnar Söderbergs Foundation is gratefully acknowledged by Per-Olof Bjuggren as is support from Marianne and Marcus Wallenberg Memorial Fund Foundation is by both Per-Olof Bjuggren and Johan Eklund.

² *Affiliations:* Per-Olof Bjuggren Jönköping International Business School (JIBS) and Ratio, Stockholm.; Johan Eklund, Swedish Entrepreneurship Forum, Jönköping International Business School (JIBS), and Centre of Excellence for Science and Innovation Studies (CESIS), Royal Institute of Technology, Stockholm; and Daniel Wiberg, Swedish Ministry of Finance.

1. Introduction

The role of institutional investors in listed firms has grown dramatically in recent decades, along with an increased interest in its effects on corporate governance. Being large and influential, institutional investors, both foreign and domestic, are often called upon to solve or at least minimize managerial discretion problems as well as other governance issues (Demsetz, 1983; Shleifer and Vishny, 1986; Smith, 1996). But do institutional investors reduce or aggravate managerial discretion problems and how does this affect investment performance?

This paper provides empirical evidence on the effect of institutional ownership on firms' investment performance. Recognizing that they are not all alike, we examine the effects of both domestic and foreign institutional investors. To measure performance we employ a new methodology calculated as returns on investments relative to cost of capital. Many similar studies have used Tobin's average q as a measure of performance (Morck et al., 1988; Demsetz and Lehn, 1985; Agrawal and Knoeber, 1996; Loderer and Martin, 1997; McConnell and Servaes, 1990; Himmelberg et al. 1999; Cho, 1998; Demsetz and Villalonga, 2001; Dahlqvist and Robertsson, 2001; and Cronqvist and Nilsson, 2003; Gugler (2001) provides an extended survey). However, Tobin's q has several drawbacks. For testing investment efficiency, a marginal measure is more appropriate (Gugler and Yurtoglu, 2003). We therefore used the marginal q measure developed by Mueller and Reardon (1993), which gives the ratio of a firm's return on investment to its cost of capital. This answers the question how much value the marginal investment generates.

A distinctive feature of continental European, and Swedish corporate governance is strong concentration of ownership control (Angblad et al. 2001). Pyramids, cross-holdings and dual-class shares are common methods of maintaining control while attracting new capital. In Sweden this has produced remarkably persistent ownership structures, even with a vital capital market. As in most continental European countries, large commercial banks play a fundamental role (Högfeldt, 2005). Thus Sweden is an interesting case when the impact of ownership on firm performance is investigated. We find a positive effect of institutional investors on investment

performance, finding also a negative or neutral effect of dual-class shares on performance.

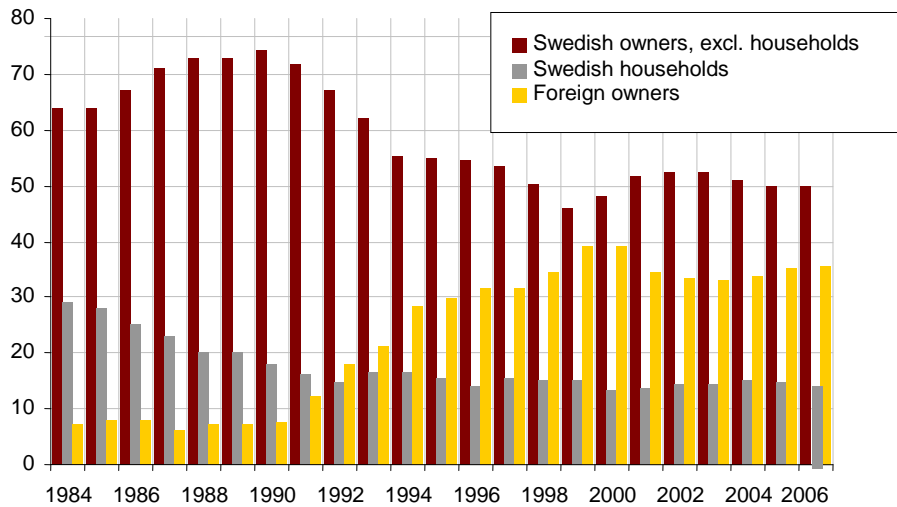
Dealing with reverse causality was important since high performance might attract institutional investors. Using marginal q rather than Tobin's average q as measure of performance mitigates this problem as well as that of omitted variables

The next section gives a short description of Swedish corporate ownership, while section 3 discusses and our hypotheses regarding how institutional investors influence firm performance. Section 4 then explains our methods including derivation of our marginal q measure. Section 5 describes the variables and gives descriptive statistics, while section 6 describes our empirical analysis, and section 7 gives the results. Section 8 summarizes and draws conclusions.

2. Corporate Ownership in Sweden

Following the 1993 repeal of Swedish restrictions on foreign share-ownership, foreign investors, especially institutional investors, have acquired large stakes in leading Swedish companies (Figure 1). Currently foreigners own about one-third of the equity on the Stockholm Stock Exchange (Statistics Sweden, June-2012). Concurrent changes in the Swedish pension system have also made substantial funds available for investment by private financial institutions. Domestic and foreign institutional owners have thus become increasingly dominant, jointly accounting for about 85 % stock market capitalization.

Figure 1. Ownership of shares listed on a Stockholm Stock Exchange, (%) 1984-2006



Source: Swedish Financial Supervisory Authority

The Swedish corporate governance system has been remarkably successful in generating internationally competitive firms, so that the stock exchange is largely constituted of a few very large Swedish-based multinational firms. Most Swedish firms, even many large ones, are closely held, ultimately controlled by a single family. Important instruments for maintaining control of Swedish firms are dual-class shares (Angblad et al., 2001) combined with cross-holding and pyramid structures (closed-end investment funds). Sweden is in fact among the few countries extensively using all three simultaneously (La Porta et al., 1999).

Ownership stakes might tilt insiders such as managers and controlling owners' incentives towards pursuit of share-value maximizing strategies, but it could also lead to expropriation of outside minority shareholders. Concentrated ownership control has thus been found to be associated with both positive incentive effects and negative entrenchment effects (McEachern 1975; Jensen and Meckling, 1976; Morck et al., 1988; Stulz, 1988; Gugler et al., 2001). Which effect dominates is an empirical question, presumably depending on both the institutional framework, the particular instruments by which control is maintained, such as dual-class shares and the relative strength of non-controlling shareholders. Perhaps, influential outside investors, such

as institutional investors, can push the balance towards better management and better investments without actually having a controlling stake in the firm.

3. Institutional investors and hypotheses

Most institutional investors, such as pension funds, life insurance companies, and mutual funds provide risk-pooling a better trade-off between risk and return than what is achievable via direct holdings for individual retail investors. There are various kinds of institutional investors dealing with individual markets and types of clients and purposes, many acting on several markets simultaneously, with fierce competition for clients and market shares. Hence institutional investors are a far from homogeneous group, differing in contractual relations between owners and managers, in the rules determining distribution of risk and return and in the definition of their liabilities.

Institutional investors are generally better than individuals at absorbing and processing information, an advantage that consumers are willing to pay for. However, the information advantage may be large or small depending on the type of institution and the type of information.

With the size of many institutions follows the possibility of greater control over companies in which they invest. Berle (1960) argued that institutional investors could discipline managers through their importance as market participants.- their “power without property” (Mueller, 2003). – while Hirschman (1970) showed how “voice” as well as “exit” could be used to reduce moral hazard. For these reasons institutional owners might reduce problems with separation of ownership and control (Berle and Means,1932).

However, most institutional investors themselves also suffer from separation of ownership and control with resultant principal-agent incentive problems, which can also arise, for example, between their board of directors and asset managers. Asset managers have a fiduciary relationship to individual investors, which probably entail a degree of caution, a desire to limit risks in the portfolio strategy. But in the absence of perfect contract and monitoring asset managers may act in their own interests (e.g.,

generating excessive commission income) or in the interest of financial institutions related to them (e.g., intra-group financial support). These interests may be contrary to or at least not directly in line with the interests of the liability holders (Davis and Steil, 2001).

Despite the points above, and despite high percentage of total market capitalization controlled by institutions, institutional investors are not generally major players in controlling management because their shareholdings in individual companies are often small, since they disproportionately tend to invest in large companies (Goergen and Renneboog, 2001; Gompers and Metrick, 2001). Aggregate institutional shareholdings in Swedish listed firms are about 10%. Hence the potential benefits to institutional investors from active monitoring can hardly outweigh its cost, tempting institutions to free ride (Shleifer and Vishny, 1997; Dahlqvist and Robertsson, 2001). In fact some institutional investors, such as mutual funds, may use an expressly low-cost passive investment strategy with no intention of active monitoring of the many companies in their portfolios. They prefer to simply sell off poorly performing firms (“exit”). The crucial empirical question is therefore whether the potential benefits from monitoring outweigh its costs. Foreign institutional investors may have an information disadvantage vis-à-vis domestic ones and thus be more prone to a passive strategy.

Another reason for the low institutional involvement in corporate governance issues is insider-trading regulations (Goergen and Renneboog, 2001). Unless institutional investors want to simply “buy and hold”, they might have to limit their involvement in corporate management.

For all these reasons we might expect a negative relationship between institutional ownership and firm performance, but there are also reasons to expect a positive relationship. Institutional investors are constantly being evaluated by how well they succeed in creating shareholder value (Thomsen and Pedersen, 2000). While “exit” may be value-increasing manner, so may be “voice” (as also noted earlier).

Risk aversion is also less likely to play a role in any particular investment than it does for individuals, since institutional investors are highly diversified. Therefore they may

favor riskier projects with higher net present value. Considering these two aspects as well as favourable financing conditions, we expect a positive relation between institutional investors and investment performance (Nickel et al., 1997; McConnell and Servaes, 1990; Levin and Levin, (1982); Thomsen and Pedersen, 2000).

We therefore hypothesize that institutional investors use the influence that goes along with ownership shares in a value-increasing manner, i.e.

Hypothesis 1 (H1): Institutional investors have a positive impact on investment performance.

Assuming that most of their positive effect occurs at a given threshold of ownership concentration, it seems plausible that it will not continue to increase linearly as ownership increases further (Morck et al., 1988; McConnell and Servaes, 1990; Gedajlovic and Shapiro, 1998; Pindado and de la Torre (2006); Miguel et al., (2004)).

Hypothesis two is therefore:

Hypothesis 2 (H2): Investment performance increases at a diminishing rate with increasing institutional ownership.

It has been found that institutions had smaller ownership stakes in firms with vote-differentiated shares (Bjuggren, et al., 2007; Gompers and Metrick, 2001), and that institutional owners tended more to “exit” this type of firm (Li et al., 2006) supporting arguments by (Bjuggren et al., 2007) why vote-differentiated shares are likely to have a negative effect on investment performance. In markets where this type of instrument is allowed, it is thus important to control for this effect. We hypothesize that

Hypothesis 3 (H3): Separation of voting rights form cash-flow rights by use of dual-class shares reduces the positive effect of institutional ownership on firm investment.

Given the negative view of vote-differentiated shares, an explanation has to be provided why these types of share are bought by institutional investors. Gompers and Metrick (2001) find that institutions invest in liquid stock. For many Swedish

companies with A- and B-shares (where each A share has 10 votes and the B share only 1 vote) it primarily the B-shares that are regularly traded.

4. Methods

To measure the effect of institutional ownership on investment performance we estimated the firms' marginal q (Mueller and Reardon, 1993), essentially a marginal version of Tobin's average q. This is a more correct measure to use when since it is the return on the marginal investment, rather than the average, that shows whether a firm is over- or under-investing relative to its cost of capital. The economic interpretation of marginal q is straightforward: A q_m of, let's say, 1.10, means that the investment generates a 10 % return above the cost of capital. For investments to be efficient, marginal q should equal one: If above one, further profitable investments exist, whereas if below one, less should have been invested since the return is below the cost of capital. Marginal q can be derived in two ways; either from the net present value rule of investments or, as here, directly from Tobin's average q.

Tobin's average q, q_a , which is a firm's average return on capital over cost of capital, is defined as its market value at time t , M_t , divided by its replacement cost of capital, K_t :

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

If q_a is above one this implies that the firm is earning a more than competitive average return on invested capital. However, for adjustments of the capital stock the marginal return on capital is more relevant. Marginal q, q_m , can be derived from average q:

$$q_m = \frac{\Delta M_t}{\Delta K_t} = \frac{M_t - M_{t-1} - \delta M_{t-1}}{K_t - K_{t-1}} \quad 2)$$

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

$$M_t = M_{t-1} + PV_t - \delta M_{t-1} + \mu_t \quad 3)$$

where PV_t is the present value of cash flows that investments in period t , I_t , and μ_t is a standard error term. The net present value rule for investments says that investments should be made up to the point where $PV_t = I_t$ or $PV_t/I_t = 1$, which can be rewritten as $PV_t/I_t = q_m$. Dividing both sides of equation 3 by M_{t-1} and rearranging, we get the empirically testable equation

$$\frac{M_t - M_{t-1}}{M_{t-1}} = -\delta + q_m \frac{I_t}{M_{t-1}} + \frac{\mu_t}{M_{t-1}} \quad 4)$$

Equation (4) assumes that the capital market is efficient so that projected future cash-flows are unbiased estimates. As t grows larger, the term μ_t/M_{t-1} approaches 0.

Marginal q , q_m , has several advantages. It is more appropriate than average q , when testing hypotheses about managerial discretion, since average measures of performance confuse average and marginal returns. Secondly, q_m has a straightforward interpretation. In Figure 2, i is return on investments, r is cost of capital, I is investments, and $q_m = (i/r)$ is marginal q . If a firm invests in a project that yields a return that less than cost of capital, $q_m < 1$, it has over-invested and shareholders would have been better served if the firm had instead distributed these funds directly to them. Conversely, if $q_m > 1$, the firm should have invested more ($q_m > 1$ in figure 2). For the firm to maximize shareholder-value, q_m must be equal to one.

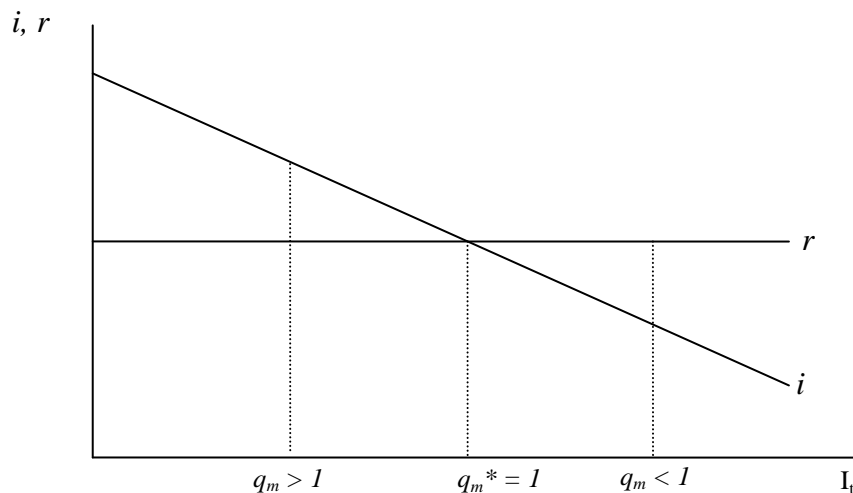


Figure 2. Marginal q and the cost of capital

To estimate Equation (4) we need data on the market value of firms and their investments. The market value of a firm is defined as all its debt plus the total value of all its outstanding shares.

According to the originators, , Investment is defined (Mueller and Reardon, 1993) as $I = \text{After tax profits} + \text{Depreciation} - \text{Dividends} + \Delta\text{Debt} + \Delta\text{Equity} + R\&D + \text{ADV}$, where ΔDebt and ΔEquity are funds raised using new debt and equity issues. $R\&D$ (research and development) and ADV (advertising expenditures) are also forms of investment which may contribute to a company's market value and are therefore included..

5. Data and variables

Firm ownership data, provided by *SIS Ownership Corp* (SIS-Ägarservice AB), covered all firms listed on the three major lists at the Stockholm Stock Exchange.³ All data on the firms' market values and investments (1999 to 2005) were provided by *Standard and Poor's Compustat Global* database. The regressions covered 2000-2005, due to using the first difference in the dependent variable. For each firm included in the panel we had data for at least three consecutive years. Due to the particular nature of their investments financial firms were deleted, leaving 110 non-financial firms with more than 85 % of the total market capitalisation of the Stockholm Stock Exchange (and approximately 75 % of total Swedish exports by value).

We consider all shares owned by Swedish individuals or by Swedish firms as *Private*. Share ownership includes both cash-flow rights (IC) and vote rights (IV). Foreign-owned shares are similarly designated (FC) and (FV). Institutional share-owners (*Institutional*) include banks, pension and mutual funds, insurance companies, and foundations. Shares owned by foreigners (*Foreign*) include those owned by foreign individuals, or institutions. They are hard to distinguish in the data. However, the

³ The firms had all reported their ownership to VPC (Nordic Central Securities Depository), which operates under the supervision of the Swedish Financial Supervisory Authority and functions as a central securities depository and clearinghouse.

majority are known to be financial institutions, so we treat them all as foreign institutional investor.

Table 1 shows the variables used in the regressions and their definitions.

Table 1. Variables and definitions

$M_t - M_{t-1} / M_{t-1}$	Change in total market value
I_t / M_{t-1}	Investments normalized by market value
C1	Cash-flow rights owned by the largest owner (%)
V1	Voting rights controlled by the largest owner (%)
FC	Cash-flow rights owned by foreigners (assumed all institutional) (%)
FV	Voting rights controlled by foreigners (assumed all institutional) (%)
IC	Cash-flow rights owned by domestic institutional investors (%)
IV	Voting rights controlled by domestic institutional investors (%)
(V1-C1)	Votes controlled by largest owner minus cash-flow rights owned by largest owners (%)
Vote differentiation	Dummy variable for vote-differentiated shares. 1 if dual-class shares, 0 if one share/one vote.
Sales	Total sales in (millions SEK: currently 1 SEK = USD 0.126)

Table 2 shows descriptive statistics for the variables in the regressions.

Table 2. Descriptive statistics (N=651)

	Mean	Std. dev.	Min	Max
$M_t - M_{t-1} / M_{t-1}$	0.128	0.468	-0.941	2.874
I_t / M_{t-1}	0.316	0.382	-1.118	3.539
C1	23.41	15.51	1.0	74.5
V1	35.69	20.22	2.5	89.5
FC	21.50	18.36	0.3	91.1
FV	18.79	19.19	0.1	93.5
IC	13.99	12.00	0	55.5
IV	10.65	10.42	0.1	54.9
FC+IC	35.49	21.48	0.3	94.2
FV+IV	29.44	22.15	0.2	94.2
V1-C1	12.74	12.50	0	49.1
Sales (SEK millions)	13189.4	31688.5	0.04	250780.7

The largest shareholder controls 35.69 per cent of the votes in the firm. This concentrated ownership is remarkable both compared to other European and Anglo-Saxon countries and because of the size of firms (mean sales SEK 13.189.4 million). The Swedish economy is dominated by closely-held, relatively large, often old, industrial and multinational firms (Agnblad et al., 2001; Högfeldt, 2005; Henrekson and Jakobsson, 2006, 2012).

The share of cash flow-rights (C1) owned by of the largest owner is on average 23.41 %, substantially less than for the voting rights (V1=35.69%), but still high internationally.

Domestic and foreign institutional owners, together have 35.49% of the cash flow rights but only 24.9 % of voting rights, in line with our expectation of reduced control. For both domestic and foreign institutional investors the difference is about

3% between the two types of rights, which also supports the assumption that the two ownership types are very similar.

There is statistically significant negative correlation between domestic and foreign institutional ownership and control instruments such as vote-differentiation (correlation matrix in Appendix). The voting rights of the largest single owner (V1) are perfectly correlated with investments (I/M) whereas cash-flow rights (C1) are not. Both domestic and foreign institutional cash-flow rights show statistically significant positive correlation with sales.

5. Empirical analysis

In order to measure effect of type of owner on investment performance a panel-data set was estimated. The reason for using panel data was to control for possibly correlated, but unobserved time-invariant heterogeneity (Himmelberg et al., 1999). It also reduces problems with endogeneity.

To control for firm or industry specific effects we used a fixed-effects model including just time and industry effects. While ownership typically may differ significantly across firms, changes in managerial ownership occur slowly (Zhou, (2001). Thus using firm fixed effects estimators may not reveal an effect of ownership on performance even if one existed. Institutional owners probably change their ownership stakes more often than others. Industry variation may also be substantial, making fixed-effects models with industry effects viable as an alternative to firm effects. An unbalanced panel dataset consisting of 651 observations was used for all estimations.⁴

In the regressions the percentage change in market value from period $t-1$ until t ($(M_t - M_{t-1})/M_{t-1}$) was the dependent variable. The ratio of investments during period t to market value at the end of period $t-1$ (I_t/M_{t-1}) was used as an explanatory variable. Interaction terms of I_t/M_{t-1} with various ownership variables (measured in

⁴ The data set contains 110 firms over a period of 6 years. Of these 660 observations, 9 identified as outliers were deleted due to obvious errors in the data.

percentages) were used to test the effects of ownership concentration and vote-differentiation on investment performance.

The estimated equations have the general forms $Y = \beta_1 + \beta_2 X + \beta_3 XZ$. The equations were estimated for both cash-flow rights and voting rights for each ownership type (domestic institutional and foreign). The functional form of the effect of ownership on performance was then tested by using squared institutional or foreign ownership interacted with I_t/M_{t-1} . The estimated equations thus had the form

$$\frac{M_t - M_{t-1}}{M_{t-1}} = -\delta + \beta_1 \frac{I_t}{M_{t-1}} + \beta_2 Z_1 \frac{I_t}{M_{t-1}} + \dots + \beta_{i+1} Z_i \frac{I_t}{M_{t-1}} + \varepsilon_i \quad 5)$$

where Z_i represent other interacted explanatory variables. The marginal effect (q_m) of Equation 5 is

$$q_m = \beta_1 + \beta_2 Z_1 + \dots + \beta_{i+1} Z_i \quad 6)$$

As noted earlier, the intercept δ is the rate of depreciation, which disappears in the differentiation and is therefore irrelevant for the interpretation of q_m ⁵.

7. Results

Estimated marginal q for the entire dataset is 0.693 (Table 3, first column), which indicates an inefficient (over-investment) average performance firms, consistent with previous estimates (q_m around 0.6-0.7) on Swedish data (Gugler et al., 2002; Bjuggren et al., 2007). The estimate is also robust with respect to the choice of estimation technique. Quintile median regression and iteratively-reweighted least squares, which control for non-normality and outliers, also generate estimates very close to 0.70.

⁵ Note that when differentiating with respect to investments, I_t , the depreciation rate, δ , disappears, and hence has no relevance for the interpretation of q_m .

Table3. Marginal q and interaction with Votes minus Capital (V1 – C1).

Dependent variable ($M_t - M_{t-1}$)/ M_{t-1}		
Constant, δ	- 0.082*	- 0.087*
	(-3.36)	(-3.51)
I_t/M_{t-1}	0.693*	0.759*
	(15.99)	(12.95)
(V1 – C1) · I_t/M_{t-1}		-0.005***
		(-1.67)
Average q_m	0.693	0.695
R^2	0.477	0.479
F-value	13.57	13.35
No. of observations	651	651
No of firms	110	110

t-values in brackets

* indicates statistical significance at the 1%, ** at 5%, *** at 10%

The use of vote-differentiated shares is expected to have a negative effect, which we tested by taking the difference between vote rights and capital rights held by the largest owner (in a firm without vote-differentiated shares each owner has the same voting rights as cash-flow rights). This difference was then interacted with I_t/M_{t-1} . Voting differentiation creates a wedge between voting rights and cash-flow shares that reduced performance (Table 4, second column). Firms without vote-differentiated shares had an average marginal q of 0.759, while firms with a vote-differentiated shares structure had an average marginal q of only 0.695, supporting hypothesis 3 and earlier results (Bjuggren et al., 2007).

That institutional ownership had a positive effect on performance (Hypothesis 1) can be seen from the positive sign of the terms IC (domestic institutional cash-flow rights) and IV (domestic institutional voting rights) (Tables 4 and 5). Controlling for non-linearity (Hypothesis 2) and voting differentiation more than double the R^2 values,

suggesting that dual-class share affect the ownership-performance relationship (Hypothesis 3).

Table 4. Domestic institutional investors' cash-flow rights; Dependent variable: $M_t - M_{t-1} / M_{t-1}$

	Linear	Linear with vote diff.	Quadratic	Quadratic with vote diff.
Constant. δ	-0.083* (-3.38)	-0.083* (-3.37)	-0.083* (-3.42)	-0.088* (-3.56)
I_t/M_{t-1}	0.679* (12.98)	0.679* (12.97)	0.629* (10.44)	0.630* (10.46)
Domestic institutional cash-flow rights (IC)	0.001 (0.50)	0.002 (0.43)	0.012** (1.74)	0.023** (2.22)
(Domestic institutional cash-flow rights) ² (IC ²)	-	-	-0.0003** (-1.68)	-0.0006** (-2.19)
IC* Voting differentiation	-	-0.001 (-0.15)	-	-0.0147 (-1.43)
IC ² * Voting differentiation	-	-	-	0.0005 (-1.52)
Marginal q, q_m	0.693	0.693	0.738	0.727
R ²	0.217	0.478	0.229	0.482
F-value	13.24	12.95	13.03	12.51
No. observations	651	651	651	651
No of firms	110	110	110	110

t-values in brackets

* indicates statistical significance at the 1%, ** at 5%, *** at 10%

As stated earlier the effect of institutional ownership and control is non-linear found to be non-linear. The negative signs for (IC²) and (IV²) in Tables 4 and 5 indicate a positive but diminishing effect of institutional ownership and institutional control. The estimations are also remarkably similar for both types of shares (cash-flow and voting

rights). The negative effect of vote-differentiation is not significant in the estimations with institutional cash-flow respectively voting rights interacted; however, the coefficients are negative as expected. Interacting domestic institutional voting rights with the dummy for vote-differentiation doubles the R^2 -values also in Table 5, again showing the importance of controlling for it.

Table 5. Domestic institutional investors' voting rights; Dependent variable: $(M_t - M_{t-1})/M_{t-1}$

Dependent variable: $(M_t - M_{t-1})/M_{t-1}$	Linear	Linear with vote diff.	Quadratic	Quadratic with vote diff.
Constant. δ	-0.085* (-3.46)	-0.084* (-3.39)	-0.084* (-3.46)	-0.087* (-3.52)
I_t/M_{t-1}	0.666* (13.39)	0.664* (13.23)	0.602* (10.69)	0.610* (10.63)
Domestic institutional voting rights (IV)	0.004 (1.11)	0.003 (0.63)	0.020* (2.64)	0.025* (2.45)
$(\text{Domestic institutional voting rights})^2 (IV^2)$	-	-	-0.0005* (-2.40)	-0.0006** (-2.33)
IV* Voting differentiation	-	0.002 (0.37)	-	-0.0086 (-0.74)
IV ² * Voting differentiation	-	-	-	0.0003 (0.75)
Marginal q, q_m	0.670	0.717	0.824	0.751
R^2	0.217	0.479	0.242	0.484
F-value	13.28	12.96	13.21	12.60
No. observations	651	651	651	651
No of firms	110	110	110	110

t-values in brackets

* indicates statistical significance at the 1%, ** at 5%, *** at 10%

Foreign “institutional” investors’ ownership had also a positive effect on performance both cash-flow rights (FC) and voting rights (FV) (Tables 6 and 7). These results are in line with those found for domestic institutional ownership.

The results for foreign ownership significantly confirm hypothesis 3 that the use of vote-differentiated shares lower the performance of firms both for cash-flow rights and voting rights (Column 4 in Tables 6 and 7), probably due to agency conflicts from the separation of ownership and control in these firms.⁶

⁶ As a robustness test we also regressed domestic institutional and foreign ownership and dual-class shares on Tobin’s average q (measured as market-to-book ratio), controlling for sales and growth of sales with similar (available from the authors upon request). Dual-class shares had a negative effect on Tobin’s average q; divergence between C1 and V1 was negative; and institutional investors had a positive but diminishing effect.

Table 6. Foreign institutional investors' cash-flow rights; Dependent variable: $M_t - M_{t-1} / M_{t-1}$

	Linear	Linear with vote diff.	Quadratic	Quadratic with vote diff.
Constant δ	-0.079* (-3.24)	-0.078* (-3.20)	-0.076* (-3.15)	-0.102* (-4.08)
I_t / M_{t-1}	0.624* (10.90)	0.612* (10.53)	0.525* (7.26)	0.633* (8.10)
Foreign institutional cash-flow rights (FC)	0.003*** (1.84)	0.002 (1.06)	0.014* (2.74)	0.019* (2.85)
(Foreign institutional cash-flow rights) ² (FC ²)	-	-	-0.0002** (-2.23)	-0.0003* (-3.03)
FC * Voting differential	-	0.003 (1.22)	-	-0.0245* (-3.48)
(FC) ² * Voting differential	-	-	-	0.0005* (3.86)
Marginal q, q_m	0.688	0.720	0.752	0.607
R ²	0.240	0.482	0.252	0.497
F-value	13.38	13.12	13.27	13.28
No. observations	651	651	651	651
No of firms	110	110	110	110

t-values in brackets

* indicates statistical significance at the 1%, ** at 5%, *** at 10%

Table 7. Foreign institutional investors' voting rights; Dependent variable:
 $(M_t - M_{t-1})/M_{t-1}$

	Linear	Linear with vote diff.	Quadratic	Quadratic with vote diff.
Constant δ	-0.081* (-3.35)	-0.082* (-3.40)	-0.085* (-3.55)	-0.097* (-3.96)
I_t/M_{t-1}	0.606* (11.66)	0.593* (11.38)	0.486* (8.20)	0.534* (8.57)
Foreign institutional voting rights (FV) Foreign inst. investor votes	0.005* (2.97)	0.003 (1.41)	0.025* (4.88)	0.025* (4.03)
(Foreign institutional voting rights) ² (FV ²)	-	-	-0.0003* (-4.09)	-0.0003* (-3.89)
FV * Voting differentiation	-	0.0068* (2.54)	-	-0.0130*** (-1.72)
(FV) ² * Voting differentiation	-	-	-	0.0003** (2.26)
Marginal q, q _m	0.699	0.777	0.922	0.759
R ²	0.247	0.490	0.274	0.504
F-value	13.63	13.58	13.81	13.64
No. observations	651	651	651	651
No of firms	110	110	110	110

t-values in brackets

* indicates statistical significance at the 1 percent level, ** at 5 percent significance level,

*** at 10 percent significance level

Since foreign owners are thought to be mainly institutional investors, it seemed appropriate to estimate the combined effect of domestic institutional and foreign “institutional” owners. This is done by summarizing the domestic institutional and foreign ownership. The results for these estimations are found in Table 9 and 10.

Estimated marginal q 's are in the range 0.698-0.830 (indicating underperformance) though institutional ownership itself had positive effects with a negative effect when interacted with voting differentiation, all consistent with Hypotheses 1, 2, and 3.

Table 8. All Institutional investors (both domestic and foreign) cash-flow rights; Dependent variable: $(M_t - M_{t-1})/M_{t-1}$

	Linear	Linear with voting differentiation	Quadratic	Quadratic with voting differentiation
Constant δ	-0.081* (-3.34)	-0.080* (-3.29)	-0.079* (-3.27)	-0.098* (-3.97)
I_t/M_{t-1}	0.592* (8.78)	0.587* (8.65)	0.488* (4.96)	0.566* (5.63)
Institutional investors cash-flow rights (IC+FC)	0.003** (1.96)	0.003 (1.40)	0.011** (1.99)	0.018* (2.86)
(Institutional investors cash-flow rights) ² (IC+FC) ²	-	-	-9.5e-05 (-1.46)	-0.0002* (-2.95)
(IC+FC) * Voting differentiation.	-	0.001 (0.64)	-	-0.0169* (-3.10)
(IC+FC) ² * Voting differentiation	-	-	-	0.0003* (3.39)
Marginal q , q_m	0.698	0.729	0.759	0.731
R^2	0.481	0.481	0.483	0.492
F-value	13.24	13.09	13.16	13.04
No. observations	651	651	651	651
No of firms	110	110	110	110

t-values in brackets, * indicates statistical significance at the 1%, ** at 5%, *** at 10%

Table 9. All Institutional investors (both domestic and foreign) voting rights; Dependent variable: $(M_t - M_{t-1})/M_{t-1}$

	Linear	Linear with vote diff.	Quadratic	Quadratic with vote diff.
Constant δ	-0.085* (-3.52)	-0.084* (-3.47)	-0.088* (-3.68)	-0.100* (-4.09)
I_t/M_{t-1}	0.574* (10.04)	0.559* (9.72)	0.444* (6.31)	0.499* (6.85)
Institutional investors voting rights (IV+FV)	0.005* (3.18)	0.003** (1.96)	0.019* (4.03)	0.021* (3.92)
(Institutional investors voting rights) ² (IV+FV) ²	-	-	-0.0002* (-3.13)	-0.0003** (-3.62)
(IV+FV) * Voting differentiation	-	0.004** (2.00)	-	-0.011** (-1.97)
(IC+FC) ² * Voting differentiation	-	-	-	0.0003* (2.55)
Marginal q, q_m	0.721	0.765	0.830	0.793
R^2	0.486	0.489	0.494	0.501
F-value	13.69	13.53	13.79	13.48
No. observations	651	651	651	651
No of firms	110	110	110	110

t-values in brackets

* indicates statistical significance at the 1%, ** at 5%, *** at 10%

Institutional ownership seems clearly to have improved performance, rather than institutional investors being attracted to firms with superior performance. If that were the case, one would expect a linear relationship between the proportion of shares held by institutions and marginal q . The non-linear effect of institutional ownership on

performance is therefore only consistent with the proposition that investors affected performance (Gugler and Yortuglu ; 2003).

5. Conclusions

Institutional investors, often thought to have little incentive to exercise management control can nevertheless be argued to have a disciplining effect. Consequently, a positive relationship between institutional ownership and investment performance may be expected. We examined how institutional investors affected firm performance in Sweden during 2000-2005 considering both domestic and foreign institutional investors separately and together. Foreign investors were assumed to be institutional owners as many of them are known to be such. We found their effect on performance quite similar to that of domestic institutional investors. As performance measure we used marginal q which measures return on investments relative to cost of capital. This alleviates problems with average measures, such as endogeneity and reverse causality.

Utilizing a fixed-effects model accounting for both time and industry effects, we found that both domestic and foreign institutional investors had a positive but diminishing effect on performance, estimated both separately and together.

Using data on Swedish firms (instead of the usual subjects, Anglo-Saxon firms) also allowed us to control for the effect of vote-differentiated shares. In firms with vote-differentiated shares, the positive effect of domestic and foreign institutional investors disappeared. This finding is in line with agency-cost theory which suggests that agency-costs are substantially higher in vote-differentiated firms.

As mentioned, domestic and foreign institutional investors are found to have had a positive but non-linear (diminishing) effect on performance, a clear indication of the direction of causality. It has been suggested that institutional investors invest in firms with superior performance. But our results are consistent with the conclusion that these investors can influence investment behaviour positively, a conclusion further supported by the fact that this was absent (i.e. not significantly significant) in firms with vote differentiation.

References

- Agrawal, A., and Knoeber C.R., (1996), "Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders", *Journal of financial and Quantitative Analysis*, 31 (3): 377-397.
- Angblad, J., Berglöf, E., Högfelt, P. and Svancar H. (2001), *Ownership and Control in Sweden: Strong Owners, Weak Minorities, and Social Control, The Control of Corporate Europe*, Oxford University Press, Oxford.
- Berle, A., and Means, G. (1932), *The Modern Corporation and Private Property*, : Macmillan, New York .
- Berle, A.(1960), *Power without Property*,: Sidgwick & Jackson, London.
- Bjuggren, P-O., Eklund, J. E., and Wiberg, D. (2007), "Ownership, Control and Firm Performance: The effects of vote-differentiated shares", *Applied Financial Economics*, 17(16):1323-1334.
- Cho, M-H. (1998), "Ownership Structure, Investment and the Corporate Value: An empirical analysis", *Journal of Financial Economics*, 47(1):103-121.
- Cronquist, H., and Nilsson, M. (2003), "Agency Costs of Controlling Minority Shareholders", *Journal of Financial and Quantitative Analysis*, 38:695-719.
- Dahlquist, M., and Robertsson, G. (2001), "Direct Foreign Ownership, Institutional Investors, and Firm Characteristics", *Journal of Financial Economics*, 59(3):413-440.
- Davis, P., and Steil, B., (2001), *Institutional Investors*, Cambridge The MIT Press, Cambridge MA.
- Demsetz, H. (1983), "The Structure of Ownership and the Theory of the Firm", *Journal of Law and Economics*, 26:375-390.

Demsetz, H., and Lehn, K., (1985) "The Structure of Corporate Ownership: Causes and consequences", *Journal of political Economy*, 93(6):1155-1177.

Demsetz, H., and Villalonga, B. (2001) "Ownership Structure and Corporate Performance", *Journal of Corporate Finance*, 7(3):209-233.

Gedajlovic, E., and Shapiro, D. (1998), "Management and Ownership Effects: Evidence from five countries", *Strategic Management Journal*, 19:533-553.

Goergen, M., and Renneboog, L. (2001), "Strong Managers and Passive Institutional Investors in the UK" in *The Control of Corporate Europe*, (edited by Barca, F., and Brecht, M.), Oxford: Oxford University Press

Gompers, P. A., and Metrick, A., (2001), "Institutional Investors and Equity Prices", *Quarterly Journal of Economics*, 116(1):229-259.

Gugler, K., Mueller, D. and Yurtoglu, B., (2001), "Corporate Governance, Capital Market Discipline and Returns on Investment", *Mimeo*, University of Vienna.

Gugler, J. (Ed). (2001), *Corporate Governance and Economic Performance*, Oxford University Press, Oxford.

Gugler, K., and Yurtoglu, B., (2003), "Average q, Marginal q, and the Relation between Ownership and Performance", *Economic Letters*, 78(3):379-384.

Henrekson, M. and Jakobsson, U. (2006), "*Den Svenska Modellen för Företagsägande och Företagskontroll vid Skiljevägen*", IFN Policy Paper No. 1, Stockholm.

Henrekson, M. and Jakobsson, U. (2012), "The Swedish Corporate Control Model: Convergence, Persistence or Decline?", *Corporate Governance: An International Review*, 20(2):212-227.

- Himmelberg, C.P., Hubbard, R.G., and Palia, D. (1999), "Understanding the Determinants of Managerial Ownership and the Link between Ownership and performance", *Journal of Financial Economics*, Vol. 53, 353-384
- Hirschman, A. O. (1970), *Exit, Voice and Loyalty*, Cambridge University Press, Cambridge.
- Högfeldt, P. (2005), "The History and Politics of Corporate Ownership in Sweden", in R. Morck (ed.), *A History of Corporate Governance around the World: Family business groups to professional managers*, University of Chicago Press, London.
- Jensen, M. C., and Meckling, W. H. (1976), "Theory of the Firm: Managerial behaviour, agency costs and ownership structure", *Journal of Financial Economics*, 3: 305-60.
- La Porta, R., Lopez-de Silanes, F., and Shleifer, A. (1999), "Corporate Ownership Around the World", *Journal of Finance*, 54(2):471-517.
- Levin, S.M., and Levin S.L. (1982), "Ownership and Control of Large Industrial Firms: Some new evidence", *Review of Business and Economic Research*, 14:37-49.
- Li, K., Ortiz-Molina, H., and Zhao, X. (2006), "Do Institutional Investors Care About Shareholder Rights? Evidence from Institutional Investment in Dual-Class Firms", SSRN Working Paper, , December, <http://ssrn.com/abstract=950295>.
- Loderer, C., and Martin, K. (1997) "Executive Stock Ownership and Performance: Tracking faint traces". *Journal of Financial Economics*, 45 (2): 223-255.
- Miguel, A., Pindado, J., and de la Torre, C. (2004), "Ownership Structure and Firm Value: New evidence from Spain", *Strategic Management Journal*, 25: 1199-1207.
- McConnell, J.J., and Servaes, H. (1990), "Additional Evidence on Equity Ownership and Corporate Value", *Journal of Financial Economics*, 27 (2):595-612.

McEachern, W. (1975), *Managerial Control and Performance*, Lexington Books, Toronto.

Mueller, D. C., and Reardon, E. (1993), "Rates of Return on Corporate Investment", *Southern Economic Journal*, 60(2):430-453.

Mueller, D. (2003), *The Corporation*, Routledge, London.

Morck, R., Schleifer A., and Vishny, R. (1988), "Management Ownership and Market Valuation: An empirical analysis", *Journal of Financial Economics*, 20(1):293-316.

Nickel, S., Nicolitsas, D., and Dryden, N. (1997), "What Makes Firms Perform Well?", *European Economic Review*, 41(3):783-796.

Pindado, J. and de la Torre, C.(2006), "The Role of Investment, Financing and Dividend Decisions in Explaining Corporate Ownership Structure: Empirical evidence from Spain", *European Financial Management*, 12 (5): 661-687.

Shleifer, A. and Vishny, R., (1986), "Large Shareholders and Corporate Control", *Journal of Political Economy*, 95(3):461-488.

Shleifer, R., and Vishny, R. W. (1997), "A Survey of Corporate Governance", *Journal of Finance*, 52(2):737-783.

Smith, M.P. (1996), "Shareholder Activism by Institutional Investors: Evidence from CalPERS", *Journal of Finance*, 51(1):227-252.

Stulz, R.M, (1988), "Managerial Control of Voting Rights: Financing policies and the market for corporate control", *Journal of Financial Economics*, 20(1):25-54.

Thomsen, S., and Pedersen, T. (2000), "Ownership Structure and Performance in the Largest European Companies", *Strategic Management Journal*, 21(6):689-705.

Zhou, X. (2001), "Understanding the Determinants of Managerial Ownership and the Link between Ownership and Performance: Comment", *Journal of Financial Economics*, 62(3):559-571.

Appendix: Correlation matrix

	Sales	$M_t - M_{t-1}$ $/M_{t-1}$	I_t/M_{t-1}	C1	V1	FC	FV	IC	IV	V1 – C1	FC+IC	FV+IV	VoteDiff
Sales	1.00												
$M_t - M_{t-1}/M_{t-1}$	- 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								
FC	0.241*	0.046	- 0.025	- 0.118*	- 0.170*	1.00							
FV	0.072	0.053	- 0.024	- 0.058	- 0.219*	0.928*	1.00						
IC	0.205*	- 0.057	- 0.005	- 0.200*	- 0.130*	- 0.044	- 0.036	1.00					
IV	0.232*	- 0.046	- 0.009	- 0.212*	- 0.281*	0.020	0.036	0.894*	1.00				
V1 – C1	0.174*	- 0.021	0.064	- 0.112*	0.385*	- 0.064	- 0.154*	0.049	- 0.151*	1.00			
FC+IC	0.320*	0.063	- 0.080*	- 0.220*	- 0.220*	0.830*	0.883*	0.520*	0.515*	- 0.075	1.00		
FV+IV	0.171*	0.080*	- 0.092*	- 0.157*	- 0.323*	0.812*	0.812*	0.388*	0.500*	- 0.317*	0.911*	1.00	
VoteDiff.	0.175*	- 0.023	0.002	- 0.009	0.386*	- 0.062	- 0.151*	0.049	- 0.185*	0.659*	- 0.026	- 0.203*	1.00

* indicates significance at 5%