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# ***Ownership Structure, Control and Firm Performance: The Effects of Vote Differentiated Shares***

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## Abstract

This paper contributes to the literature on ownership, control and performance by exploring these relationships for Swedish listed companies (1997-2002). We find that firms, on average, are making inferior investment decisions and that the use of dual-class shares have a negative effect on performance. According to our results concentration of ownership has a negative impact on investment performance and firm value when control instruments that separate votes from capital share are used. Marginal  $q$  is used as a measure of economic performance. It was presented in an article by Mueller and Reardon in 1993 and has recently been used in empirical studies of ownership and performance by among others Gugler and Yurtoglu (2003). Frequently Tobin's  $q$  is used in studies of this type, but Tobin's  $q$  has a number of disadvantages which can be circumvented by employing a marginal  $q$ . This study adds to earlier studies by investigating how the separation of vote and capital shares' creates a wedge between the incentives and the ability to pursue value maximization. The relationships between the performance measure and different ownership characteristics like ownership concentration and foreign ownership are also investigated.

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## 1. Introduction

In their famous 1932 book “The Modern Corporation and Private Property”, Berle and Means discuss the problems related to the separation of ownership from control in large American corporations. The core of the discussion lies in that ownership of large companies is so dispersed that no single owner holds more than a tiny fraction of the listed shares in each one of them. As a consequence, no single shareholder has the ability or the incentive to exercise control over the company, which in turn leads to companies being inefficiently run. The lack of ability refers to the fact that, when ownership is widely dispersed, a single owner cannot individually have much influence on the way the company is being run. The lack of incentive on the other hand implies that, even if an owner has the possibility to promote changes, he or she will most probably refrain from exercising this possibility since he/she will have to share the gains with all other shareholders despite the fact that the efforts exerted have been exclusively personal. Thus, a problem of rational ignorance arises.

In Sweden this problem is somewhat different since firms are allowed to have vote-differentiated shares, i.e. voting rights are frequently separated from the amount of capital invested. Consequently there is a possibility to retain control over a company by owning a relatively small fraction of the shares (equity). It seems reasonable to believe that this special characteristic of the Swedish stock market will have a certain impact on the performance of Swedish firms and create a special set of incentives that need to be considered. A wider spectrum of questions than the ones posed by Berle and Means (1932) can therefore be raised. The purpose of this paper is to empirically address the impact of the relationship between the structure of ownership and control, and firm performance for Swedish listed firms.

The novelty of this paper is that we make a distinction between the ability of owners to exercise control and the incentives the owners have to pursue profit maximization. We argue that the wide use of dual-class shares, with strong separation of voting power and capital share creates a wedge between the incentives and the ability to pursue shareholder value maximization.

To estimate the effects of ownership characteristics and vote-differentiation we use marginal  $q$  as performance measure. Marginal  $q$  is more appropriate for this purpose as compared to Tobin’s  $q$ , because it measures marginal performance instead of average performance.

The paper is organized in six sections. A theoretical discussion, where we attempt to shed some light on the existing theories on the relation between ownership and performance, is provided in Section two. In Section three the impact of portfolio and control incentives on ownership and performance is discussed from an exit and voice perspective. Section four presents the method and variables used, and marginal  $q$  is derived. In Section five our findings are presented and analyzed. Conclusions summarize the paper in Section six.

## 2. The impact of ownership and control structure on firm performance

The literature on corporate governance has primarily focused on large firms. One seminal contribution to this field was made by Berle and Means (1932), who devoted a whole book to the alleged detrimental effects of the separation of ownership and control, focusing on large corporations (joint stock companies) with dispersed ownership. Here it is claimed that, in an economy characterized by larger and larger corporations, there is a tendency towards

separation of ownership from control. Furthermore, investors are urged to be concerned about this because, in the words of the authors:

*“Suffice it here to realize that where the bulk of the profits of enterprise are scheduled to go to owners who are individuals others than those in control the interests of the latter are as likely as not to be at variance with those of ownership and that the controlling group is in a position to serve its own interests.”*

In other words – the increase of large corporations will have damaging effects on economic performance. It is interesting to note that Berle and Means (1932) use the term controlling group.

A theoretical foundation for the agency problem inherent in the division of ownership and control is provided by Jensen and Meckling (1976). By developing a model of how the interests of management and owners diverge when ownership and control are separated, the detrimental effects on firm value of a separation of ownership and control are rigorously demonstrated. In contrast to Berle and Means, they choose to address the problem by focusing on growing SMEs (Small and Medium sized Enterprises).

In Jensen’s and Meckling’s model, the utility function of a controlling manager is assumed to have firm value and on-the-job-consumption as the only two arguments. On-the-job-consumption is at the expense of firm value. Given standard assumptions of utility functions it is shown that the management, *ceteris paribus*, will be more and more inclined to cater to on-the-job-consumption at the expense of firm value, as the dispersion of ownership increases.

As outside owners are not working in the firm, shareholder value is presumably the only argument in their utility function. This means that on-the job-consumption does not enter into the utility functions of the outside owners. As a result there is a divergence of the interests between the controlling managers and the outside owners.

In countries like Sweden which allow for vote-differentiation of shares it is important to make a distinction between the ability and the incentives to maximise firm value. The ability of the shareholder to exercise control of the management is determined by the voting power that can be exercised at the shareholders’ meeting. The incentives to exercise value-increasing control are, however, linked to what portion of the equity of the firm that a shareholder owns. Ownership of large portion of equity means that a large portion of increases in firm value can be appropriated by an active shareholder. However, as Berle and Means (1932) clearly point out, the controlling group will always be in a position to serve its own interests, which may at times differ a lot from what would maximize firm value.

By having vote-differentiated shares the control abilities and incentives will differ. This divergence of ownership and control complicates the analysis. Although little research is done on the subject it is intuitive that such vote-differentiation will change the predictions of the Jensen and Meckling model.

In Sweden the vote-differential can be as large as 1000 (when the so-called A-share carries 1000 times more votes than a so-called B-share). For new firms in Sweden, however, the maximum allowed voting-right difference is 1-10. In contrast to, for example the US, dual-class shares are frequently used in Sweden - about 55 per cent of all listed firms use vote

differentiation (Tson Söderström et al, 2003). In fact, Sweden has the highest share of firms with vote-differentiated shares in Europe, see table 1.

**Table 1 Vote-differentiation in Europe**

Country	Number of Firms	Number of firms with dual-class shares	Share of firms with dual class shares
Belgium	130	0	0.00
Portugal	87	0	0.00
Spain	632	1	0.00
France	607	16	0.03
Germany	704	124	0.18
Austria	99	23	0.23
Ireland	69	16	0.23
Great Brittan	1953	467	0.24
Denmark	210	70	0.33
Finland	129	47	0.36
Italy	208	86	0.41
Sweden	334	185	0.55
<b>Total</b>	<b>5162</b>	<b>1035</b>	<b>0.20</b>

Source: Bennedsen & Nielsen (2002), in: Tson Söderström et al. (2003)

Proponents defend the system with the argument that it constitutes a way for owners to influence the management of large firms. Without this system the amount of capital needed and the risk involved in loss of diversification would be an insurmountable hurdle to ownership control of management. On the other hand it can at the same time be claimed that a disadvantage of the system is the disproportion between capital share and control potential that arise with vote-differentiated shares. Such a disproportion has the effect that investors, other than the controlling shareholder, will benefit the most from effective control of the firm. The cost of catering to other than value maximising objectives will thus be lower in a dual-share system than in a system with one share, one vote. The enhanced ability to control and distorted value maximising incentives are thus two opposing forces that must be considered in an analysis of the system.

In any study of the relationship between ownership, control and performance, the contributions of Marris (1964) and Manne (1965) have to be noted. They bring attention to the simple fact that a stock exchange is not just a market place for ownership rights in the sense of rights to a share of the residual income of the firm. The stock exchange is also a marketplace for the control rights attached to a share. An investor with knowledge of how to increase the residual income from a more efficient use of the resources of a firm can benefit from this knowledge by acquiring enough control rights to enforce such a value-rising change in the use of the resources. In this way a stock exchange will serve as a market for corporate control that will ensure that firms' resources are used in a value enhancing way. However, for Sweden in particular, this may not be the case. Due to the specific characteristics of the Swedish stock market, with dual-class shares and often a pyramid ownership structure, there is virtually no active market for corporate control.

Agnblad et al.(2001) have argued that these specificities of the Swedish corporate governance model might be economically more important than the effects of minority protection. Or to use their words (p. 230):

*“The Swedish corporate governance model with its strong separation between ownership and control locks in owners for long periods of time, even from one generation to another. The widespread use of dual-class*

*shares and pyramids can thus have substantial costs in terms of loss in dynamics in ownership and control.”*

### **3. Portfolio and Control Investments**

In the modern corporate finance literature a portfolio perspective is presented. Risk and return are stressed as the only utility arguments that matters. The important risk is the systematic risk from which it is impossible to diversify away. In this theory the control aspect of stock ownership is disregarded. Owners and managers are assumed to have no other goal than to maximise the value of the firm. What the investor has to care about is only how to find combinations of assets that maximise the return given the level of risk or vice versa. In this paper a different approach is used where the control aspect is also taken into consideration. Different types of owners are assumed to have different preferences for the portfolio and control aspects of stock ownership. Institutional investors of domestic and foreign origin in charge of open mutual funds are separated out from other types of owners.

Hence it is assumed that a portfolio theory perspective is likely to be especially useful in analyses of the behaviour of mutual funds (open-ended funds). A feature of the globalisation of the economy is that investment companies are offering mutual funds with assets from all parts of the globe. This strive towards world-wide coverage is partly motivated by the advantages of international diversification on return and risk. The globalisation trend shows up in the increase of foreign ownership in most capital markets around the world.

It is further assumed that foreign owners, predominantly in the form of foreign institutional investors such as pension funds etc., are primarily interested in the capital aspect of shares. They do not have any special interest in the voting power a share represents. Consequently we expect this type of investors in an economy like Sweden's with vote differentiated shares to be biased towards acquiring shares with lower voting power.

Investors acting in accordance with general portfolio theory are likely to frequently make adjustment in the composition of their portfolio in response to changes in stock performance in different markets. An exit from poorly performing shares and markets to better performing shares and markets can be expected. With large amounts to invest abroad the behaviour of these types of foreign investors is likely to have both a real stock price effect as well as a signalling effect to other investors regarding the valuation of a specific firm. Using Hirschman's terminology global investment companies and their mutual funds is likely to be characterised by exit-type behaviour (Hirschman, 1970).<sup>1</sup> This reasoning leads us to formulate hypothesis I.

**Hypothesis I:** The share of foreign ownership will be higher in well performing firms.

Controlling owners, defined as the largest single owner, either in vote or equity, are investors that can be guided by many different incentives. Being more or less intimately involved in the control of the company, in which they have the largest ownership stake, it can be assumed that they are concerned about both the value of the firm and the opportunity to benefit from perks and other amenities. Such an assumption is justified by the fact that they usually belong to the type of investors that have both the knowledge and power to enforce firm actions as

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<sup>1</sup> A similar interpretation of the behavior of investors according to Hirschman's classification can be found in Hedlund (1984).

well as benefit from other than value-maximising uses of the resources of the firm. Even though they in a direct way can enforce value maximising behaviour, it is thus not self-evident that value maximising behaviour is always their most important objective. In fact, many observers (i.e. Scitovsky, 1943, Knight, 1965) of the owner-led firm have stated that such owners might have many other objectives than profit or shareholder-value maximization (for a discussion see Mueller (2003)). To Schumpeter (1934) the entrepreneur (owner) even resembles a medieval knight setting out to create a “*private kingdom*” or a “*dynasty*”. Vote-differentiated shares provide an opportunity to create a kingdom at a low cost. At least in short-term perspective owners aiming at control may exert influence that can be at odds with value-maximization.

**Hypothesis II:** In a vote-differentiated stock market there will be negative relationship between owner concentration and investment performance.

The incentive structure of the owners is of course different in firms that do not allow vote-differentiated shares. In this type of firms the controlling owners wealth is connected to the capital share invested in the firm. The controlling owner’s wealth-maximization objective is thus more in line with the shareholders value-maximization objective. Here, the predictions of the Jensen and Meckling (1976) model are expected to hold, with a positive albeit not linear relationship between the controlling owner’s ownership stake and the interests of the shareholders.

As mentioned before the Swedish stock market is characterized by an ownership structure with unusual strong separation of ownership and control. The Swedish stock market regulations allow separation of ownership and control both through the use of vote differentiated shares, pyramid ownership structures and cross shareholdings. Through vote-differentiation it is possible to get control over the firm with a modest share of the equity capital. As far as the incentives for enforcing value maximization are primarily related to capital share, a vote-differential can be expected to have a negative impact on performance. The costs of using the control power for other ends than value maximization decreases with vote-differentiation. In some cases it might even be the case that the enhanced control power is used to foster business interests in other firms controlled by the dominating owners. Consequently one might expect that the use of the control instrument in vote-differentiated firms will have a negative effect on investment performance. To see if this supposition is justified we formulate hypothesis III.

**Hypothesis III:** The use of vote-differentiated shares will have a negative effect on firm’s investment performance.

Before we go on to test our hypothesis a short review of earlier empirical studies is provided in the next section followed by a description of the method and variables used to test our hypothesis in section five.

#### 4. Method and Variables

To test the effects of the Swedish ownership structure we adopt the methodology of Gugler and Yurtoglu (2003) and the marginal  $q$  developed by Mueller and Reardon (1993). However, marginal  $q$  is derived in a slightly different way. In standard textbooks on corporate finance, such as Brealey and Myers (1991), the net present value rule is introduced as the criterion to

be used when a firm evaluates investments. The criterion requires for each project a comparison between the negative cash flow of the investment ( $I$ ) and the present value ( $PV$ ) of future cash flows ( $CF_t$ ) generating ( $PV = \sum_{t=1}^n CF_t \frac{1}{(1+r)^t}$ ). The difference between  $PV$  and  $I$  is called net present value ( $NPV$ ). The rule says that all projects with a positive  $NPV$  shall be undertaken (or in other words accept all projects with  $NPV = PV - I > 0$ ).

The reason for a firm to make investments in projects with  $NPV > 0$  is that shareholders are made better off compared to alternative uses of the funds. (Hence, the wealth of the shareholder is not increased by a distribution of the funds directly to the shareholders by means of repurchase of shares or dividends.) The shareholders referred to are the ones that are outsiders in the sense of not working in the firm. As suppliers of capital they are mainly interested in the return on the firm's investments. These shareholders cannot benefit from consumption-on-the-job in the way described by Jensen and Meckling (1976). All their consumption takes place outside the firm. (Projects with  $NPV < 0$  can only benefit insiders like the management of the firm in the form of on-the-job-consumption.)

The market value of the firm  $M_t$  bears a direct relation to the sum of the present values of all the running projects that the firm has invested assets in over time. In an efficient stock market the market value of the firm is equal to the sum of the present values of these projects. The present value ( $PV_t$ ) of investments ( $I_t$ ) during a time period will increase the market value of the firm if  $PV_t$  is larger than the depreciation of assets from earlier investments (i.e.  $M_t - M_{t-1} = PV_t - \text{Depreciation}$ , see e.g. Gugler, Mueller and Yurtoglu, 2002).

Considering that the market can make errors in the estimation of future cash flows the expression for change in market value in a period  $t$  can be written as

$$M_t - M_{t-1} = PV_t - \text{Depreciation} + \mu_t \quad (1)$$

where  $\mu_t$  represents the error the market makes in the estimation of market values. In an efficient market, actors make unbiased estimates of the error term and  $\mu_t$  has an expected value of zero and a nominal distribution around zero.

The net present value rule prescribes that managers shall invest in projects up to the point where  $NPV = 0$ . Otherwise, the management is not acting in the interest of the shareholders. A  $NPV = 0$  implies that  $PV_t = I_t$  or that

$$\frac{PV_t}{I_t} = 1 \quad (2)$$

In the same fashion  $NPV > 0$  (unused profitable investment opportunities) implies  $\frac{PV_t}{I_t} > 1$ ,

and  $NPV < 0$  (managerial discretion of consumption-on-the-job character) implies  $\frac{PV_t}{I_t} < 1$ .

Like Gugler, Mueller and Yurtoglu (2002) we can rewrite (2) as

$$\frac{PV_t}{I_t} = q_m \quad (3)$$

with  $q_m = 1$  for the project last accepted indicating an efficient investment level,  $q_m > 1$  implying that the firm is not investing enough, and  $q_m < 1$  implying managerial discretion.

Inserting (3) in (1) gives

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

As pointed out by Gugler, Mueller and Yurtoglu (2002) it can from (3) and (4) easily be seen that  $q_m$  is related to Tobin's  $q$  in a way that justifies the denomination marginal  $q$  ( $q_m$ ). While Tobin's  $q$  reflects the market value ( $M_t$ ) divided by the replacement cost of all assets of the firm,  $q_m$  shows the relationship between the cost of a change in the stock of assets and the subsequent change in market value. The marginal character is evident.

By dividing both sides of (4) with  $M_{t-1}$  a normalization that is useful in empirical testing is accomplished. We get

$$\frac{M_t - M_{t-1}}{M_{t-1}} = -\delta + q_m \frac{I_t}{M_{t-1}} + \frac{\mu_t}{M_{t-1}} \quad (5)$$

where  $\delta$  is the depreciation rate

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  $\mu_t/M_{t-1}$  will approach 0.

The marginal  $q$ ,  $q_m$ , has a number of advantages. First, as mentioned previously, a marginal performance measure is more appropriate than an average Tobin's  $q$ , when testing hypotheses about managerial discretion. 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. Conversely, if  $q_m > 1$  managers are not making enough investments, i.e. projects that earn returns higher than the cost of capital are not pursued. Thus for the firm to be profit maximizing,  $q_m$  must be equal to one.

In order 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 the end of time  $t$ .

Finally a few words about how investment is calculated. According to the originators, Mueller and Reardon (1993) and Gugler, Mueller and Yurtoglu (2002), total investment is defined as

$$I = \text{After tax profits} + \text{Depreciation} - \text{Dividends} + \Delta \text{Debt} + \Delta \text{Equity} + R\&D + ADV$$

where  $\Delta D$  and  $\Delta E$  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.

The data used in the regressions is provided by UC-Select and consists of accounting data for 95 firms listed on the Stockholm Stock Exchange in the period 1997-2002. The data on

ownership concentration and type of owners are taken from the Swedish SIS-Ownership database<sup>2</sup>.

The ambition was to produce a balanced panel data set. In order to get a balanced data set several criteria were applied in the selection of firms. Excluded from the sample were firms with accounting periods less and/or different than a full calendar year running from January to December. To be included in the sample the firms also needed to have stock market data reported by Affärsvärlden, which is the major Swedish database for stock market data. As a result of this second criterion, only firms listed on the so-called A- and O-lists of Stockholm Stock Exchange were included. The last selection criterion was that the companies in the sample had to be listed on any of these two lists for all of the five years 1997-2002. Banks and financial firms were also excluded because of the nature of their investments.

The above-stated criteria ensure liquidity in the share and that valid comparisons can be made for exactly the same firms for all years. When all the criteria were satisfied the test population had decreased substantially from around 300 companies to 95.

To test our hypothesis that the investment performance of firms with vote differentiated shares is lower than the investment performance in firms without dual-class shares (hypothesis V), the sample firms were divided into two groups, firms with or without vote differential. Striking is the low number of Swedish firms with no vote differential, only 21 of 95 compared to the remaining 74 firms with vote-differentiated shares. This simple arithmetic confirms the strong and stable ownership structure described in section two as the general model applied in most Swedish firms.

Table 2 offers a description of the variables used in the study. Owing to the prevalence of vote differentiated shares in Swedish listed firm, separate ownership measures are provided for the distribution of both votes and equity. CR1 and CR5 refer to capital share (equity), while VR1 and VR5 refer to the shares of votes controlled by 1 and 5 owners respectively.

An ownership category of special interest is foreign owners represented by CRFOR and VRFOR. CRFOR refers to capital share controlled by foreign owners and VRFOR refers to the number of votes controlled by foreign owners. For further discussion see section 3. A description of the variables is provided in Table 1.

**Table 2. Description of Variables**

CR1	Percentage of equity owned by the largest shareholder.
CR5	Percentage of equity owned by the five largest shareholders
VR1	Percentage of votes controlled by the largest shareholder
VR5	Percentage of votes controlled by the five largest shareholders
VOTDIF	Dummy variable for vote-differentiation of shares. 1 if the firm makes use of a dual class system, 0 if not.
CRFOR	Percentage of equity owned by foreign investors
VRFOR	Percentage of votes controlled by foreign investors

<sup>2</sup> Sundin, A. and Sundqvist S-I. (1998-2002).

Appendix 1 and 2 contain correlation matrices and descriptive statistics for each year respectively. For obvious reasons CR1, CR5, VR1 and VR5 display a fairly high correlation. CRFOR and VRFOR are, as expected, negatively correlated with these variables.

In order to test our hypothesis regarding ownership structure and firm performance we structured three panel data estimations. First we made Ordinary Least Square (OLS) estimations for all equations, estimating the effects of ownership concentration and the dual class share system. The equations were estimated for both marginal  $q$  and the valuation ratio. The results for the valuation ratio are presented in Appendix 3. The same equations were then estimated using a Fixed Effects Model with Period and Group Effects, and a Random Effects Model. For all the estimations a balanced panel data set consisting of 475 observations was used.

For the regressions made with  $(M_t - M_{t-1})/M_{t-1}$  as the dependent variable,  $I_t/M_{t-1}$  is used as an explanatory variable. In addition to this interaction terms of  $I_t/M_{t-1}$  and relevant variables are employed in order to test the effects of ownership concentration and vote differentiation. Thus, the equation estimated here 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  $q_m$ . Following from this we estimate the two following empirical equations (6 and 7):

$$\frac{M_t - M_{t-1}}{M_{t-1}} = -\delta + \beta_1 \left( \frac{I_t}{M_{t-1}} \right) + \beta_2 \left[ CR_i \left( \frac{I_t}{M_{t-1}} \right) \right] + \beta_3 \left[ CRFOR \left( \frac{I_t}{M_{t-1}} \right) \right] + \beta_4 \left[ VOTDIF \left( \frac{I_t}{M_{t-1}} \right) \right] + \varepsilon_i \quad (6)$$

$(\approx 1)$                        $(< 0)$                        $(> 0)$                        $(< 0)$

$$\frac{M_t - M_{t-1}}{M_{t-1}} = -\delta + \beta_1 \left( \frac{I_t}{M_{t-1}} \right) + \beta_2 \left[ VR_i \left( \frac{I_t}{M_{t-1}} \right) \right] + \beta_3 \left[ VRFOR \left( \frac{I_t}{M_{t-1}} \right) \right] + \beta_4 \left[ VOTDIF \left( \frac{I_t}{M_{t-1}} \right) \right] + \varepsilon_i \quad (7)$$

$(\approx 1)$                        $(< 0)$                        $(> 0)$                        $(< 0)$

Since we estimate these equations for both the single largest owner and the five largest owners we estimate in total four equations. Following from our hypotheses we expect the first  $\beta$  to be approximately equal to one, the effect of ownership concentration ( $CR_i$  and  $VR_i$ ) we expect to be negative, foreign ownership ( $CRFOR$  and  $VRFOR$ ) is expected to be positive, and the use of vote-differentiated shares ( $VOTDIF$ ) is expected to have a negative impact. It should be noted that the error term  $\varepsilon_i$  is a standard regression error term and is not the same as the error term,  $\mu_i$ , in the theoretical equation (5). The intercept  $\delta$  is, as noted earlier, the rate of depreciation and therefore not relevant for the interpretation of  $q_m$ <sup>3</sup>.

## 5. Findings and analysis

In our sample close to 70 percent of the firms have vote-differentiated shares. Furthermore, the largest single owner has, on average, a capital share around 25 per cent and foreign

<sup>3</sup> Note that when differentiating with respect to investments,  $I_t$ , the depreciation rate,  $\delta$ , disappear, and hence have no relevance for the interpretation of  $q_m$ .

owners on average a capital share around 18 to 19 per cent in the Swedish listed firms (see Appendix 2). This is far from the dispersed ownership of large corporations that Berle and Means (1932) analyzed. According to them firms with dispersed ownership had less than 20 per cent of the shares (votes) controlled by one owner. Appendix 2 shows that the ownership concentration in terms of vote shares widely exceeds the capital share concentration. The largest owner has on average a vote share of 37 to 39 per cent compared to the 25 per cent capital share. This is the statistical background to our hypotheses of the impact of ownership on investment performance in a vote-differentiated stock market. To test our hypotheses, we employ three estimation procedures, for the case when only the largest owner's shares of capital and votes, and for the case when the five largest owners' share of capital and votes are studied.

The results from these regressions are presented in Tables 3 and 4. Table 3A contains the results for CR1, CRFOR and VOTDIF. Table 3B contains the results for VR1, VRFOR and VOTDIF. In Table 4, CR1 and VR1 have been replaced with CR5 and VR5 respectively.

**Table 3 Regression results (the largest shareholder)**

Estimation method	OLS		Panel estimation			
			Fixed effects model with group and period effects		Random effects model	
	Coeffic.	t-Value	Coeffic.	t-Value	Coeffic.	t-Value
A: Dependent variable: $(M_t - M_{t-1})/M_{t-1}$						
$I_t/M_{t-1}$	0.852	4.89	1.437	5.59	1.126	5.37
$(I_t/M_{t-1})CR1$	-0.009	-2.94	-0.014	-3.44	-0.011	-3.09
$(I_t/M_{t-1})CRFOR$	0.016	3.36	0.018	2.36	0.016	2.86
$(I_t/M_{t-1})VOTDIF$	-0.449	-3.37	-0.769	-3.88	-0.557	3.54
$R^2$	0.171		0.369		0.171	
Adj. $R^2$	0.164		0.194		-	
F-value	24.22		2.11		-	
No. observations	475		475		475	
B: Dependent variable: $(M_t - M_{t-1})/M_{t-1}$						
$I_t/M_{t-1}$	0.831	4.95	1.467	6.09	1.043	5.33
$(I_t/M_{t-1})VR1$	-0.006	-2.79	-0.011	-3.57	-0.008	-3.08
$(I_t/M_{t-1})VRFOR$	0.013	2.61	0.011	1.47	0.012	2.08
$(I_t/M_{t-1})VOTDIF$	-0.332	-2.19	-0.640	2.94	-0.430	-2.44
$R^2$	0.155		0.359		0.155	
Adj. $R^2$	0.148		0.181		-	
F-value	21.64		2.02		-	
No. observations	475		475		475	

**Table 4 Regression results (the five largest shareholders)**

Estimation method	Panel estimation					
	OLS		Fixed effects model with group and period effects		Random effects model	
	Coeffic.	t-Value	Coeffic.	t-Value	Coeffic.	t-Value
A: Dependent variable: $(M_t - M_{t-1})/M_{t-1}$						
$I_t/M_{t-1}$	1.036	4.75	1.702	5.60	1.269	5.04
$(I_t/M_{t-1})CR5$	-0.009	-3.00	-0.015	-3.58	-0.011	-3.19
$(I_t/M_{t-1})CRFOR$	0.017	3.58	0.021	3.00	0.018	3.22
$(I_t/M_{t-1})VOTDIF$	-0.436	-3.24	-0.725	-3.60	-0.537	-3.37
$R^2$	0.172		0.371		0.172	
Adj. $R^2$	0.165		0.196		-	
F-value	24.33		2.12		-	
No. observations	475		475		475	
B: Dependent variable: $(M_t - M_{t-1})/M_{t-1}$						
$I_t/M_{t-1}$	0.874	3.99	1.546	5.19	1.097	4.40
$(I_t/M_{t-1})VR5$	-0.006	-1.90	-0.010	-2.58	-0.007	-2.17
$(I_t/M_{t-1})VRFOR$	0.016	3.24	0.017	2.43	0.016	2.80
$(I_t/M_{t-1})VOTDIF$	-0.373	-2.31	-0.685	-2.98	-0.467	-2.50
$R^2$	0.148		0.348		0.148	
Adj. $R^2$	0.141		0.168		-	
F-value	20.41		1.93		-	
No. observations	475		475		475	

The OLS-estimates are significant for all variables and confirm the results in the two other models. However, as the fixed effects model, which takes into account both period and group dummy effects, is a more efficient estimation model for our purposes and since its explanatory value is higher, we continue our analysis focusing mainly on the results from the fixed effects model. The results are very stable since all three estimation procedures yield the same result, however the Hausman test indicates that the fixed effects model is the best estimation.

The Fixed Effects Model estimates have the strongest explanatory value with an  $R^2$  equal to 0.369. When looking at capital share, one owner, an average Swedish firm with dual-class shares has an estimated  $q_m = 0.653^4$  (0.658 for capital share five owners (CR5)). This is remarkably consistent with the findings of Gugler et al (2002) who estimates an average  $q_m$  for Sweden to 0.65. This implies that firm managers invest in projects that earn on average 34.7 per cent less than the cost of capital. Thus, they must be interpreted as investment failures. For hypothetical firms with low ownership concentration we estimate  $q_m$ 's that are closer to one. This also holds, *mutatis mutandis*, for firms with only one class of shares. That is, as the ownership concentration increases the investment performance declines.

<sup>4</sup> The number is attained by plugging in the regression coefficient estimates from the fixed effects model with respect to the capital share regression (A).

According to hypothesis I it is expected that foreign ownership will have a positive impact on investment performance. This is confirmed with high significance in all the three estimation models, both when using the ownership concentration of the largest single owner and the aggregate ownership of the five largest together; see Tables 3 and 4. The positive and significant impact of foreign ownership on performance confirms earlier findings on Swedish data made in Bjuggren and Bohman (2002).

Foreign investors driven mainly by portfolio choice motives were expected to move their assets into firms with positive investment opportunities. But they were also assumed to belong to a category of investors that not only demand shareholder value maximization but also enforce the pursuit of such strategies (both these effects are accounted for in hypothesis I). It is also likely that foreign investors prefer to invest in firms with a more dispersed ownership structure. Consequently, firms with more owners focused on shareholder value rather than in owner/manager-led firms. When separate estimations are performed for the two groups, with or without dual class shares, it is easy to see that the foreign ownership presence is much larger in firms without dual-class shares. This supports the idea that foreign investors if possible (from a portfolio perspective) avoid firms with highly concentrated ownership structures. The summary statistics (appendix 2) also shows that foreign owners have a low share of votes given their share of invested capital (CRFOR is low compared to VRFOR) Foreign owners are thus biased towards shares with lower voting power.

In line with the reasoning regarding the special characteristics of the Swedish ownership structure, one would expect a negative impact of concentrated ownership on investment performance of Swedish listed firms (hypothesis II). This negative relationship is significant in all the estimations. What this tells us is that the Swedish model of ownership structure with its characteristics of strong controlling owners and separation of vote and capital shares suffers from some drawbacks.

As emphasised earlier one characteristic of the Swedish ownership system is the existence of vote-differentiated shares. This allows investors to maintain control of firms with a relatively small share of equity. In our sample the concentration of votes is higher than the concentration of capital (equity) for both measures of ownership concentration, CR1 and CR5, as compared to VR1 and VR5 respectively. Controlling owners are biased towards shares with higher voting-power.

A possible explanation for the negative relationship between ownership concentration and performance is the possibility for controlling owners to exploit minority investors and cater to other than shareholder value maximization objectives. A dominating owner, may actively choose investments in line with personal interests rather than those of the remaining shareholders, i.e. choose investments that do not benefit shareholders in general. As already noted the single largest shareholder in the firms studied has an ownership stake which controls on average around 38 per cent of the votes. This is in most cases enough to control the firm and benefit at the expense of minority shareholders.

When the estimations are made for the aggregate ownership stakes of the five largest shareholders, this picture becomes even clearer, see Table 4. On average five owners control together more than 61 per cent of the votes in the sample firms (see summary statistics in Appendix 2). It is apparent that the Swedish stock market is less dispersed in ownership than one might first expect. The effect of the aggregate ownership stakes of the five largest

shareholders on investment performance is also in line with hypothesis II, that is, significantly negative when estimated in any of the models.

The third variable that is tested is vote-differential. In firms which have dual-class shares minority misappropriation and less than efficient use of the firms' resources are a more likely event. In line with this reasoning one would expect a negative effect of vote-differential on investment performance and valuation (hypothesis III). Indeed, in all three estimation models and for every ownership category used we find a negative and significant effect of vote-differential on investment performance.<sup>5</sup>

Finally a caveat about causality can be made. The holdings by foreign investors might be associated with problems of reversed causality. Foreign portfolio investors are likely to be well apt to identify well performing firms and invest in them. Likewise foreign investors are likely to leave firms that are underperforming. To put it differently, portfolio inventors are likely to exit an underperforming firm rather than to exercise voice.

## 6. Conclusions

There are many facets to ownership structure which makes it a difficult topic to study. The dual-class share system is one aspect of corporate governance that potentially has far-reaching consequences for the long-run performance of industries. We have chosen to look at the Swedish ownership structure from three different perspectives. Besides the more traditional variables on ownership concentration, we also look at the ownership of foreigners and the impact of vote-differentiation and the dual-class share system in general. A distinction is made between capital share and voting share.

An important result is the negative impact of vote-differentiation and ownership concentration on firm value and investment performance. The Swedish model of corporate governance does not seem to function so well. We also found that foreign ownership seems to be susceptible to how well a firm performs. A positive relationship between foreign ownership and investment performance and firm value is found. Furthermore, for foreign owners there is a bias towards ownership of shares with lower voting power. A portfolio type of behaviour is put forward as an explanation for these results.

As this study adds to a rather new tradition of using marginal  $q$  as performance, it is also worth noting that the low marginal  $q$  obtained (implying poor investment performance) is remarkably consistent with the earlier results obtained by Gugler, Mueller and Yurtoglu (2002).

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<sup>5</sup> Separate regressions were estimated when the sample firms were divided into two subsets, with or without vote-differential. These regressions supported the findings in Tables 3 and 4. As the results were generally the same, these regressions are excluded but are available upon request; suffice it to say that the results in Table 3 and 4 in this way are confirmed.

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## Appendix 1 Correlation matrixes

### Correlation matrix 1998

	CR1	CR5	CRFOR	VR1	VR5	VRFOR
CR1	1	0.835	-0.498	0.753	0.607	-0.413
CR5		1	-0.551	0.669	0.740	-0.456
CRFOR			1	-0.392	-0.378	0.822
VR1				1	0.831	-0.542
VR5					1	-0.606
VRFOR						1

### Correlation matrix 1999

	CR1	CR5	CRFOR	VR1	VR5	VRFOR
CR1	1	0.826	-0.440	0.765	0.648	-0.389
CR5		1	-0.485	0.672	0.792	-0.417
CRFOR			1	-0.355	-0.390	0.877
VR1				1	0.831	-0.473
VR5					1	-0.522
VRFOR						1

### Correlation matrix 2000

	CR1	CR5	CRFOR	VR1	VR5	VRFOR
CR1	1	0.844	-0.423	0.734	0.632	-0.334
CR5		1	-0.457	0.634	0.754	-0.307
CRFOR			1	-0.340	-0.369	0.858
VR1				1	0.818	-0.414
VR5					1	-0.437
VRFOR						1

### Correlation matrix 2001

	CR1	CR5	CRFOR	VR1	VR5	VRFOR
CR1	1	0.826	-0.346	0.739	0.615	-0.275
CR5		1	-0.373	0.647	0.781	-0.280
CRFOR			1	-0.325	-0.322	0.906
VR1				1	0.807	-0.423
VR5					1	-0.408
VRFOR						1

### Correlation matrix 2002

	CR1	CR5	CRFOR	VR1	VR5	VRFOR
CR1	1	0.803	-0.298	0.737	0.610	-0.236
CR5		1	-0.321	0.600	0.772	-0.222
CRFOR			1	-0.266	-0.294	0.915
VR1				1	0.784	-0.383
VR5					1	-0.380
VRFOR						1

## Appendix 2 Descriptive statistics

### Descriptive statistics 1998

	Mean	Std. Dev.	Minimum	Maximum	No. observ.
CR1	24.8	16.1	3.8	71.3	95
CR5	47.9	18.4	10.0	91.0	95
CRFOR	18.1	16.2	0	67.6	95
VR1	38.7	22.8	4.4	95.1	95
VR5	61.6	22.1	10.8	97.6	95
VRFOR	13.2	14.6	0	63.2	95

### Descriptive statistics 1999

	Mean	Std. Dev.	Minimum	Maximum	No. observ.
CR1	25.1	16.0	4.0	70.6	95
CR5	49.3	18.0	8.9	91.8	95
CRFOR	18.2	16.7	0	62.0	95
VR1	38.9	22.4	4.6	93.7	95
VR5	62.0	21.7	9.6	98.3	95
VRFOR	14.4	16.3	0	62.0	95

### Descriptive statistics 2000

	Mean	Std. Dev.	Minimum	Maximum	No. observ.
CR1	25.8	16.2	3.7	73.7	95
CR5	49.4	18.5	13.4	91.9	95
CRFOR	17.6	15.8	0.3	59.5	95
VR1	39.2	21.5	5.6	89.5	95
VR5	62.4	20.4	16.1	97.9	95
VRFOR	14.6	16.3	0.1	63.1	95

### Descriptive statistics 2001

	Mean	Std. Dev.	Minimum	Maximum	No. observ.
CR1	25.3	15.5	4.8	74.5	95
CR5	47.5	18.9	12.8	91.7	95
CRFOR	20.1	18.2	0.3	90.2	95
VR1	37.9	21.1	5.0	90.6	95
VR5	59.7	21.8	14.7	97.1	95
VRFOR	16.7	18.3	0.1	90.2	95

### Descriptive statistics 2002

	Mean	Std. Dev.	Minimum	Maximum	No. observ.
CR1	24.6	15.3	4.7	72.8	95
CR5	48.6	19.1	12.7	92.4	95
CRFOR	19.5	17.2	0.5	88.2	95
VR1	36.6	20.8	5.0	90.6	95
VR5	60.4	21.2	15.9	96.6	95
VRFOR	15.8	17.2	0.2	88.2	95