

# Does Ownership Matter?

Evidence from Changes in Institutional and Strategic  
Investors' Equity Holdings

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## Abstract:

This paper analyzes the relationship between ownership structure and security performance. We use a unique data set that includes all of the announcements of changes in institutional and strategic investors' ownership in firms listed on the Copenhagen Stock Exchange in 1997. Using a piecewise linear model, we find a decrease in security performance after a threshold level of ownership. This indicates the maximization of the institutional and strategic investors' entrenchment benefits, which result from actively exercising corporate governance. However, the choice of cutoff points affects the estimation and the robustness is not convincing. The results of analyzing changes in ownership structure reveal that the autocorrelation in security returns contributes with more than half of the abnormal return. This reflects the investors trading strategy: stocks that outperform (underperform) are sold (bought). Overall, these results indicate that the literature may overestimate corporate governance as a value-added factor.

*JEL classification:* G14, G32

*Keywords:* Corporate Governance; Ownership Structure; Event Study; Piecewise Regression

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## I. Introduction

An increasing amount of attention in the business press addresses the issues of corporate governance and shareholder value. Theoretical models show that ownership concentration affects market value and security performance.<sup>1</sup> However, it is difficult to measure the effect of corporate governance on market value. It is especially difficult to justify the relationship between ownership structure and security performance. Comparing different performance measurements hardly produces any meaningful results because the market may already have discounted potential the benefits and costs. The primary contribution of this paper is to document the relationship between ownership structure and corporate governance using a unique design that measures the unexpected changes in ownership structure. We investigate the relationship between market values and ownership structure using an event study methodology. Each event represents an announcement in which investors surpass 5 percent multiples of ownership. Furthermore, we distinguish between institutional and strategic investors to capture the possible effects that may arise as a result of the difference in these two types of investors.

This paper focuses on institutional and strategic investors because of their abilities to exercise corporate governance through intervention. The group of institutional investors includes insurance companies, pension funds, and banks. Strategic investors are defined as shareholders with a long-term relationship with the firm. This definition includes private shareholders, foundations, venture capitalists, and industrial investors. This category of investors is likely to have a strategic vision tied to their equity holdings because as strategic investors they either founded or inherited the firm. The equity holding can also reflect industrial considerations, e.g. a foundation with the sole purpose of owning a majority position in a particular company. The reason to distinguish between these two types of investors is that strategic investors have the opportunity and often also a high incentive to intervene e.g. private investors with a large part of their personal wealth tied to the strategic equity holding. The institutional investors do not have this opportunity because the

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<sup>1</sup> Shleifer & Vishny (1986) examine the externalities of an active and liquid stock market that make it difficult to assemble a large block. Among others, Admati, Pleiderer & Zechner (1994) show that large stockholders' benefits from corporate control may outweigh the cost of lack of diversification. See, also, Shleifer & Vishny (1997) for a survey of corporate governance.

Danish legislation restricts financial firms from using ownership influence to affect the governance of other non-financial firms. Historically, this legislator is designed to prevent the financial sector from having potential conflicts of interests that would result from simultaneously being borrowers and owners.<sup>2</sup>

The benefits of intervention, or control, are associated with firms that perform below their industry peers. However, intervention may also affect the expected profit from trading because the owner of large blocks of shares may find it difficult to dump them and a substantial equity position may reduce the investors' cut-and-run behavior. Thus, the trade-off between the payoff from speculation and intervention forces investors to decide on their equity stake in firms, i.e. intervention demands a certain size of ownership but the downside of a being a large shareholder is that it reduces speculation. Intervention from outsiders is often less successful than intervention from strategic and institutional investors. But, mature industries with well-understood operations are more likely candidates for outside intervention. However, strategic investors that play an active role in monitoring the management of firms are more informed than outside investors, i.e. the outside investor does not have the same opportunity to get an unbiased picture of daily operations. Thus, strategic investors are assumed to have comparative advantages as corporate monitors compared with less informed investors. Institutional investors do not have this advantage because they are outside of the realm of their capacity.

We use a unique data set of 216 announcements to analyze whether unanticipated changes in ownership structure are reflected in the share price movements. The data set is different from data sets used in the United States because the ownership structure in Danish firms is more concentrated.<sup>3</sup> Therefore, you can observe a clearer picture of the effects of corporate governance using Danish data. Institutional and strategic investors in Denmark own approximately 34 percent and 25 percent of the equity market, respectively. The largest institutional investor, the Labor Market Supplementary Pension Scheme, owns approximately 8 percent of the market value of the Copenhagen Stock Exchange.

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<sup>2</sup> See Department of Finance (1999) for an overview of the Danish legislation regarding financial investors use of majority positions.

<sup>3</sup> La Porta et al.(1998) show that 80 percent of firms in United States have a dispersed ownership

The results of the analysis show positive and significant share price movements when looking at all buy-and-sell announcements of institutional and strategic investors, collectively. By analyzing institutional and strategic investors' sell announcements separately, we reveal different market responses. In particular, we observe high abnormal returns when institutional investors change ownership at low levels. A possible explanation is that an institutional investor that buys or sells a small equity stake has higher levels of flexibility and no liquidity constraints. We find a positive and significant share price movement when strategic investors announce a reduction from a high concentration of ownership. One interpretation is that a higher concentration of strategic ownership is associated with higher costs for the firm. These costs are the result of corporate control executed by the strategic investors; for example, the cost of restricting managers from extracting private benefits or exploiting minorities. Often the cost of monitoring exceeds the actual costs of the manager's actions.

Empirical findings from the United States show that there is an S-shaped relationship between managerial ownership and the firm's performance. Morck, Shleifer and Vishny (1988) find this relationship in a cross-sectional study. They find that as managerial ownership increases from 0 to 5 percent, the firm's performance increases; whereas, when managerial ownership increases from 5 to 25 percent, the firm's performance decreases. If managerial ownership increases beyond 25 percent, the firm's performance increases. It should be noted that their measurement of performance is Tobin's Q and the accounting rate of return. Both of these measurements of performance are associated with well-documented and fundamental problems.<sup>4</sup> However, a similar relationship between managerial ownership and firm performance can be established by using market values, e.g. Wruck (1989) shows that firms experience the same performance patterns as found by Morck, Shleifer & Vishny. In contrast to Morck, Shleifer & Vishny, we do not find an S-shaped

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structure compared to 40 percent of Danish firms.

<sup>4</sup> The calculation of replacement costs is a central problem in Tobin's Q. Even if we agree on an appropriate measurement of replacement costs, we still face the problem of interpreting the market value of the firm that are discounted. If all advantages are fully reflected in prices, changes in corporate governance do not display any changes in performance. Similarly, accounting measures of performance is also difficult to interpret since non-cash items may manipulate the results. Earnings management makes it important to know the nature of the data and – if possible - to establish procedures to detect it.

relationship between ownership structure and performance. We observe improving firm performance as ownership increases from 0 to 5 percent and a constant level of firm performance as ownership increases from 5 to 20 percent. As opposed to Morck, Shleifer & Vishny (1988), we find a decreasing relationship between large ownership levels and firm performance.

These results rely heavily on the definition of significant levels of ownership concentration in a piecewise regression. Further, we show that the results are extremely sensitive to the selected cutoff points. This is not a satisfactory result since the choice of cutoff points seems rather arbitrary since we have no objective way to select them. Instead, we suggest that other possible explanatory variables related to short-term performance around the announcement plays a role. Using a simple OLS regression of the abnormal return and the control variables that the intrinsic ownership structure does not determine stock market performance. The autocorrelation contributes with close to half of the abnormal return around the announcement. Moreover, the sign of the first order autocorrelation is negative (positive) for all buy (sell) announcements. This suggests that the observed announcements may serve as a proxy for a trading strategy where the investor sell stocks that have outperformed in the past and buy stocks that suffer from underperformance. Thus, portfolio strategy and short-term trading decisions plays a more pronounced role than ownership as such.

The structure of the paper is as follows: section II briefly discusses corporate governance and the hypothesis concerning the effect on share price performance caused by changes in ownership structure when institutional and strategic investors trade large equity stakes; section III describes the data material and the measurements of ownership concentration; section IV presents the empirical results analyzing share price movements from sell-and-buy announcements and the market response at different ownership levels of buying and selling transactions; and section V provides the concluding remarks.

## **II. Hypotheses About Corporate Governance**

In traditional portfolio theory diversification reduces the risk exposure at every level of expected return. Yet, we observe that the corporate ownership structure often involves only a few individuals or institutions that own a large fraction of a firm's equity. Therefore, a concentration of ownership must include benefits that offset the cost of foregoing risk reduction. A possible explanation of the investors' willingness to forego the benefits of diversification is the added value that is created through the corporate governance structure. In a dispersely held corporation, the single investor does not gain from performing monitoring activities while small shareholders' reservation price reflects potential gains from corporate governance, i.e. they subtract all private benefits from intervention (Grossman & Hart, 1980). This could create a deadlock situation in which added value takeovers do not occur (the free-riding problem). There are several benefits from performing corporate governance activities in a firm with a concentration of ownership. These benefits include a positive externality created by large shareholders. The presence of a large shareholder enables the other owners to overcome the free rider problem as described in the Grossman-Hart framework. The benefits arise because there are no substitutes for ownership that may motivate managers to behave like owners. Also, the managers, or the employed directors, are unlikely to engage in value-added activities in a similar capacity to the owner, i.e. an advantage of a concentration in ownership structure is that the incentive structure corresponds with the control rights or the rights to influence the decision process. On the other hand, concentrated ownership may lead to a potential loss in risk sharing benefits. The potential benefits from monitoring should outweigh the costs from the lack of diversification, e.g. from having a basket of securities (see Admati, Pfleiderer & Zechner, 1994). The potential costs of a strong concentration of ownership are that large owners may make decisions based on self-interest. This may conflict with the interest of small shareholders and it suggests that there is a trade-off that is associated with large shareholders. While concentrated ownership encourages monitoring activities that are in conflict with shareholders' interests, it may lead to a redistribution of the firm's cash flow to the disadvantage of small non-controlling shareholders (self-dealing). Other potential costs of a strong concentration of ownership arise when the managing director controls the firm. This is especially an issue for firms characterized by large amounts of intellectual capital such as

partnerships, in which the owners of the physical assets do not play a dominant role. Burkart et al. (1997) point out an additional cost from concentrated ownership. For example, the costs of a dominant owner may also restrict managerial initiatives. A dispersed ownership structure enables management to take actions i.e. pursue business opportunities.

Monitoring by large shareholders involves private costs such as identifying companies in which business activities are not consistent with creating shareholder value or companies that are attempting to change policy through negotiations, proxy fights, or the election of board members. The growth in the number of active institutional investors indicates that the benefits of the monitoring activities outweigh their costs. Large institutional investors may minimize the cost of monitoring by being actively involved with the firms in which they hold investments. The first hypothesis (H1) is developed upon the trade-off between benefits of corporate governance and shareholder value.

**H1:** *An increased degree of concentration in a firm's ownership structure is associated with better corporate governance until a threshold level at which the trade-off between the costs and the benefits of ownership concentration is equal.*

H1 states the relationship between the distribution of ownership and firm value. Closely-held corporations share many characteristics, for example, they have relatively few large residual claimants that have long-term inside relationships with the firm. Examples of long-term relationships include entrepreneurs, family owners, foundations, managers after a management buy-out, and industrial investors. Owners in closely held corporations, such as entrepreneurs and family owners, often manage and bear a potentially larger portion of the risk compared to institutional or strategic investors. These investors may also have a large percentage of their wealth tied up in one project that prevents the use of other alternatives in the capital market to diversify their portfolios. This lack of diversification provides the owner of the closely-held firm with a strong incentive to maximize personal wealth because of the downside

risk of failure. The diversification effect depends on the wealth distribution.<sup>5</sup> The strategic investors with long-term inside relationships are a relatively small group that invest time and resources in monitoring management to reduce shirking and self-dealing. This leads to our second hypothesis (H2):

**H2** *An increased ownership concentration by active investors (strategic investors) is associated with better corporate governance than an ownership structure that is dominated by less active investors (institutional investors).*

H2 states that the information asymmetry between investors may change the value added benefits of corporate governance, i.e. informed strategic investors may be able to create more value through monitoring and involvement than less informed institutional investors. Based on firm or industry specific knowledge, close relationships increase the possibility of understanding managerial actions, while less informed investors do not have the same opportunity to get an unbiased picture of the daily operations. Often, even board members only have the CEO's view on the business. Therefore, intervention may be an alternative (option) when the firm experiences bad performance. Thus, the inside and informed investor is more likely to perform a monitoring role, while institutional investors often are concerned with legal considerations about their potential liability. Fiduciary duties as a trustee – legal or political – will limit potential actions.

Even though we make a distinction between the types of investors, we do not explore the differences in each investor category. Personal ownership or family relationships suggest a life-long perspective that is very different from trusts and other non-person strategic investors. This would require a larger data set in order to obtain enough observations to analyze potential differences. The next section describes the data material and the applied methodology used to test hypothesis H1 and H2.

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<sup>5</sup> In an economy in which very rich households participate in the firms, risk sharing does not necessarily play a dominant role. In an economy in which institutional investors are dominant and they are concerned with legal liability of corporate intervention, only private investors are likely to perform monitoring activities. Thus, under such circumstances, risk sharing will matter even in the presence of institutional investors.

### III. Data Material

The institutional and strategic investors' selling and buying announcements are gathered from the Copenhagen Stock Exchange. The announcements are identified in the press releases that are forwarded to the Copenhagen Stock Exchange. Our sample consists of 245 announcements of changes in firm ownership or voting rights in 1997. We eliminated 29 observations because they are part of a publicly announced transfer of control. In addition, the mandatory bid rule provides minority shareholders with the right to participate in the sales-of-control transactions. Therefore, the changes in ownership structure after public announcements of transfer of control for the 29 observations did not provide new information to the marketplace and therefore should not be included in the analysis. The regulation of ownership disclosures at the Copenhagen Stock Exchange requires that:

- All investors, both individuals and companies including related companies, must inform the Exchange as soon as they have or surpass a multiple of 5 percent (5 percent, 10 percent) stake of the outstanding shares or voting rights in a particular firm. Shareholders must also declare when an equity holding equals or exceeds 33 percent and 67 percent.
- Corporations are obligated to inform the Copenhagen Stock Exchange when they have bought more than 2 percent of their own shares. Notification is mandatory each time a holding change occurs in increments of 2 percent to 10 percent (the maximum holding allowed) of own shares.<sup>6</sup>

We anticipate that the share price movement depends on whether it is selling or buying announcement. Therefore, we investigate whether or not an announcement by a single investor holding five percent of the outstanding shares is sufficient to influence the market valuation; and if an announcement from an institutional or strategic investor in a company with a highly concentrated ownership structure is also sufficient information to influence the market valuation. We construct three simple measurements of ownership concentration that may be used for control of the

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<sup>6</sup> However, it should be noted that the company could not utilize the voting rights from the company's stake of own shares. In addition, the total number of share repurchases for 1997 made by Danish firms is only 17.

significance of the announcement. The three measurements are the sum of the five largest shareholders, the ownership stakes of the institutional investors, and the ownership structure of the strategic investors. The measurements of concentration are based on the individual firms' annual reports for 1996 and the ownership stakes updated when news is published about changes in the firms ownership structure. The sample and the control variables may not capture the complete and consistent representation of the ownership structure. Therefore, the following should be noted:

1. A substantial number of trades are not registered in the mentioned data sources, e.g. block trading that requires ownership disclosures when buyers and sellers surpass a 5 percent limit.<sup>7</sup>
2. The constructed control variables are based on different data sources, published over six to 12 months. This naturally leads to some inconsistency because variables of initial holdings are constructed from ex-post annual reports while the announcements are recorded ex ante.
3. In the case of mergers, the pre-merger ownership shares are added if no other information is available. It is assumed that all shareholders keep their proportional stake of raised equity capital.

Factors that affect institutional investors ability to influence include: companies with a corporate charter that requires more stringent majorities in a voting contest, companies with limited voting rights or dual share classes. The larger shareholder must accumulate a larger stake or co-ordinate voting power in order to influence the managerial decision process. The measurements identify whether corporate control depends on institutional and strategic investors' ability to interfere in the management decision process or whether the institutional and strategic investors are speculating regardless of firm resistance. Table I summarize the number of announcements and cross-sectional average market adjusted abnormal returns for the institutional and strategic investors. The event study methodology used in Campbell, Lo, & MacKinlay (1997) is applied to calculate the short-run abnormal returns.

[INSERT TABLE I]

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<sup>7</sup> As a thought example, a completely dispersed ownership structure should be replaced by 20

Our data set consists of 216 announcements; 98 buy announcements and 118 sell announcements. None of our data concerns simultaneous buy and sell announcements, i.e. the data set does not include trades in which a particular block changes hands between two investors. There are 82 resistant announcements and 134 non-resistant announcements and about double as many announcements from institutional investors as from strategic investors. The average market adjusted abnormal return is overall positive. All buy announcements experience higher excess returns in the estimation period than all sell announcements. The standard deviation is also higher. The average market adjusted abnormal returns for strategic investors are higher than for institutional investors. Of all announcements it is only the selling announcements that experience negative average abnormal returns

#### **IV. Empirical Results**

The different ownership characteristics vary substantially across firms and this cross-sectional variation is the foundation for analyzing the relationship between a firm's market value and its ownership structure. The cross-sectional average cumulative abnormal returns for buy and sell announcements are illustrated in figure 1.

[INSERT FIGURE 1]

Figure 1 shows a higher cumulative abnormal return for buying announcements, but it appears to be a short-term effect. Assuming that ownership concentration actually improves market value, then institutional and strategic investors may speculate in increasing holdings given the ability to influence the share price movement. The profitability of this speculation is caused by the information asymmetry that arises because institutional and strategic investors can buy additional shares and may profit from intervention. Alternatively, institutional and strategic investors can sell and realize a profit by not having to intervene. In either case, the large shareholders benefit from the information asymmetry. The cross-sectional average cumulative abnormal return from shareholders' buy announcements may be higher because of

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shareholders with each under five percent without which we would be able to detect any change.

more qualified monitoring of management than the cumulative abnormal return from sell announcements (Barclay & Holderness, 1992). Yet, selling large stakes of shares can be inferred as structural ownership changes that may result in a performance improvement. Barclay & Holderness (1992) names this improvement in the valuation of the firms the *shared benefits of control* because all shareholders receive the benefits of higher valuation in proportion to their fractional ownership. Obviously, there must be a bid-ask spread to ensure that the wealth creation will not be a money machine, i.e. large investors could generate positive cumulative abnormal returns from buy and sell announcements. Strategic investors receive *private benefits of control* through the voting power given that they are able to expropriate minority shareholders. But the institutional investors do not have this option because they do not perform any business activities that make it possible to re-allocate the companies' cash flows at the expense of the minority investors.

[INSERT TABLE II]

Table II shows that the average wealth of shareholders increases when institutional and strategic investors change their ownership positions in the various firms. This indicates that changes in ownership structure are followed by an increase in share price at a five percent level of significance. The average cumulative abnormal return for institutional and strategic investors over a 15 day pre-announcement period is positive 2.88 percent ( $t=2.44$ ) and 1.43 percent ( $t=2.39$ ) for buy and sell announcements, respectively. On the announcement date institutional and strategic investors observe positive average cumulative abnormal returns of 0.49 percent ( $t=1.56$ ) and 0.52 percent ( $t=3.28$ ) for buy and sell announcements, respectively. Only the institutional investors experience a significant and positive market reaction. The strategic investors have a positive and significant (at a 10 percent level) share price movement in the post-announcement period from +2:+15 days. Looking at the period -20:+50 days, neither institutional nor strategic investors experience positive or statistical significant average cumulative abnormal returns. This may indicate that a change in firms' ownership structure only has a short-term effect in the marketplace. In the short run around announcements, a significant adjustment by the market takes place to uphold the efficiency hypothesis. The non-parametric z-test shows that for the period +2:+15 days the number of positive average cumulative abnormal returns is

significant at the one percent level.<sup>8</sup> This indicates that the positive abnormal returns after buying and selling announcements are not due to a few outliers. For other periods the z-test shows no sign of significantly more positive than negative abnormal returns.

#### ***A. Changes at Different Levels of Ownership***

The share price movement around the sales and purchases of large quantities of shares indicates whether or not the marketplace consider transactions as sufficiently significant to influence shareholders' value. Yet, it is important to interpret the market response with caution because of simultaneous announcement releases that may convey multiple information. In addition, it may be constructive to examine if the anomaly performance provides any difference between institutional or strategic investors and whether it is related to the total sample of all announcements or it is confined to certain levels of ownership. Accordingly, the sample is divided into three ownership levels in which the minimum level of an equity transaction surpasses at least five percent ownership. This minimum level is the level of the mandatory public filing requirement of the Copenhagen Stock Exchange. The other two transaction levels are between five and 20 percent and above 20 percent.

The share price movement related to different ownership levels is shown in panel A of table III for institutional and strategic investors. There is a difference in the market response to institutional and strategic investors selling announcements. The strategic investors experience negative cumulative abnormal returns for small selling transactions. The average cumulative abnormal return for ownership levels above 20 percent are positive and statistically significant at a five percent level ( $t=2.54$ ). The institutional investors experience positive responses, but only the selling announcements of ownership levels equal to 5 percent are statistically significant at a 5 percent level ( $t=2.16$ ).

[INSERT TABLE III]

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<sup>8</sup> The applied z-test statistic based on the sign of the abnormal returns requires that the cumulative abnormal returns across securities are independent. The null hypothesis states that the mean return daily minus expected market model return is equally likely.

The positive average cumulative abnormal returns are a result of the buying announcements of both institutional and strategic investors. However, none of the share price movements are statistically significant at any level. For all buy-and-sell announcements, the institutional investors experience positive and statistically significant average cumulative abnormal returns at a five percent level. The strategic investors experience lower positive average cumulative abnormal returns, but they are not statistically significant at any level. These findings provide some evidence on how corporate governance affects shareholders' wealth and to what extent concentration of ownership may increase the market value of firms.

A piecewise regression with turning points of five percent and 20 percent is shown in panel B of table III. The results from Morck, Shleifer & Vishny (1988) and Wruck (1989) with turning points of five percent and 25 percent are also shown.<sup>9</sup> The coefficients are similar for small and medium levels of ownership, however, for ownership<sub>3</sub> the coefficient is negative 0.001 ( $t=-3.22$ ) while Morck, Shleifer & Vishny (1988) and Wruck's (1989) significant coefficients are 0.008 and 0.013, respectively. A reason for the negative coefficient is that the piecewise regression consists of both decrease and increase movements in ownership. To measure the consequences of the movements, a control variable measures the changes in institutional and strategic investors ownership, i.e. whether the change reflects a buy announcement or a sell announcement surpassing a certain level of ownership. The positive control variable indicates that increasing ownership concentration improves performance. The positive and significant ownership<sub>1</sub> coefficient may reflect that institutional and strategic investors are becoming more entrenched but after a threshold level the entrenchment benefit of increasing ownership declines. Our findings are consistent with Shleifer & Vishny's interpretation of the empirical literature in which we observe a positive share price movement relating to announcements of five percent ownership. The magnitude of the share price movement in our sample is smaller than the result in related empirical studies though. Wruck (1989) reports a positive and significant CAAR<sub>1:+1</sub> of 1.99 percent, in which the effect in our data varies between 0.48 percent for strategic investors selling and

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<sup>9</sup> Morck, Shleifer & Vishny's (1988) results are based on a regression of Tobin's Q, as proxy of firm value, on board members ownership. Wruck (1989) regresses the abnormal return due to changes in the NPV of the firm on changes in ownership structure.

1.46 percent for buying. Similar to our results, Wruck (1989) reports a positive market response for changes in firms with low ownership concentration. But different from our findings, Wruck (1989) shows a positive market reaction for high concentrations. A possible explanation of this difference is that Wruck's sample includes announcements of private placements. Whereas our sample, explicitly, does not include stock purchase agreements because - as mentioned - mandatory bid rules will transfer the control premium to all shareholders regardless of their participation in the offering. Under the market rule, which applies for Wruck's sample, it is possible to measure the share price movement related to changes in corporate control regimes. In ownership transfers that are control transactions, minority shareholders discount all expected benefits from the change in ownership. This provides a more direct measurement of the markets assessment. Correspondingly, Wruck reports a larger positive and significant effect than revealed in our data set.

Table III also provides evidence supporting hypothesis H1 and empirical support for Maug's (1998) and Kahn & Winton's (1998) theoretical argument that some threshold level determines when investors actually improve firms' performance through intervention. Below that threshold level, investors may improve performance by their possession of inside information. This ability to trade results also in a slower realization of full intervention (Kahn & Winton, 1998). However, our results show that the performance is not linear in the ownership stake and the ability to intervene. For concentrated ownership structure above 20 percent, the results are consistent with the findings in Barclay & Holderness (1992), i.e. when large block holders sell their controlling block, the ownership structure appears to be driven by an expectation that the buyers are capable of increasing the firms' value. The reason is that size does matter and blocks of a large size hardly change hands without consequences for corporate activities. Caveat, one important difference between our findings and Barclay & Holderness is that they focus on block trading while we only analyze levels of ownership by strategic and institutional investors, which means that our findings are not necessarily the same for large blocks.

Hypothesis H2 implies that the average cumulative abnormal return of strategic investors should be higher than for institutional investors regardless of ownership level. But the only positive and significant cumulative average abnormal returns result

from strategic investors reducing their equity holdings when they own substantial levels of outstanding shares. For announcements of five to 20 percent of ownership, the cumulative average abnormal return is not significant at any level. This result is not consistent with hypothesis H2, i.e. there is no support of the view that strategic investors always are associated with better corporate governance. One interpretation is that costs of ownership concentration are higher for strategic investors, e.g. industrial investors in the same business may potentially use transfer pricing to manipulate cash flows. Another possibility is that the strategic investor may be replaced by an ownership structure with some comparative advantages. However, our data does not consist of overlapping announcements of owners replacing each other. Therefore, we are not able to determine if this could be a valid explanation.

The above conclusions in relation to table III, panel B rely on the central premise that we accept and use same definition of cutoff points such as those used by Morck, Shleifer & Vishny (1988). It is not obvious why 5 percent and 20 percent are central levels of ownership concentrations. Essentially a cutoff makes continuous variable dichotomous. In order to gain further insight we develop a sensitivity analysis in appendix C. The figures in appendix C show how the significance of the variables in table III, panel B varies from insignificant to different levels of significance. This analysis illustrates a potential bias in the piecewise approach. Since there is no objective reason to select a specific set of cutoff points the researcher is free to select to them in such a way that it produces significant results. This is clearly not satisfactory. Instead, we include different sets of performance related variables in a cross-sectional analysis of the abnormal returns.

### ***B. Cross-Sectional Explanation of the Share Price Movements***

The findings of significant share price movements for both selling and buying announcements are not consistent with hypothesis H1, that an increase in ownership concentration increases firm value. In our findings, the marketplace fully adjusts to changes in institutional or strategic investors' equity holdings. In line with hypothesis H2, Cole & Mehran (1998) report that insider ownership is positively related to the industry adjusted stock return. Using a sample of thrift institutions that converted from mutual to stock ownership they report a statistically significant coefficient for the change of the largest insider. However, their sample is special in the sense they

study deregulation in which different types of legislation change simultaneously. In addition, it is difficult to control the effect from confounding factors, e.g. the effect of restriction on ownership and market response to the presence of different investors at different ownership levels; and their study does not explain how the performance is related to different levels of ownership.

A full assessment of the potential causes for share price reactions are therefore investigated with the following cross-sectional regression model:

$$m = \mathbf{q} \times \mathbf{X} + h \quad [1]$$

where  $\mu$  is a (N·1) vector of cumulative average abnormal returns ( $CAAR_{-1,+1i}$ ) surrounding the announcement date and  $\mathbf{X}$  is a (N·k) matrix of firm specific characteristics. The first column of  $\mathbf{X}$  is a vector of ones and the remaining (k-1) columns consist of event specific elements.  $\mathbf{q}$  is a (1·k) vector with the coefficients ( $\alpha_0, \beta_1$ ) and  $h$  is the (N·1) disturbance vector. The estimation of  $\theta$  is obtained by using the ordinary least square method and assuming  $E[\mathbf{X}'h]=0$ . We evaluate White's (1980) procedure for calculating heteroscedasticity consistent estimators of test statistics due to the potentially biased estimation of variance of the cross-sectional least square regression coefficients in appendix B.<sup>10</sup> Table IV shows the estimation results of several cross-sectional regressions using the  $CAAR_{-1,+1}$  as the dependent variable and the coefficient vector,  $\theta$ , for institutional and strategic investors and for selling and buying announcements.

The cross-sectional regression model includes a total of 216 announcements and their specific characteristics from 1997. The explanatory variables are based on the theoretical considerations for testing hypothesis H1 and H2. A total of eight variables

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<sup>10</sup> The test statistics for homoscedasticity are based on Doornik (1995) that under simplifying assumptions evaluates White's test using squared and cross-products of the original regressors. The test is  $\chi^2$  (s) distributed, where k is the number of regressors and  $s = k(k+1)/2 - 1$  degrees of freedom. However, due to small sample bias problems with White's estimators, as shown by Gragg (1983), which lead to downward bias estimators, we test the regressors, the squared regressor, and the squared and cross-sectional product. But because of the small sample we face the problem that X is not full rank. The first results show that only two of the regressions may have heteroscedasticity problems. However, if we use a non-parametric test to correct for heteroscedasticity we find t-statistics similar to those in the OLS regressions.

are used; 1)  $CAAR_{-15:-2}$  the cumulative average abnormal return before each event; 2) the first-order autocorrelation,  $\rho_1$ , in the estimation window; 3) size is the natural log to the market value measured as the outstanding shares times the average closing transaction price; 4) stock return volatility is the volatility from the estimation period; 5) liquidity represents the average of the traded volume divided by market value, and 6-7) strategic and institutional are the cumulated ownership of outstanding shares of strategic and institutional investors, respectively. We also test an alternative measurement of concentration. The variable Top5 represents the relative ownership of the five largest shareholders. However, the correlation between the strategic and Top5 variable is 87 percent (see appendix A) indicating that strategic investors are relatively large and own a large equity stake. Hence, we use institutional and strategic as a measure of the ownership structure before the announcement. Resistant is a measurement of firms' resistance to shareholders ability to intervene. Firms with a corporate charter that imposes restricted voting rights, dual class shares or majority rules are labeled as “resistant”. Resistance is a dummy variable with the value of one and zero otherwise.

[INSERT TABLE IV]

Table IV shows the estimation coefficient and their corresponding t-statistics. The assessment of the cumulative average abnormal return upon announcement shows little evidence of explanatory power. The most significant variables are  $CAAR_{-15:-2}$  and stock volatility. Generally, volatility decreases the  $CAAR_{-1:-1}$ , especially for selling announcements. This suggests that the market respond negatively when a large shareholder no longer is committed to the firm. Other variables with statistical significance are the first-order autocorrelation and size. An interesting observation is that the strategic and institutional ownership levels are not statistically significant in any of the estimated models.<sup>11</sup> Another interesting observation is that the sign of the first order autocorrelation is negative for all buy regressions and positive for all sell regressions. This is also the case for the institutional variable that is positive for buy announcements and negative for sell announcements. Our sample reflects the simple point that outperformance (underperformance) compared with investor's assessment

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<sup>11</sup> We have estimated the regression model with top 5 instead of strategic. However, it did not improve

of fair value signals a natural time to sell (buy). The positive and negative parameters may be a result of portfolio adjustments. The independent variables are not statistically significant and therefore not consistent with the anticipated influence on the value of firms. In particular, the impact from the level of ownership by strategic and institutional investors' equity stake is missing. The observed response in the marketplace is rather initiated by the action that institutional and strategic investors announce an unanticipated change in ownership structure.

Similar to our findings, data from the United States suggests that the correlated trading patterns of institutional investors contribute to daily return autocorrelations (Sias & Starks, 1997). Strategic trading implies that institutional investors should spread their trades in a single security across time to minimize execution costs of large unexpected cash in or outflows in the absence of private information. As shown in table IV, the autocorrelation contributes with almost half (0.497 percent) of the positive share price movement to sell announcements (1.07 percent). Thus, autocorrelation plays a dominant role in explaining positive abnormal returns associated with sell announcements while autocorrelation does not contribute to the positive market response from buy announcements.

Two observations emerge from table IV - volatility seems to drive the results and the control variables have no significant influence. Therefore, the following regressions are estimated to test whether or not the control variables independently influence the cumulative average abnormal returns.

[INSERT TABLE V]

Table V shows the results of testing the power of control variables on the cumulative average abnormal returns. An explanation of approximately two percent emerges using the control variables of institutional and strategic investor's ownership level. Intuitively, from hypothesis H1 and H2 we would expect that the composition of the ownership structure before the buy or sell announcements will impact the effect of announcing changes in the ownership structure. Yet, our interpretation is that the

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the explanatory power.

market responds to the announcements about the change in ownership structure rather than the pre-announcement level of ownership.

## **V. Conclusion**

The theoretical literature on corporate governance is expanding while the empirical research still needs to establish very fundamental issues, e.g. the relationship between a firm's performance and its ownership structure. We find increasing performance for smaller levels of ownership, constant performance for changes of ownership between five and 20 percent, and decreasing performance for ownership levels above 20 percent. We argue that the share price performance decreases for changes in large ownership levels because the costs of corporate control are higher. However, we show that the piecewise regression is sensitive to the cutoff points selected. This reflects that the piecewise method is biased in finding a significant influence of ownership.

Using a cross-sectional analysis of the institutional and strategic investors' ownership levels shows that ownership concentration does not influence the share price movements. Our results suggest that the intrinsic ownership structure is not a determining factor of market values. Instead, we suggest that other explanations may play an important role in explaining the relationship between market value and changes in ownership. We focus on the autocorrelation before the unanticipated change. This contributes with roughly half of the observed abnormal return. One possible interpretation is that investors use short-term performance in the trading strategy. The stocks outperform (underperform) and are overvalued according to investors assessment of fair value. They sell (buy) the opportunity to realize a short-term profit.

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### Appendix A: Correlation Matrix

	CAR -1:+1	CAR -15:-2	p1	LN Size	Volatility	Liquidity	Strategic	Institutional	Resistant
CAR -15:-2	0.04	1.00							
p1	-0.01	0.03	1.00						
LN Size	-0.10	0.04	-0.26	1.00					
Volatility	-0.07	-0.09	0.11	-0.06	1.00				
Liquidity	0.10	-0.05	0.03	-0.38	0.21	1.00			
Strategic	0.05	-0.06	0.04	-0.02	0.54	0.08	1.00		
Institutional	-0.11	-0.01	0.07	0.06	-0.10	-0.20	-0.23	1.00	
Resistant	-0.03	-0.04	-0.04	-0.02	-0.02	-0.03	-0.17	0.08	1.00
Top 5	0.00	-0.03	0.03	0.18	0.44	-0.04	0.87	-0.02	-0.19

### Appendix B: Heteroscedasticity Test Based on Doornik (1995)

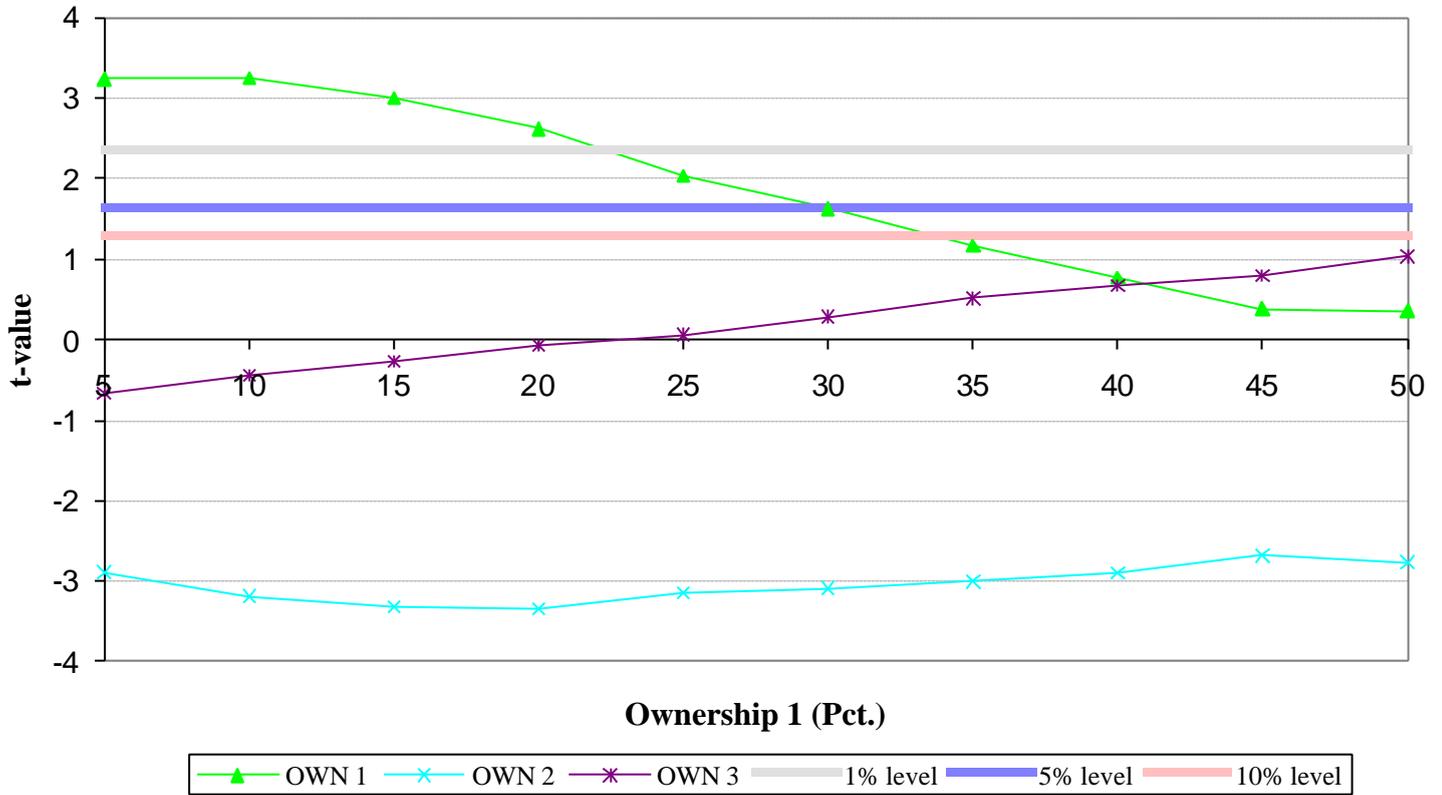
Univariate test of White's (1980) heteroscedasticity test is based on Doornik (1995). Three types of test statistics are performed for 98 buy and 118 sell announcement. The regressors, the squares, and the cross-products of the original regressors are applied to an auxiliary regression of the squared residuals. HE only include the regressors, HET uses the regressors and their squares, HET-F uses the regressors, squares and cross-products of the regressors. Test 1 shows the  $\chi^2$  statistics for the full model including all independent variables. Test 2 includes the variables from test 1 that are significant at a 10 percent level. Test 3 includes the variables from test 2 that are significant at a 10 percent level. The p-values are shown in parentheses and df is the degree of freedom.

		HE	HET	HET-X
<b>Buying Announcements</b>				
Test	$\chi^2$	35.28	42.14	67.62
1	p-value	(0.0000) <sup>a</sup>	(0.0001) <sup>a</sup>	(0.0011) <sup>a</sup>
	df	7	14	35
Test	$\chi^2$	34.30	40.07	36.46
2	p-value	(0.0000) <sup>a</sup>	(0.0000) <sup>a</sup>	(0.0000) <sup>a</sup>
	df	3	5	6
Test	$\chi^2$	33.89	38.60	35.53
3	p-value	1	4	3
	df	(0.0000) <sup>a</sup>	(0.0000) <sup>a</sup>	(0.0000) <sup>a</sup>
<b>Selling Announcements</b>				
Test	$\chi^2$	2.36	10.62	33.04
1	p-value	(0.9620)	(0.7864)	(0.8465)
	df	7	14	35
Test	$\chi^2$	2.55	6.88	6.51
2	p-value	(0.3470)	(0.3351)	(0.2478)
	df	2	5	4
Test	$\chi^2$	1.82	2.19	2.17
3	p-value	(0.2193)	(0.4019)	(0.1793)
	df	1	2	1

<sup>a</sup> Statistic significant in 2-tailed tests at the 1% levels

### Appendix C: Sensitivity Analysis of t-values

In order to assess the robustness of the piecewise regression in table III, panel B, we calculate the t-values for different cutoff points. Define:  $OWN1 = i$  for  $0 < i < 50\%$ ,  $OWN 2$  and  $OWN 3 = (100\% - OWN1)/2$ . The control variables are not shown.



**Table I**      **Number of Observations, Average Market-Adjusted Returns and Standard Deviations**

Our sample consists of all 216 announcements of changes in ownership or voting rights in 1997. The buy and sell announcements are gathered in the report from the Copenhagen Stock Exchange. Institutional investors are investors that represent an institution. Strategic investors are, for example, foundations or industrial investors. Resistant and non-resistant is a dummy variable [1;0] for the firms that have stringent majority regulations in voting contest, limited voting rights or dual share classes that limit large shareholders' ability to execute corporate governance. The average market adjusted return in the estimation period from, -260 to -60 days, is  $AAR = \frac{1}{200} \sum_{t=-260}^{-60} AR_t$ , where  $AR_t$  is the abnormal return at day  $t$  measured as  $AR_t = R_t - R_{m,t}$ .  $R_t = \frac{1}{N} \sum_{i=1}^N R_{it}$ , where  $N$  is the number of buy or sell announcements,  $R_{it}$  is the daily return for the announcement at time  $t$ . The standard deviation is shown in parentheses.

Type	All Buy	All Sell	Buy Resistant	Buy Non-resistant	Sell Resistant	Sell Non-resistant
All						
N	98	118	34	64	48	70
AAR (%)	0.4946	0.1986	0.4860	0.6484	-0.1133	0.2759
Std	(3.616)	(3.498)	(3.838)	(3.913)	(3.115)	(3.338)
Institutional						
N	63	76	22	41	31	45
AAR (%)	0.6063	0.1430	0.1258	0.4733	0.2994	-0.0573
Std	(5.540)	(6.536)	(3.522)	(3.168)	(2.283)	(3.854)
Strategic						
N	35	42	12	23	17	25
AAR (%)	0.5665	0.3875	1.1584	0.5388	0.5061	0.3251
Std	(5.383)	(5.132)	(5.193)	(3.683)	(3.792)	(4.163)

**Table II Market Responses to Changes in the Ownership Structure**

The abnormal returns in the event-window around the event date are calculated from the expected return using a market model. The market model is:  $R_i = X_i q_i + e_i$ , where  $R_i = [R_{iTo+1} \dots R_{iTl}]'$  is a  $(L_i \times 1)$  vector of returns for firm  $i$  in the estimation window,  $X_i = [1, R_m]$  is a  $(L_i \times 2)$  matrix with a vector of ones in the first column and the value-weighted market return vector  $R_m = [R_{mTo+1} \dots R_{mTl}]'$  in the second column.  $q_i = [a_i, b_i]$  is the  $(2 \times 1)$  parameter vector.  $e_i = R_i - X_i q_i$  is the  $(L_i \times 1)$  vector of abnormal returns in the estimation window. The estimation of the parameter vector,  $q_i$ , is obtained by the ordinary least square method and the abnormal return vector for the event window is;  $e_i^\circ = R_i^\circ - X_i^\circ q_i$ , where  $^\circ$  denotes that the vector is from the event window. The cumulative average market model abnormal return is calculated from 20 days before the event to 50 days after. The z-test is a non-parametric test of whether the

abnormal returns are positive or negative. The test statistic  $Z = \left[ \frac{N^+}{N} - 0.5 \right] \cdot \frac{N^{0.5}}{0.5} \sim N(0,1)$ ,

where  $N^+$  is the number of positive CAR and  $N$  is the number of observations. The z-statistics are asymptotically normal distributed. t-statistics are in parentheses.

Periods	<u>All Events</u>		<u>Z-test</u>		<u>Institutional</u>		<u>Strategic</u>	
	Buy N=98	Sell N=118	Buy N=98	Sell N=118	Buy N=63	Sell N=76	Buy N=35	Sell N=42
-15:-2	2.886 (2.435) <sup>a</sup>	1.426 (2.396) <sup>a</sup>	0.469 (-0.606)	0.517 (0.368)	3.662 (2.923) <sup>a</sup>	1.799 (2.203) <sup>a</sup>	1.490 (0.612)	0.753 (0.959)
-1:0	0.629 (1.404)	0.537 (2.388) <sup>a</sup>	0.490 (-0.202)	0.483 (-0.368)	0.676 (1.429)	0.776 (2.513) <sup>a</sup>	0.544 (0.591)	0.107 (0.359)
0:0	0.493 (1.556)	0.522 (3.280) <sup>a</sup>	0.520 (0.404)	0.492 (-0.184)	0.522 (1.559)	0.685 (3.139) <sup>a</sup>	0.441 (0.677)	0.227 (1.082)
-1:+1	1.284 (2.341) <sup>a</sup>	0.862 (3.126) <sup>a</sup>	0.520 (0.404)	0.525 (0.552)	1.084 (1.869)	1.074 (2.840) <sup>a</sup>	1.645 (1.459)	0.478 (1.316)
+2:+15	-0.377 (-0.307)	1.688 (2.739) <sup>a</sup>	0.337 (-3.232) <sup>a</sup>	0.407 (-2.025) <sup>a</sup>	-1.314 (-1.013)	1.275 (1.509)	1.310 (0.520)	2.435 (2.998) <sup>a</sup>
-2:+50	-4.184 (-1.814) <sup>b</sup>	0.700 (0.604)	0.408 (-1.818) <sup>b</sup>	0.508 (0.184)	-4.304 (-1.766) <sup>b</sup>	0.330 (0.208)	-3.969 (-0.838)	1.370 (0.897)
-20:+50	-2.580 (-0.967)	0.747 (0.557)	0.418 (-1.616)	0.492 (-0.184)	-1.172 (-0.415)	0.601 (0.327)	-5.115 (-0.933)	1.013 (0.573)

<sup>a,b</sup> Statistically significant in 2-tailed tests at the 5% and 10% levels, respectively.

**Table III Ownership Levels Influence on CAAR<sub>-1:+1</sub> and Piecewise Regression**

The buy and sell announcements are gathered in the report from the Copenhagen Stock Exchange. Institutional investors are investors that represent an institution. Strategic investors are, for example, foundations or industrial investors. The level amount is the ownership level by strategic and institutional investors. Small is five percent, medium five to 20 percent and large is above 20 percent. The cumulative average abnormal returns are estimated using the market model. The t-statistics are in parentheses.

**Panel A: Share price movements**

Ownership Level	Institutional Investors				Strategic Investors			
	Sell	N	Buy	N	Sell	N	Buy	N
≥20%	1.26% (1.46)	16	1.00% (0.45)	8	1.50% (2.54) <sup>a</sup>	17	2.15% (1.45)	15
5% - 20%	0.88% (0.81)	11	0.82% (1.01)	17	-0.97% (-1.23)	8	0.64% (0.71)	11
≥5%	1.06% (2.16) <sup>a</sup>	49	1.16% (0.68)	38	-0.01% (-0.02)	17	1.65% (0.34)	9
All	1.07% (2.71) <sup>a</sup>	76	1.06% (1.92) <sup>b</sup>	63	0.48% (1.32)	42	1.46% (1.34)	35

**Panel B: Piecewise linear regressions:<sup>\*</sup>**

Independent variables	CAAR	Wruck (1989) <sup>c</sup>		Morck, Shleifer, & Vishny (1988) <sup>d</sup>	
		Δownership		Broad ownership	
Ownership <sub>1</sub>	0.004 (1.71) <sup>b</sup>	Δownership <sub>1</sub>	0.034 (0.90)	Broad ownership <sub>1</sub>	0.062 <sup>a</sup>
Ownership <sub>2</sub>	-0.001 (-0.42)	Δownership <sub>2</sub>	-0.010 (-2.03) <sup>a</sup>	Broad ownership <sub>2</sub>	-0.016 <sup>a</sup>
Ownership <sub>3</sub>	-0.001 (-3.53) <sup>a</sup>	Δownership <sub>3</sub>	0.013 (7.64) <sup>a</sup>	Broad ownership <sub>3</sub>	0.008 <sup>b</sup>
Control <sup>f</sup>	0.012 (1.13)	Purchaser Control dummy	-0.192 (-3.59) <sup>a</sup>	Control variables	-
Control <sup>f</sup>	0.014 (2.59) <sup>a</sup>	Management Purchaser dummy	-0.045 (-0.04)		
Adjusted R <sup>2</sup>	14.2%	Adjusted R <sup>2</sup>	53.0%	Unadjusted R <sup>2</sup>	59.5%

<sup>\*</sup> The piecewise regression is similar to that of Morck, Shleifer & Vishny (1988) and Wruck (1989). Ownership<sub>1</sub> is institutional and strategic investors ownership if it is < 0.05, = 0.05, if ownership ≥ 0.05. Ownership<sub>2</sub> is 0 if ownership < 0.05, ownership<sub>2</sub> is ownership minus 0.05 if 0.05 ≤ ownership < 0.20, = 0.15 if ownership ≥ 0.20. Ownership<sub>3</sub> is 0 if ownership < 0.20, = ownership minus 0.20 if ownership ≥ 0.20.

<sup>a,b</sup> Statistically significant in 2-tailed tests at the 5% and 10% levels, respectively. All tests the joint hypothesis that all regression coefficients equal zero.

<sup>c</sup> From Wruck (1989), table 7, column 2 piecewise regression of changes in ownership concentration. She includes dummy variables for purchaser control and management control.

<sup>d</sup> Morck, Shleifer & Vishny (1988), table 2, column 2 regression of board ownership. They use Tobin's Q and include control variables for intangible assets.

<sup>e</sup> The control variable is the movement in ownership structure at the various levels of ownership by institutional and strategic investors.

<sup>f</sup> The control variable is a dummy [1,0] for whether the transaction is made by a strategic or an institutional investor, respectively

**Table IV. Cross-Sectional Regression on Firms Characteristics**

The buy and sell announcements are gathered in the report from the Copenhagen Stock Exchange. Institutional investors are investors that represent an institution. Strategic investors are such as a foundation or industrial investors. Resistant and non-resistant is a dummy variable [1;0] for the firms that have stringent majorities regulation in voting contest, limited voting rights or dual share classes that limit large shareholders ability to execute corporate governance. The dependent variable is the cumulative average abnormal return for days -1:+1 with day 0 as the day of the announcement of the change in ownership structure. The cross-sectional regression models are estimated using OLS estimates. Included are a total of 216 announcements and their specific characteristics from 1997. CAAR -15:-2 is the cumulative average abnormal return before each event.  $\rho_1$  is the first order autocorrelation in the estimation window. Size is the natural log to market value measured as outstanding shares times market price. Stock return volatility is the volatility estimated for the estimation period (-260,-60). Liquidity represents the average of the traded volume dividend by market value. Strategic and institutional is the relative ownership of strategic and institutional investors, respectively. The resistant variable is a dummy variable for shareholders possibility to intervene with 0 for resistant and 1 for non-resistant. The t-statistics are shown in parentheses.

Regression	All Buy N=98	All Sell N=118	Institutio nal Buy N=63	Institutio nal Sell N=76	Strategic Buy N=35	Strategic Sell N=42
Intercept	0.0289 (1.03)	0.0175 (0.88)	0.0112 (0.33)	0.0443 (1.58)	0.0952 (2.59) <sup>a</sup>	-0.0255 (-0.77)
CAAR -15:-2	-0.0051 (-0.15)	0.0638 (1.19)	-0.0674 (-1.65)	0.0345 (0.58)	0.0655 (1.54)	0.2127 (1.94) <sup>b</sup>
$\rho_1$	-0.0405 (-1.49)	0.0300 (1.33)	-0.0724 (-2.06) <sup>a</sup>	0.0497 (1.74) <sup>b</sup>	-0.0059 (-0.19)	0.0238 (0.53)
LN(Size)	-0.0032 (-0.90)	-0.0018 (-0.67)	-0.0004 (-0.11)	-0.0075 (-2.02) <sup>a</sup>	-0.0091 (-1.96) <sup>b</sup>	0.0061 (1.34)
Stock return volatility	-0.0340 (-1.55)	-0.1786 (-1.63) <sup>b</sup>	0.0297 (0.53)	-0.2790 (-2.39) <sup>a</sup>	-0.0464 (-2.53) <sup>a</sup>	-0.1499 (-0.52)
Liquidity	0.0061 (0.26)	0.0349 (1.73) <sup>b</sup>	-0.0086 (-0.30)	0.0445 (1.97) <sup>b</sup>	-0.0202 (-0.64)	-0.0033 (-0.07)
Strategic	0.0094 (1.31)	0.0021 (0.49)	0.0120 (0.79)	0.0159 (1.71) <sup>b</sup>	-0.0061 (-0.88)	-0.0017 (-0.35)
Institutional	-0.0001 (-0.03)	-0.0038 (-1.29)	-0.0013 (-0.18)	-0.0012 (-0.24)	-0.0028 (-0.42)	-0.0063 (-1.47)
Resistant (Dummy,0,1)	0.0006 (0.07)	0.0006 (0.08)	-0.0013 (-0.12)	0.0051 (0.58)	-0.0139 (-1.09)	-0.0014 (-0.11)
$R^2$	0.067	0.104	0.265	0.259	0.540	0.188

<sup>a,b</sup> Statistical significance in 2-tailed tests at the 5% and 10% levels, respectively.

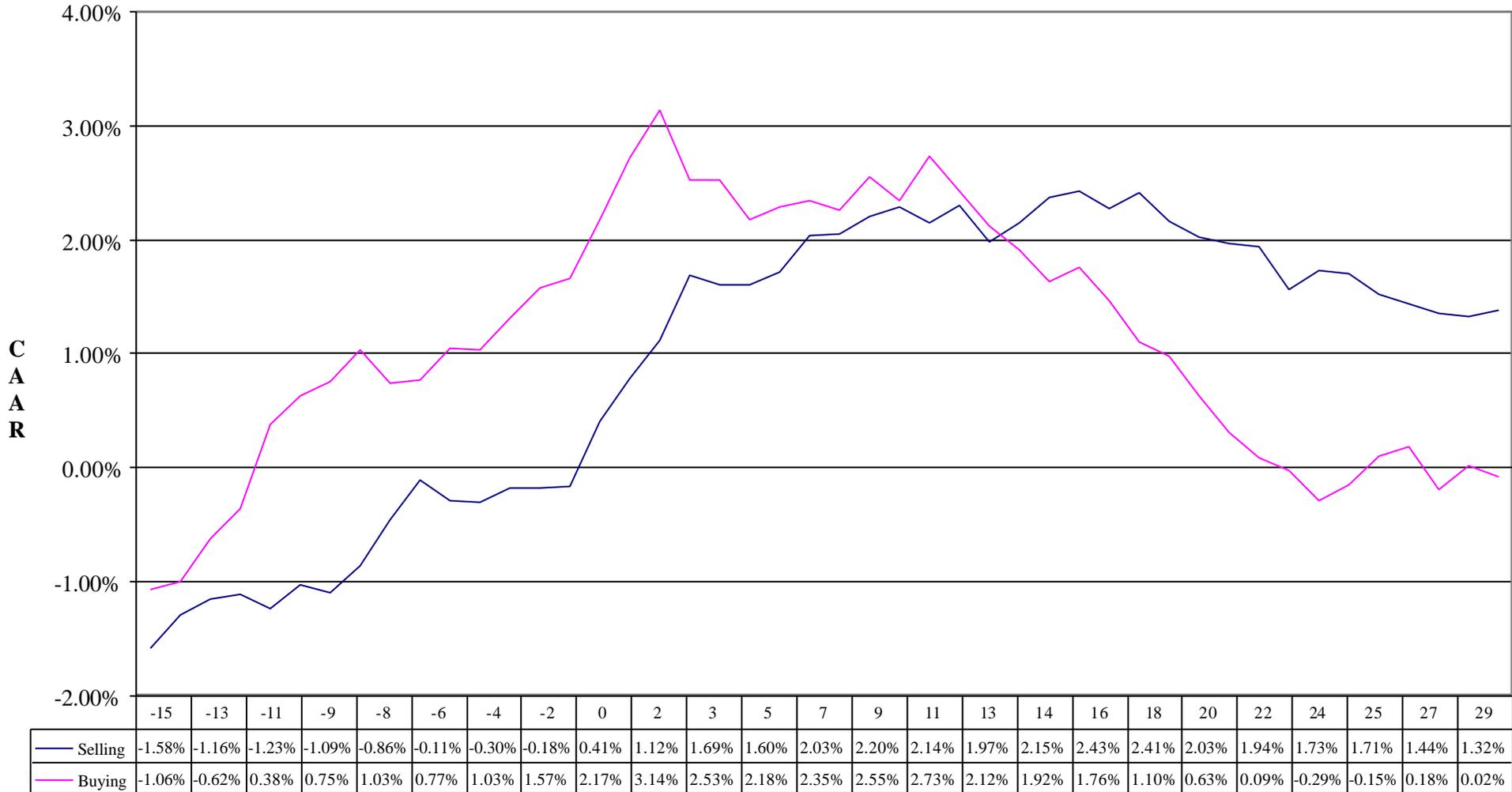
**Table V. Cross-Sectional Regression of Abnormal Returns on Control Variables**

The buy and sell announcements are gathered from the Copenhagen Stock Exchange. Institutional investors are investors that represent an institution. Strategic investors are, for example, foundations or industrial investors. The dependent variable is the cumulative average abnormal returns for days -1:+1 with day 0 as the day of the announcement of the level. The cross-sectional regression models are estimated using OLS estimates. Included are a total of 216 announcements and their specific characteristics from 1997. The t-statistics are shown in parentheses.

Regression	Intercept	Strategic	Institutional	R <sup>2</sup>
All buying announcements (N=98)	0.0129 (2.04) <sup>a</sup>	0.0011 (0.25)	-0.0007 (-0.14)	0.012
All selling announcements (N=118)	0.0127 (2.71) <sup>a</sup>	0.0010 (0.25)	-0.0050 (-1.76) <sup>b</sup>	0.029
Strategic Buy (N=35)	0.0123 (2.67) <sup>a</sup>	0.0013 (0.30)	-	0.0009
Strategic Sell (N=42)	0.0077 (2.05) <sup>a</sup>	0.0025 (0.61)	-	0.003
Institutional Buy (N=63)	0.0136 (2.49) <sup>a</sup>	-	-0.0011 (-0.22)	0.001
Institutional Sell (N=76)	0.0132 (3.11) <sup>a</sup>	-	-0.0051 (-1.85) <sup>b</sup>	0.028

<sup>a,b</sup> Statistical significance in 2-tailed tests at the 5% and 10% levels, respectively.

**Figure 1 Cumulative Average Abnormal Returns for Sell and Buy Announcements**



**Event Time**