# Active Institutional Holdings and Dividend Payout Policy

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September 16, 2014

**Abstract**

In this paper we test whether there is an effect of active institutional investors onto firm's dividend policy. The focus on active institutions is due to the fact that it is active institutions that are more likely to affect firms' payout policy as compared to passive institutions who hold a stock indirectly via an index. We construct a proxy variable that measures the active institutional ownership of a given firm. We show that higher active ownership results in a lower dividend yield. We also show that different types of institutions have different effect on the likelihood of dividend initiation. A larger active ownership by mutual funds lead to a higher chance of the dividend initiation while active ownership by other types of institutions, e.g. banks or pension funds, result in a lower chance of dividend initiation. Finally, the effect of active ownership on payout policy exhibits a lag of one to two years.

**Keywords:** Institutional Investors, Active Shares, Clientele Effect, Dividends

**JEL Classification Codes:** G02, G35

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# 1 Introduction

> "...we've heard from a large number of income-oriented investors that they would like to see an increase in the regular ongoing dividend ... So we think that we've reached a good balance amongst the various inputs we received."
>
> - John Connors, Microsoft CFO, July 20, 2004, DeAngelo et al. (2009)

That investors care about particularities of firms' payout policies and executives respond to it has both anecdotal — as the quote above shows — and empirical support. In one of the earliest papers, Black and Scholes (1974) argue that firms adopt different payout policy to cater to different clienteles. One area where clientele effect has strong empirical support is tax induced clientele. Investors in high tax brackets tend to invest in stocks which do not pay dividends and those in low tax brackets tend to invest in dividend paying stocks. Elton and Gruber (1970) and Kalay (1982) find positive correlation between dividend yield and ex-dividend day relative common stock price drop, which supports tax clientele. Scholz (1992) show additional evidence of tax clientele that investors are sensitive to tax rates when they choose dividend yields.[1] Moreover, investors' preference on corporate payout policy varies in groups, ages and also geographic factors. These are also captured and catered to by firm managers. Graham and Kumar (2006) study the trading behavior of more than 60,000 individual investors and find that individual investors also have clientele preference on dividend payment. Older and low-income investors prefer purchasing stocks following dividend announcement. In a more recent paper, Becker, Ivkovic and Weisbenner (2011) give evidence of firms being more likely to both initiate dividends and pay higher dividends in respond to dividend needs of seniors who are living in the district of firm's headquarter.

Comparing to general investing public, institutional investors have a greater influence on corporate policy through the vein of clientele effect. First, institutional investors have incentives and ability to monitor corporate management to ensure its efficiency (e.g., Shleifer and Vishny (1986), Brickley, Lease and Smith (1988)). Influencing firms' dividend policy is one way how institutions can reduce agency cost (e.g., Easterbrook (1984)). Second, institutional investors are not indifferent between payouts as dividends and payouts as repurchases (e.g., Brav, Granham, Harvey and Michaely (2005)). This could be either due to tax reasons — historically dividends were tax-disadvantaged (Miller and Scholes (1982)) — or other considerations such as institutional charter requirements or prudent man restrictions that force institutions to hold dividend-paying stocks. Empirical work in the literature further substantiates the effect of institutional investors on corporate dividend payout policy. For instance, in Brav, Granham, Harvey and Michaely (2005), half of the dividend-payers' management in the survey sample believe it's important to attract institutional investors and the influence of these investors are important towards company's dividend decision. More recent survey papers such as Baker and Powell (1999) and Baker et al. (2002) provide new evidence in support of Black and Scholes (1974). They also argue that not only investors

[1] There is also some evidence against tax clientele effect. Hearth and Rimbey (1993) use the Tax Reform Act of 1986 to reexamine tax clientele hypothesis and reject it.

have dividend preference but also managers are aware of and even cater to those preferences. For instance, general investing public treats issuing dividend as a good signal to the market because it reveals firm's high quality (Allen et al. (2000)). This gives manager the motivation to initiate dividends in order to send positive signal to potential investors.

However, institutional investors are not homogeneous. There are multiple types of institutional investors, such as pension funds, mutual funds, banks, insurance companies and endowments. Different types of institutions have different goals and characteristics and, naturally, differ in their attitude towards dividends. Tax status of institutional investors is one characteristics that had an impact on firms' payout policy prior to the 2003 enactment of the tax relief on dividend. Chetty and Saez (2006) document that the 2003 enactment did not have effect on dividend policies of firms with more nontaxable institutional ownership but had a sizeable effect on firms with taxable institutional ownership. Another characteristic that is known to affect investors' attitude towards dividends is investors' investment horizon, which is defined as the expected length of time an investor holds a stock. Gaspar et al. (2012) report that ownership by short-term investors is associated with a higher proportion of repurchases in total payoffs while the ownership by long-term investors is associated with a higher proportion of dividend payouts.

In this paper, we focus on the impact that institutions with active portfolio management have on firms' payout policy and whether there is a difference in dividend payouts between firms with larger active and larger passive institutional ownership. We follow a standard approach in the literature whereby passive institutional investors are viewed as index-followers. Their stock purchase decisions are not determined by the managers or fundamentals of potential investment goals, but simply by the index constitution concurrently. On the contrary, active institutional investors are those who make investment decisions usually with a goal of beating a particular benchmark index and generating alpha for their clients. In recent years, more institutions prefer to follow a passive investment strategy. French (2008) records that the fraction of U.S. open fund assets invested in index funds grew from 25.8% in 1986 to 52.7% in 2006. Cremers and Petajisto (2009) document a dramatic growth of closet indexers that account for approximately 30% of assets of all equity mutual funds in 2003.

Being able to differentiate between active and passive investors is important when studying the impact of investors on corporate management as their roles are distinct because of their goals. Only active investors are sensitive to firm-specific information and fundamentals. And only these investors are motived to influence companies' management and policies. Unlike active institutional investors, passive investors' trading activities do not respond to firm-specific information and they don't have incentive to manage or monitor the company. For example, Grinstein and Michaely (2005) find that although institutional investors in general prefer dividend-paying stocks to non-dividend stocks, they don't affect firms' decisions to increase dividends, repurchases or total payout. However, among the three groups of institutional investors considered in the paper two groups (banks and insurance companies) are well-known to be passive investors. The third group (mutual funds) has a substantial number of passive investors, such as index funds, as well. We conjecture that if one is to estimate the active institutional holdings for the firms, the relationship between

active institutional holdings and payout policy might become significant and tell us more about the underlying interlinks.

Our contribution to the literature is not only that we distinguish institutional clientele types, but also that we peel off the active institutional holding and examine its stand-alone impact on corporate payout policy to see whether a clientele really exists there. To estimate Active Ownership of a given firm we use the following three-step approach. First, we adopt a methodology introduced in Cremers and Petajisto (2009) that allows us to measure the degree of active management for a given institutional investor. The measure is defined as the normalized difference between portfolio holdings and the benchmark index. Second, for each institutional investor we use the measure of active management to determine its active holdings of each stock within its portfolio. Third, we aggregate active shares across all institutional investors. We calculate Active Ownership for a single firm in two ways. One is the percentage of active institutional ownership as the sum of active shares across all institutional investors divided by the total number of shares outstanding for the firm. The other alternative is the sum of holdings across all active investors divided by the total number of shares outstanding for the firm, where active investors are defined as institutional investors whose active shares of a stock exceed 30% of its overall holdings of the stock.

Once we estimate the degree of active institutional ownership for a given stock, we study how it affects firm's decision to initiate dividends and also the size of dividends. We employ quarterly stock holdings data from CDA/Spectrum S12 (mutual funds) and S34 (institutions) maintained by Thomson Financial, and 17 major stock indices data from S&P and Russell. We conduct our econometric analysis separately for S12 data, S34 data and the pooled data. Within each of three groups we also consider three sub-samples based on firms' sizes, defined as the log of total sales.

Our results are as follows. First, Active Ownership has significant effect on dividend initiation. The result is robust, however, its sign and level vary. For S34 data the effect is primarily negative. That is, a higher percentage of Active Ownership among S34 institutions in two years prior to dividend initiation decreases the likelihood of dividend initiation. The only exception are small firms where the effect is positive but only marginally significant. Similarly, for the pooled S12+S34 data the effect is negative and significant except for small firms where it is insignificant. For S12 institution the effect is the opposite. active S12 ownership has a positive effect on the likelihood of dividend initiation and it holds for every size tercile.

When looking for dividend size we need to adjust for a possible reverse causality. Having larger Active Ownership can influence dividend policy but at the same time firms that differ in their dividend policy are likely to attract different groups of investors. Thus, the causality can work both ways. To account for that, we use 2-step Heckman regression to see how active institutional ownership affects dividend amount. In general, the increase in active holdings would introduce a lower level of dividend payment. The result is robust both in terms of signs and significance. It holds for the pooled data as well as separate samples of mutual fund and other institutions. When looking at size-based subsamples we observe that the results is most pronounced for medium and large-size companies. The result tells us that the lower level of dividend majorly is introduced by larger sized companies, which fits into the growth sentiment theory by Baker and Wurgler (2004a).

Larger firms are generally considered those firms with greater growth potential. If investors hold pessimistic view about the firm's growth potential, they may demand dividends to be prudent; however, if they hold optimistic view about firms' growth potential, they may demand non-payers.

The rest of the paper is organized as follows. Section 2 describes our motivation, methodology and data. Section 3 presents our main results while Section4 concludes.

# 2 Active Shares and Institutional Investors

## 2.1 Motivation

It is well-established that compared to individuals, institutional investors have more funds invested, and thus more incentives, to monitor the companies they invest into (Grossman and Hart (1980)). They also have more resources and as a result they are better and more active corporate governance monitors (Hartzell and Starks (2003)). However, institutional investors are not homogeneous. Different types of institutions vary in their interest and ability to affect firms' corporate policies. For instance, Almazan, Hartzell and Starks (2005) document that different monitoring costs are associated with different types of institutions, which is directly related to how much these institutions are involved in monitoring firms' corporate governance.

Institutions also differ in that some actively manage their holdings while others passively follow an indexing strategy. Even within the same type of institution, such as mutual fund, managers differ both in their active degree and active type (Petajisto (2013)). When studying clientele effect on payout policy, the distinction between active and passive investors is important. Passive institutional investors' buying and selling activities generally do not respond to firm fundamental information but rather to events such as additions and deletions of the index they're closely following. Active institutional investors, on the other hand, trade on firm-specific information and firms' fundamentals (Baker et al. (2010)). It is active institutions such as independent institutions with long-term investments who are more motivated in monitoring the firm (Chen, Harford and Li (2007)). For instance, active investors are more likely to prevent firm's managers from overspending or undertaking risky projects (Gillan and Starks (2000), Almazan, Hartzell and Starks (2005)).

Given that (1) actively managed institutions are better monitors, and (2) their monitoring capabilities and incentives increase with in-hand shares they have discretion at, we expect a strong relation between firms' payout and total active institutional holdings. Depending on the type of active institutional holdings, some institutions prefer dividend and require high dividend payment while others look into the long-term growth potential of the firms and support putting internally generated cash flow into profitable projects instead of having them paid out for short-term income as dividends.

Institutional investors can impact corporate policies but the reverse effect is also possible. According to Shleifer and Vishny (1986), firms can attract a particular clientele investor using their payout policy. For instance, many institutional investors tend to prefer dividend paying firms (Allen et al. (2000)). First, dividends decrease the possibility that investors would sue

the institution since courts consider dividend-paying firms as more prudent investment. Second, institutions are taxed less heavily on dividends. Importantly, both reasons are more likely to affect the behavior of active rather than passive institutions. In addition, with asymmetric information undervalued firms could use payout as a signal of their worth. Again, it is only active institutions who have the information to evaluate and follow the signal.

Given the underlying heterogeneity of institutional investors, our paper decomposes the holdings of institutional investors into both active and passive sections and focuses on how active holdings from institutional investors impact corporate payout policy. To quantify the role of active investors in firm's stock, we construct a new variable that we call *Active Ownership* or, interchangeably, *active institutional ownership*. Roughly speaking, for a given firm, Active Ownership is the percentage of the *active* shares held by all institutions divided by the total number of shares outstanding for this firm. Thus, Active Ownership of 30% means 30% of this firm's stock is held actively by big institutions and 70% is held passively by big institutions, or held by small institutions *and* individual investors.

### 2.2 Methodology and Data

To calculate the Active Ownership we use the following approach. First, for each institution, we apply the Cremers and Petajisto (2009) methodology to determine the benchmark index that the institution follows. Second, for each institution we split its holdings into active and passive given its benchmark index determined in the first stage. Third, we aggregate active holdings across institutions and calculate Active Ownership for each stock.

The methodology developed in Cremers and Petajisto (2009) is based on the following premise: if a fund manager $Z$ passively follows a benchmark index, say S&P500, then each stock's weight in the manager's portfolio would be equivalent to that stock's weight in the index. The deviations in stock weights between the index and fund holdings, therefore, are indicative of active trading activity dictated by the fund's manager. Cremers and Petajisto (2009) then define active share of fund $Z$ given a benchmark index as

$$\text{Active Share}_Z(Index) = \frac{1}{2}\sum_{i=1}^{N} |w_{Z,i} - w_{Index,i}|, \tag{1}$$

where $w_{Z,i}$ is the weight of stock $i$ in $Z$'s portfolio and $w_{Index,i}$ is the weight of stock $i$ in the index.

Since the information of benchmark index for each fund is anonymous from Thomson Financial, we need to find it out ourselves. To determine the benchmark index, Cremers and Petajisto (2009) calculate (1) for multiple indexes most widely followed in the industry and define the benchmark index for a ceratin fund to be the one with the lowest Active Share. We follow this selection criteria in our calculation of the benchmark index.

We obtain institutional stock holdings information from CDA Spectrum S12 and S34 maintained by Thomson Financial. CDA Spectrum S12 covers mutual funds and S34 covers entire investment companies, such as banks, insurance companies, parents of mutual funds, pension funds, university

endowments, and numerous other types of professional investment advisors. This database only covers long equity holdings of investors whose equity assets exceed $100 million. Small investors with lower equity holdings are not reported in the database. This omission might underestimate the actively held shares since small holdings are not counted. However, this impact is limited since small institutional investors have smaller number of active shares comparatively, which should not significantly affect our result. Another issue is the omission of short position. Some types of institutional investors, such as hedge funds, can potentially have large short sell volumes. However, hedge funds only count for a small percentage of total institutions, thus it is reasonable to assume this impact is limited as well.

End of quarter index constituents and individual weights data come from two sources depending on the index family. For the S&P family we use Compustat to obtain the list of constituents. We then calculate each constituent's weight in the index as the constituent's market capitalization divided by total index market capitalization based on the stock market information matched from CRSP. We use data on five indexes from S&P family: S&P 500, S&P 500/Barra Growth, S&P 500/Barra Value, S&P MidCap 400 and S&P SmallCap 600. The data ranges from September 1995 to December 2012 (June 2006 for the two Barra indexes). For the Russell family the data was provided by Frank Russell Co and is available since January 1990. The Russell index data contains index constituents and their weights in the index. We use 12 indexes from the Russell index family: the Russell 1000, Russell 1000 Growth, Russell 1000 Value, Russell 2000, Russell 2000 Growth, Russell 2000 Value, Russell 3000, Russell 3000/Value, Russell 3000 Growth, Russell MidCap, Russell MidCap Growth and MidCap Value.

Using our data we apply Cremers and Petajisto (2009) methodology to determine the benchmark index for institutions (mutual funds) in S12. As for institutions in S34, since the majority of them passively follow S&P500 (see Ye (2012)), we assign S&P500 to be the benchmark index for all S34 institutions. Moreover, since S34 is an aggregated holdings database at firm level, it's impossible to disentangle stock holdings of each fund within the same firm. Therefore, it's a generally valid and feasible assumption that most S34 firms are passively following S&P500.

After identifying the benchmark index for fund $Z$, we calculate active and passive holdings of each stock based on the following procedure. For stock $i$ in the index, let $w_i$ denote the stock $i$'s weight in the index and $p_i$ denote stock $i$'s end-of-quarter price. Consider a passive investor with fund size of $\$C$ and is closely following the index, the holdings of stock $i$ should be

$$h_{i,p} = \frac{Cw_i}{p_i} \tag{2}$$

so that the cost of the portfolio is $C$ and portfolio weights are equal to index weights. The subscript $p$ stands for passive.

Then if active institution $Z$'s holdings of stock $i$ are $h_i^Z$ and $Z$'s total market capitalization is $C$ then active holdings are defined to be equal to $h_{i,a}^Z = \max\{h_i^Z - h_{i,p}, 0\}$. The expression within maximum means that we define active holdings as positive deviations from what passive fund would have with the same capitalization level. Having maximum means we focus on *active purchases* of a

stock in this paper. This is done for three reasons. First, if someone sells then someone buys. Even though we do not have data on individual investors' trades, considering both *active purchases* and *active sales* will lead to double-counting and/or mutual canceling. Second, if we are to consider the magnitude of both *active purchases* and *active sales*, it's possible that the summation would exceed total number of shares outstanding for some of the stocks. Third, if a given stock has many active purchasers then our motivation is applicable in that the firm has a large percentage of active institutional investors who are more likely to impact firm's policy among its shareholders.

Once $h_{i,a}^Z$ is calculated for each stock $i$ and each institution $Z$ in our data we can calculate the Active Ownership of stock $i$ as

$$AO_i = \frac{\sum_Z h_{i,a}^Z}{\#\text{ of Shares Outstanding}} \tag{3}$$

That is Active Ownership of stock $i$ is the sum of active purchases divided by the total number of shares outstanding. For robustness, we also considered an alternative definition of $AO_i$, where the institution was considered an active purchaser as a whole only if the deviation from benchmark was sufficiently large (at least 30%). We only consider institutional holdings that satisfy $\frac{h_{i,a}^Z}{h_i^Z} > 0.3$. And we define Active Ownership of stock $i$ as

$$AO_i = \frac{\sum_Z h_i^Z}{\#\text{ of Shares Outstanding}} \tag{4}$$

The rationale is that some institutions might hold considerable amount of shares yet only a small proportion is active by definition in (3). Since they're big stockholders, even though the active proportion is small comparing to overall shares in hands for this stock, these institutions can still have a profound influence on corporate policy because of their solid holdings in total. The results proved to be qualitatively the same. We also notice from the data that most of Active Ownership come from institutions holding stocks out of the benchmark index, which substantiates a negligible difference on the results from these two definitions.

As mentioned earlier, our institutional holdings come from two separate databases S12 and S34. Given that the nature of institutions in S12 and S34 are quite different, we construct three different Active Ownership measures. For each firm in our data, variable, $AO_{S12}$ is calculated based on the Active Ownership of S12 institutions only. Variable, $AO_{S34}$ is calculated based on the Active Ownership of S34 institutions only. Finally, variable $AO_{S12S34}$ is calculated based on the combined Active Ownership of S12 and S34 institutions.

From our sample of firms we exclude firms with average book equity less than \$250,000. We also exclude stocks that are not publicly traded (stocks whose *shrcd* value is *not* 10 or 11) as well as firms from finance (those with *hsiccd* between 6000 and 6999) and utility (those with *hsiccd* between 4900 and 4949) industries. This gives us an unbalanced panel with 2601 companies. The data range is from 1991 to 2012 in S12 and from 1995 to 2012 in S34. Data on firm's quarterly-reported fundamental information from financial statements such as dividend per share, total sales and total assets are obtained from Compustat. Equity information such as number of shares outstanding

and share price is obtained from CRSP. These data are merged with CDA Spectrum by company ticker. We also used annual beta from Compustat.

# 3 Results

## 3.1 Summary Statistics

The summary statistics for control variables are in Table 1. Variable *beta* is an annual variable obtained from Compustat. B/M is book-market ratio. It is defined as book equity divided by market equity similar to Fama and French (1993) except that we use calendar year-end stock price. Dividend Yield is defined as quarterly dividend payment divided by stock price in the end of previous year. For dividend yield calculation, quarterly dividend payments are averaged out based on total annual dividend payment. This is done to account for the fact that many firms pay out dividends semi-annually or annually, or even randomly throughout the year. In a year when a firm initiates dividends, the averaging procedure excludes calendar quarters prior to the first dividend payment date. Earnings are defined as earnings before interest and taxes (EBIT). Dividend premium is calculated following Baker and Wurgler (2004b), which is the difference in logarithm of B/M among dividend payers and logarithm of B/M among non-payers. A firm-year observation is treated as a dividend non-payer if it has never paid any positive dividends by the sample date, else it is a dividend payer.

[INSERT TABLE 1 HERE]

As described in the previous section we constructed three Active Ownership variables. Variable $AO_{S12}$ is Active Ownership by S12 institutions; $AO_{S34}$ is Active Ownership by S34 institutions (exclude type 3 institutions). $AO_{S12S34}$ is Active Ownership by both S12 and S34 institutions. Active Ownership takes values between 0 and 1. The mean Active Ownership by S12 institutions is about 10.3% (median is 9.02%), and about 23.6% (median is 22.01%) by S34 institutions. The mean Active Ownership by both S12 and S34 institutions is 29.3% (median is 27.3%). Note that even though S34 institutions tend to be more passive than S12 institutions, Active Ownership for the S34 is higher. This is due to our data limitation: for S12 we could precisely identify the benchmark index; yet for S34 we had to use S&P 500 as the sole benchmark index.

## 3.2 Multivariate Tests - Dividends Initiation

In this section we look at factors affecting firms' decision to initiate dividends. We say that firm $i$ initiates dividends in period $t$ if the firm did not pay any dividend in the previous year but pays in the current. We use the following fixed-effect logit specification:

$$\begin{aligned}\Pr(DivInitiation_{i,t}=1) &= Logit(\alpha+\beta FirmCharacteristics \\ &+ \gamma DividendPremium+\zeta YearDummies \\ &+ \delta ActiveOwnershipVariables+\nu_i+\epsilon_{i,t})\end{aligned}$$

We control for general firm characteristics such as firm size and risk using log of total sales, firm equity beta, stock return, earnings ratio, book to market ratio. We also control for time fixed effects using year dummies for every five-year period.[2] In addition, we include dividend premium as an extra control as studies have shown that it significantly affects firms' propensity to initiate dividends (see Baker and Wurgler (2004b)).

The primary variables of interest is the Active Ownership variables and how they affect dividend initiation. Since corporate policy cannot be adjusted instantly upon either internal (management) or external (investors) requests, we conjecture that if active institutional investors have an effect on a corporate payout policy, the effect should be delayed. Thus in a regression analysis we use lagged variables for Active Ownership. For a given quarter, we define variables $Y1act$ and $Y2act$ as the average Active Ownership of quarters -1 to -4 and -5 to -8 respectively. Variable $Y12diff$ is defined as $Y1act - Y2act$, which is a change in Active Ownership between years -2 and -1. We also consider semi-annual lags which are defined in a similar way. For instance, variable $H4act$ is the average Active Ownership of quarters -7 to -8 and variable $H34diff$ is $H3act - H4act$.

[INSERT TABLE 2 HERE]

The results are reported separately in Table 2 for Active Ownership based on S12, S34 and S12S34. For each type of Active Ownership we report results for both annual and semi-annual lags. We see that companies with larger size, higher earnings and lower market risk (beta) are more likely to initiate dividends in general. Also, consistent with Baker and Wurgler (2004b), we find that dividend premium has a significant and positive effect on the probability of dividend initiation.

As for our main variable of interest, we see that S12 Active Ownership has insignificant impact on the probability of dividend initiation. For S34 and S12S34 Active Ownership the impact is negative and significant. That is, higher Active Ownership reduces the likelihood of dividend initiation. For S34, the biggest impact is embodied in $H34diff$, the Active Ownership change from two years ago to one year and a half ago. According to the regression result, a 1% increase in $H34diff$ will decrease the likelihood of dividend initiation by around 1.8%, while a 1% increase in Active Ownership from another semi-annual variable, $H23diff$ decreases the likelihood of dividend initiation by 1.04%. Any change of Active Ownership in the most recent semi-annual period does not perform a significant role in dividend initiation. The regression with annual lags also shows that the decision of dividend issuance is more significantly and negatively affected with Active Ownership change one year before the sample date. Result from S12S34 is close to what we have for S34 with a more profound impact being exhibited in the Active Ownership two years before the sample date. Overall, as we conjectured, the effect of Active Ownership is delayed. The most recent changes in active ownership — variable $H12diff$ — is insignificant in all regressions.

[INSERT TABLES 3, 4 AND 5 HERE]

[2]Dummy coefficients are not reported for brevity's sake. Most of the time they are all significant and negative, which is consistent with the overall trend of a decline in dividend initiation.

Next, we split the sample into three sub-samples based on firm size. A natural reason for this is the easiness with which investors can affect corporate policy decreases as the firm grows larger and more players are involved in the decision and/or revision process of corporate policy. Moreover, the effect on small and large firms could potentially be different since investors would have different expectations. For instance, firm size has big explanatory power for the cross-sectional variation in average stock returns (Fama and French (1992)). To construct the three sub-samples we first calculate firms' median sales in a given calendar year. Then within each year, we divide the sample into three groups based on firms' median sales.[3] Results of fixed-effect logit estimations for each of the three sub-samples are reported in Table 3, Table 4 and Table 5 respectively.

Our first result is that, different from Table 2, S12-Active Ownership becomes significant and the effect is positive for the subsamples. It means higher Active Ownership leads to a higher likelihood of dividend initiation. This effect is the strongest for medium-sized firms where all lags are significant. For small firms and large firms only two-year lag variables are significant. $Y2act$ and $H4act$ are significant at 1% for small and medium firms and 5% for large firms. This is interesting as it means that Active Ownership from active institutions, such as mutual funds, has a positive impact on the initiation of dividends, and any increase in Active Ownership in the past two years would make firms more likely to issue dividends. Another result that follows from Table 3 is that the effect on large firms is the weakest. The result is intuitive since corporate policy of large firms is harder to affect. However, it is not robust. As follows from Table 4 the effect of S34-Active Ownership is, in fact, the strongest for large firms.

A surprising finding that follows from Tables 3 and 4 is that S12- and S34-Active Ownerships have different effects on the probability of dividend initiation. An increase in S12-Active Ownership leads to a *higher* likelihood of dividend initiation, while an increase in S34-Active Ownership leads to a *lower* likelihood. This shows that different types of institution use their Active Ownership in the stock to affect corporate payout policy in different ways. In our data, the discrete decision whether to pay dividends is affected by more active (S12) and more passive (S34) institutional investors in an opposite way. Active institutions such as mutual funds favor dividends while passive institution look for potential future growth thus impacting the issuance of dividends in a negative way. Moreover, comparing to S12-Active Ownership where the most solid effect shows up on medium-sized group, we notice there's an increased negative impact of S34-Active Ownership from small- to large-sized group.

Finally, when we aggregate Active Ownership from all institutions (see 5), the negative impact from passive institutions dominates. As S34 institutions have larger active holdings, this is not surprising. Another interesting observation is that the effect of earnings on dividends is positive for small and medium firms but is negative for large firms. According to Healy and Palepu (1988), dividend initiation is an earnings signal and should potentially forecasting positive earnings change in the near future, suggesting the impact of earnings level on dividend initiation is murky. Finally, dividend premium is significant at 5% level but only for medium-size and large-size firms.

[3]Note that while the number of firms in each sub-sample is the same, the number of observation are not since different firms have the different number of data points.

### 3.3 Dividend Size

Next, we study how Active Ownership affects the size of dividends paid out by firms. One econometric issue that needs to be addressed is that the causality between Active Ownership and dividend payout policy is likely to go both ways. On one hand, active shareholders can affect firms' dividend policy so that it's more attuned to their preferences; on the other hand, active investors can choose a firm because of its appealing dividend policy. Furthermore, as the decision to initiate dividends is endogenous, estimates of the relation between dividend size and firm characteristics plus Active Ownership are potentially biased unless they take into account the fact that firms that initiate dividends are self-selected.

To address these issues we use Heckman's two-stage estimator to decompose firms' decision of dividend size into two stages: the decision to issue dividend, and if the firm does so, the decision on how much dividend to pay out. The selection model is given by:

$$\begin{aligned} DivInitiation &= \alpha + \beta FirmCharacteristics \\ &+ \gamma DividendPremium + \delta ActiveOwnershipVariables + \epsilon \end{aligned}$$

where $DivInitiation$ is the same binary variable as in the previous section. The regression also includes firm characteristics, which identify the size of a firm, profitability, market risk. We use dividend premium in the selection equation given the evidence that firms are more (less) likely to initiate dividends when dividend premium is positive (negative). In the second stage, we estimate how the firm's dividend size is affected by Active Ownership using the following regression:

$$\begin{aligned} DividendYield &= \alpha + \beta FirmCharacteristics + \zeta YearDummies \\ &+ \delta ActiveOwnershipvariables + \epsilon \end{aligned}$$

The dependent variable is dividend yield. As described earlier, it is defined as quarterly dividend payment divided by stock price in the end of the previous year. For firms paying dividends on semi-annual or annual basis the quarterly dividend payment is an average of total annual dividend payments. We use dividend yield instead of dividend size here since it's more plausible that investors would look at the return rate of their investment rather than the return amount. The independent variables are as in the selection equation, with one exception: dividend premium is excluded since we do not expect it to affect the size of dividends (Baker and Wurgler (2004a)). Following Heckman's two-step procedure, we first obtain the estimates of the selection equation. From those estimates the nonselection hazard (inverse Mill's ratio) is computed for each sample. The two-step parameter estimates of the next equation are obtained by augmenting the regression equation with the nonselection hazard.

The interpretations of the coefficient estimates in the two equations differ. The coefficients of the selection equation provide similar interpretation as in dividend initiation test and thus are not reported. The coefficients of the mix equation show how each control variable and our major variable of interest - Active Ownership affect firm's dividend yield. Table 6 shows the results of

estimation based on the entire sample. We see the effect of Active Ownership on dividend yield is significant and has the same sign regardless of the type of institutions holding the Active Ownership. Higher Active Ownership in either S12 or S34 results in lower dividend payments, measured by dividend yield. The same change in Active Ownership causes a higher decrease in dividend size when the Active Ownership is held by active institutions (S12) rather than passive institutions (S34).

Similar to our study on dividend initiation, we also split the whole sample by firm size and the effect becomes more nuanced. Table 7 presents result on S12 Active Ownership. Though Active Ownership, in general, have a negative and significant impact on dividend size, there're some differences among the groups both in size and timing. First, Active Ownership affect dividend size of small firms faster. Comparing to those of medium- and large-sized groups, Active Ownership variables of small-sized group exhibits negative significance in closest lags. $Y12diff$ is only significant for small-sized group and $H23diff$ is significant at 5% for the small-size group (it is significant at 10% for the medium-size group and insignificant for the large-size group). Second, Active Ownership has stronger effect on smaller firms. For instance, looking at variable $H34diff$, a 1% increase in $H34diff$ results in a 0.9 basis points drop in dividend yield for small firms and a lower 0.7 basis points drop for large firms. In conclusion, Active Ownership by active institutions affects dividend size of small firms both faster and stronger.

Results on S34 is shown in Table 8. The effect is significant only for medium- and large-sized firms, which is interesting as it indicates either passive institutions in S34 don't use their Active Ownership to affect dividend size from small firms, or these institutions are not sensitive to small firms' payout policy. For large firms, the most immediate lag variable, $H12diff$ is insignificant, which is intuitive, as it is harder to influence larger firms to have them revise dividend policy instantly. The result is relatively consistent with what we have for active institutions in S12.

Lastly, we combine Active Ownership from all types of institutions and report the result in Table 9. We observe significant and negative effect from Active Ownership on firms of all sizes. However, for small- and large-sized firms, $H12diff$ remains insignificant. We also observe that the strongest effect comes from more distant lags. Variable $H34diff$ is the largest in its absolute value. This holds for all three size sub-samples. For instance, for medium-sized firms a 1% change in $H34diff$ results in 0.4 basis point decrease in dividend yield, while more recent changes ($H23diff$ and $H12diff$) result in 0.3 and 0.1 basis point decreases. By pecking order theory, internal financing is the most cost-effective way to fund a company. Thus, if investors look into the growth potential of a firm rather than its current value, they would prefer the firm to save dividend payouts to invest in projects that would bring the firm long-term growth in the future.

[INSERT TABLES 6, 7, 8 AND 9 HERE]

# 4 Conclusion

In this paper we analyzed whether and how institutions with active portfolio management strategies affect corporate payout policy. Our premise is that active institutional investors have stronger incentives to affect corporate policy as compared to passive investors. Given mixed earlier evidence in the literature, an anatomy on institutional investors which separates their active holdings apart from passive holdings provides us a clearer picture of investor-manager interactions and the clientele effect.

We construct a variable called Active Ownership, which serves as a proxy for how many institutional shareholders actively purchased firm's stock. First, using data on institutional portfolios we apply Cremers and Petajisto (2009) methodology to determine the benchmark index followed by a given institution. Then we separate active and passive holdings of that institution and sum all active holdings of a given firm across all institutional investors.

Our focus is on two aspects of corporate payout policy: dividend initiation and dividend yield. We find that active institutional ownership has a significant effect on both. Our first result is that an increase in active institutional ownership results in a lower dividend yield, which doesn't depend on the type of institution. As for dividend initiation our result depends on the type of institution. For S34 institutions (more passive), increase in S34-Active Ownership implies lower probability of future dividend initiation. For S12 institutions (more active), the effect is weaker but nonetheless its sign is opposite. An increase in S12-Active Ownership means a higher likelihood of dividend initiation. The effect is the most pronounced among medium-size firms.

# 5 Tables

Table 1: Summary Statistics.
NOTES: Active Ownership is between 0 and 1. Variable $AO_{S12}$ is Active Ownership by S12 institutions, variable $AO_{s34}$ is Active Ownership by S34 institutions, variable $AO_{s12s34}$ is Active Ownership by both S12 and S34 institutions.

| | **Summary Statistics** | | | | |
|---|---|---|---|---|---|
| | **Obs** | **Mean** | **Std Dev** | **Min** | **Max** |
| Beta | 60019 | 1.092 | 0.607 | -2.584 | 5.844 |
| LogSales | 87083 | 5.766 | 1.683 | -6.908 | 11.730 |
| Return | 87173 | 0.014 | 0.142 | -0.935 | 6.407 |
| Earnings | 87455 | 0.037 | 0.125 | -21.538 | 5.027 |
| B/M | 83104 | 0.760 | 7.071 | 0.000 | 907 |
| Price | 87619 | 33.50 | 46.55 | 0.02 | 2418 |
| Div Yield | 79343 | 0.002 | 0.005 | 0.000 | 0.325 |
| Div Premium | 87623 | -0.298 | 0.394 | -1.602 | 0.165 |
| $AO_{S12}$ | 84310 | 0.103 | 0.074 | 0.000 | 0.900 |
| $AO_{S34}$ | 74527 | 0.236 | 0.159 | 0.000 | 0.985 |
| $AO_{S12S34}$ | 87623 | 0.293 | 0.211 | 0.000 | 0.999 |

Table 2: Dividends Initiation, pooled

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the binary variable equal to 1 if the firm paid positive dividends in a given given quarter with appropriate adjustments for firms paying dividends annually or semi-annually.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | s12 | s12 | s34 | s34 | pooled | pooled |
| logsales | 1.152*** | 1.153*** | 1.312*** | 1.311*** | 1.196*** | 1.195*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| beta | -0.645*** | -0.645*** | -0.701*** | -0.707*** | -0.665*** | -0.668*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| EA2 | 3.462*** | 3.459*** | 2.218*** | 2.193*** | 3.555*** | 3.546*** |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.000) | (0.000) |
| ret | -0.465*** | -0.465*** | -0.356* | -0.384* | -0.410** | -0.426** |
| | (0.009) | (0.009) | (0.071) | (0.052) | (0.019) | (0.015) |
| beme | -0.004 | -0.004 | -0.030 | -0.027 | -0.012 | -0.010 |
| | (0.871) | (0.879) | (0.286) | (0.342) | (0.623) | (0.667) |
| div_premium | 1.621*** | 1.627*** | 1.210*** | 1.297*** | 1.031*** | 1.061*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Y12diff | 0.073 | | -1.108*** | | -0.688*** | |
| | (0.894) | | (0.000) | | (0.001) | |
| Y2act | -0.008 | | -1.308*** | | -1.725*** | |
| | (0.988) | | (0.000) | | (0.000) | |
| H12diff | | -0.022 | | 0.036 | | -0.086 |
| | | (0.969) | | (0.904) | | (0.677) |
| H23diff | | 0.334 | | -1.035*** | | -0.665*** |
| | | (0.579) | | (0.002) | | (0.002) |
| H34diff | | -0.471 | | -1.795*** | | -1.381*** |
| | | (0.455) | | (0.000) | | (0.000) |
| H4act | | 0.054 | | -1.166*** | | -1.654*** |
| | | (0.916) | | (0.001) | | (0.000) |
| $N$ | 12958 | 12958 | 9779 | 9779 | 14002 | 14002 |
| pseudo $R^2$ | 0.130 | 0.131 | 0.131 | 0.132 | 0.138 | 0.139 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Dividends Initiation, s12, by size

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the binary variable equal to 1 if the firm paid positive dividends in a given given quarter with appropriate adjustments for firms paying dividends annually or semi-annually.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Small | Small | Medium | Medium | Large | Large |
| logsales | 1.553*** | 1.571*** | 1.464*** | 1.464*** | 1.612*** | 1.629*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| ret | -0.675* | -0.690* | -0.910** | -0.915** | -0.090 | -0.087 |
| | (0.099) | (0.093) | (0.012) | (0.012) | (0.788) | (0.797) |
| beta | -0.821*** | -0.829*** | -0.653*** | -0.655*** | -0.630*** | -0.628*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| beme | 0.034 | 0.028 | -0.075* | -0.071 | 0.496*** | 0.495*** |
| | (0.635) | (0.695) | (0.090) | (0.113) | (0.000) | (0.000) |
| EA2 | 1.988 | 1.949 | 6.747*** | 6.801*** | -1.682 | -1.757 |
| | (0.102) | (0.109) | (0.000) | (0.000) | (0.143) | (0.127) |
| div_premium | 0.098 | 0.109 | 1.312*** | 1.301*** | 2.458*** | 2.507*** |
| | (0.870) | (0.856) | (0.001) | (0.001) | (0.000) | (0.000) |
| Y12diff | 1.780 | | 4.642*** | | -1.313 | |
| | (0.284) | | (0.000) | | (0.186) | |
| Y2act | 4.545*** | | 4.798*** | | 2.012** | |
| | (0.002) | | (0.000) | | (0.037) | |
| H12diff | | -1.565 | | 3.630*** | | -0.440 |
| | | (0.352) | | (0.003) | | (0.663) |
| H23diff | | 2.791 | | 4.151*** | | -0.409 |
| | | (0.130) | | (0.001) | | (0.703) |
| H34diff | | 2.679 | | 5.121*** | | -1.726 |
| | | (0.158) | | (0.000) | | (0.132) |
| H4act | | 4.239*** | | 4.977*** | | 2.344** |
| | | (0.005) | | (0.000) | | (0.017) |
| $N$ | 1952 | 1952 | 3137 | 3137 | 4097 | 4097 |
| pseudo $R^2$ | 0.165 | 0.166 | 0.125 | 0.126 | 0.126 | 0.128 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Dividends Initiation, s34, by size

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the binary variable equal to 1 if the firm paid positive dividends in a given given quarter with appropriate adjustments for firms paying dividends annually or semi-annually.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Small | Small | Medium | Medium | Large | Large |
| logsales | 2.370*** | 2.376*** | 1.613*** | 1.596*** | 1.913*** | 1.920*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| ret | -0.357 | -0.366 | -0.716* | -0.730* | -0.003 | -0.045 |
| | (0.440) | (0.430) | (0.070) | (0.065) | (0.993) | (0.896) |
| beta | -0.262 | -0.266 | -0.791*** | -0.801*** | -0.709*** | -0.715*** |
| | (0.112) | (0.108) | (0.000) | (0.000) | (0.000) | (0.000) |
| beme | -0.152 | -0.139 | -0.061 | -0.059 | 0.214*** | 0.220*** |
| | (0.225) | (0.271) | (0.201) | (0.212) | (0.000) | (0.000) |
| EA2 | 0.773 | 0.768 | 4.919*** | 4.833*** | -2.986** | -2.983** |
| | (0.599) | (0.603) | (0.002) | (0.002) | (0.012) | (0.012) |
| div_premium | 0.312 | 0.356 | 1.054*** | 1.150*** | 1.877*** | 1.964*** |
| | (0.583) | (0.534) | (0.003) | (0.002) | (0.000) | (0.000) |
| Y12diff | -0.279 | | -0.922 | | -2.945*** | |
| | (0.746) | | (0.116) | | (0.000) | |
| Y2act | 1.782* | | -1.301* | | -3.440*** | |
| | (0.077) | | (0.056) | | (0.000) | |
| H12diff | | 0.205 | | 0.134 | | -1.033** |
| | | (0.801) | | (0.804) | | (0.039) |
| H23diff | | -0.087 | | -0.941 | | -2.709*** |
| | | (0.926) | | (0.132) | | (0.000) |
| H34diff | | 0.030 | | -1.627** | | -3.987*** |
| | | (0.977) | | (0.020) | | (0.000) |
| H4act | | 1.957* | | -1.203* | | -3.221*** |
| | | (0.056) | | (0.080) | | (0.000) |
| $N$ | 1176 | 1176 | 2537 | 2537 | 3642 | 3642 |
| pseudo $R^2$ | 0.189 | 0.191 | 0.103 | 0.104 | 0.126 | 0.128 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Dividends Initiation, s12s34, by size

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the binary variable equal to 1 if the firm paid positive dividends in a given given quarter with appropriate adjustments for firms paying dividends annually or semi-annually.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Small | Small | Medium | Medium | Large | Large |
| logsales | 1.615*** | 1.622*** | 1.824*** | 1.827*** | 1.536*** | 1.547*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| ret | -0.698* | -0.694* | -0.819** | -0.825** | 0.044 | 0.008 |
| | (0.086) | (0.088) | (0.021) | (0.020) | (0.893) | (0.980) |
| beta | -0.790*** | -0.788*** | -0.645*** | -0.644*** | -0.709*** | -0.709*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| beme | 0.027 | 0.025 | -0.026 | -0.023 | 0.295*** | 0.297*** |
| | (0.687) | (0.716) | (0.534) | (0.586) | (0.000) | (0.000) |
| EA2 | 2.142* | 2.147* | 5.828*** | 5.839*** | -1.935* | -1.946* |
| | (0.072) | (0.072) | (0.000) | (0.000) | (0.074) | (0.073) |
| div_premium | 0.080 | 0.067 | 0.911*** | 0.909*** | 1.649*** | 1.719*** |
| | (0.866) | (0.888) | (0.002) | (0.002) | (0.000) | (0.000) |
| Y12diff | -0.008 | | 0.281 | | -1.970*** | |
| | (0.988) | | (0.480) | | (0.000) | |
| Y2act | 0.563 | | -1.816*** | | -2.279*** | |
| | (0.259) | | (0.000) | | (0.000) | |
| H12diff | | -0.344 | | 0.506 | | -0.757** |
| | | (0.545) | | (0.202) | | (0.045) |
| H23diff | | 0.029 | | 0.008 | | -1.698*** |
| | | (0.962) | | (0.985) | | (0.000) |
| H34diff | | 0.362 | | -0.408 | | -2.792*** |
| | | (0.568) | | (0.381) | | (0.000) |
| H4act | | 0.481 | | -1.829*** | | -2.129*** |
| | | (0.350) | | (0.000) | | (0.000) |
| $N$ | 1977 | 1977 | 3426 | 3426 | 4536 | 4536 |
| pseudo $R^2$ | 0.162 | 0.162 | 0.133 | 0.134 | 0.130 | 0.132 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Dividend Yield, pooled

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the dividend yield in the corresponding quarter. For firms paying dividends on annual or semi-annual basis the dividend yield is averaged within a year.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | s12 | s12 | s34 | s34 | s12s34 | s12s34 |
| logsales | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.000) | (0.000) |
| ret | 0.001*** | 0.001*** | 0.001* | 0.002* | 0.001*** | 0.001*** |
| | (0.000) | (0.000) | (0.075) | (0.070) | (0.009) | (0.010) |
| beta | -0.002*** | -0.002*** | -0.002*** | -0.002*** | -0.002*** | -0.002*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| EA2 | 0.006*** | 0.006*** | 0.006*** | 0.007*** | 0.005*** | 0.005*** |
| | (0.000) | (0.000) | (0.004) | (0.003) | (0.000) | (0.000) |
| beme | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.000) | (0.000) | (0.004) | (0.005) | (0.000) | (0.000) |
| Y12diff | -0.004*** | | -0.004*** | | -0.003*** | |
| | (0.000) | | (0.002) | | (0.000) | |
| Y2act | -0.013*** | | -0.010*** | | -0.006*** | |
| | (0.000) | | (0.000) | | (0.000) | |
| H12diff | | -0.001 | | -0.003** | | -0.001** |
| | | (0.289) | | (0.023) | | (0.034) |
| H23diff | | -0.004*** | | -0.004*** | | -0.003*** |
| | | (0.000) | | (0.004) | | (0.000) |
| H34diff | | -0.008*** | | -0.007*** | | -0.004*** |
| | | (0.000) | | (0.000) | | (0.000) |
| H4act | | -0.013*** | | -0.010*** | | -0.006*** |
| | | (0.000) | | (0.000) | | (0.000) |
| mills | | | | | | |
| lambda | 0.003*** | 0.003*** | 0.006*** | 0.006*** | 0.003*** | 0.003*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $N$ | 45911 | 45911 | 37387 | 37387 | 47643 | 47643 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Dividend Yield, s12, by size

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the dividend yield in the corresponding quarter. For firms paying dividends on annual or semi-annual basis the dividend yield is averaged within a year.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Small | Small | Medium | Medium | Large | Large |
| logsales | -0.002** | -0.002** | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.046) | (0.041) | (0.000) | (0.000) | (0.000) | (0.000) |
| ret | 0.001 | 0.001 | 0.000 | 0.000 | 0.002*** | 0.002*** |
| | (0.320) | (0.302) | (0.497) | (0.514) | (0.000) | (0.000) |
| beta | -0.000 | -0.000 | -0.003*** | -0.003*** | -0.002*** | -0.002*** |
| | (0.753) | (0.821) | (0.000) | (0.000) | (0.000) | (0.000) |
| EA2 | -0.008 | -0.008 | 0.014*** | 0.014*** | 0.008*** | 0.008*** |
| | (0.198) | (0.180) | (0.000) | (0.000) | (0.000) | (0.000) |
| beme | 0.001*** | 0.002*** | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.002) | (0.002) | (0.001) | (0.001) | (0.000) | (0.000) |
| Y12diff | -0.010** | | -0.002 | | 0.000 | |
| | (0.019) | | (0.102) | | (0.968) | |
| Y2act | -0.005 | | -0.012*** | | -0.014*** | |
| | (0.291) | | (0.000) | | (0.000) | |
| H12diff | | -0.003 | | -0.000 | | 0.002 |
| | | (0.435) | | (0.978) | | (0.163) |
| H23diff | | -0.009** | | -0.003* | | -0.001 |
| | | (0.017) | | (0.062) | | (0.610) |
| H34diff | | -0.009* | | -0.006*** | | -0.007*** |
| | | (0.088) | | (0.000) | | (0.000) |
| H4act | | -0.005 | | -0.012*** | | -0.014*** |
| | | (0.371) | | (0.000) | | (0.000) |
| mills lambda | -0.002 | -0.002 | 0.006*** | 0.006*** | 0.003*** | 0.003*** |
| | (0.600) | (0.548) | (0.001) | (0.001) | (0.000) | (0.000) |
| $N$ | 8616 | 8616 | 16224 | 16224 | 21071 | 21071 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Dividend Yield, s34, by size

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the dividend yield in the corresponding quarter. For firms paying dividends on annual or semi-annual basis the dividend yield is averaged within a year.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Small | Small | Medium | Medium | Large | Large |
| logsales | -0.006 | -0.005 | 0.002*** | 0.002*** | 0.000*** | 0.001*** |
| | (0.458) | (0.484) | (0.000) | (0.000) | (0.000) | (0.000) |
| ret | 0.002 | 0.002 | 0.001 | 0.001 | 0.003*** | 0.003*** |
| | (0.719) | (0.727) | (0.425) | (0.456) | (0.000) | (0.000) |
| beta | -0.000 | -0.000 | -0.003*** | -0.003*** | -0.002*** | -0.002*** |
| | (0.970) | (0.952) | (0.000) | (0.000) | (0.000) | (0.000) |
| EA2 | -0.029 | -0.028 | 0.017*** | 0.018*** | 0.009*** | 0.009*** |
| | (0.381) | (0.409) | (0.003) | (0.004) | (0.000) | (0.000) |
| beme | 0.001 | 0.001 | 0.000 | 0.000 | 0.001*** | 0.001*** |
| | (0.817) | (0.843) | (0.412) | (0.481) | (0.000) | (0.000) |
| Y12diff | 0.010 | | -0.007*** | | -0.003*** | |
| | (0.603) | | (0.000) | | (0.000) | |
| Y2act | 0.001 | | -0.008*** | | -0.012*** | |
| | (0.941) | | (0.000) | | (0.000) | |
| H12diff | | 0.004 | | -0.004*** | | 0.000 |
| | | (0.804) | | (0.002) | | (0.967) |
| H23diff | | 0.010 | | -0.007*** | | -0.003*** |
| | | (0.555) | | (0.000) | | (0.000) |
| H34diff | | 0.004 | | -0.009*** | | -0.008*** |
| | | (0.855) | | (0.000) | | (0.000) |
| H4act | | 0.001 | | -0.009*** | | -0.012*** |
| | | (0.960) | | (0.000) | | (0.000) |
| mills lambda | -0.012 | -0.011 | 0.010*** | 0.010*** | 0.006*** | 0.006*** |
| | (0.702) | (0.729) | (0.004) | (0.004) | (0.000) | (0.000) |
| $N$ | 6789 | 6789 | 13201 | 13201 | 17373 | 17373 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Dividend Yield, s12s34, by size

NOTES: Variable $Y2act$ is the average Active Ownership from year -2 (quarters -5 to -8). Variable $Y12act$ is the difference between $Y1act$ and $Y2act$. Variable $H4act$ is the average Active Ownership from half-year -4 (quarters -7 to -8). Variable $H34diff = H3act - H4act$. Variables $H12diff$ and $H23diff$ are defined similarly. The dependent variable is the dividend yield in the corresponding quarter. For firms paying dividends on annual or semi-annual basis the dividend yield is averaged within a year.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Small | Small | Medium | Medium | Large | Large |
| logsales | -0.002* | -0.002* | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.069) | (0.066) | (0.000) | (0.000) | (0.000) | (0.000) |
| ret | 0.001 | 0.001 | 0.001* | 0.001* | 0.002*** | 0.002*** |
| | (0.405) | (0.445) | (0.065) | (0.067) | (0.000) | (0.000) |
| beta | -0.001 | -0.001 | -0.002*** | -0.002*** | -0.002*** | -0.002*** |
| | (0.676) | (0.676) | (0.000) | (0.000) | (0.000) | (0.000) |
| EA2 | -0.010 | -0.010 | 0.014*** | 0.014*** | 0.008*** | 0.008*** |
| | (0.123) | (0.124) | (0.000) | (0.000) | (0.000) | (0.000) |
| beme | 0.002*** | 0.002*** | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.002) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) |
| Y12diff | -0.005*** | | -0.002*** | | -0.002*** | |
| | (0.000) | | (0.000) | | (0.000) | |
| Y2act | -0.004* | | -0.006*** | | -0.009*** | |
| | (0.051) | | (0.000) | | (0.000) | |
| H12diff | | -0.000 | | -0.001** | | -0.001 |
| | | (0.882) | | (0.045) | | (0.241) |
| H23diff | | -0.005*** | | -0.003*** | | -0.003*** |
| | | (0.001) | | (0.000) | | (0.000) |
| H34diff | | -0.006*** | | -0.004*** | | -0.005*** |
| | | (0.000) | | (0.000) | | (0.000) |
| H4act | | -0.003* | | -0.006*** | | -0.009*** |
| | | (0.083) | | (0.000) | | (0.000) |
| mills lambda | -0.002 | -0.002 | 0.005*** | 0.005*** | 0.005*** | 0.005*** |
| | (0.624) | (0.624) | (0.001) | (0.001) | (0.000) | (0.000) |
| $N$ | 8769 | 8769 | 16911 | 16911 | 21960 | 21960 |

$p$-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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We find that payout policy affects institutional holdings. On average, institutions decrease their holdings after an increase in dividends and increase their holdings after an increase in repurchases. We do not find evidence that a change in institutional holdings causes firms to change their dividend or repurchase policy. Our results do not support models which predict that dividends attract institutional clientele, and models which predict that institutions cause firms to increase payout. Suggested Citation: Suggested Citation. Grinstein, Yaniv and Michaely, Roni, Institutional Holdings and Payout