INSTITUTIONAL HOLDINGS AND DIVIDEND POLICY

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Abstract

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This dissertation consists of two assets that study the institutional holdings and dividend policy. Chapter one studies whether institutional investors' preferences for firms vary by investing style and depend on whether their dividend policy is consistent with needs for funding growth. Chapter two examines the relationship between the industry structure of dividends and the likelihood and level of dividend initiations.

Chapter one of this dissertation motivated by a result in Grinstein and Michaely (2005) that institutions prefer dividend-paying firms to non-dividend paying firms, but among dividend-paying firms prefer firms that pay lower dividends. We investigate this apparent puzzle, hypothesizing that it is not the unconditional level of dividends that matters to institutional investors, but the interaction between investment opportunities and dividend levels. We provide new insight into institutional investors' preference for payout policy by showing that this "low dividend preference puzzle" obtains because growth style institutions generally prefer firms with high investment opportunities and such firms tend to pay lower dividends. Similar results obtain when we consider total payout, which includes regular dividends, special dividends and repurchases. Chapter two find firms are more likely to initiate dividends when greater numbers of peers also pay dividends. However, firms are less likely to initiate dividends if the average

dividend level in the industry is high or has an upward trend. There is also evidence that new payers try to match their industry peers in terms of dividend initiation levels. Finally, we find that announcement returns to dividend initiating firms are lower when there are more dividend payers in the industry and when industry dividends are increasing. Overall, our evidence suggests that firms are influenced by industry peers in making the dividend initiation decision.

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Dedication

This dissertation is dedicated to my mother and father

Who provided both emotional and financial support

Chapter 1: Investment Opportunities, Dividend Policy, and Institutional Holdings

1. Introduction

We examine the relation between institutional holdings and firms' payout policy, motivated by Grinstein and Michaely (2005) who find that institutional investors are attracted to certain dividend policies. Specifically, they find that institutional investors prefer dividend-paying firms to non-dividend paying firms, however, among dividend-paying firms they have higher holdings in those that pay lower dividends. We explore this apparently puzzling result that institutional investors prefer dividend-paying firms, but are not attracted to high dividends. Since firms must consider their funding needs for investment opportunities when setting dividend policy, we argue that payout policy should be evaluated in the context of investment opportunities (e.g., Jensen (1986)).

It is important to evaluate dividend policy in the context of investment opportunities because firms must consider their needs to fund growth when setting dividend policy. For example, Brav, Graham, Harvey and Michaely (2005) find that firms meet investment and liquidity needs first, and then consider whether or not to increase the dividend. Several additional empirical studies find an inverse relationship between investment opportunities and dividend levels. Fatemi and Bildik (2012) examine worldwide payout policies and find that firms with low investment opportunities are more likely to pay dividends. Guler (2003) finds that Austrian firms with low investment opportunities tend to have larger target payout ratios, and Renneboog and Trojanowski (2011) find similar results for a sample of U.K. firms. Ferris, Jayaraman and Sabherwal (2009) find that dividend payers have less growth opportunities than non-dividend

payers. Finally, Lang and Litzenberger (1989) find positive announcement returns for dividend increases by firms with low investment opportunities.

Since dividend policy is inextricably linked with investment opportunities, we explicitly control for institutional investor style in our analysis. We expect that institutions will first choose firms based on their investment style (value or growth). Then, from the set of firms that match their style, they choose those with dividend policies that are consistent with the need to fund investment opportunities. Specifically, we hypothesize that the low-dividend preference puzzle is driven by growth style institutional investors who have relatively larger holdings in high investment opportunity firms that pay low dividends.

We conduct our analysis using a sample of all firms with institutional holdings data from 1981 to 2011, merged with Compustat to obtain dividends, total payout, and firm characteristics. We classify institutional investors by growth and value styles based on Abarbanell, Bushee, and Raedy (2003) and Bushee and Goodman (2007). We begin by sorting firms based on dividend levels and investment opportunities. Proxies for investment opportunities include market-to-book value of assets, research and development expense, and total assets growth. In regression analysis, we examine the relationship between institutional holdings and the interaction of investment opportunities and dividend payout controlling for investment styles.

We find that growth and value style institutions differ notably in their preference for combinations of investment opportunities and dividend payout. Growth style institutions have relatively higher holdings in firms with higher growth opportunities and no or low dividend payout. In contrast, value style institutional investors have higher holdings in firms with higher dividends and lower investment opportunities. Thus, by explicitly considering the interactions of dividend policy, growth opportunities, and institutional investor style, we provide new insights

into the dividend preferences of institutional investors. Specifically, we demonstrate that our understanding of the dividend preferences of institutions is incomplete without sorting firms by investment opportunities and sorting institutions by investing style. Our results resolve the low-dividend preference puzzle in Grinstein and Michaely (2005) by showing that it obtains primarily for growth style institutional investors.

We also conduct the analysis for total payout, and find qualitatively similar results. Repurchases and special dividends are other methods for firms to return cash to shareholders. They do not represent a long-term commitment to payout like dividends, and this flexibility is arguably one reason why repurchases appear to be replacing dividends (Jagannathan, Stephens, and Weisbach, 2000). Results are robust in subsamples of small and large, and low and high cash flow firms. Further, we find evidence suggesting that institutional investors consider firms' cash flow available in sorting firms by growth opportunities and payout policy.

The rest of the paper is organized as follows. We develop hypotheses and describe the sample in the next section; Section 3 presents and discusses empirical results for institutional investor holdings, investment opportunities and payout policy by investment style. Section 4 reports results of additional tests, and Section 5 contains a concluding discussion.

2. Hypotheses, Methodology, and Data

2.1 Hypothesis Development

In general, managers should set dividend policies consistent with their firms' investment opportunities. Firms with low (high) investment opportunities should have relatively high (low) dividend payout (Brav, Graham, Harvey, and Michaely, 2005; Jensen, 1986; Lang and Litzenberger, 1989; Ferris, Jayaraman and Sabherwal, 2009; Renneboog and Trojanowski, 2011;

Gugler, 2003; Fatemi and Bildik, 2012). Thus, our testable hypothesis is that institutional investors jointly consider investment opportunities and dividend payout levels in establishing their preferences for firms. Considering the different investment objectives of growth and value style institutional investors, we expect them to have different preferences for combinations of dividend levels and investment opportunities. Growth style investors will have higher holdings in firms with greater investment opportunities. Such firms are likely to have no or low dividend levels in order to maintain flexibility to fund growth. On the other hand, value style institutional investors will have higher holdings in low investment opportunity firms. Such firms are likely to have relatively higher dividends because they do not need to retain cash to fund growth.

Figure 1 illustrates the sorting of firms that we use to develop our hypotheses and methodology. We first consider the two types of firms with high growth opportunities. Type 1 (Type 3) firms have high investment opportunities, and do not pay (pay low) dividends. Both sets of firms presumably choose this dividend policy to maintain flexibility to fund growth. We hypothesize that growth style institutional investors will in general have higher holding in high growth firms, and specifically have higher holdings in Type 1 and Type 3 firms. The relatively higher holdings in growth firms with low dividends likely explain the low-dividend-preference puzzle in Grinstein and Michaely (2005). Next, we consider Type 6 firms that have high dividends and low investment opportunities, consistent with the idea that when firms do not have good investment opportunities, they should pay out their cash on hand. Our prediction is that value style institutional investors will have highest holdings in Type 6 firms.

2.2. Sample and Descriptive Statistics

The sample comprises publicly traded firms with available 13F quarterly institutional holding data and required Compustat data from 1981 to 2011 (financial companies and utilities

are excluded). Consistent with the literature, we use the last quarter ending institutional holdings as the annual institutional holdings for each firm. We measure dividends as common dividend scaled by total assets, consistent with Grinstein and Michaely (2005).

To control for institutional investor style, we form investment style subsamples by dividing institutional investors into growth style and value style groups. Identification of value and growth styles is based on Bushee and Goodman (2006), who classify value style institutional investors as those in the top tercile of the VALUE factor and growth style institutional investors as those in the bottom tercile of the VALUE factor. The VALUE factor is developed in Abarbanell, Bushee, and Raeday (2003), who compute four factors from 15 variables that represent the investment preferences of institutions. We hypothesize that these different investment styles of institutional investors lead to different preferences for firms with distinct combinations growth opportunities and dividend payout. We also form subsample periods for 1981-1990, 1991-2001, and 2002-2011 to check for changes over time in institutional investor preferences for dividend policy.

We first document institutional holdings in dividend-paying firms and non-dividend-paying firms. Table 1 contains mean and median institutional holdings by size quintiles for the full sample and separately for growth and value investment styles. For the full sample, institutional holdings are higher in dividend paying firms than non-dividend paying firms for small cap firms (size quintiles 1 and 2), and there is a distinct switch at the fourth quintile where we observe higher holdings in larger non-dividend-paying firms (size quintiles 4 and 5). When we examine the sample by different investment styles, we see that this switch is driven by growth style institutions. Value style institutional investors have higher holdings in firms that pay dividends for all size quintiles. In contrast, growth style institutional investors have higher

holdings in dividend paying firms in the smallest size quintile; for firms in all other size quintiles, their holdings are higher in non-dividend paying firms than dividend paying firms.

In sum, evidence in Table 1 shows that growth style institutional holdings are higher in small dividend-paying firms and in large non-dividend-paying firms, and value style institutional investors have higher holdings in dividend paying firms for all size quintiles. For all firms in our sample, on average, dividend paying firms have higher institutional holdings than non-dividend paying firms, for both growth style institutional holdings and value style institutional holdings. This result is generally consistent with Grinstein and Michaely (2005), who find that institutional investors prefer dividend paying firms to non-dividend paying firms. However, we provide further insight into the patterns of these holdings by documenting differences by investment style.

In Table 2, we provide sub-sample period results for holdings of growth and value style institutional investors in dividend-paying firms and non-dividend-paying firms. The intent of the sub-sample analysis is to investigate any time trends in the relationship between holdings and dividend policy. In the early time period (1981-1990), growth style institutions have higher holdings in dividend paying firms than non-dividend paying firms for firms in the smallest size quintile, and have higher holdings in non-dividend paying firms than dividend paying firms for the remaining size quintiles. In the more recent time period (1991-2001 and 2002-2011), growth style institutional investors have higher holdings in non-dividend paying firms of all sizes compared to dividend paying firms. In contrast, value style institutional investors have higher holdings in dividend paying firms of all sizes in all time periods. These distinct patterns in holdings by growth and value style institutional investors enhance our understanding of institutional investor preferences for dividend policy and set the stage for our analysis of their preferences in the context of firms' investment opportunities.

Table 3 reports institutional holdings for dividend-paying firms only to investigate relative preferences for dividend levels by size quintiles. We divide the sample into groups by dividend terciles and size quintiles, and report mean and median institutional holdings for each group. For the full sample, we find a switch in preference for low versus high dividends. Institutional investors have higher holdings in small firms (size quintiles 1 and 2) with high dividends and in large firms (size quintile 4 and 5) with low dividends. This pattern holds for both growth and value style institutional investors and suggests that the low-dividend-preference documented in Grinstein and Michaely (2005) is driven by the pattern of holdings in large firms.

The summary statistics in Tables 1 through 3 show that, on average, both growth and value style institutional holdings are higher in dividend paying firms relative to non-dividend paying firms. However, for different size quintiles, institutional investors with different investment styles show different preferences for dividend paying firms and non-dividend paying firms. In addition, they also show different preference for dividend levels for firms in different size quintiles. Next, will condition dividend policy on investment opportunities and also control for other firm characteristics to further examine these mixed results.

2.3 Investment Opportunity Variables

Our testable hypothesis is that institutional investors consider their investing style, together with the interaction of dividend levels and investment opportunities in choosing firms. In developing proxy variables for investment opportunities, we follow the literature (Fama and French, 2001; Ferris, Jayaraman and Sabherwal, 2009) and use the ratio of market value to book value of assets, research and development expenditures scaled by total assets, and one-year growth in total assets. We examine each of these three variables separately and also combine them into an index. The index is computed by dividing the sample into deciles based on the three

variables, ranking them from 0 to 9, then adding the ranks for each firm to obtain its index value. The lowest value for this index is 0 and the highest is 27.

Figure 1 illustrates the sorting process that creates six subsamples with distinct combinations of dividend levels and investment opportunities. We divide non-dividend paying firms into terciles based on investment opportunities, delete the middle tercile, and define the high tercile group as Type 1 and the low tercile group as Type 2. We then divide dividend paying firms into dividend terciles and investment opportunity terciles, and delete all observations with median dividend levels or investment opportunities. The remaining groups have the combinations of dividend levels and investment opportunities illustrated in Figure 2.

<Insert Figure 1 about here>

We measure institutional holdings by each of these combinations of dividends and investment opportunities.

3. Empirical Results

Table 4 shows institutional holdings for groups of firms based on two-way sorts of dividend levels and investment opportunities. Panel A contains results for the full sample, however, we focus our discussion on results for subsamples of growth and value institutional investors presented in Panels B and C. To conserve space, we do not report test statistics for differences in sub-groups in the table, but we do discuss in the text which differences are statistically significant. We also focus our discussion on results for the investment opportunity index and report results for its components (market-to-book, R&D, asset growth) for information.

We first examine the non-dividend-paying firms in Columns (1) and (2) of Panels B and C. For growth style institutional investors, Type 1 firms (high investment opportunities and no

dividend) have significantly higher institutional holdings than Type 2 firms (low investment opportunities and no dividend). In contrast, value style institutional investors have significantly higher holdings in Type 2 compared to Type 1 firms. This evidence is consistent with institutions choosing firms with characteristics that match their investment style.

We note that the results in Columns (1) and (2) obtain for non-dividend-paying firms, which comprise the majority (69.23%) of the firms in our sample. However, as Table 1 indicates, median institutional holdings in dividend-paying firms are more than double that of non-dividend-paying firms (38.32% versus 17.68%). This indicates an overall institutional investor preference for dividend-paying firms already documented in the literature (Grinstein and Michaely, 2005). The remaining columns (3) through (6) examine relative institutional holdings in dividend-paying firms sorted by high/low investment opportunities and high/low dividends. The results show that growth style institutional investors have significantly higher holdings in Type 3 firms (high investment opportunities and low dividends) than all other dividend-paying types. In addition, these Type 3 firms have the highest institutional holdings compared to all other types for both dividend- and non-dividend-paying. This is consistent with our expectation, since Type 3 firms have a combination of low dividends with high investment opportunities, which we expect to be the most preferred choice for growth style institutional investors.

Panel C shows that value style institutional investors have highest holdings in Type 5 (high investment opportunities and high dividend) and Type 6 (low investment opportunities and high dividend) firms compared to all other firms. This suggests that value style institutional investors are attracted to firms with relatively higher dividends. It is somewhat puzzling that they appear indifferent between high-dividend-paying firms with high and low investment

opportunities, and we explore this further in regression analysis in Table 5, which controls for firm characteristics.

We next perform conditional analysis of the relationship between institutional holdings and dividend policy types by estimating OLS regression models. The dependent variable in the regression is institutional holdings scaled by total number of shares outstanding. The independent variables of interest are the six types of dividend policy as in previous analysis: Type 1 is high investment opportunities and no dividends, Type 2 is low investment opportunities and no dividends, Type 3 is high investment opportunities and low dividends, Type 4 is low investment opportunities and low dividends, Type 5 is high investment opportunities and high dividends, and Type 6 is low investment opportunities and high dividends. Note that firms with median dividend and growth opportunities are excluded from these dummy variable definitions.

The control variables are log sales (log(sales)), retained earnings scaled by total assets (RE/RA), EBITDA scaled by total assets (ROA), beta, market adjusted annual return, all measured in the year before institutional holdings are observed. These variables are included to control for their effect on dividend policy for the following reasons. We use log (sales) to control for size. Retained earnings scaled by total assets is considered to be a proxy for firms' life-cycle, which can influence dividend policy (DeAngelo, DeAngelo, and Stulz, 2006). ROA and cash scaled by total assets control for firm performance and cash available on hand, which are important factors for firms in determining dividend policy (Fama and French, 2001). Beta and adjusted annual return are included for consistency with Grinstein and Michaely (2005). Annual betas are obtained using the market model, daily stock return and NYSE value weighted average return. The market adjusted annual return is calculated by year-end stock return minus year-end NYSE value weighted average return.

Table 5 contains OLS regression coefficients for the full sample and time period sub-samples. Columns (1) through (4) contain results for growth style institutional investors. For the early time period (1981-1990) the coefficient on the Type 3 (high investment opportunities and low dividends) dummy is significantly positive and higher than the coefficients on all other types. This result provides a compelling explanation for the institutional investor preference for low dividends documented in Grinstein and Michaely (2005). Growth style institutional investors prefer firms with high growth opportunities, but they also want these firms to have a dividend policy that maintains flexibility to fund growth. However, in more recent time periods (1991-2001 and 2002-2011), the coefficient on the Type 1 dummy (high investment opportunities and no dividends) is significantly positive and higher than coefficients on all other types. This suggests a trend over time whereby growth style institutional investors prefer high-growth firms to not pay dividends.

Results for value style institutional investors in columns (5) though (8) of Table 5 show that the coefficient on the Type 6 dummy (Low investment opportunities and high dividends) is significantly positive and higher than all other types. Further, we see that all the other types have negative coefficients for most time periods. This is, in general, consistent with results in Table 4 that value style institutional investors prefer firms with low investment opportunities and high dividends.

There is a well-documented trend of disappearing dividends, where repurchases are replacing dividends (Fama and French, 2001; Fenn and Liang, 2001; Grullon and Michaely, 2002; Laurie Simon and Shoven, 1989). As an alternative payout method, repurchases provide firms with more flexibility in returning cash to shareholders. In order to provide a complete picture of institutional investors' preference for firms' payout policy, we compute annual payout

as the sum of repurchases and total dividends, scaled by total assets. We re-run the OLS regression models in Table 5 with the investment opportunity / payout dummy variables defined as in previous analysis: Type 1 is high investment opportunities and no payout, Type 2 is low investment opportunities and no payout, Type 3 is high investment opportunities and low payout, Type 4 is low investment opportunities and low payout, Type 5 is high investment opportunities and high payout, and Type 6 is low investment opportunities and high payout.

Table 6 reports the OLS coefficients of regressions by investment style and time periods. We find a similar pattern for total payout as we find for dividends. For growth style institutional investors in the early time period (1981-1990) the coefficient on the Type 3 dummy (high investment opportunities and low dividends) is significantly positive and higher than coefficients on all other types. For the more recent time period (1991-2001 and 2002-2011), the coefficient on the Type 1 dummy (high investment opportunities and no dividends) is significantly positive and higher than coefficients on all other type. For value style institutional investors, the coefficient on the Type 6 dummy (Low investment opportunities and high dividends) is significantly positive and higher than all other types. All the other types have negative coefficient for most time periods.

In summary, we find that institutional investors have clear preferences for firms' dividend policy conditioned on their investment opportunities. Our results are consistent with institutional investors first choosing firms based on their investment style. Then, within the set of firms that match their style, they prefer firms with dividend policies that align with the investment opportunity set. Thus, we highlight the importance of considering both style and investment opportunities in any study of the relationship between institutional holdings and firms' dividend policies.

4. Additional Tests

4.1 Firm Size

Earlier univariate analysis shows apparent differences in preferences of growth style institutional investors based on firm size. Specifically, Tables 1 and 2 show that growth style investors have higher holdings in small firms that pay dividends and in large firms that do not pay dividends. To further examine this pattern in analysis that conditions on investment opportunities and firm characteristics, we perform additional OLS regressions for subsamples of small and large firms. We define "small" as firms in the smallest size tercile, and "large" as firms in the largest size tercile.

Table 7 contains regression coefficients for both growth and value style institutional investors, however, we focus our discussion on growth style investors, which is the subsample of interest. Columns (1) and (2) contain coefficients for dividends and Columns (3) and (4) contain coefficients for total payout. The results for both dividends and total payout show that, for both small and large firms, the coefficients on Type 1 firms (high investment opportunities and no dividends) are significantly positive and larger than coefficients on all other types. This analysis extends the univariate results in Tables 1 and 2, and shows that, when we include control variables to condition on firm characteristics, growth style institutions prefer both small and large high-growth firms that do not pay dividends. In addition, for the subsample of large firms (Column (2)), institutional holdings are significantly and positively correlated with Type 3 (high investment opportunities and low dividends) and Type 5 (high investment opportunities and high dividends). Holder, Langrehr and Hexter (1998) find that payout ratios are higher for larger firms. They argue that larger firms can access to the capital market easier than smaller firms, therefore

they can pay higher dividends. The results are qualitatively similar for total payout as reported in Columns (3) and (4) of Table 7.

4.2 Funding Payouts

In developing dividend policy, we expect that firms would not only condition on investment opportunities, but also consider their cash flow available to fund payouts to investors. For example, Benartzi, Michaely and Thaler (1997) document that firms change dividend levels conditioned on changes in past earnings. Dividend increasing firms have a significant earnings increase in the previous year, and dividend decreasing firms have an earnings decrease in the previous year. In light of this, we examine the relationship between institutional holdings and payout policy for subsamples of firms with high and low cash flow. We compute an average of the previous three years EBITDA as a proxy for cash flow. "Low cash flow" firms are in the lowest tercile of average EBITDA and "high cash flow" firms are in the highest tercile of average EBITDA.

Table 8 contains OLS regression coefficients for cash flow subsamples. Columns (1) and (2) report coefficients for growth style institutional investors. For low cash flow firms, the only positive and significant coefficient is on the Type 1 dummy (high investment opportunities, no payout). For high cash flow firms, the Type 1 dummy has the highest coefficient, followed by significant and positive coefficient on Type 3 (high investment opportunity, low payout) and Type 5 (high investment opportunity, high payout), respectively. These results suggest that institutional investors do consider firms' available cash flow to pay dividends. They show a preference for high growth firms with low cash flow to pay no dividends. For high growth firms with high cash flow, although the preference for no dividend appears to dominate, the positive coefficients on low and high dividend suggest that payout is appropriate when cash is available.

Columns (3) and (4) report growth style institutional investors' preference for firms' total payout policy. For both low cash flow and high cash flow firms, Type 1, Type 3 and Type 5 dummies all have significantly positive coefficients and Type 1 dummy has the highest coefficient. Total payout contains special dividends and repurchases, which do not represent a long-term commitment compared to regular dividends. Therefore, total payouts are not as restricted to available cash flow as dividends. For example, a stock repurchase could be funded with a stock of cash available rather than current cash flow. Thus, although the coefficients for high cash flow firms are in general larger than for low cash flow firms, the pattern is the same.

Columns (5) and (6) contain coefficients for value style institutional investors' preference for firms' dividend policy. For low cash flow firms, the Type 4 dummy (low investment opportunities and low dividends), Type 5 dummy (high investment opportunities and high dividends), and Type 6 dummy (low investment opportunities and high dividends) all have significantly positive coefficients, and Type 6 has the highest coefficient. However, when firms have high cash flow, only the Type 6 dummy has a significantly positive coefficient. This suggests that value style institutional investors also consider firms' available cash flow to pay dividends. High cash flow firms are expected to pay high dividend, while low cash flow firms have flexibility to pay low dividends. For total payouts in Columns (7) and (8), value style institutional investors do not differentiate between firms with low or high cash flow. Only the Type 6 dummy (low investment opportunities and high total payouts) has significantly positive coefficients. This is also consistent with total payout being more flexible than dividends, therefore, it is not as restricted to available cash flow as dividends.

4.3 Dividends Scaled by Cash Flow

Throughout this study, we follow Grinstein and Michaely (2005) and scale dividends by total assets. A cash flow scalar is arguably more appropriate given our underlying hypothesis that dividend policy must accommodate the need to fund investment opportunities. Following Guay and Harford (2000), we define cash flow from operations as operating income before depreciation minus interest minus taxes minus change in working capital. We then re-run the analysis using the cash flow scalar for dividends and total payouts, and report results in Table 9. Columns (1) and (2) contain results for growth style institutional investors. Coefficients on the Type 1 dummy (high institutional ownership and no dividends/total payouts) are significantly positive and higher than the coefficients on all other types. For value style institutional investors (Columns (3) and (4)), Type 6 dummy (low institutional ownership and high dividends/total payouts) has significantly positive coefficient and higher than coefficients on all other types. These results are consistent with earlier analysis for dividends and total payouts scaled by assets.

4.4 Sequential Sorting

In the main tests, we define payout policy types by individual sorting. Using this approach each group will have different numbers of observations. For individual sorting, we rank investment opportunity variables by terciles, and also rank dividends/repurchases by tercile separately, then use the rank of investment opportunity variables and rank of dividends/total payouts to define payout policy types. For example, if a firm has investment opportunities in highest tercile group, and has dividends in highest tercile group, then we define this firm as a Type 5 firm.

We check whether our results are robust to using sequential sorting to define payout policy types. For sequential sorting, we rank investment opportunity variables by tercile first, and

then within each tercile group, we rank dividends by tercile. Therefore, the sequential sorting approach has approximately equal numbers of observations for each type. Results (not reported in tables) are consistent with earlier analysis for dividends and total payouts scaled by assets.

5. Conclusion

This paper examines the relationship between institutional holdings and firms' dividend policy conditioned on investment opportunities. Our paper provides new insights into institutional investor preference for dividend policy by showing how the interaction between firms' investment opportunities and dividend policy influence institutional holdings. In particular, our results highlight the importance of investigating institutional investors' preference for payout policy conditioned on both investment opportunities and institutional investor style. We find distinct differences in preference for dividend policy between growth and value style institutional investors. We first document that growth style institutional investors have higher holdings in firms with high investment opportunities and value style institutional holdings are higher in firms with low investment opportunities. This is an obvious first-order effect. A less obvious second-order effect is that, within the set of firms that match their style, institutions prefer firms with dividend policies aligned to their investment opportunities. Growth style institutional investors have higher holdings in growth firms with low dividends or no dividend, and value style institutional investors have higher holdings in value firms with high dividends.

Institutional investors have similar preference for total payouts as they have for dividends. Growth style institutional investors prefer firms with high investment opportunities and no or low payouts, and value style institutional investors prefer firms with low investment opportunities and high payouts. These payout policy preferences are not significantly different

between small and large firms, and are robust to scaling dividends by cash flow from operations instead of total assets. Finally, we find that institutional investors consider firms' available cash flow when choosing firms based on the interaction of their investment opportunities and dividend policy.

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Table 1: Institutional Holdings in Dividend-Paying and Non-Dividend-Paying Firms by Market Cap Quintile

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. Percentage institutional holdings are year-end institutional holdings divided by total shares outstanding. All firm characteristics variables are obtained from Compustat. Market cap is year-end stock price times year-end common shares outstanding. Growth and value style institutional investor classification follows Bushee and Goodman (2007).

Market Cap Quintile		Full Sample					Growth Style Institutional Investors					Value Style Institutional Investors				
		Non-pay	N	Pay	N	P-value for difference	Non-pay	N	pay	N	P-value for difference	Non-pay	N	pay	N	P-value for difference
1	Mean	6.62	22323	9.36	2250	0.0000	11.54	17699	12.60	1898	0.0091	12.69	18252	19.55	2128	0.0000
	(Median)	(2.73)		(6.23)		(0.0000)	(3.86)		(6.65)		(0.0000)	(4.40)		(11.33)		(0.0000)
2	Mean	15.18	19502	16.68	5072	0.0000	19.40	15378	16.80	4177	0.0000	18.95	15867	23.77	4514	0.0000
	(Median)	(10.85)		(13.22)		(0.0000)	(11.56)		(10.23)		(0.0006)	(10.45)		(16.68)		(0.0000)
3	Mean	27.64	17401	27.49	7172	0.5824	28.79	13501	22.76	6016	0.0000	24.79	14282	31.71	6099	0.0000
	(Median)	(24.32)		(24.98)		(0.0088)	(21.61)		(15.64)		(0.0000)	(16.01)		(25.28)		(0.0000)
4	Mean	46.39	15319	41.68	9255	0.0000	39.33	11546	28.77	7920	0.0000	32.36	12878	39.34	7503	0.0000
	(Median)	(45.82)		(40.56)		(0.0000)	(35.64)		(22.06)		(0.0000)	(25.22)		(35.23)		(0.0000)
5	Mean	63.57	10519	58.58	14054	0.0000	48.05	7431	36.19	11949	0.0000	40.07	9358	49.75	11023	0.0000
	(Median)	(69.11)		(60.36)		(0.0000)	(47.41)		(31.34)		(0.0000)	(36.23)		(48.76)		(0.0000)
Total	Mean	27.09	85064	39.99	37803	0.0000	25.97	65555	27.88	32702	0.0000	23.75	70637	37.93	31267	0.0000
	(Median)	(17.68)		(38.32)		(0.0000)	(16.74)		(21.16)		(0.0000)	(14.35)		(33.68)		(0.0000)

Table 2: Sub-Period Analysis of Institutional Holdings by Market Cap Quintiles for Dividend-Paying and Non-Dividend-Paying Firms

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. Percentage institutional holdings are year-end institutional holdings divided by total shares outstanding. All firm characteristics variables are obtained from Compustat. Market cap is year-end stock price times year-end common shares outstanding. Growth and value style institutional investor classification follow Bushee and Goodman (2007).

Panel A: Growth Style Institutional Investors

Market Cap Quintile		(1) 1981-1990					(1) 1991-2001					(2) 2002-2011				
		Non-pay	N	Pay	N	P-value for difference	Non-pay	N	Pay	N	P-value for difference	Non-pay	N	Pay	N	P-value for difference
1	Mean	10.46	4818	12.32	669	0.0013	11.69	7912	9.95	535	0.0260	13.02	5351	12.83	366	0.8615
	(Median)	(4.92)		(7.37)		(0.0000)	(3.55)		(3.08)		(0.7677)	(2.73)		(3.97)		(0.0097)
2	Mean	16.37	3828	16.41	1659	0.9341	19.62	7084	12.82	1363	0.0000	24.54	4984	19.98	733	0.0000
	(Median)	(11.21)		(11.74)		(0.0861)	(11.47)		(5.29)		(0.0000)	(14.99)		(9.39)		(0.0000)
3	Mean	23.44	2979	22.30	2509	0.0472	28.30	6327	18.16	2121	0.0000	35.93	4643	25.53	1074	0.0000
	(Median)	(17.47)		(16.47)		(0.1745)	(21.18)		(10.88)		(0.0000)	(31.03)		(16.94)		(0.0000)
4	Mean	32.79	1950	28.61	3537	0.0000	37.90	5370	24.42	3077	0.0000	46.24	3869	31.88	1848	0.0000
	(Median)	(27.66)		(22.07)		(0.0000)	(33.72)		(17.29)		(0.0000)	(45.50)		(26.05)		(0.0000)
5	Mean	43.26	727	36.51	4760	0.0000	45.32	3357	31.95	5090	0.0000	51.12	2356	41.85	3361	0.0000
	(Median)	(41.32)		(31.92)		(0.0000)	(43.22)		(26.04)		(0.0000)	(51.42)		(39.08)		(0.0000)
Total	Mean	19.46	14302	27.90	13134	0.0000	25.50	30050	24.54	12186	0.0004	31.04	21203	33.37	7382	0.0000
	(Median)	(11.94)		(21.33)		(0.0000)	(16.30)		(17.93)		(0.0000)	(22.95)		(28.52)		(0.0000)

Table 2 - Continued

Panel B: Value Style Institutional Investors

Market Cap Quintile		(1) 1981-1990					(1) 1991-2001					(2) 2002-2011				
		Non-pay	N	Pay	N	P-value for difference	Non-pay	N	Pay	N	P-value for difference	Non-pay	N	Pay	N	P-value for difference
1	Mean	11.30	5247	16.68	650	0.0000	12.98	8366	21.83	891	0.0000	15.41	4866	25.13	360	0.0000
	(Median)	(3.37)		(9.51)		(0.0000)	(4.55)		(15.43)		(0.0000)	(7.12)		(17.97)		(0.0000)
2	Mean	14.84	4248	18.69	1649	0.0000	19.02	7519	27.02	1738	0.0000	26.71	4604	38.43	623	0.0000
	(Median)	(6.79)		(10.40)		(0.0000)	(10.74)		(21.54)		(0.0000)	(17.82)		(34.84)		(0.0000)
3	Mean	18.17	3347	22.78	2551	0.0000	22.37	6980	35.17	2278	0.0000	37.66	4481	50.37	745	0.0000
	(Median)	(10.62)		(15.46)		(0.0000)	(13.57)		(29.79)		(0.0000)	(32.70)		(48.27)		(0.0000)
4	Mean	22.92	2288	30.87	3609	0.0000	26.18	6366	40.83	2891	0.0000	48.40	4053	55.72	1174	0.0000
	(Median)	(16.41)		(25.42)		(0.0000)	(18.08)		(37.86)		(0.0000)	(47.80)		(57.67)		(0.0000)
5	Mean	29.00	1000	42.14	4897	0.0000	28.91	4577	46.66	4680	0.0000	53.34	2695	59.05	2531	0.0000
	(Median)	(22.09)		(39.53)		(0.0000)	(22.56)		(44.10)		(0.0000)	(53.89)		(60.27)		(0.0000)
Total	Mean	16.40	16130	31.26	13356	0.0000	20.90	33808	38.70	12478	0.0000	34.14	20699	52.53	5433	0.0000
	(Median)	(8.14)		(25.35)		(0.0000)	(12.45)		(34.76)		(0.0000)	(27.53)		(53.10)		(0.0000)

Table 3: Institutional Holdings by Market Cap Quintiles and Dividend Level Terciles

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. Dividends are scaled by total assets. Percentage institutional holdings are year-end institutional holdings divided by total shares outstanding. All firm characteristics variables are obtained from Compustat. Market cap is year-end stock price times year-end common shares outstanding. Growth and value style institutional investor classification follow Bushee and Goodman (2007).

		All				Growth Style Institutional Investors				Value Style Institutional Investors			
Market Cap Quintile		Low Dividend	Medium Dividend	High Dividend	P-value for difference between Low and High	Low Dividend	Medium Dividend	High Dividend	P-value for difference between Low and High	Low Dividend	Medium Dividend	High Dividend	P-value for difference between Low and High
1	Mean	13.64	15.81	14.90	0.0009	15.09	16.69	15.69	0.2890	21.79	22.80	22.11	0.6627
	(Median)	(10.25)	(12.19)	(11.36)	(0.0069)	(7.75)	(10.43)	(8.90)	(0.1228)	(13.76)	(16.09)	(13.67)	(0.6025)
2	Mean	26.32	30.82	28.26	0.0002	21.73	25.19	22.85	0.0997	30.67	32.90	30.17	0.5417
	(Median)	(22.97)	(29.32)	(25.68)	(0.0000)	(13.86)	(19.03)	(15.99)	(0.0036)	(23.97)	(28.31)	(23.26)	(0.8292)
3	Mean	39.40	44.60	39.83	0.4810	27.19	30.51	28.46	0.0850	35.38	42.67	37.24	0.0240
	(Median)	(37.32)	(44.41)	(38.25)	(0.1305)	(19.18)	(24.39)	(22.69)	(0.0002)	(30.30)	(39.47)	(32.69)	(0.0144)
4	Mean	56.76	54.80	50.05	0.0000	35.02	34.24	32.62	0.0024	47.29	48.89	43.15	0.0000
	(Median)	(59.92)	(55.79)	(49.60)	(0.0000)	(29.35)	(28.93)	(26.65)	(0.0424)	(45.55)	(48.04)	(40.16)	(0.0000)
5	Mean	67.84	63.77	57.92	0.0000	41.12	38.04	36.30	0.0000	52.18	53.50	49.66	0.0030
	(Median)	(72.44)	(66.06)	(59.33)	(0.0000)	(37.98)	(34.48)	(30.75)	(0.0000)	(51.23)	(53.29)	(48.41)	(0.0025)
Total	Mean	36.14	42.60	41.17	0.0000	26.08	29.07	28.49	0.0000	34.71	40.45	38.62	0.0000
	(Median)	(30.19)	(42.78)	(40.98)	(0.0000)	(18.24)	(22.99)	(22.08)	(0.0000)	(28.80)	(37.14)	(35.00)	(0.0000)

Table 4: Institutional Holdings by Dividend Levels and Investment Opportunities

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. Percentage institutional holdings are year-end institutional holdings divided by total shares outstanding. Dividends are scaled by total assets. All firm characteristics variables are obtained from Compustat. Market cap is year-end stock price times year-end common shares outstanding. Market to book value is market cap plus total assets minus common equity divided by total assets. R&D/TA is research and development scaled by total assets. The index is computed by dividing the sample into deciles based on the three investment opportunities variables, ranking them from 0 to 9, then adding the ranks for each firm. Growth and value style institutional investor classification follows Bushee and Goodman (2007).

Panel A: Full sample

Investment Opportunities		(1) High-IO Non-Div		(2) Low-IO Non-Div		(3) High-IO Low-Div		(4) Low-IO Low-Div		(5) High-IO High-Div		(6) Low-IO High-Div	
		Holding	N	Holding	N	Holding	N	Holding	N	Holding	N	Holding	N
MV/BV	Mean	31.14	28301	22.39	23863	50.68	1229	30.18	6683	48.85	4574	29.85	1841
	(Median)	(22.35)		(14.12)		(52.34)		(23.66)		(51.10)		(27.31)	
R&D/TA	Mean	30.17	30289	27.03	36087	45.30	1119	35.63	8528	47.76	2739	40.10	5494
	(Median)	(21.49)		(17.13)		(43.90)		(29.77)		(51.74)		(38.46)	
Growth Total Asset	Mean	32.66	26790	21.86	28728	39.68	3908	40.60	2336	42.19	2464	41.80	2705
	(Median)	(25.12)		(12.30)		(35.80)		(36.84)		(42.32)		(41.38)	
Index	Mean	32.93	30513	22.35	24203	50.27	1805	32.40	5880	48.04	4168	34.70	2500
	(Median)	(25.38)		(13.20)		(51.26)		(25.67)		(50.76)		(32.42)	

Table 4 Continued

Panel B: Growth Style Institutional Investors

Investment Opportunities		(1) High-IO Non-Div		(2) Low-IO Non-Div		(3) High-IO Low-Div		(4) Low-IO Low-Div		(5) High-IO High-Div		(6) Low-IO High-Div	
		Holding	N	Holding	N	Holding	N	Holding	N	Holding	N	Holding	N
MV/BV	Mean	32.92	21422	19.97	17951	44.37	1113	19.98	5529	36.51	4135	20.30	1552
	(Median)	(25.43)		(11.62)		(42.25)		(13.14)		(31.73)		(15.23)	
R&D/TA	Mean	29.92	23387	25.77	26069	34.81	1024	25.62	7022	33.96	2259	27.72	4670
	(Median)	(21.60)		(16.63)		(29.17)		(17.90)		(29.97)		(20.66)	
Growth Total Asset	Mean	33.56	20426	21.61	21668	32.72	3387	24.29	2163	35.13	2034	25.04	2374
	(Median)	(26.30)		(12.30)		(26.01)		(17.99)		(29.28)		(19.15)	
Index	Mean	33.67	23319	20.01	17727	41.26	1663	20.55	4892	36.84	3562	20.98	2124
	(Median)	(26.69)		(11.43)		(38.32)		(13.76)		(32.47)		(15.23)	

Panel C: Value Style Institutional Investors

Investment Opportunities		(1) High-IO Non-Div		(2) Low-IO Non-Div		(3) High-IO Low-Div		(4) Low-IO Low-Div		(5) High-IO High-Div		(6) Low-IO High-Div	
		Holding	N	Holding	N	Holding	N	Holding	N	Holding	N	Holding	N
MV/BV	Mean	23.15	22988	26.80	19263	35.12	1038	34.72	5462	39.04	3732	38.76	1530
	(Median)	(14.52)		(18.57)		(29.31)		(29.31)		(35.16)		(34.41)	
R&D/TA	Mean	24.91	25021	26.99	28396	39.73	856	35.73	6976	44.94	2051	38.80	4461
	(Median)	(16.59)		(18.39)		(36.02)		(30.46)		(43.26)		(34.79)	
Growth Total Asset	Mean	25.81	21847	23.61	23479	36.09	3200	40.36	1782	36.95	1915	43.17	2221
	(Median)	(17.72)		(14.06)		(30.37)		(35.87)		(31.70)		(41.73)	
Index	Mean	24.40	21553	26.24	19443	37.97	1121	35.48	4798	40.51	2529	41.31	2087
	(Median)	(16.19)		(17.34)		(32.92)		(30.34)		(36.79)		(38.50)	

Table 5: OLS Regression Coefficients for Institutional Holdings, Dividend Levels and Investment Opportunities

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. The dependent variable in the regression is institutional holdings scaled by total number of shares outstanding. All firms' characteristics variables are obtained from Compustat. ROA is EBITDA divided by total assets. RE/TA is retained earnings scaled by total assets. Annual betas are computed using market model, daily stock return and NYSE value weighted average return. The market adjusted annual return is calculated by year-end stock return minus year-end NYSE value weighted average return. Growth and value style institutional investor classification follow Bushee and Goodman (2007). All independent variables are measured in year before institutional holdings. P-values are in parentheses. (IO: investment opportunities; Div: dividends/total assets)

Dependent Variable	Holdings by Growth Style Institutional Investors				Holdings by Value Style Institutional Investors			
	All	1981-1990	1991-2001	2002-2011	All	1981-1990	1991-2001	2002-2011
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type 1 (High IO, No Div)	10.7882***	5.9662***	11.3672***	11.2710***	-1.6173***	-1.1930***	-5.4530***	0.3628
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0201)	(0.0000)	(0.4023)
Type 2 (Low IO, No Div)	-3.1515***	-3.9319***	-3.5016***	-3.7462***	-4.3457***	-6.3747***	-4.7973***	-5.6136***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Type 3 (High IO, Low Div)	8.0726***	12.2535***	7.4222***	6.0785***	-2.2486***	-1.8633***	-2.5833**	-0.2133
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0033)	(0.1542)	(0.0147)	(0.8955)
Type 4 (Low IO, Low Div)	-8.0376***	-5.4807***	-8.6546***	-7.9458***	-1.9985***	-3.8011***	1.0568*	-0.5738
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0511)	(0.5746)
Type 5 (High IO, High Div)	4.0217***	7.4218***	3.0059***	1.5858	-2.9972***	0.3801	-3.8408***	-3.9653***
	(0.0000)	(0.0000)	(0.0001)	(0.1248)	(0.0000)	(0.6689)	(0.0000)	(0.0005)
Type 6 (Low IO, High Div)	-8.1943***	-5.5586***	-9.2738***	-11.2032***	3.9462***	3.6333***	7.0273***	3.7227***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0046)
Log(sale)	3.2298***	2.3857***	2.8750***	3.3942***	5.6731***	5.1440***	4.9975***	5.8151***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
RE/TA	-0.1320***	0.6576***	0.0010	0.0975*	0.2025***	1.8006***	0.9707***	0.3881***
	(0.0018)	(0.0056)	(0.6416)	(0.0711)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA	2.5209***	13.9166***	2.8750***	-0.0472	-0.8832**	-2.6863**	-0.2625	-0.8228*
	(0.0000)	(0.0000)	(0.0000)	(0.9464)	(0.0149)	(0.0228)	(0.6934)	(0.0799)
Beta	0.0035**	-0.0032	0.0010	0.0052**	0.0082**	0.0008	0.0079	0.0099*
	(0.0334)	(0.7215)	(0.6993)	(0.0229)	(0.0311)	(0.9079)	(0.2206)	(0.0974)
Adjusted Return	0.1616***	0.4295***	0.2410***	0.1545***	0.1183***	-0.0363	0.0017	0.2047***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.4848)	(0.9538)	(0.0000)
Intercept	10.3895***	13.2591***	9.3176***	14.0457***	7.1883***	5.5485***	8.3968***	15.1517***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Number of observations	70891	16442	30671	23778	73384	17739	34259	21386
Adjusted R^2	0.1022	0.1020	0.1003	0.1086	0.2126	0.2159	0.2092	0.2559

Table 6: OLS Regression Coefficients for Institutional Holdings, Total Payout Levels and Investment Opportunities

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. The dependent variable in the regression is institutional holdings scaled by total number of shares outstanding. All firms' characteristics variables are obtained from Compustat. ROA is EBITDA divided by total assets. RE/TA is retained earnings scaled by total assets. Annual betas are computed using market model, daily stock return and NYSE value weighted average return. The market adjusted annual return is calculated by year-end stock return minus year-end NYSE value weighted average return. Growth and value style institutional investor classification follow Bushee and Goodman (2007). Total payout include regular dividend and repurchase. All independent variables are measure in year before institutional holdings. P-values are in parentheses. (IO: investment opportunities; Payout: total payout/total assets)

Dependent Variable	Holdings by Growth Style Institutional Investors				Holdings by Value Style Institutional Investors			
	All	1980-1990	1991-2001	2002-2011	All	1980-1990	1991-2001	2002-2011
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type 1 (High IO, No Payout)	11.1136***	6.4092***	11.7726***	11.9041***	-1.7795***	-0.4827	-5.6215***	0.4970
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.3906)	(0.0000)	(0.3021)
Type 2 (Low IO, No Payout)	-3.1569***	-3.7746***	-3.5322***	-3.5946***	-4.9750***	-5.7555***	-5.4595***	-6.7132***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Type 3 (High IO, Low Payout)	9.3510***	8.8958***	8.5978***	10.3694***	-2.8061***	-0.7337	-5.7457***	-1.2786
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.4476)	(0.0000)	(0.1551)
Type 4 (Low IO, Low Payout)	-6.4564***	-5.6945***	-7.3170***	-5.9333***	-3.2803***	-5.0246***	-1.8441***	-3.9368***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Type 5 (High IO, High Payout)	6.9003***	6.6083***	6.8656***	5.8251***	0.1080	0.5566	-1.9359***	-0.4025
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.7843)	(0.5054)	(0.0004)	(0.5607)
Type 6 (Low IO, High Payout)	-5.1794***	-4.0977***	-5.4575***	-6.6501***	3.2789***	1.9084***	5.5838***	1.5883*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0052)	(0.0000)	(0.0673)
Log(sale)	3.1122***	2.3734***	2.7260***	3.2983***	5.6545***	5.2638***	5.0342***	5.8011***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
RE/TA	-0.1605***	0.6613***	-0.0273	0.0703	0.2217***	1.9224***	1.0628***	0.3917***
	(0.0002)	(0.0053)	(0.8122)	(0.1940)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA	2.5536***	14.4581***	2.8327***	0.0522	-1.0447***	-2.6534**	-0.6864	-0.8605*
	(0.0000)	(0.0000)	(0.0000)	(0.9409)	(0.0039)	(0.0243)	(0.3020)	(0.06671)
Beta	0.0037**	-0.0030	0.0010	0.0055**	0.0080**	-0.0001	0.0074	0.0101*
	(0.0249)	(0.7387)	(0.7157)	(0.0178)	(0.0348)	(0.9901)	(0.2518)	(0.0909)
Adjusted Return	0.1596***	0.4254***	0.2478***	0.1507***	0.1177***	-0.0367	0.0021	0.2042***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.4810)	(0.9437)	(0.0000)
Intercept	11.0601***	13.1761***	10.2005***	14.5959***	7.0233	4.4914***	7.9273***	15.0903***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Number of observations	70891	16442	30671	23778	73384	17739	34259	21386
Adjusted R^2	0.0988	0.0987	0.0950	0.1041	0.2133	0.2131	0.2097	0.2556

Table 7: OLS Regression Coefficients for Institutional Holdings, Dividend Levels and Investment Opportunities for Small and Large Firms

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. The dependent variable in the regression is institutional holdings scaled by total number of shares outstanding. All firms' characteristics variables are obtained from Compustat. ROA is EBITDA divided by total assets. RE/TA is retained earnings scaled by total assets. Annual betas are computed using market model, daily stock return and NYSE value weighted average return. The market adjusted annual return is calculated by year-end stock return minus year-end NYSE value weighted average return. Growth and value style institutional investor classification follow Bushee and Goodman (2007). "Small" is lowest two market cap quintiles, "large" is highest two market cap quintiles. All independent variables are measure in year before institutional holdings. P-values are in parentheses. (IO: investment opportunities; Div: dividends/total assets; Payout: Total payout/total assets).

Dependent Variable	Holdings by Growth Style Institutional Investors				Holdings by Value Style Institutional Investors			
	Dividends		Total Payout		Dividends		Total payout	
	Small	Large	Small	Large	Small	Large	Small	Large
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type 1 (High IO, No Div/Payout)	1.6647***	14.0704***	2.2785***	14.16***	-3.1676***	-6.0565***	-2.5287***	-7.1934***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Type 2 (Low IO, No Div/Payout)	-2.0869***	4.3593***	-1.8795***	5.2186***	-2.0190***	0.2446	-1.9842***	-2.0151**
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.7181)	(0.0000)	(0.0327)
Type 3 (High IO, Low Div/Payout)	2.0820	7.5315***	0.8654	10.4341***	3.7327*	-6.2896***	-2.7700***	-7.7511***
	(0.2822)	(0.0000)	(0.2727)	(0.0000)	(0.0880)	(0.0000)	(0.0033)	(0.0000)
Type 4 (Low IO, Low Div/Payout)	-3.3464***	-6.6157***	-2.8613***	-3.7121***	0.3825	0.0471	-0.6231	-1.3871*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.5486)	(0.9521)	(0.1636)	(0.0622)
Type 5 (High IO, High Div/Payout)	2.1081	3.6850***	0.4766	6.6340***	4.5147**	-6.1638***	-0.8412	-3.2429***
	(0.1869)	(0.0000)	(0.5689)	(0.0000)	(0.0233)	(0.0000)	(0.3825)	(0.0000)
Type 6 (Low IO, High Div/Payout)	-2.6927	-10.6577***	-0.7359	-6.2861***	5.3856***	4.9201***	1.8466***	7.2588***
	(0.0088)	(0.0000)	(0.2401)	(0.0000)	(0.0000)	(0.0000)	(0.0022)	(0.0000)
Log(sale)	1.5972***	-0.5024***	1.5784***	-0.7331***	3.1572***	3.1563***	3.1842***	3.0802***
	(0.0000)	(0.4975)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
RE/TA	-0.0686	-0.4943***	-0.0723*	-0.6602***	0.2006***	0.5317***	0.2129***	0.5243***
	(0.1018)	(0.0037)	(0.0846)	(0.0000)	(0.0000)	(0.0006)	(0.0000)	(0.0007)
ROA	0.4302	8.0432***	0.4548	8.1019***	0.0019	-2.7836**	0.0263	-4.4206***
	(0.3175)	(0.0000)	(0.2903)	(0.0000)	(0.9961)	(0.0342)	(0.9449)	(0.0008)
Beta	0.0050***	0.0175	0.0051***	0.0189	0.0026	0.0436***	0.0023	0.0421***
	(0.0035)	(0.2450)	(0.2903)	(0.2123)	(0.5715)	(0.0006)	(0.6252)	(0.0009)
Adjusted Return	0.0499***	0.4713***	0.0051***	0.4718***	0.0978***	-0.0948*	0.0998***	-0.0935*
	(0.0000)	(0.0000)	(0.0029)	(0.0000)	(0.0000)	(0.0617)	(0.0000)	(0.0651)
Dummy for 1980-1990	3.4006***	-1.3879***	3.3574***	-2.4903***	-0.6205**	-7.0321***	-0.4966*	-7.1461***
	(0.0000)	(0.0021)	(0.0000)	(0.0000)	(0.0337)	(0.0000)	(0.0893)	(0.0000)
Intercept	10.3315***	39.3188***	10.2250***	41.4343***	9.7965***	29.8819	9.3554***	30.4872***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Number of observations	22542	24387	22542	24387	23391	25221	23391	25221
Adjusted R^2	0.0240	0.0718	0.0237	0.0607	0.0736	0.0741	0.0710	0.0770

Table 8: OLS Regression Coefficients for Institutional Holdings, Dividend Levels and Investment Opportunities for High and Low Cash Flow Firms

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. The dependent variable in the regression is institutional holdings scaled by total number of shares outstanding. All firms' characteristics variables are obtained from Compustat. ROA is EBITDA divided by total assets. RE/TA is retained earnings scaled by total assets. Annual betas are computed using market model, daily stock return and NYSE value weighted average return. The market adjusted annual return is calculated by year-end stock return minus year-end NYSE value weighted average return. Growth and value style institutional investor classification follow Bushee and Goodman (2007). "Low cash flow" is lowest tercile of past three year average EBITDA. "High cash flow" is highest tercile of past three year average EBITDA. Total payout include regular dividend and repurchase. All independent variables are measure in year before institutional holdings. P-values are in parentheses. (IO: investment opportunities; Payout: total payout/total assets)

Dependent Variable	Holdings by Growth Style Institutional Investors				Holdings by Value Style Institutional Investors			
	Dividends		Total Payout		Dividends		Total Payout	
	Low CF	High CF	Low CF	High CF	Low CF	High CF	Low CF	High CF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type 1 (High IO, No Div/Payout)	6.0747***	16.4369***	7.0759***	17.7407***	-1.0257***	-4.9896***	-0.0047	-6.6290***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0027)	(0.0000)	(0.9894)	(0.0000)
Type 2 (Low IO, No Div/Payout)	-4.6639***	1.2227**	-4.7924***	2.4691***	-3.5152***	-2.8112***	-3.7663***	-3.4692***
	(0.0000)	(0.0264)	(0.0000)	(0.0011)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Type 3 (High IO, Low Div/Payout)	0.0376	9.6387***	3.8710***	12.5299***	-0.7946	-4.5584***	-1.7866**	-6.4974***
	(0.9863)	(0.0000)	(0.0000)	(0.0000)	(0.7001)	(0.0000)	(0.0139)	(0.0000)
Type 4 (Low IO, Low Div/Payout)	-6.6546***	-7.8404***	-5.8270***	-6.0490***	3.1007***	-2.8282***	-1.2656**	-4.5193***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0016)	(0.0000)	(0.0339)	(0.0000)
Type 5 (High IO, High Div/Payout)	1.5284	4.2053***	2.2996***	7.5710***	5.0237**	-5.2264***	-0.7928	-2.2525***
	(0.4627)	(0.0000)	(0.0052)	(0.0000)	(0.0409)	(0.0000)	(0.3114)	(0.0000)
Type 6 (Low IO, High Div/Payout)	-4.4695***	-9.4467***	-3.6773***	-5.7038***	6.0835***	3.7949***	1.9887***	5.3397***
	(0.0014)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0066)	(0.0000)
Log(sale)	2.5459***	0.2201*	2.5255***	0.0293	3.7710***	3.3249***	3.8166***	3.1773***
	(0.0000)	(0.0786)	(0.0000)	(0.8156)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
RE/TA	0.1222***	-0.4520*	0.1123***	-0.7342***	0.1573***	1.4541***	0.1623***	1.3576***
	(0.0046)	(0.0926)	(0.0093)	(0.0064)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA	-1.8822***	15.7592***	-1.9681***	16.3257***	-0.2039	-11.2795***	-0.1864	-13.8970***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.5605)	(0.0000)	(0.5951)	(0.0000)
Beta	0.0009	0.0076	0.0010	0.0103	0.0015	0.0282**	0.0012	0.0276**
	(0.7156)	(0.5966)	(0.6892)	(0.4745)	(0.7430)	(0.0263)	(0.8014)	(0.0291)
Adjusted Return	0.0966***	0.4384***	0.0944***	0.4377***	0.1045***	0.0638	0.1047***	0.0691
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.2000)	(0.0000)	(0.1644)
Dummy for 1980-1990	-2.9410***	-1.6084***	-3.0918***	-2.5798***	-3.4136***	-8.4519***	-3.2432***	-8.5196***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Intercept	12.6936***	31.6391****	12.7282***	33.2529***	11.1609***	29.8199***	10.5878***	31.1370***
	(0.0000)	(0.00000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Number of observations	22264	24287	22264	24287	23121	25075	23121	25075
Adjusted R^2	0.0606	0.0744	(0.0615)	(0.0652)	0.1071	0.0617	0.1054	0.0652

Table 9: OLS Regression Coefficients for Institutional Holdings and Payout scaled by Cash flows

The sample comprises publicly traded U.S. firms with available 13F quarterly institutional holdings data from 1981 to 2011, except for financial companies and utilities. The dependent variable in the regression is institutional holdings scaled by total number of shares outstanding. All firms' characteristics variables are obtained from Compustat. ROA is EBITDA divided by total assets. RE/TA is retained earnings scaled by total assets. Annual betas are computed using market model, daily stock return and NYSE value weighted average return. The market adjusted annual return is calculated by year-end stock return minus year-end NYSE value weighted average return. Growth and value style institutional investor classification follow Bushee and Goodman (2007). All independent variables are measure in year before institutional holdings. P-values are in parentheses. (IO: investment opportunities; Div: dividends/Cash flow from operations, Payout: Total payout/ Cash flow from operations)

Dependent Variable	Holdings by Growth Style Institutional Investors		Holdings by Value Style Institutional Investors	
	Dividends	Total Payout	Dividends	Total Payout
	(1)	(2)	(3)	(4)
Type 1 (High IO, No Div/Payout)	10.0222***	9.3815***	0.4707	-0.7677*
	(0.0000)	(0.0000)	(0.1761)	(0.0573)
Type 2 (Low IO, No Div/Payout)	0.1289	-0.4099	-3.6905***	-4.8549***
	(0.7185)	(0.3502)	(0.0000)	(0.0000)
Type 3 (High IO, Low Div/Payout)	6.9308***	7.8587***	-0.6300	-0.7737
	(0.0000)	(0.0000)	(0.3025)	(0.1348)
Type 4 (Low IO, Low Div/Payout)	-3.2659***	-1.8868***	0.3927	-2.0189***
	(0.0000)	(0.0000)	(0.5037)	(0.0000)
Type 5 (High IO, High Div/Payout)	2.7559***	5.4042***	-0.9605*	1.1938**
	(0.0000)	(0.0000)	(0.0903)	(0.0104)
Type 6 (Low IO, High Div/Payout)	-4.8376***	-3.2650***	2.4100***	2.4499***
	(0.0000)	(0.0000)	(0.0003)	(0.0000)
Log(sale)	3.3462***	3.1954***	5.9384***	5.8919***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
RE/TA	-0.4549***	-0.5249***	0.7529***	0.7384***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA	13.5550***	13.3686***	-4.2942***	-4.5759***
	(0.0000)	(0.0000)	(0.0007)	(0.0003)
Beta	0.0045**	0.0047**	0.0154**	0.0159**
	(0.0423)	(0.0330)	(0.0384)	(0.0324)
Adjusted Return	0.1480***	0.1469***	0.1038***	0.1042***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Intercept	5.9884***	7.2431***	7.0474***	7.3839***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Number of observations	40238	40238	39736	39736
Adjusted R^2	0.0896	0.0836	0.1790	0.1797

Figure 1:

		Investment Opportunities		
		Low	Median	High
Dividend Level	None	Type 2		Type 1
	Low	Type 4		Type 3
	Median			
	High	Type 6		Type 5

Chapter 2: Peer Learning Effects on the Dividend Initiation Decision

1. Introduction

We investigate the relationship between the likelihood and level of dividend initiation and the industry structure of dividends. Our underlying premise is that firms learn from their industry peers in making the dividend initiation decision. The idea that firms observe and learn from peers in making financial decisions is well-documented. Leary and Roberts (2014) show that U.S. firms make capital structure decisions in response to the observed financing policies of their peers. They find that the peer effect is a more significant factor in determining firms' capital structures than most factors already identified in the literature. Francis, Hasan and Kostova (2014) find that these peer effects on capital structure decisions are robust in an international sample of firms in 48 countries. Foucault and Fresard (2013) find that firms' capital investment levels are positively related to the market valuations of peers. They argue that this is consistent with firms learning from their peers' stock prices. Chan, Chang and Chen (2013) find that firms tend to match their industry rivals in determining their levels of cash holdings. Popadak (2013) finds that dividend-paying firms change their dividends in response to changes in dividends by their peers.

The existing dividend literature focuses primarily on how firms' dividend decisions influence their industry peers. For example, Kohers (1999) finds that dividend initiation announcements can lead to negative announcement returns for other firms in the same industry as the announcing firm. Firth (1996) finds that industry peers experience positive (negative) abnormal returns when a firm in the industry announces dividend increases (decreases). Laux, Starks and Yoon (1998) also find that firms' dividend changes can affect their industry rivals' stock price. In this paper, we make a distinct contribution to the dividend literature by

examining the *learning motive* in dividend initiations. Our approach is similar to studies cited above that document how firms learn from their peers in making financial decisions, and thus complements and extends the literature on industry peer effects and dividend decisions. We investigate whether the industry structure of dividends influences the likelihood and level of dividend initiations. Dividend initiation provides an ideal event setting for examining how firms learn from their peers. Survey evidence in Brav, Graham, Harvey and Michaely (2005) indicate that 84.1% of dividend-payers state that it is "important or very important" to maintain historic dividend policy. We are thus able to observe more information about peer learning effects in dividend policy when non-payers make the decision to initiate a dividend. This is because non-payers do not have a commitment to an existing dividend policy and also because they are inexperienced in paying dividends are more likely to learn from their peers.

We define industry structure of dividends using three variables: percentage of dividend paying firms, one year change in industry dividends, and industry median dividend. We first perform logistic regressions to examine the impact of industry dividend structure on the probability of dividend initiation. We find that firms with greater numbers of dividend paying industry peers are more likely to initiate a dividend. We interpret this as evidence of learning as firms attempt to catch up with their industry rivals with respect to dividend policy. We also find a negative relationship between industry median dividend level and industry dividend changes on the likelihood of dividend initiation. This suggests that firms learn from observing peer dividend patterns and decide whether or not they will commit to industry dividend trends. Our results indicate that relatively low levels and slow growth of dividends in the industry will increase firms' incentives to initiate a dividend. We also perform OLS regression analysis to examine the relationship between the industry structure of dividends and the level at which firms pay the first

dividend. The results suggest that new payers try to match their peers in dividend initiation level in that the industry median dividend level has a significant positive coefficient. Overall, our results highlight the importance of industry peer dividend policies in a firm's dividend initiation decision.

The rest of the paper is organized as follows. In the next section, we develop hypotheses, Section 3 explains the sample formation and presents descriptive statistics, Section 4 presents and discusses results for the likelihood and level of dividend initiation, Section 5 reports industry effects on abnormal returns to dividend initiators, and Section 6 concludes.

2. Literature and Hypotheses

Several studies document that firm specific events can affect industry peers. For example, management disclosures of earnings forecasts affect stock prices of non-disclosing competitors in the same direction of the disclosing firm (Baginski, 1987); going-private bids have significant positive effects on firms in the same industry as the target firm (Slovin, Sushka and Bendeck,1991); security offering announcements are associated with significant negative abnormal returns for non-announcing peers (Szewczyk,1992); bankruptcy announcements significantly affect equity values of rivals (Lang and Stulz, 1992); corporate capital investment announcements have significantly negative effects on peers' stock prices (Chen, Ho and Shih, 2007); completed IPOs have significantly negative effects on stock prices of firms in the same industry and withdrawn IPOs have significantly positive effects (Hsu, Reed and Rocholl, 2010); announcement of financial misrepresentation have spillover effects to stock returns of peers of the accused firm (Goldman, Peyer and Stefanescu, 2012).

There is some evidence that rivals are affected by a firm's dividend policy. Kohers (1999) finds that dividend initiation announcements can induce a negative response from other firms in the same industry as the announcing firm. The author argues that dividend initiation announcements convey positive information of the announcing firm, which makes that firm more competitive in its industry, and thus signals reduced valuations for its competitors. Firth (1996) finds that abnormal returns to competitors of initiating firms are consistent with information transfers in the same direction from dividend-increasing or dividend-decreasing firms to their peers. Laux, Starks and Yoon (1998) find that firms' large dividend changes affect their industry rivals' stock price, although the impact on rivals depends on how close a competitor they are to the firm announcing the dividend change.

In general, the literature on industry peer effects of dividend policy focuses on the impact a firm's dividend policy can have on its rivals. An emerging literature examines the impact that industry peers can have on a firm's own dividend policy. Hoberg, Phillips, and Prabhala (2014) find that firms facing competitive threats in their product markets are more likely to build cash reserves rather than return cash to shareholders via dividends or repurchases. Zhou, Booth and Chang (2013) find that firms facing greater product market competition from imports are less likely to pay dividends, and Grullon and Michaely (2012) find that firms in concentrated industries are more likely to pay dividends. Finally, Popadak (2013) finds that firms change their dividend levels in response to changes by industry peers.

Our paper is motivated by this emerging literature and also by the Brav, Graham, Harvey and Michaely (2005) survey of 384 financial executives on factors that affect their payout decision. Most of the survey results to the question "How important are the following factors to your company's dividend decisions?" are well-documented in the empirical literature. For

example, most respondents identify maintaining the current dividend, stability of earnings, clientele effects, and funding growth as the most important factors they consider in setting dividend policy. A notable finding from their survey is that 38.3% of firms consider the dividend policies of their industry rivals to be important or very important to their dividend decisions. Our paper explores this factor, which has received limited attention in the literature to date.

The goal of our paper is to examine how the industry structure of dividends influences the likelihood and level of dividend initiation. Dividend initiation provides a unique opportunity to observe the impact of industry peers on payout policy because the existing dividend payers are constrained to their policy. We argue that the impact of industry peers on dividend initiation cannot be captured by a single product market variable such an industry concentration measure. Rather, it is important to consider the effect of the industry environment of dividends on a firm's initiation decision.

We draw our theoretical framework of a *learning motive* from Leary and Roberts (2014). These authors examine how a firm's peers influence its capital structure decisions, and argue that firms that are unsure of how to set their capital structures can observe and learn from their peers. Similar evidence that firms learn from their peers in setting financial and investment policies is found in Francis, Hasan and Kostova (2014), Foucault and Fresard (2013) and Chan, Chang and Chen (2013). This framework is relevant to our study because non-payers, who are obviously inexperienced in paying dividends, will likely look to their dividend-paying peers in deciding whether and how to initiate a dividend.

We construct three variables to describe the industry structure of dividends and develop hypotheses for how these variables inform a firm's dividend initiation decision. *Industry paying intensity* is our test variable for the likelihood of dividend initiation. It is calculated as number of

dividend-paying firms divided by total number of firms in the same industry year. This measure is similar to Popadak (2013) who uses fraction of firms in industry that change their dividend level to measure peer influence on firms' dividend change. Industry is defined by 4-digit SIC code when there are more than 10 firms in the industry year; if there are fewer than 10 firms, we define industry by 3-digit SIC code; if still fewer than 10 firms in that 3-digit SIC industry year, we define industry by 2-digit SIC code. We adopt this approach to avoid values that are artificially large because of a small number of firms in the 4-digit or 3-digit industry. High paying intensity implies that in this industry, paying a dividend is the norm, which would increase the likelihood that non-dividend paying firms will initiate dividends. Thus, our testable hypothesis is that firms in industries with relatively greater dividend paying intensity are more likely to initiate dividends.

Industry dividend change is the first of two test variables for the level of dividend initiation. It is measured as the one-year percentage change in total dividend level in the industry. Dividend level is measured as dividend scaled by total assets. The industry dividend change measures movement of the dividend level in that industry, and a high industry dividend change implies an upward trend in industry dividend levels. Non-payers learn from such an environment that there is an expectation to increase dividends once they initiate. Thus, we expect that those firms that choose to initiate will do so at a lower level to preserve flexibility for future increases.

Industry Median Dividend is the second test variable for the level of dividend initiation and is measured as the median dividend level for that industry year. This approach is similar to Frank and Goyal (2009) who find that industry median leverage has a significant positive effect on firms' leverage, suggesting that firms learn from industry benchmarks. We argue that when non-dividend paying firms choose to initiate a dividend, existing dividend levels in the same

industry can be a reference in determining the initial level. We expect that in industries with a high benchmark (high median dividend level) firms that choose to initiate dividends will do so at a higher level in order to match their peers.

3. Sample and Descriptive Statistics

Following Boehme and Sorescu (2002), we define dividend initiation as the first cash common stock dividend in the history of the firm. We include only common stocks with at least two years of history in the CRSP and COMPUSTAT databases, and exclude financial companies and utilities. Our sample comprises 1074 firms initiating dividends in 305 industries from 1987 to 2012. Figure 1 presents a time series plot of median dividend initiation level and median industry adjusted dividend initiation level in each sample year from 1987-2012. Following Grinstein and Michaely (2005), we measure dividends as common dividend scaled by total assets. Industry median adjusted dividends are calculated as dividends of each firm minus industry median dividend. Figure 1 shows that for each year during our sample period, firms initiate dividends at a level below industry average. Dividend payment represents a long-term commitment, and a decrease could be a strong negative signal to the market (Aharony and Swary, 1980; Christie, 1994; Dhillon and Johnson, 1994; Nissim and ziv, 2001). It is not surprising that on average, firms start dividends at relatively lower levels, presumably because this provides less pressure to maintain and more potential to increase dividends.

Figure 2 plots number of dividend initiation firms and percentage of dividend-paying firms in each year (number of dividend-paying firms divided by total number of firms in the sample for that year). The Figure shows a clear pattern of decrease in percentage of dividend-paying firms before 2002, consistent with previous literature on disappearing dividends (Fama

and French, 2001; Fenn and Liang, 2001; Grullon and Michaely, 2002; Laurie Simon and Shoven, 1989). However, after 2002, the percentage of dividend-paying firm dramatically increases. This might due to the decrease in the dividend tax in 2003. Before Congress passed the Jobs and Growth Tax Relief Reconciliation Act of 2003 (JGTRRA) on May 28th 2003, dividends were taxed at a higher rate than capital gains. Under this law, qualified dividends are now taxed at the same rate as capital gains. Existing studies find that this dividend tax cut significantly influenced firms' payout policy (Brown, Liang, and Weisbenner, 2007; Chetty and Saez, 2006). We include year dummies in later regression analysis to control for time effects.

Table 1 reports mean and median firm characteristics for dividend initiation firms. For comparison, we also include all non-dividend-paying firms and dividend-paying in the same industry year as the sample firm in Columns (2) and (3), respectively. Market capitalization is year-end stock price times year-end common shares outstanding. Total assets are directly obtained from COMPUSTAT annual financial statements. ROA is earnings before interests and taxes (EBIT) divided by total assets. Market-to-book value is market cap plus total assets minus common equity divided by total assets. Leverage is total long-term debt divided by total assets. Institutional ownership is total number of shares held by institutional investors at year-end divided by total number of shares outstanding. Change in institutional ownership is next period institutional ownership (t+1) minus last period institutional ownership (t-1). All variables are measured one year before the initiation.

We compare firm characteristics of dividend initiation firms with those of dividend-paying and non-dividend-paying firms. As expected, dividend initiation firms are significantly larger than non-dividend paying firms, but significantly smaller than dividend-paying firms, both in term of market capitalization and total assets. They also higher ROA relative to non-dividend-

paying firms, which implies that firms initiate dividends when they become more profitable. However, current available cash does not appear to be an important factor for the dividend initiation decision, since initiating firms have significantly lower cash relative to non-dividend-paying firms and significantly higher cash relative to dividend-paying firms. Table 1 also shows that, on average, dividend initiation firms have significantly lower mean market-to-book relative to non-dividend-paying firms and significantly higher mean market-to-book relative to dividend-paying firms. The above results are generally consistent with the literature. For example, Fama and French (2001) find that dividend paying firms are tend to be larger, more profitable and lower growth. In terms of institutional ownership, we find dividend initiators have higher institutional ownership than dividend-paying firms, but lower institutional ownership than non-dividend paying firms. However, institutional investors seems have higher demand for those dividend initiation firms, since changes in institutional ownership from t-1 to t+1 is significantly higher in dividend initiation firms than dividend-paying or non-dividend-paying firms.

4. Industry Dividend Structure and the Likelihood and Level of Dividend Initiations

Table 2 contains logistic regression coefficients for the likelihood of being a dividend initiation firm. The dependent variable equals 1 for a dividend initiation firm and equals 0 for a non-dividend-paying firm in the same four-digit SIC industry. Industry paying intensity (number of dividend-paying firms divided by total number of firms in the same industry year) is our test variable for the likelihood of initiation, however, we also include industry dividend change (yearly percentage change in total dividend level in the industry) and industry median dividend in the model. All of these industry structure variables are updated every year.

We include several variables to control for their effect on the dividend initiation decision. Industry median adjusted market-to-book value of assets controls for firms' investment opportunities relative to their peers, since we expect that firms will condition the dividend-paying decision on their need to fund growth. Cash and ROA control for availability of funds to pay dividends, and we control for size and capital structure with log market capitalization and book leverage respectively. We also calculate the Herfindahl index to control for the degree of competition within the industry. The Herfindahl index is the sum of squared market shares of all firms in the industry, which is as follows:

$$HI = \sum_{i=1}^{N} \left(\frac{Sales_i}{\sum_{i=1}^{N} Sales_i} \right)^2 \qquad (1)$$

We include firm-level and industry-median institutional ownership to control for the impact of institutional investors on the dividend initiation decision, and year dummies control for time effects. All variables are measured in year before the dividend initiation announcement.

We introduce the industry structure variables one at a time in columns (1) through (3) of Table 2 and include all four variables in column (4). We focus our discussion on Column (4), which shows that all three industry dividend structure variables are statistically significant. This indicates that the industry dividend environment does affect firms' dividend initiation decisions. The positive coefficient on the industry paying intensity variable indicates that firms with greater numbers of dividend-paying industry peers are more likely to initiate dividends. This result is consistent with our expectation, and suggests that firms observe and learn from their industry environment in making the decision to pay dividends.

The negative coefficient on industry dividend change indicates that firms in industries with increasing dividend levels over time are less likely to initiate dividends. As discussed earlier,

an upward tendency of dividend level in an industry can put implicit pressure on new payers and reduces their incentive to initiate dividends. This is because they will likely have to match their peers and increase dividends over time. Similarly, we also find a negative coefficient on industry median dividend, which implies that a high industry benchmark of dividend levels reduces non-dividend-paying firms' incentive to initiate dividends. They may perceive pressure to match their peers in dividend level, and thus, higher industry dividend levels are likely to dissuade firms from initiating.

There is a significantly negative coefficient on Herfindahl index, which implies that firms are less likely to initiate dividends in more competitive industries. This result is consistent with Booth and Zhou (2009) who argue that competitive environments reduce firms' incentive to pay dividends due to perceived instability of future earnings in a highly competitive environment. The more risk they have the less likely they will have stable earnings which is a core factor in determining firms' dividend policy (Brav et al., 2005). We find that the coefficient on industry median adjusted market-to-book ratio is also significantly negative, which is a proxy for investment opportunities. This is consistent with previous literature that firms consider their funding needs for investment opportunities before making dividend policy (Brav, Graham, Harvey and Michaely, 2005; John and Lang, 1991; Lang and Litzenberger, 1989). In addition, firms with higher ROA, lower leverage, and higher cash are more likely to initiate dividends. These results are generally consistent with findings documented in Bulan, Subramanian, and Tanlu (2007) that dividend initiation firms tend to be larger, more profitable, have more cash, and have lower growth. Since both lower leverage and high ROA firms have more potential to fund dividends, the results here are also consistent with previous literature that firms consider funding when making dividend initiation decisions (Brav et al, 2005; Deshmukh, 2003). Finally,

we note that the negative coefficient on Herfindahl index indicates that firms in competitive industries are more likely to initiate dividends.

We further examine the effect of industry dividend structure on the dividend initiation decision by dividing initiating firms into terciles based on dividend paying intensity and Herfindahl index. We then re-estimate the logistic regression models for the likelihood of initiating dividends for firms in high and low terciles. These two variables are important because they describe the overall environment of the industry. Paying intensity indicates whether or not paying a dividend is common practice in the industry. The Herfindahl index measures the degree of competition among peers in the industry, which can affect firms' earning stability and further affect firms' dividend policy. This analysis is intended to provide insight into whether the effects documented in Table 2 are clustered in subsamples formed by these two variables.

Table 3 contains logistic regression coefficients for these subsamples of firms. The first two columns contain results for high and low paying intensity terciles. Results are generally similar to Table 2 for the full sample, with the exception that for firms in industries with high paying intensity (Column (2)), industry dividend change is not significantly related to the likelihood of initiation. Thus, the effect of increasing dividends obtains only in industries with relatively fewer dividend paying firms.

Results for high and low Herfindahl index terciles are reported in Columns (3) and (4) of Table 3. We first note that there are distinct differences in the effect of industry paying intensity by high and low Hefindahl firms. The positive coefficient reported in Table 2 obtains only for firms in relatively more concentrated industries (Column (4)). In contrast, the coefficient is negative and significant in Column (3) for low Herfindahl firms. It appears that, for these firms, more peers paying dividends reduces their incentive to initiate dividends. It is possible that non-

payers might want to differentiate themselves from their peers in relatively more competitive industries. Furthermore, more competitive environment means more uncertainty in further earnings which is a key factor in determining firm dividend policy. For example, Guay and Harford (2000) argue that firms choose to distribute cash through dividends if they have a permanent cash flow shock.

We next investigate the impact of industry dividend structure on the level at which firms initiate dividends. Table 4 reports OLS regression coefficients for the sample of dividend initiating firms. The dependent variable is dividends scaled by total assets, and independent variables are the same as Table 2. Results indicate that industry median dividend is significantly positively related to the dividend initiation level. This is consistent with our hypothesis that new dividend payers try to match their peers' dividend level when choosing their own initiation level, and suggests a learning effect. The remaining industry dividend structure variables do not have a discernable effect on the dividend initiation level.

We follow the approach from Table 3 and re-estimate the coefficients for subsamples of firms in high and low paying intensity and Herfindahl index terciles and report the results in Table 5. The positive coefficient on industry median dividend only obtains for the low paying intensity subsample (Columns (1)). This result indicates that firms tend to match their peers in terms of dividend level only when they are in industries with relatively fewer firms paying dividends. The potential explanation is that when there are fewer dividend paying firms in the industry, there could be less variation in dividend policy, and it is only in such industries that the median dividend level is an important benchmark for new payers to determine their dividend initiation level.

Columns (3) and (4) of Table 5 contain results for Herfindahl index subsamples. The coefficient on paying intensity is negative and significant for firms in more competitive industries (Column (3)), indicating that greater numbers of dividend paying firms in such industries exert downward pressure on the dividend initiation level. Booth and Zhou (2009) argue that the level of competition affects the stability of firms' future performance and thus affects firms' dividend policy. Therefore, in a more competitive environment, firms tend to have more uncertainty in future earnings and thus they might initiate at a lower level. We also see that the positive coefficient on industry median dividend documented in Table 4 only obtains for the high Herfindahl subsample, indicating that firms in these industries tend to match their peers in terms of dividend initiation level. This is consistent with results in MacKay and Phillips (2005), who find that in concentrated industries firms tend to match their peers in financial leverage.

5. Industry Dividend Structure and Abnormal Returns to Dividend Initiators

We perform an additional test to further evaluate the effect of the industry environment on dividend initiations by calculating abnormal returns around the dividend initiation announcement date. Following Firth (1996), we use the standard market model to calculate expected returns:

$$E(R)_{it} = \alpha_i + \beta_i R_{mt} \qquad (2)$$

$E(R)_{it}$ is expected daily return for firm i in time t. R_{mt} is daily return on the CRSP equal-weighted market index in time t. We use the past fifty days to calculate α and β, from t-60 and to t-10, where t=0 is the dividend announcement date. We calculate abnormal return around the dividend initiation announcement for dividend initiators, non-payers, and payers. We measure

these abnormal announcement returns (CARs) over the periods t-1 to t+4 and t-1 to t+9, where t is the announcement date.

Table 6 reports mean and median CARs for dividend initiators compared to their dividend-paying and non-paying peers. Column (1) shows positive mean and median CARs for sample firms in all announcement windows, which is consistent with the literature (e.g., Asquith and Mullins, 1983). Results in the rest of table show that dividend initiation announcements significantly affect dividend paying firms in the same industry, but do not have discernible effects on non-dividend-paying peers. Column (2) shows that non-dividend-paying industry peers do not experience a significant announcement return effect. In contrast, Column (3) shows that industry peers that are already dividend payers experience significantly positive abnormal returns around the dividend initiation announcement, although their CARs are lower than those of sample firms. In general, these results indicate positive spillover effects of the dividend initiation announcement for dividend payers, suggesting that when firms initiate dividends, their dividend paying industry peers also get similar attention from the market.

Table 7 reports OLS regression coefficients for dividend initiation firms for the two announcement windows (t-1, t+4 and t-1, t+9). The dependent variable is the dividend initiation CARs and the independent variables are the same as in Table 2. Results in both columns show a negative relationship between announcement returns and both industry dividend change and industry paying intensity. However, the latter result obtains only for the longer window CAR (t-1 to t+9). This suggests that initiating a dividend is viewed more favorably by the market in industries with relatively fewer dividend payers or a slower growth in dividend levels. Our interpretation of this result is that investors condition their response to firms decisions on the policies of their peers.

6. Conclusion

This paper examines the impact of the industry structure of dividends on the dividend initiation decision. We define industry structure using three variables that describe the dividend paying intensity, dividend change trend, and average dividend level. We develop and test hypotheses for the impact of these industry variables on the likelihood of dividend initiation, the level at which the dividend is initiated, and the abnormal stock return around initiation announcements.

We first examine the likelihood of dividend initiation and find that industry structure of dividends has a significant effect on a firm's decision to initiate a dividend. Firms in industries with high paying intensity (relatively more dividend payers) are more likely to initiate dividends, suggesting that firms observe and follow their peers in making the decision to initiate a dividend. In addition, firms in industries with higher dividend levels or higher recent change in dividend level are less likely to initiate dividends. This suggests that non-payers are reluctant to initiate dividends in an environment that might demand higher and increasing dividends.

We also perform OLS regression analysis of the impact of industry dividend structure on the initiation level. We find a positive coefficient on industry median dividend level, which is consistent with an attempt by new payers to match their peers in choosing the level at which to initiate the dividend. This is evidence of firms learning from their peers in setting their initial dividend level. Finally, we examine cumulative abnormal announcement returns (CARs) around dividend initiations for initiating firms, and their dividend-paying and non-dividend-paying peers. Consistent with the literature, we find that CARS for dividend initiators are on average positive. We also find that dividend-paying firms in the initiating firm's industry receive similar revisions

in stock prices, but to a lesser magnitude. OLS analysis reveals that CARs for initiating firms are lower in industries with greater numbers of dividend payers, higher recent increases in dividends, and lower industry dividend levels.

The results in this paper enhance our understanding of how firms make the dividend initiation decision. We demonstrate that the industry structure of dividends has significant impacts on both the likelihood and level of dividend initiation. We also find that stock price revisions around dividend initiations are significantly related to industry dividend structure variables. Overall, our evidence indicates that both firms and investors consider dividend policy of industry peers in making and evaluating the dividend initiation decision.

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Table 1: Descriptive Statistics

This table contains descriptive statistics for a sample of dividend initiating firms and their dividend-paying and non-dividend-paying industry peers. The sample of initiators is drawn from publicly traded U.S. firms from 1987 to 2012, excluding financial companies and utilities. All firm characteristics variables are obtained from Compustat. Market cap is year-end stock price multiplied by year-end common shares outstanding. Cash/TA is cash and marketable securities scaled by total assets. ROA is earnings before interests and taxes (EBIT) divided by total assets. MV/BV is market cap plus total assets minus common equity divided by total assets. Leverage is total long-term debt divided by total assets. IO is total number of shares held by institutional investors at year-end divided by total number of shares outstanding All variables are measured one year before initiation. ***, **, and * denote that point estimate is significantly different from zero at the 1%, 5% and 10% levels, respectively.

		(1)	(2)	(3)	Difference	
		Dividend Initiators	Non-Dividend-Paying	Dividend-Paying	(1) - (2)	(1) - (3)
Market cap	Mean	2426.56	809.61	5395.34	1616.95***	-2968.78***
	(Median)	245.23	83.42	692.90	161.81***	-447.67***
Total assets	Mean	2466.99	673.27	4988.10	1793.72***	-2521.11***
	(Median)	255.92	86.45	759.51	169.47***	-503.59***
Cash/TA	Mean	0.1762	0.2216	0.1039	-0.0454***	0.0723***
	(Median)	0.1126	0.1247	0.0534	-0.0121***	0.0592***
ROA	Mean	0.1616	-0.0051	0.1564	0.1667***	0.0052*
	(Median)	0.1531	0.0839	0.1501	0.0692***	0.0030**
MV/BV	Mean	1.8413	2.2875	1.7304	-0.4462***	0.1109***
	(Median)	1.4885	1.4797	1.4313	0.0088	0.0572
Leverage	Mean	0.1608	0.1691	0.1848	-0.0083*	-0.0240***
	(Median)	0.1018	0.0772	0.1686	0.0246	-0.0668***
IO	Mean	41.3095	30.6917	49.5756	10.6178	-8.2661***
	(Median)	35.5538	21.9125	52.2327	13.6413***	-16.6789***
ΔIO (t-1 to t+1)	Mean	3.6510	2.5146	2.0628	1.1364***	1.5882***
	(Median)	1.0894	0.0413	1.2335	1.0481***	-0.1441***
Number of Observations		1074	62620	22978		

Table 2: Likelihood of Initiating Dividends

Logistic regression coefficients for the likelihood of initiating a dividend relative to a non-dividend-paying firm. The dependent variable is equal to 1 if it is the dividend initiating firm, and equal to 0 if it is the non-dividend-paying firm in the same industry as dividend initiating firms. Industry paying intensity is calculated as number of dividend-paying firms divided by total number of firms in the same industry year. Industry median dividend is median dividend level. Industry dividend change is total dividend level minus last year total dividend level and divided by last year total dividend level. The control variables are defined in Table 1. Industry median adjusted MV/BV is MV/BV minus industry median MV/BV. Herfindahl index is the sum of squared market shares of all firms in the industry. All variables are measured one year before initiation (t-1). P-values are in parentheses.

	(1)	(2)	(3)	(4)
Industry Paying Intensity	1.1776***			1.2763***
	(0.0000)			(0.0000)
Industry Dividend Change		-0.2928***		-0.2804***
		(0.0000)		(0.0000)
Industry Median Dividend			-16.3580***	-21.7604***
			(0.0002)	(0.0000)
Herfindahl index	-9.6633***	-9.8440***	-10.0683***	-9.9051***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Industry median adjusted MV/BV	-0.2263***	-0.2190***	-0.2304***	-0.2465***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Log Market Cap	0.2404***	0.2328***	0.2363***	0.2534***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Cash/TA	-0.6093***	-0.7797***	-0.7054***	-0.4096**
	(0.0012)	(0.0000)	(0.0002)	(0.0338)
ROA	4.2025***	4.2534***	4.2420***	4.2066***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Long-term Debt/Total Assets	-0.9928***	-0.9460***	-0.9277***	-1.0298***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Institutional Ownership (IO)	-0.0002	-0.0006	-0.0009	-0.0008
	(0.8992)	(0.6546)	(0.5032)	(0.5316)
Industry Median IO	-0.0007	0.0038*	0.0029	-0.0029
	(0.7651)	(0.0888)	(0.2035)	(0.2344)
Intercept	-3.8448***	-3.5420***	-3.3421***	-3.2965***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Year Dummies	Yes	Yes	Yes	Yes
Pseudo R^2	0.0252	0.0251	0.0248	0.0260
Number of Obs. Dummy = 1	1074	1074	1074	1074
Number of Obs. Dummy = 0	62619	62619	62619	62619

Table 3: Likelihood of Initiating Dividends for Industry Paying Intensity and Herfindahl index Terciles

Dependent variable is equal to 1 for a dividend initiating firm, and equals 0 for a non-dividend-paying firm in the same industry as the dividend initiating firm. In each year, firms are divided into terciles based on Industry Paying Intensity (number of dividend-paying firms in the industry scaled by total number of firms) and Herfindahl index (the sum of squared market shares of all firms in the industry). Independent variables are defined in Tables 1 and 2 and are measured one year before initiation (t-1). P-values are in parentheses.

	Industry Paying Intensity		**Herfindahl index**	
	Low	High	Low	High
	(1)	(2)	(3)	(4)
Industry Paying Intensity			-0.9024*	2.9907***
			(0.0644)	(0.0000)
Industry Dividend Change	-0.3191***	-0.1562	-1.0222***	-0.2828**
	(0.0013)	(0.2109)	(0.0000)	(0.0153)
Industry Median Dividend	-31.2326***	-47.4574***	-29.3005***	-32.3026***
	(0.0000)	(0.0000)	(0.0006)	(0.0006)
Herfindahl index	-19.9440***	-5.8337***		
	(0.0000)	(0.0000)		
Industry median adjusted MV/BV	-0.1455***	-0.4202***	-0.2541***	-0.2155***
	(0.0005)	(0.0000)	(0.0000)	(0.0000)
Log Market Cap	0.2569***	0.2847***	0.2780***	0.2309***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Cash/TA	-0.1397	0.7005*	-0.9285**	0.1390
	(0.6252)	(0.0738)	(0.0141)	(0.6761)
ROA	3.9592***	5.2679***	6.7766***	2.9668***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Long-term Debt/Total Assets	-0.9574***	-1.3783***	-1.4689***	-0.7261**
	(0.0016)	(0.0000)	(0.0000)	(0.0192)
Institutional Ownership (IO)	-0.0037*	0.0017	-0.0037	0.0021
	(0.0953)	(0.4501)	(0.1372)	(0.3649)
Industry Median IO	-0.0224***	0.0027	-0.0121*	0.0010
	(0.0000)	(0.4623)	(0.0817)	(0.7858)
Intercept	-0.7932	-3.3452***	-0.9442*	-5.8421***
	(0.1042)	(0.0000)	(0.0807)	(0.0000)
Year Dummy	Yes	Yes	Yes	Yes
Pseudo R^2	0.0261	0.0360	0.0888	0.0119
Number of Obs. Dummy = 1	351	357	353	358
Number of Obs. Dummy = 0	29374	14500	8934	37524

Table 4: OLS Regression Coefficients for Dividend Initiation Level

The dependent variable is the level of the first dividend paid by the initiating firm scaled by total assets. The variables are defined in Tables 1 and 2, and are measured one year before initiation (t-1). P-values are in parentheses.

	(1)	(2)	(3)	(4)
Industry Paying Intensity	0.0038			-0.0048
	(0.8934)			(0.8638)
Industry Dividend Change		-0.0067		-0.0095
		(0.4316)		(0.2559)
Industry Median Dividend			1.8829***	1.9009***
			(0.0000)	(0.0000)
Herfindahl index	-0.0544	-0.0543	-0.0509	-0.0509
	(0.3041)	(0.3039)	(0.3254)	(0.3265)
Industry median adjusted MV/BV	0.0038	0.0040	0.0048	0.0052
	(0.4887)	(0.4601)	(0.3711)	(0.3356)
Log Market Cap	-0.0068**	-0.0068**	-0.0072***	-0.0072***
	(0.0113)	(0.0110)	(0.0059)	(0.0059)
Cash/TA	0.1577***	0.1582***	0.1508***	0.1517***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA	-0.0481	-0.0486	-0.0576*	-0.0584*
	(0.1542)	(0.1496)	(0.0816)	(0.0779)
Long-term Debt/Total Assets	0.0689***	0.0693***	0.0721***	0.0726***
	(0.0012)	(0.0011)	(0.0005)	(0.0005)
Institutional Ownership (IO)	-0.0000	-0.0000	0.0000	0.0000
	(0.9512)	(0.9303)	(0.9534)	(0.9824)
Industry Median IO	-0.0000	-0.0000	0.0001	0.0002
	(0.9522)	(0.9787)	(0.6364)	(0.6439)
Intercept	0.0481*	0.0493*	0.0044	0.0056
	(0.0961)	(0.0884)	(0.8808)	(0.8469)
Year Dummy	Yes	Yes	Yes	Yes
Number of Obs.	1074	1074	1074	1074
Adjusted R-Square	0.0359	0.0364	0.0748	0.0742

Table 5: Dividend Initiation Level for Industry Paying Intensity and Herfindahl index Terciles

The dependent variable is the level of the first dividend paid by the initiating firm scaled by total assets. In each year, firms are divided into terciles based on Industry Paying Intensity (number of dividend-paying firms in the industry scaled by total number of firms) and Herfindahl index (the sum of squared market shares of all firms in the industry). Independent variables are defined in Tables 1 and 2 and are measured one year before initiation (t-1). P-values are in parentheses.

	Industry Paying Intensity		**Herfindahl index**	
	Low	High	Low	High
	(1)	(2)	(3)	(4)
Industry Paying Intensity			-0.0901**	-0.0237
			(0.0417)	(0.2552)
Industry Dividend Change	-0.0056	0.0087	-0.0053	-0.0073
	(0.6729)	(0.6375)	(0.7864)	(0.5259)
Industry Median Dividend	2.9009**	-0.1334	0.3209	1.9125***
	(0.0288)	(0.9318)	(0.7372)	(0.0000)
Herfindahl index	-0.1580	-0.0799		
	(0.3086)	(0.5051)		
Industry median adjusted MV/BV	0.0506	0.0058	0.0091	0.0017
	(0.3871)	(0.7993)	(0.1533)	(0.7085)
Log Market Cap	-0.0152***	-0.0043	-0.0047	-0.0026
	(0.0015)	(0.5301)	(0.1042)	(0.2701)
Cash/TA	0.1115***	0.3728***	0.0284	-0.0078
	(0.0018)	(0.0000)	(0.3751)	(0.7122)
ROA	-0.0872*	-0.2641**	-0.0221	-0.0248
	(0.0779)	(0.0109)	(0.6666)	(0.4390)
Long-term Debt/Total Assets	0.1589***	0.0457	0.0106	-0.0380*
	(0.0000)	(0.4014)	(0.7337)	(0.0501)
Institutional Ownership (IO)	0.0004	-0.0001	0.0000	0.0001
	(0.2440)	(0.7667)	(0.8800)	(0.3264)
Industry Median IO	-0.0013	0.0004	-0.0003	0.0001
	(0.1246)	(0.6279)	(0.6736)	(0.6709)
Intercept	0.1031	0.0264	0.0991**	0.0013
	(0.1553)	(0.7353)	(0.0313)	(0.9554)
Year Dummy	Yes	Yes	Yes	Yes
Number of Obs.	351	357	353	358
Adjusted R-Square	0.0916	0.0451	-0.0019	0.3600

Table 6: Cumulative Abnormal Returns around Dividend Initiation Announcements

Abnormal returns are calculated as return minus market model expected return (CAR). Cumulative abnormal returns are measured over t-1 to t+4 and t-1 to t+9, where t is the dividend announcement date. The table reports abnormal returns for dividend initiation firms, and for dividend-paying and non-dividend-paying firms in the same industry as dividend initiators. The table contains results for the full sample of 1058 firms. ***, **, and * denote that point estimate is significantly different from zero at the 1%, 5% and 10% levels, respectively.

Period		(1)	(2)	(3)	Difference	
		Dividend Initiators	Non-Dividend-Paying	Dividend-Paying	(1) - (2)	(1) - (3)
-1, 4	Mean	0.0055***	0.0000	0.0013***	0.0055***	0.0042***
	Median	0.0035***	-0.0001	0.0004***	0.0036***	0.0031***
-1,9	Mean	0.0030***	0.0000	0.0009**	0.0030***	0.0021***
	Median	0.0020***	-0.0002	0.0000**	0.0022***	0.0020***

Table 7: OLS Regression Analysis of Cumulative Abnormal Returns around Dividend Initiations

The dependent variable is cumulative abnormal return measured over the period t-1 to t+4, and t-1 to t+9. Independent variables are defined in Tables 1 and 2. Industry median adjusted dividend is the first dividend paid by the initiating firm scaled by total assets minus industry median dividend scaled by total assets. All variables are measured one year before initiation. P-values are in parentheses.

	(1)	(2)
	CAR [-1,4]	CAR [-1,9]
Industry Paying Intensity	-0.0067	-0.0055**
	(0.1251)	(0.0277)
Industry Dividend Change	-0.0025**	-0.0013*
	(0.0464)	(0.0844)
Industry Adjusted Dividend	0.0002	0.0035
	(0.9616)	(0.2067)
Herfindahl index	-0.0077	-0.0059
	(0.3325)	(0.1934)
Industry median adjusted MV/BV	-0.0000	0.0000
	(0.9903)	(0.9232)
Log Market Cap	-0.0019***	-0.0013***
	(0.0000)	(0.0000)
Cash/TA	0.0026	0.0003
	(0.4927)	(0.8722)
ROA	0.0035	0.0038
	(0.4928)	(0.1923)
Long-term Debt/Total Assets	0.0057*	0.0021
	(0.0784)	(0.2584)
Industry Median IO	0.0000	0.0000
	(0.5774)	(0.8494)
Institutional Ownership (IO)	-0.0000	-0.0000
	(0.2627)	(0.5149)
Intercept	0.0161***	0.0128***
	(0.0000)	(0.0000)
Year Dummies	Yes	Yes
Number of Obs.	1058	1058
Adjusted R-Square	0.0253	0.0363

Figure 1: Median Raw and Industry Adjusted Dividend Initiation Level

The sample is drawn from publicly traded U.S. firms from 1987 to 2012, excluding financial companies and utilities, and comprises 1074 dividend initiation firms. Dividends are measured as common dividend scaled by total assets. Industry median adjusted dividends are calculated as dividends of each firm minus industry median dividend. Industry is defined by 4-digit SIC code when there are more than 10 firms in the industry year; if there are fewer than 10 firms, we define industry by 3-digit SIC code; if still fewer than 10 firms in that 3-digit SIC industry year, we define industry by 2-digit SIC code.

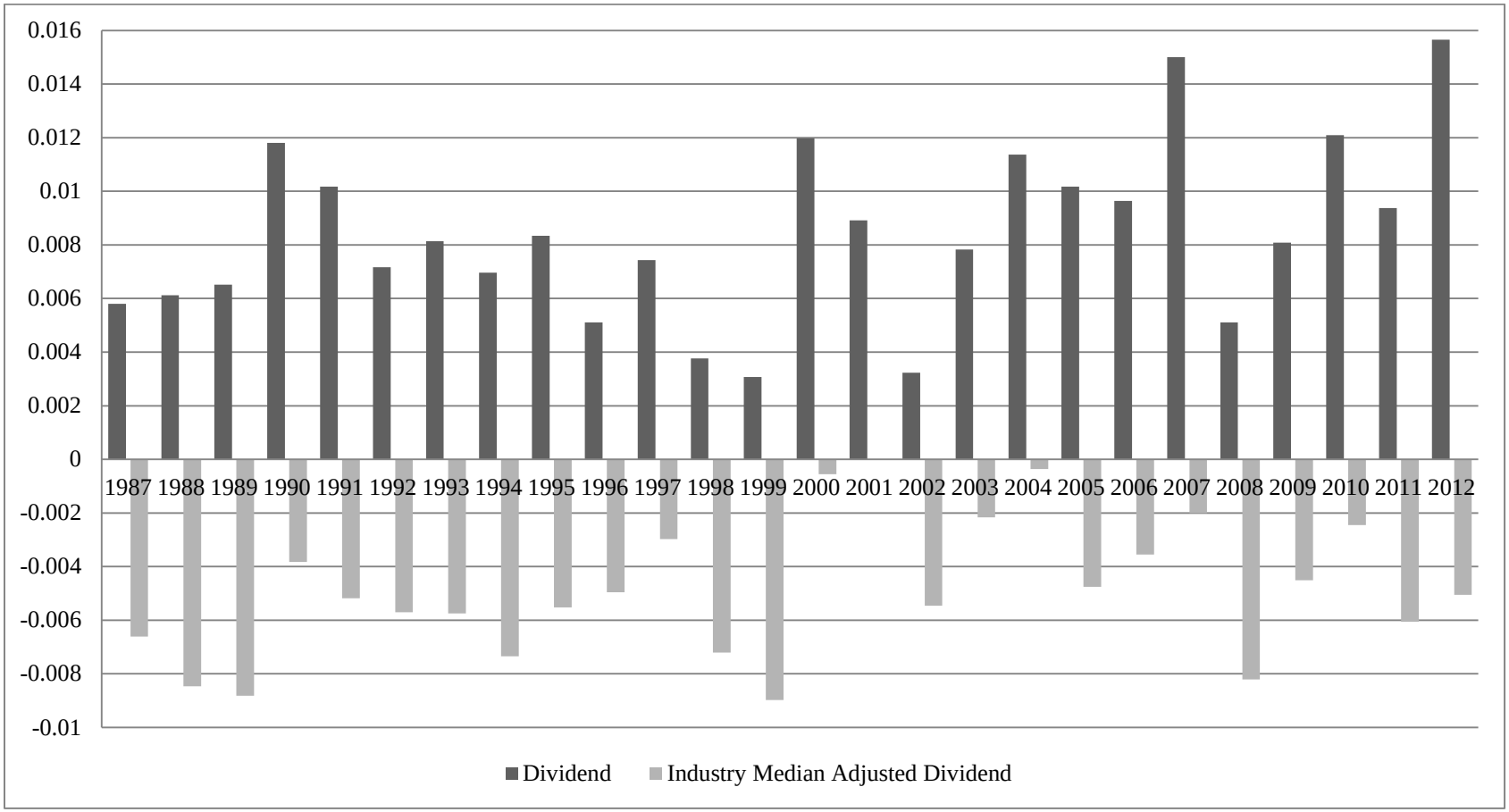

Figure 2: Number of Dividend Initiation Firms and Percentage of Dividend-Paying Firms

The sample is drawn from publicly traded U.S. firms from 1987 to 2012, excluding financial companies and utilities, and comprises 1074 dividend initiation firms. Percentage of dividend-paying firms is calculated as number of dividend-paying firms in the Compustat database divided by total number of firms in the sample for that year.