ABSTRACT

Title of dissertation: FINANCIAL POLICY AND OWNERSHIP STABILITY

Matthew Lee Kozora
Doctor of Philosophy, 2011

Dissertation directed by: Associate Professor Nagpurnanand Prabhala
R.H. Smith School of Business
Department of Finance

I investigate the relationship between corporate financial policy and the ownership stability of a firm's institutional shareholders. In each chapter of my dissertation I empirically investigate this relationship in a different setting: the first chapter with respect to earnings management, the second chapter with respect to corporate spin-offs, and the third chapter with respect to payout policy. Unique to my research I utilize the complete ownership history of each institutional stock position to create measures of ownership stability including fund investment horizon and ownership length. Overall, I find significant relationships between each one of the three financial policies and measures of ownership stability.

FINANCIAL POLICY AND OWNERSHIP STABILITY

by

Matthew Lee Kozora

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2011

Advisory Committee:
Associate Professor Nagpurnanand Prabhala, Chair/Advisor
Associate Professor Russell Wermers
Assistant Professor Gerard Hoberg
Professor Marc Nerlove
Professor Lemma Senbet

Acknowledgments

I thank everyone who have made this thesis possible. First and foremost I thank my parents, John and Joan Kozora, for giving me their love, support, and encouragement throughout my years of schooling. I thank my siblings Karen, John, and Shaun for encouraging me and giving me a roadmap for success with their own actions. Lastly, I thank Dr. Jessica Hennessey for her companionship from math-camp to graduation.

I thank Associate Professor Nagpurnanand Prabhala, my advisor, along with the other members of my dissertation committee including Associate Professor Russell Wermers, Professor Lemma Senbet, Assistant Professor Gerard Hoberg, and Professor Marc Nerlove. My advisor and the members of the committee did an exceptional job of guiding me when necessary but also allowing me to trail my own path.

Table of Contents

List of Tables

Chapter 1: Earnings Management

1.1 Introduction

In the 2004 Keynote Lecture at the Financial Management Association meetings, Michael Jensen discussed the agency costs associated with overvalued equity (Jensen(2005)). Jensen argued that although a high stock price seems ideal, justifying overvalued equity ultimately leads to investment policy distortion and accounting manipulation. Graham, Harvey, and Rajgopal (2005) finds support for some of Jensen's arguments after conducting a CFO survey concerning their views of earnings management. 80% of surveyed CFOs admit they would forego discretionary spending on real items like research and development, maintenance, and advertising to meet earnings targets.

Jensen places the blame on the emphasis compensation structures and capital markets place on meeting performance targets. However, the emphasis placed on meeting earnings targets may be related to the characteristics of institutional ownership. Firm managers, as hired agents, will match the investment horizon of the firm with the investment horizon of their shareholders for fear of removal. Even outside the fear of removal, there are other reasons to believe why firm managers should consider shareholder investment horizon composition around earnings announcements. For instance, systematic selling by short horizon investors can place significant price pressure on equity value, causing declines in liquidity and ultimately share value. Decreases in share-value, even over the short-term, can impact multiple corporate policies including managerial compensation, supplier contracts, and capital costs (Graham, Harvey, and Rajgopal (2005)).

On the other hand, firms held by longer-term institutional shareholders will take a longer-term approach to the management of the firm and thus place less emphasis on meeting performance benchmarks. Although liquidity contraints may be a concern for some long horizon investors and thus may not be agnostic toward short-term price

movements, generally these shareholders will be more concerned with the long-term fundamental value of the firm and less concerned with short-term price movements.

In this chapter, I empirically study the relationship between earnings management and the ownership stability of a firm's institutional shareholders. I measure earnings management with signed and unsigned discretionary accruals as well as the difference between earnings-per-share announcements and analyst forecasts. I control for ownership stability with the investment horizon composition and the ownership length of a firm's institutional shareholders. Overall, I find strong evidence indicating fund ownership, particularly by funds with shorter investment horizons, is important in describing earnings management. I also find some evidence indicating longer ownership by funds with shorter investment horizons is positively related to upwards earnings management, but longer ownership by funds with longer investment horizons is negatively related to its overall level (unsigned discretionary accruals).

I take institutional stock positions at the fund level from the Thomson Reuters (S12) Mutual Fund dataset. The dataset consists of positions from most domestic mutual funds and some global funds that participate in US and Canadian equity markets. The primary source for the dataset is SEC N-30D filings. Although for the majority of the time period the SEC required mutual funds to file this form semi-annually, Thomson Reuters supplements the filings by examining fund prospectuses and contacting mutual funds directly. The other approach is to use the Thomson Reuters (13f) Investment Company dataset consisting of aggregate holdings of banks, insurance companies, parents of mutual funds, pensions, and endowments. The primary source for this dataset is quarterly SEC 13f filings required by all institutional investment managers that exercise investment discretion over $100 million.

A fund's investment horizon is equal to the average length of time (in months) each share of every stock positions is held from the date of initial stock investment to the date of measurement. Using the full ownership history of each stock position

to classify a fund's investment horizon is a departure from past literature which uses either a range of portfolio characteristics (e.g. Bushee (1998), and Hotchkiss and Strickland (2003)) or portfolio turnover (e.g. Gaspar, Matos, and Massa (2005), and Yan and Zhang (2009)). By using mutual fund holding data and measuring an institution's investment horizon in this manner, I am able to increase the number of institutional shareholders in my dataset and create a more precise measure of shareholder investment horizon that is more directly related to the corporate governance aspects of institutional ownership.

I first investigate the relationship between ownership stability and earnings management with the difference between earnings-per-share announcements and analyst forecasts. Specifically, I investigate whether ownership stability is related to the tendency of firms to just beat (by one penny), meet, or just miss (by one penny) analyst earnings forecasts. These tests have several advantages on past work. First, the level of earnings surprise directly relates to changes in share value. Past research finds the marginal effect of an additional penny of announced earnings on share value is greatest when earnings announcements are within one penny of analyst forecasts, and a relative greater decrease in share value as a result of just missing earnings compared to the increase in share value as a result of just beating (i.e., the torpedo effect). Second, earnings announcements that just beat analyst forecasts are likely to come from changes in discretionary spending than economic surprises. Earnings surprises that are economic based are more likely to be away from analyst forecasts. Third, analysts presumably account for many of the firm-level characteristics that could indirectly relate ownership stability to the tendency of firms to manage earnings thus making for a more robust test. Lastly, although the use of discretionary accruals to manage earnings may be strongly related to firm type and thus a basis for greater ownership by some fund types (i.e., those with shorter investment horizons), it is unlikely funds take ownership in firms with an explicit expectation announced earnings

will beat analyst forecasts.

I estimate ordered probit models using panel data from 1990 to 2007 explaining the level of earnings surprise rounded to the nearest cent. I again estimate separate models first controlling for ownership stability with measures of shareholder composition, then measures of ownership length, and finally both. Similar to the results with respect to signed discretionary accruals, I find greater ownership by funds with shorter investment horizons are more likely to have a positive earnings announcement. I also find some evidence indicating longer ownership by short horizon funds is positively related to the level of earnings surprise.

I extend the tests of earnings surprise in two ways. First, I re-model the level of earnings surprise with linear regressions partitioning the sample to firms with earnings surprise strictly greater than one penny, strictly less than minus one penny, and both. I estimate these regressions to better distinguish between two alternative explanations of the initial results. Although greater ownership by short horizon funds may influence fund managers to act myopically, short horizon funds may instead simply be using their information advantage to take positions in firms with positive earnings announcements. By investigating earnings surprises that are more likely to be caused by economic changes, I can better differentiate between these two explanations. I find no indication the level short horizon fund ownership is significantly related to the level of earnings surprise for firms with earnings surprises strictly greater than one penny. However, I do continue to find evidence indicating short horizon fund ownership is significantly related to the leve of earnings surprise for firms with earnings surprises strictly greater and strictly less than minus one penny. However, the significance of short horizon ownership does decrease. These results indicate that although short horizon funds take greater ownership with positive earnings surprises, the relation is stronger for those firms where earnings manipulation is more likely.

Second, I investigate whether fund ownership stability is related to changes in

analyst forecasts over the final month of the fiscal year and whether this relationship can explain the difference between announced and forecasted earnings. Although greater shorter-term institutional ownership may lead to greater earnings forecast management, analysts may use characteristics of institutional ownership when updating forecasts. Continuing to use only firms announcing earnings within one penny of analyst forecasts, I find a dichotomous relationship between analysts updates and the two characteristics of ownership stability. First, analysts are more likely to increase earnings forecasts when a firm has greater ownership by funds with shorter investment horizons. This result suggests analysts anticipate upwards earnings management when there is a greater focus on short-term returns. Second, analysts are more likely to increase earnings forecasts when firms are held longer by long horizon funds, suggesting a decrease in earnings management when the firm has long-term dedicated investors. Additional evidence indicates the relationship between shareholder composition and the change in median analyst forecasts is not as strong for firms eventually having a positive earnings surprise. This last result indicates either greater expectations management by firm executives or a failure by analysts to fully account for short horizon fund ownership.

I next model both signed and unsigned discretionary accruals as a function of the investment horizon composition and the ownership length of a firm's fund shareholders. I estimate signed and unsigned discretionary accruals using a modified version of the Jones (1991) model. I use signed discretionary accruals to test for the direction of earnings management, and I use unsigned discretionary accruals to test for the overall shifting of revenues and expenses between periods to smooth earnings (or simply the overall level of earnings management). To classify shareholder composition, I use either average fund shareholder investment horizon or the percentage of common shares held by funds classified into one of three groups (short, medium, and long) based on annual investment horizon tercile breakpoints. I measure ownership length

with the average percentage of other stock positions held within fund portfolios for a strictly shorter period of time. This measure, with a range from zero to one, relates to differences between firms in the length of time they have been held by the same fund shareholder. I also create similar measures of ownership length for each fund investment horizon tercile.

I first estimate regressions describing the level of signed and unsigned discretionary accruals using firm data from 1990 to 2007. I estimate separate regressions first controlling for ownership stability with just measures of shareholder composition, then ownership length, and finally both. I find firms with greater ownership by funds with shorter investment horizons have greater levels of signed and unsigned discretionary accruals. This result is driven primarily by greater ownership by short horizon funds than less ownership by long horizon funds. Interestingly, I find greater ownership by medium horizon funds is positively related to signed discretionary accruals but negatively related to unsigned discretionary accruals, suggesting a push-and-pull between short term gains and long term value when the investment horizon of the fund is neither short nor long. I also find ownership length to be a significant determinant. Specifically, firms held longer by funds with shorter investment horizons are more likely to manage earnings upward, but longer ownership by funds with longer investment horizons are less likely to manage earnings overall.

In other tests, I find total fund ownership is positively related to signed discretionary accruals. Thus, mutual fund ownership in general is positively related to the emphasis placed on short term performance. On the other hand, I do not find evidence indicating overall mutual fund ownership is either significant by itself or alters the significance of shareholder composition with respect to unsigned discretionary accruals.

The results from the level regressions demonstrate a strong negative relationship between ownership stability and the use of discretionary accruals to manage earn-

ings. However, the results could stem from firm-level fixed effects that explains both the stability of institutional shareholders and the propensity to manage earnings. To determine if my initial results are robust to this potential explanation, I estimate difference regressions explaining changes in signed and unsigned discretionary accruals. I continue to find strong evidence indicating a positive relationship between ownership by funds with shorter investment horizons and signed discretionary accruals. However, I no longer find consistent evidence indicating a significant relationship between either the level of short horizon fund ownership and unsigned discretionary accruals or measures of ownership length and the two discretionary accrual variables. Thus, some of the evidence especially pertaining to ownership length in the level regressions may be driven partially by firm type.

Two broad conclusions can be taken from the findings. First, institutional ownership stability negatively relates to the level of earnings management. Second, both shareholder composition and ownership length may be important when controlling for the presence of institutional shareholders. Although this chapter does estimate several tests attempting to distinguish between possible explanations, it does not provide evidence of causality. In order to determine causality, tests using exogenous shocks are needed to determine whether ownership is a significant factor in determining managerial behavior. This chapter instead provides strong evidence indicating different aspects of institutional ownership is significantly related to earnings management, providing a necessary basis for future tests investigating causality.

1.2 Earnings Management Literature

In this section, I discuss in further detail the contributions to the earnings management literature made in this work.

Rajgopal and Venkatachalam (1997); Rajgopal, Venkatachalam, and Jiambalvo (1999); Koh (2003); and Burns, Kedia, and Lipson (2006) use the levels of either signed or unsigned discretionary accruals to investigate the corporate governance as-

pects of institutional ownership on corporate governance as it relates to earnings management. All papers provide evidence indicating managers are less likely to manage earnings when institutional ownership is high.[1] Among these papers, only Burns et al. (2006) classify institutions by type. They use the classification scheme developed by Bushee (1998), who places institutions at the management company level into one of three groups, "transient," "quasi-indexer," and "dedicated," based on portfolio characteristics including position size, portfolio turnover, and trading sensitivity to earnings news. Portfolios of transient institutions exhibit a high degree of diversification, high portfolio turnover, and are sensitive to firm earnings. Conversely, portfolios of "dedicated" institutions have a low degree of concentration, low portfolio turnover, and low sensitivity to current earnings. Portfolios of "quasi-indexer" institutions exhibit a high degree of diversification but low turnover. Burns et al. (2006) find greater ownership by transient institutions and less ownership by dedicated and quasi-indexer institutions is related to higher unsigned discretionary accruals. They conclude the results are evidence of less monitoring performed by "non-dedicated" institutions resulting in poorer earnings quality.[2]

In Chapter 1.6 of this chapter, I also investigate the effect of institutional ownership on the level of discretionary accruals. I extend the previous work in three primary respects. First, I investigate the relationship between ownership stability

[1] Yu (2008), in tests investigating the governance aspect of analyst coverage, finds institutional ownership to be an insignificant determinant of unsigned discretionary accruals.

[2] The reliability and frequency of earnings announcements are two other characteristics potentially influenced by the level of institutional ownership. Velury and Jenkins (2006) find greater institutional ownership is positively related to higher earnings quality as measured by its predictive nature, neutrality, timeliness, and representational informativeness. Anjinkya, Bhojraj, and Sengupta (2005) find evidence in both level and change regressions indicating firms with greater institutional ownership report earnings forecasts with more frequency, greater specificity, and with less bias. Consistent with the less dedicated institutional investors preferring to invest in firms with greater transparency, Bushee and Noe (2001) find a positive relationship between changes in corporate disclosure practices and ownership by transient institutions. However, Burns et al. (2006) find firms are more likely to have financial restatements and more severe restatements when transient institutional ownership is high. These authors also find evidence indicating transient institutions are more likely to sell their shareholdings at the announcement of the restatement. Hribar, Jenkins, and Wang (2004) find similar evidence.

and the level of both signed and unsigned discretionary accruals, making comparisons between the two measures of earnings management. Second, I use measures of both shareholder composition and ownership length. Lastly, I also estimate difference regressions modeling changes in discretionary accruals to account for firm-level fixed effects.

Past research finds strong evidence indicating firm managers manipulate earnings announcements to meet or beat benchmarks, and positive announcements have a positive effect on share value. Burgstahler and Dichev (1997) find a disproportionately low frequency of firms reporting small decreases in earnings and income compared to the number of firms reporting small increases. The authors also find changes in cash flow from operations and working capital are used to achieve the small gains. Degeorge, Patel, and Zeckhauser (1999) find evidence indicating firm executives manage earnings to report positive profits, sustain recent performance, and meet analyst expectations. Burgstahler and Eames (2006) find evidence indicating both upward earnings management with operating cash flows and discretionary accruals, and downward management of analyst forecasts to achieve positive or zero earnings surprise.

Bartov, Givoly, and Hayn (2002) and Skinner and Sloan (2002) document a disproportionate decrease in share price as a result of just missing analyst forecasts compared to just beating analyst forecasts (i.e. the torpedo effect), as well as a greater effect on stock price associated with reporting one additional penny when announced earnings are closer to analyst expectations. This relation holds even when analyst forecasts were lowered prior to the earnings announcement date (Bartov et al. (2002)), and is stronger for growth firms than value firms (Skinner and Sloan (2002)). Other evidence from Kinney, Burgstahler, and Martin (2002) and Kasznik and McNichols (2002) finds a stronger reaction to earnings surprises when forecast dispersion is low, and an overall greater market premium only for firms consistently

meeting earnings forecasts.

Several authors investigate the role of institutional ownership in earnings announcements. Cheng and Reitenga (2001), Chung, Firth, and Kim (2002), and Hsu and Koh (2005) find greater overall ownership by institutions reduces the use of discretionary accruals especially for firms more likely to manage earnings to meet or beat benchmarks. Distinguishing institutional ownership using Bushee's (1998) classification scheme, Matsumoto (2002) and Koh (2007) find a positive relationship between transient institutional ownership and the use of discretionary accruals to meet or beat benchmarks. Bushee (1998) and Roychowdhury (2006) investigate changes in real economic activities as a means to meet earnings benchmarks. Bushee (1998) finds firms are less likely to cut research and development expenses to reverse an earnings decline when they have greater overall institutional ownership, but are more likely to reverse an earnings decline when transient institutional ownership is high. Roychowdhury (2006) also finds little supporting evidence indicating greater overall institutional ownership leads to either reductions in price discounts, discretionary expenditures, or the overproduction of goods to reduce costs to avoid annual income losses.

In Chapter 1.5 of this chapter, I also investigate benchmark-related earnings management. I use firms that announce earnings-per-share results within one penny of median analyst forecasts, and distinguish between firms that either just beat, meet, or just miss analyst forecasts. A similar regression is estimated by Matsumoto (2002). However, Matsumoto uses all firm observations regardless of the level of earnings surprise and classifies firms into only one of two groups depending on whether analyst forecasts were at least met. Like the rest of this chapter, I also incorporate measures of shareholder composition and ownership lengths. Furthermore, I extend the research by also investigating the relationship between institutional ownership and analyst forecast updates.

1.3 Firm Data

I extract firm observations from the Compustat Fundamentals Annual data file. Earnings report data are taken from I/B/E/S. Return and other share information are taken from the Center for Research in Securities Prices (CRSP) monthly stock return file. I use all firm observations from 1990 to 2007 that have 3 consecutive years of financial data, 36 consecutive months of return data, and ordinary common stock (CRSP share code 10 or 11) listed on the NYSE, AMEX, or NASDAQ (CRSP header exchange code 1, 2, or 3). I do not exclude utilities (SIC codes 4949 to 4999) or financial companies (SIC codes 6000 to 6999) from the analysis. The results do not change if I instead exclude these firms.

1.3.1 Firm Variables

For control variables in the tests below, I use fiscal year stock return (*FYRet*), stock return over the final three months of a firm's fiscal year (*3MRet*), firm size (*Size*), market-to-book ratio (*MB*), debt (*Debt*), analyst forecast standard deviation (*FcstSD*), and analyst number (*AnNum*). I derive the return variables from CRSP; *Size*, *MB*, and *Debt* from Compustat; and *FcstSD* and *AnNum* from I/B/E/S.

- $FYRet_t$ = Compounded monthly returns over fiscal year t $\left(\left(\prod_{m\in[m1,m12]}(1+ret_{m,t})\right)-1\right)$, where $m1$ designates the first month of the fiscal year, and $m12$ designates the last.

- $3MRet_t$ = Compounded monthly returns over the final three months in fiscal year t $\left(\left(\prod_{m\in[m10,m12]}(1+ret_{m,t})\right)-1\right)$.

- $Size_t$ = The natural log of total assets (data6 or at).

- MB_t = Fiscal year end market value divided by book value (MV_t/BV_t). Book value (BV)is equal to the sum of total assets, deferred tax and investment credit (data35 or txditc), and convertible debt (data79 or dcvt), minus preferred stock (data10 or pstkl) and total liabilities (data181 or lt).

- $Debt_t$ = Total long term debt (data9 or dltt) divided by total assets (data9_t/data6_t).
- $FcstSD_t$ = Standard deviation of analyst forecasts (stdev).
- $AnNum_t$ = The number of analysts covering the firm (numest).

I use stock return variables to control for recent firm performance, and *Size* and *MB* control for firm type. Growth firms and smaller firms may engage in greater earnings management to enhance their reputation with stakeholders (Graham et al. (2005)). *Debt* controls for the likelihood of debt covenant violation. *FcstSD* and *AnNum* controls for the informational environment surrounding the firm.

1.3.2 Earnings Management Measures

I use three measures of earnings management. The first measure of earnings management, discretionary accruals (*DA*), is computed using a modified version of the Jones (1991) model.[3] *DA* is equal to the difference between total accruals (*TA*) and non-discretionary accruals. In year t, *TA* is equal to the sum of the changes in current assets (data4 or act) and debt and current liabilities (data34 or dlc), minus the change in current liabilities (data5 or lct), the change in cash and short term investments (data1 or che), and depreciation (data14 or dp). All changes occur from year $t-1$ to year t. In equation form, *TA* for firm i is equal to

$$TA_{i,t} = (\text{act}_{i,t} - \text{act}_{i,t-1}) + (\text{dlc}_{i,t} - \text{dlc}_{i,t-1}) - (\text{lct}_{i,t} - \text{lct}_{i,t-1}) - (\text{che}_{i,t} - \text{che}_{i,t-1}) - \text{dp}_{i,t} \quad (1)$$

Non-discretionary accruals are equal to the fitted values from annual linear regressions describing *TA*. I regress total accruals on property, plant, equipment (data7 or ppegt), operating income before depreciation (data13 or oibdp), the difference between changes in total receivables (data12 or rect) and common equity (data2 or ceqt)

[3] Dechow, Sloan, and Sweeney (1995).

from year $t-1$ to year t, and a constant. I winsorize total accruals annually at the 5^{th} and 95^{th} percentiles and scale all variables with lagged total assets. In equation form, the linear model can be written as

$$\frac{TA_{i,t}}{\text{at}_{i,t-1}} = \beta_{0,t}\frac{1}{\text{at}_{i,t-1}} + \beta_{1,t}\frac{\text{oibpd}_{i,t}}{\text{at}_{i,t-1}} + \beta_{2,t}\frac{(\text{rect}_{i,t} - \text{rect}_{i,t-1}) - (\text{ceqt}_{i,t} - \text{ceqt}_{i,t-1})}{\text{at}_{i,t-1}} + \epsilon_{i,t} \quad (2)$$

where β_0, β_1, and β_2 are model parameters, and ϵ is model error. I estimate separate regressions for each Fama-French 48 Industry Classification subject to at least 10 firms having full information. In equation form, discretionary accruals is equal to

$$DA_{i,t} = \frac{TA_{i,t}}{\text{at}_{i,t-1}} - \widehat{\beta}_{0,t}\frac{1}{\text{at}_{i,t-1}} - \widehat{\beta}_{1,t}\frac{\text{oibpd}_{i,t}}{\text{at}_{i,t-1}} - \widehat{\beta}_{2,t}\frac{(\text{rect}_{i,t} - \text{rect}_{i,t-1}) - (\text{ceqt}_{i,t} - \text{ceqt}_{i,t-1})}{\text{at}_{i,t-1}} \quad (3)$$

where $\widehat{\ }$ represents model estimates. The second measure of earnings management, unsigned discretionary accruals ($UnsDA$), is equal to the absolute value of DA ($|DA|$).

The third measure of earnings management, the level of earnings surprise (ES), is equal to the difference between announced earnings and median analyst forecasts. I take annual forecast data and announced earnings-per-share for all U.S. firms from the I/B/E/S database.

I use median analyst forecasts the final month of the firm's fiscal year-end as the earnings benchmark. I use I/B/E/S summary statistics taken from the statsum datafile. ES is equal to actual announced earnings (actual) minus the median of analyst forecasts (medest). I/B/E/S does adjust share-based summary statistics for corporate actions such as stock splits. I round ES to the nearest penny due to its widespread usage in the business press and evidence presented by Das and Zhang (2003) indicating firm managers round in order to report additional cents. I also

conduct tests using analyst forecasts the month prior to the end of the fiscal year because of its potential use by firm managers as a benchmark when manipulating accruals (Bhojraj, Hribar, Picconi, and McInnis (2009)). However, because there is little difference in the results, I do not report them.

1.4 Fund Investment Horizon

In this section, I describe the methodology used to measure the length of time funds hold stock positions. I also define my measure of fund investment horizon and provide annual summary statistics. I then compare the measure of fund investment horizon in this chapter with two other turnover-based measures.[4]

1.4.1 Measuring Ownership Length

I extract the following information from the S12 database for all fund positions to measure ownership length. I index mutual funds with i, and their individual stock positions with j.

- $rdate_i$ (current report date) = The date at which institutional holdings are valid. I index fund report dates with τ.
- $S_{i,j}$ (shares held) = The number of firm shares held by the institution as of the current report date.

From these two variables I create five additional variables.

- $prdate_i$ (prior report date) = The fund's most recent report date prior to the current report date.
- $PS_{i,j}$ (shares held at the prior report date) = The number of firm shares held by the fund as of the prior report date.

[4]I do not repeat this section in Chapters 2 or 3. However, I do redefine measures of shareholder investment horizon and ownership length when necessary.

- $\Delta S_{i,j}$ (change in shares held) = The change in the number of firm shares held by the fund from the prior report date to the current report date. I assume that all portfolio changes from one report date to the next occur on the later date.

- $bdate_{i,j}$ (position begin date) = The fund's most recent report date which satisfies $PS_{i,j} = 0$ and $S_{i,j} > 0$.

- $cdate_{i,j}$ (position closure date) = The fund's next report date which satisfies $PS_{i,j} > 0$ and $S_{i,j} = 0$.

Each year, I calculate the average length of time a fund invests in a stock position as the average number of months each share of stock is held from the position begin date to the date of measurement. The date of measurement is equal to the fund's last report date in a given year. I measure average ownership length for all stock positions held for at least one month from the beginning of the year to the fund's last report date in the year. This includes stock positions closed prior to the fund's last report date or opened over the course of the year. Also, I take as separate positions of the same stock held at two or more disjoint periods of time within the same year. Stock positions opened on the date of measurement have no ownership length and are not used until the following year.

I employ the last-in-first-out queueing method to measure the length of time each share in a stock position is held. That is, I assume the next set of stock j shares sold are the ones currently held for the shortest period of time. The purchase date for shares $s_{i,j}$, τ^p, is equal to the fund report date such that $\Delta S_{i,j} > 0$ and $s_{i,j} \in \Delta S_{i,j}$. The sale date, τ^s, is the next report date that satisfies the following equation.

$$\sum_{\tau=\tau^p+1}^{\tau^s} \left|(\Delta S_{i,j,\tau})^-\right| \geq PS_{i,j,\tau^p} + s_{i,j,\tau^p}. \tag{4}$$

The left hand side of the inequality represents the aggregate number of stock j shares sold from the purchase date to the sale date, whereas the right hand side represents

the sum of shares eligible for sale as of τ^p. The total number of shares purchased on τ^p that I designate as being sold on τ^s is equal to the maximum number of shares, s^*_{i,j,τ^p}, satisfying Equation (**??**) with equality. I designate the remaining shares purchased on τ^p not sold on τ^s ($s'_{i,j,\tau^p} \in \Delta S_{i,j,\tau^p}$, $s'_{i,j,\tau^p} \neq s^*_{i,j,\tau^p}$) as held until a future report date.

The length of time (LT) a share is held is equal to the number of months from its purchase date to either the funds last report date in the year if the share remains held, or the share's sale date if the share was sold. The average length of time fund i holds share k of stock j at the end of year t is equal to

$$\overline{LT}_{i,j,t} = \frac{\sum_{k=1}^{N_k} LT_{i,j,k,t}}{N_{k,t}} \tag{5}$$

where N_k is equal to the number of purchased shares from the position begin date until the date of measurement.

1.4.2 Fund Investment Horizon, Mutual Fund Inclusion, & Summary

Fund investment horizon (FIH) is equal to the value-weighted average length of time a fund invests in a stock position. In equation form, FIH is written as

$$FIH_{i,t} = \frac{\sum_{j \in J} MV_{i,j,t} * \overline{LT}_{i,j,t}}{\sum_{j \in J} MV_{i,j,t}} \tag{6}$$

where MV represents a stock position's market value, and J represents the set of eligible stock positions. If the position remains open as of the fund's last report date in the year, then MV is equal to the equity price times the number of shares held as of this date. Again, I do not include purchased shares on this date as part of the calculation. In case the position closes prior to the date of measurement, MV is equal to the equity price times the number of shares sold on the closure date.

There are two primary requirements for fund inclusion. First, a fund must be present in the dataset and meet SEC filing requirements for the previous three years, along with at least one filing in the previous fourth. After this startup period, if in any year the fund does not meet the minimum SEC filing requirements, I drop the fund and its holdings from the final sample until an additional startup period can be completed. A gap of more than one year between report dates for the same fund identification number typically indicates a "different and unrelated" fund.[5] Assuming unrelated funds hold different stock positions, investment horizon calculation may measure position changes from the final holdings of the original fund to the first set of holdings of the new fund, biasing *FIH* downward. Second, for each year I require a fund to have at least twenty eligible stock positions for *FIH* calculation to ensure meaningful investment horizon calculation. Lastly, I drop all index-related funds from my sample.

The total number of fund-year combinations from 1990 to 2007 on the S12 dataset is equal to 188,796. Among these firm-year observations 52,538 funds do not meet SEC filing requirements during the calendar year. An additional 92,247 funds do not meet filing requirements over the previous three years. Although the number of fund loss is large, it underscores the transitory nature of mutual funds in the dataset. For instance, 40,017 funds did not meet SEC filing requirements over two consecutive years. Out of the remaining 44,011 funds, 18,106 are non-index related and hold twenty or more sample firms.

Table 1.1 presents fund investment horizon summary statistics for each year from 1990 to 2007. Columns 2 through 6 report the number of funds as well as annual summary statistics for *FIH* including the mean, standard deviation, minimum, and maximum. The total number of sample funds increases each year starting from 215 in 1990 to 2,537 in 2007, with the greatest increase occurring after 1996. From 1990 to

[5] See the User's Guide to Thomson Financial Mutual Fund and Investment Company Common Stock Holdings Databases on WRDS.

1996, the number of funds in the dataset increased by 211. Between 1996 and 2007, an additional 2,111 fund observations enter the dataset. Mean *FIH* ranges from a minimum of 18.8 months in 2001 to a maximum of 24.8 months in 1994 and 1995. The annual minimum of *FIH* ranges from 2.4 months to 5.8 months. Typically, the most number of fund report dates in a given year is four. Thus, funds that hold shares for very short periods of time will have an average investment horizon in this range. Minimum investment horizons less than 3 months were the result of abnormally close report dates over the measurement period. The annual maximum of *FIH* ranges from 79.4 months in 1990 to 223.1 months in 2005.

Columns 7 and 8 presents tercile breakpoints distinguishing between short, medium, and long investment horizon funds. Over the sample period, depending on the year short horizon funds have investment horizons less than 13.3 months to 16.6 months, and long investment horizon funds have investment horizons greater than 19.3 months to 26.7 months.

The last six columns present the mean ownership percentage for each fund stock position and number of stock positions by investment horizon tercile. In thirteen out of the eighteen years, long horizon funds take larger positions in terms of percentage of shares held than short and medium horizon funds. Furthermore, in all but one year, long horizon funds take more positions than either of the two other investment horizon terciles. I also find medium horizon funds take greater positions and larger positions than short horizon funds.

Although I require a three-year start-up period, it may not be enough time to measure fund investment horizon. I next investigate the effect of fund age on investment horizon measurement by averaging the change in *FIH* from its initial measure to all subsequent updates. Table 1.2 presents the results. For all funds, the average change in *FIH* from its initial measure to its update the following year is equal to -0.56 months. However, from year 3 to year 10 (when only 4.3% of funds remain in

the sample) the average change in *FIH* is positive and varies between 0.14 to 0.74 months. Across fund investment horizon terciles, I find the initial negative change in *FIH* from year 1 to year 2 primarily stems from long horizon funds. Whereas the initial change in *FIH* for long horizon funds is equal to -4.63 months, the same change is equal to 0.28 months for medium horizon funds and 2.56 months for short horizon funds. Although the change in *FIH* from its initial measurement has a tendency to be positive for both short and medium horizon funds and negative for long horizon funds, the magnitude is less than 1 month for the majority of years funds remain in the sample. Thus, although there is a initial drift toward the sample mean, *FIH* is a relatively stable measure over the life of most funds.

1.4.3 Comparison to other Measures of Investment Horizon[6]

Previous work typically classifies institutional investment horizon with portfolio based measures. Bushee (1998) classifies institutions based on trading strategy. Wahal and McConnell (2000); Hotchkiss and Strickland (2003); Gaspar, Matos, and Massa (2005); Hotchkiss and Lawrence (2007); and Yan and Zhang (2009) use measures of portfolio turnover. Other measures of institutional ownership stability more closely related to *FIH* can be found in Bøhren, Priestley, and Ødegaard (2005, 2008), and Elyasiani, Jia, and Mao (2006). Bøhren et al. (2005, 2008) measure investment horizon as the number of years an investor holds at least their initial stake. Their main data source is the Norwegian Securities Registry. Elyasiani et al. (2006) measure an institution's ownership stability with the average standard deviation of ownership percentages for all stocks held over a five year period for at least one quarter.

Although *FIH* should be highly correlated with the above alternatives, it has several advantages. First, *FIH* is more related to the corporate governance aspects of institutional ownership because it directly measures ownership length and is not based

[6] I do not repeat this analysis in Chapters 2 or 3. The time periods of study differ only slightly. There is little difference in overall analysis.

on portfolio characteristics. Second, it is a more informative measure of investment horizon because it utilizes the panel data nature of institutional shareholding datasets. Lastly, I am able to summarize institutional ownership at the firm level with several measures controlling for different aspects of ownership stability. Past work instead typically relies on classifying fund ownership with the total percentage of shares held by institution type.

In the rest of this subsection, I compare my measure of investment horizon with two recent annual turnover-based measures. Gaspar et al. (2005) measures a fund's turnover rate (TOT) from one report date to the next as the sum of aggregate portfolio changes, divided by average portfolio market value. TOT between report date $\tau - 1$ and report date τ for fund i with equity positions j is equal to

$$TOT_{i,\tau} = \frac{\sum\limits_{j \epsilon J} |S_{i,j,\tau} P_{i,j,\tau} - S_{i,j,\tau-1} P_{i,j,\tau-1} - S_{i,j,\tau-1} \Delta P_{i,j,\tau}|}{\sum\limits_{j \epsilon J} \frac{S_{i,j,\tau} P_{i,j,\tau} + S_{i,j,\tau-1} P_{i,j,\tau-1}}{2}}$$

where P represents share price, and ΔP_τ represents the change in share price between report dates. A fund's annual turnover rate is equal to the average turnover using all report dates within the year. Yan and Zhang (2009) measure an institution's churn rate similarly, but instead use the absolute minimum of either aggregate purchases or sales to account for the impact of investor cash flows. Their measure of portfolio turnover (TOM), is equal to

$$TOM_{i,t,\tau} = \frac{\min\left(TO\_buy_{i,t,\tau},\ TO\_sell_{i,t,\tau}\right)}{\sum\limits_{j \epsilon J} \frac{S_{i,j,t,d} P_{i,j,t,\tau} + S_{i,j,t,\tau-1} P_{i,j,t,\tau-1}}{2}}$$

where

$$TO\_buy_{i,\tau} = \sum_{\substack{j \epsilon J \\ S_{i,j,\tau} > S_{i,j,\tau-1}}} |S_{i,j,t,\tau} P_{i,j,t,\tau} - S_{i,j,t,\tau-1} P_{i,j,t,\tau-1} - S_{i,j,t,\tau} \Delta P_{i,j,t,\tau}|$$

$$TO\_sell_{i,\tau} = \sum_{\substack{j \epsilon J \\ S_{i,j,\tau} \leq S_{i,j,\tau-1}}} |S_{i,j,t,\tau} P_{i,j,t,\tau} - S_{i,j,t,\tau-1} P_{i,j,t,\tau-1} - S_{i,j,t\tau,d} \Delta P_{i,j,t,\tau}|$$

Because much of the analysis below groups funds by short, medium, and long investment horizons, I compare fund investment horizon terciles between *FIH*, *TOT*, and *TOM* from 1990 to 2007. I classify funds within the largest *TOT* and *TOM* tercile as having short investment horizons, and funds within the smallest *TOT* and *TOM* tercile as having long investment horizons. Panel A of Table 1.3 presents tests of correlation between investment horizon terciles. Not surprisingly, *FIH* tercile classifications are highly correlated with both measures of portfolio turnover. *FIH* has a correlation coefficient with *TOT* equal to 0.45, and a correlation coefficient with *TOM* equal to 0.44. Both correlations are significant at the 1% level.[7]

Panel B of Table 1.3 presents the proportion of funds by *FIH* tercile that have short, medium, and long investment horizon classifications with *TOT* and *TOM*. By *FIH* tercile, 56.5% of short horizon funds, 41.1% of medium term funds, and 58.5% of long horizon funds have the same classification with *TOT*. Also, 56.3% of short horizon funds, 41.9% of medium horizon funds, and 58.7% of long horizon funds have the same classification with *TOM*. However, a substantial number of funds with short and long *FIH* classifications have the complete opposite classification with the two other measures. I find 10.0% of funds with short investment horizons and 16.0% of funds with long investment horizons have the opposite classification with *TOT*, and 12.4% of short horizon funds and 14.3% of long horizon funds have the opposite classification with *TOM*. Thus, although similarities exist, there are substantial differences between the two measures.

Lastly, I compare the stability of the three measures by computing the probability a fund in an investment horizon tercile one year will either keep the same tercile classification the following year or switch to one of the other two. Panel C of Table 1.3 reports the results. Overall, I find *FIH* terciles to be slightly more stable one year to the next with 68.3% of short horizon funds, 51.3% of medium horizon funds, and

[7] The correlation between *TOT* and *TOM* is equal to 0.78, also significant at the 1% level.

68.3% of long horizon funds retaining their classifications. *TOT* terciles are the next most stable with 68.1% of short horizon funds, 50.7% of medium horizon funds, and 67.3% of long horizon funds with no change in investment horizon classification. *TOM* tercile classifications were the least stable with the least number of funds keeping the same classification one year to the next. Between the three measures, firms with short and long *FIH* classifications also have the smallest likelihood of having the opposite classification the following year.

1.4.4 Ownership Stability Measures

I first measure fund ownership stability with average fund shareholder investment horizon (*SIH*). *SIH* is equal to the average investment horizon of funds holding firm j at fiscal year-end t, weighted by the number of shares held. In equation form, *SIH* is equal to

$$SIH_{j,t} = \frac{\sum_{i \epsilon I} S_{i,j,t} * Log\left(FIH_{i,t}\right)}{\sum_{i \epsilon I} S_{i,j,t}} \tag{7}$$

where i indexes the set I of all fund shareholders. I take the average with respect to the natural log of *FIH* to reduce the influence of fund age on the statistic.

I also measure ownership composition with the proportion of common shares outstanding held by funds at fiscal year-end. In equation form, the ownership percentage for firm j in year t held by fund i is equal to

$$Own\%_{j,t} = \frac{S_{i,j,t}}{ShrOut_{j,t}} \tag{8}$$

where *ShrOut* is the monthly CRSP measure of shares outstanding (shrout). I aggregate ownership percentage at fiscal year end across all funds (*TotOwn%*) as well as by fund investment horizon terciles. I distinguish aggregate short horizon fund ownership with *Own%S*, medium horizon fund ownership with *Own%M*, and long horizon fund ownership with *Own%L*.

I also measure ownership stability with average relative ownership length ($AROL$). $AROL$ is equal to the average percentage of stock positions held for a strictly shorter period of time within fund shareholder portfolios at the firm's fiscal year end. The percentage of positions held for a strictly shorter period of time within the same fund portfolio than stock $j^{'}$ is equal to

$$ROL_{i,j',t} = \frac{\sum_{j \epsilon J} I\left(\overline{LT}_{i,j',t} > \overline{LT}_{i,j,t}\right)}{N_{i,t}} \tag{9}$$

where j indexes the set of all fund positions J, $N_{i,t}$ represents the number of fund positions, and $I\left(\overline{LT}_{i,j',t} > \overline{LT}_{i,j,t}\right)$ is equal to 1 if firm j' has been held strictly longer than firm j, 0 otherwise. ROL, with a range from $[0, 1)$, can be thought of as a cumulative distribution function of average ownership length for each fund portfolio. Average relative ownership length at the firm level at report date t is equal to

$$AROL_{j,t} = \frac{\sum_{i \epsilon I} S_{i,j,t} * ROL_{i,j,t}}{\sum_{i \epsilon I} S_{i,j,t}} \tag{10}$$

I also estimate $AROL$ by fund investment horizon tercile. Average relative ownership length for short horizon funds is distinguished with $AROLS$, medium horizon funds with $AROLM$, and long horizon funds with $AROLL$. $AROLS$, $AROLM$, and $AROLL$ are set to 0 if the firm is not held by that particular fund type.

Table 1.4 presents correlations between firm variables. I find a firm's market-to-book ratio is positively correlated with short horizon fund ownership, but negatively correlated with long horizon fund ownership. Ownership by all fund types decreases with firm size, but has a more negative correlation with respect to short and medium horizon funds. Short horizon fund ownership is also more positively correlated with past stock returns than the other two FIH terciles. With respect to ownership length, I find firms with higher market-to-book ratios have longer ownership by short horizon fund shareholders but shorter ownership by long horizon fund shareholders. Larger

firms and firms with smaller past stock returns are held longer by their fund shareholders. I also find shareholder composition and ownership length variables to be positively correlated, both overall (*SIH* and *AROL*) and by *FIH* tercile.

Interestingly, I find a firm's market-to-book ratio and size are both negatively correlated with the level of signed discretionary accruals, but positively related to the level of earnings surprise. Thus, growth firms and larger firms are more likely to beat earnings estimates but less likely to manage earnings upward using discretionary accruals. This dichotomy is especially odd considering one would expect certain fund types should be correlated with upwards earnings management regardless of the measure. Growth firms and smaller firms have higher unsigned discretionary accruals.

1.5 Earnings Announcements within One Penny of Analyst Forecasts

In this section, I use the level of earnings surprise for firms that report within one penny of analyst forecast consensus ($ES \in \{-0.01, 0.00, 0.01\}$) to investigate the relationship between ownership stability and earnings management. I also investigate the relationship between ownership stability and changes to analyst forecasts.

1.5.1 Level of Earnings Surprise

I begin the analysis by comparing the percentage of firms from 1990 to 2007 that either just beat by one penny, meet, or just miss by one penny analyst forecasts. I compare using all firms, as well as by *SIH* and *AROL* annual tercile groupings. I exclude firms held by less than 5 mutual funds prior to the fiscal year-end.

Table 1.5 presents the results. Panel A presents the results using all firms; Panel B presents the results when I divide firms into *SIH* terciles; and Panel C presents the results when I divide firms into *AROL* terciles. Consistent with past research, I find a greater disproportionate number of firms either beat (2,732 or 38.8%) or meet (2, 779 or 39.5%) analyst forecasts than just miss (1,534 or 21.8%). I find firms in the lowest *SIH* tercile (thus having greater ownership by funds with shorter investment

horizons) have a greater tendency to just beat analyst forecasts (41.8%) than meet (39.7%) or just miss (18.6%). Conversely, firms in the highest *SIH* tercile are more likely to meet analyst forecasts (40.6%) instead of just beat (35.2%). I also find some evidence indicating firms with shorter fund ownership lengths have a greater tendency to just beat analyst forecasts. However, the differences between the *AROL* terciles is not as prominent as the differences between the *SIH* terciles.

I formally test the relationship between ownership stability and the likelihood of a positive earnings surprise by estimating ordered probit models using panel data from 1990 to 2007. Explanatory variables include the following: measures of ownership stability, *MB*, *FcstSD*, *AnNum*, *Debt*, *Size*, industry fixed effects, and year fixed effects.[8] I first control for ownership stability with measures of ownership composition, then ownership length, and finally both. I winsorize continuous variables at the 1^{st} and 99^{th} percentiles. I require firms to be held by at least 5 mutual funds prior to the earnings announcement date for all regressions. I cluster standard errors at the firm level.

Table 1.6 presents the results. The first three columns present regression results when I control for ownership stability with measures of shareholder composition. In the first two regressions, I control for shareholder composition with either *SIH* or *Own%S*, *Own%M*, and *Own%L*, and in the third regression I use *TotOwn%*.

I find greater ownership by funds with shorter investment horizons is positively related to the likelihood firms just beat analyst forecasts. In either specification, *SIH* is negative and statistically significant at the 1% level with t-statistics ranging from 3.52 to 3.56. Again, the sign and significance of *SIH* stems from greater ownership by funds with shorter investment horizons. When ownership is separated by fund investment horizon tercile, *Own%S* is positive and statistically significant with a coefficient equal to 2.768. I also find greater overall fund ownership diminishes the

[8] I classify firms only at the Fama-French 12 Industry Classification to aid in the convergence of the ordered probit models.

importance of fund shareholder investment horizon composition with respect to the direction of earnings management; *TotOwn%* is positive and significant at the 1% level.

Columns (4) and (5) presents regression results when I control for ownership stability only with measures of ownership length (either *AROL* or *AROLS*, *AROLM*, and *AROLL*), and columns (6) and (7) present results when I control for institutional ownership with both measures of ownership stability (first overall and then by *FIH* tercile). In the regressions controlling for just ownership length, although I find average ownership length using all fund shareholders is an insignificant determinant in the level of earnings surprise, longer ownership by short horizon funds is a positive and significant determinant of *ES* at the 5% level. When I include both sets of institutional ownership variables, I find greater ownership by funds with shorter investment horizons is the primary determinant of the level of earnings surprise. *SIH* is a positive and significant determinant at the 1% level, and *Own%S* and *Own%M* are both positive with corresponding significances at the 1% and 10% levels. *AROLS* is no longer significant with a t-statistic equal to 0.81. I also estimate models including interaction terms between the percentage of ownership and its corresponding ownership lengths at the *FIH* tercile level. However, I do not include the results from this regression in the table because all interaction terms are statistically insignificant.

Going against the idea that the ability of firms to beat analyst forecasts increases when there is greater information asymmetry between the firm and market participants, forecast dispersion is negatively related to *ES*. Interestingly, greater debtholder presence decreases the likelihood of a positive earnings surprise, having the opposite effect than with signed discretionary accruals. Stock returns are positively related to the level of earnings surprise. Market-to-book ratio, firm size, and analyst number are all insignificant.

I re-estimate the regressions instead using firms with either earnings surprises

strictly greater than one penny and strictly less than minus one penny or earnings surprises strictly greater than one penny. I continue using the same general econometric methodology but estimate linear regressions instead of ordered probit regressions. Table 1.7 presents the results. Columns (1) through (3) present regression results explaining earnings surprises strictly greater than one penny and strictly less than one penny, and columns (4) through (6) present regression results explaining earnings surprises strictly greater than one penny. In both sets of regressions, I control for mutual fund ownership with *SIH*, percentage ownership by fund investment horizon tercile, and total mutual fund ownership percentage. Because I find only inconsistent evidence with respect to ownership length in Table 1.6, I do not control for ownership length in these regressions.

I find short horizon fund ownership continues to be significantly related to the level of earnings surprise for firms with positive and negative earnings surprise greater than one penny. However, short horizon fund ownership is not as significant as before: in column (1) *SIH* is significant and negative at the 10% level, and in column (2) *Own%S* is positive and significant at the 10% level. Taken together, although short horizon funds continue to take advantageous positions over a broader range of earnings surprises, the relationship is strongest among those firms announcing within one penny of analyst forecasts and thus most likely to be engaging in earnings manipulation. I find no indication total fund ownership is related to the level of earnings surprise in column (3), and no indication fund ownership is related to earnings surprises greater than one penny in columns (4) through (6).

1.5.2 Changes in Analyst Forecasts

I extend the analysis by investigating whether changes in median analyst forecasts over the final quarter of the fiscal year is related to a firm's ownership stability. For the same reasons why ownership stability may be related to the management of earnings, firms with less ownership stability may engage in greater expectations management.

At the same time, analysts may use characteristics of institutional ownership when updating forecasts.

I estimate linear regression models describing the change in median analyst forecasts ($\Delta FcstMed$). The dependent variable is equal to the difference between median analyst forecasts from the first month (10) to last month (12) in the final quarter of the firm's fiscal year ($\text{medest}_{12} - \text{medest}_{10}$). Explanatory variables include measures of ownership stability, *MB*, *Debt*, *Size*, *3MRet*, industry fixed effects, and year fixed effects. I control for ownership stability using either overall measures of fund ownership or by *FIH* tercile. Standard errors are cluster-robust at the firm level. I continue to use firms announcing earnings-per-share results within one penny of analyst forecasts at fiscal year end.[9]

Table 1.8 presents the results in four columns. The first column presents regression results when I control for fund ownership with *SIH* and *AROL*, and the second column presents regression results when I control for ownership stability with *Own%S*, *Own%M*, *Own%L*, *AROLS*, *AROLM*, and *AROLL*. Interestingly, I find both *SIH* and *AROL* are significantly related to changes in median forecasts but in opposing directions. For instance, the results of the first regression presented in column (1) detail how *SIH* is a negative predictor of $\Delta FcstMed$ at the 1% confidence level with a t-statistic equal to 5.16, but *AROL* is negative and significant at the 5% level. Thus, although the presence of fund shareholders with longer investment horizons is negatively associated with analyst forecast updates, the longer funds hold firm shares the more likely analysts will increase earnings forecasts upward. When I distinguish ownership by *FIH* tercile, I find the negative relationship between *SIH* and $\Delta FcstMed$ stems from both greater ownership by short horizon funds and less ownership by long horizon funds. *Own%S* is positive and significant at the 1% level (t-statistic

[9] An alternative test is to regress $\Delta MedFcst$ on changes in fund ownership over the same time period. However, because mutual funds are only required to file the N-30D form semiannually and not quarterly, there is not enough frequency in mutual fund shareholding data to perform these tests.

= 5.39), and *Own%L* is negative and significant at the 5% level (t-statistic = 2.25). Furthermore, I find longer ownership by funds with long investment horizons is driving the sign and significance of *AROL*; firms held for longer by long horizon funds have more positive changes in analyst forecasts. This last result is significant at the 1% level.

These results support evidence found by Burgstahler and Eames (2003) indicating analysts anticipate greater earnings management to avoid small losses and small earnings decreases. In this chapter, I find that analysts' actions are related to characteristics of institutional ownership. It also suggests managers engage in less earnings forecast management when the firm already has established long term investors.

In the last two regressions, I again control for fund ownership first with the overall measures and then measures by *FIH* tercile, but also include interaction terms between all ownership variables and the level of earnings surprise. The significance of the interaction term indicates whether the relationship between institutional ownership and the change in earnings forecasts systematically differs between firms that either beat, meet, or missed analyst forecasts. Between the two regressions, I find *ES* interacts significantly only with *SIH*. The positive coefficient of the interaction term indicates analysts do not fully account for shareholder investment horizon for those firms that end up beating forecasts.

1.6 Discretionary Accruals

In this section, I use signed and unsigned discretionary accruals to investigate the relationship between ownership stability and earnings management. I estimate level regressions explaining discretionary accruals first with measures of ownership composition, then with measures of ownership length, and finally both. I further these tests by estimating difference regressions.

1.6.1 Level Regressions

I start by estimating least-squares regressions explaining levels of signed and unsigned discretionary accruals controlling for ownership stability using measures of shareholder composition. Other firm-level control variables include market-to-book ratio, debt, size, annual return, standard deviation of analyst forecasts, fiscal year fixed effects, and industry fixed-effects based on the Fama-French 48 Industry Classification.[10] I winsorize all continuous variables at the 1^{st} and 99^{th} percentiles. I use firms held by at least 5 mutual funds prior to the end of the fiscal year to ensure ownership measures are not driven by a small number of fund shareholders. Following Petersen (2009), I estimate panel regressions clustering standard errors at the firm level. I use firm data from 1990 to 2007.[11]

Table 1.9 presents the results. There are eight columns of estimates. The first three columns correspond to regressions explaining the level of signed discretionary accruals, and the last three columns correspond to regressions explaining the level of unsigned discretionary accruals. For either measure of earnings management, I first control for shareholder composition with average shareholder investment horizon (*SIH*), then with the percentage of shares held by fund investment horizon tercile (*Own%S*, *Own%M*, and *Own%L*), and finally with the total percentage of shares held by all mutual fund shareholders (*TotOwn%*).

I find greater ownership by short horizon funds is positively related to the level of earnings management. In regressions describing either *DA* or *UnsDA*, *SIH* is negative and statistically significant at the 1% confidence level indicating firms with ownership weighted toward funds with shorter investment horizons are more likely to manage earnings upward and overall. When I distinguish ownership by fund investment horizon tercile, I find the sign and significance of *SIH* is primarily due to

[10] The Fama-French 48 Industry Classification can be found on Ken French's website. All industry fixed-effects employed in the tests below are based on this level of classification.

[11] In unreported tests I also estimate Fama-MacBeth (1973) time-series average coefficients and *t*-statistics from annual cross-sectional regressions. I adjust coefficient standard errors for autocorrelation using a Newey-West adjustment to two lags. The results do not change.

greater ownership by funds with short investment horizons than an absence of long horizon funds. *Own%S* is positive and statistically significant at the 1% confidence level regardless of the discretionary accrual measure. Although always a negative determinant, *Own%L* is insignificantly related to signed discretionary accruals and only significantly related to unsigned discretionary accruals at the 10% confidence level. Interestingly, ownership by medium horizon fund shareholders (*Own%M*) is a positive and significant determinant of *DA* (t-statistic = 3.34), but a negative and significant determinant of *UnsDA* (t-statistic = 1.71).

The sign and significance of ownership by each investment horizon tercile explains the differences in the overall importance of fund ownership between the two discretionary accrual measures. In the regression describing signed discretionary accruals *TotOwn%* is positive and statistically significant at the 1% level (t-statistic = 3.67). Thus, total fund ownership is important in describing the direction of earnings management. However, overall fund ownership is an insignificant predictor of unsigned discretionary accruals.

In general, the explanatory variables are consistent with the motivation of earnings management as a means to improve stakeholder relations. For instance, smaller firms are more likely to have greater unsigned discretionary accruals. In addition, firms with a greater probability of violating debt covenants are more likely to manage earnings upward but not engage in greater earnings management overall. Lastly, when there is greater information asymmetry between the firm and market participants as measured by *MB* and *FcstSD*, firms have less of a tendency to manage earnings upward but instead are more likely to smooth earnings between periods.[12] Some evidence is found indicating annual return is a negative and significant determinant of unsigned discretionary accruals, but not signed discretionary accruals. Thus, firms with better

[12] Rajgopal et al. (1997, 1999), Burns et al. (2006), and Yu (2008) also find growth firms and firms smaller in size to have lower levels of unsigned discretionary accruals.

recent stock performance are less likely to manage earnings overall.

I next estimate level regressions describing *DA* and *UnsDA* with measures of ownership length. I follow the test methodology above again estimating panel regressions clustering standard errors at the firm level. Table 1.10 presents the results. There are four columns of results. The first two columns correspond to regressions explaining *DA*, and the second two correspond to regressions explaining *UnsDA*. For each measure of discretionary accruals I first control for ownership length of all fund shareholders (*AROL*) and then ownership length by fund investment horizon tercile (*AROLS*, *AROLM*, and *AROLL*).

Although overall relative ownership length is not a significant determinant of signed discretionary accruals, I do find firms with longer ownership by funds with short and medium investment horizons are more likely to manage earnings upwards. *AROLS* is a positive and significant determinant of *DA* at the 5% confidence level (t-statistic = 2.38), and *AROLM* is a positive and significant determinant of *DA* at the 1% level (t-statistic = 2.75). With respect to unsigned discretionary accruals, I do find overall ownership length to be a significant factor. *AROL* is a negative and significant predictor of unsigned discretionary accruals at the 1% confidence level. When I separate ownership length by *FIH* tercile, the determinacy of *AROL* is primarily driven by the ownership length of medium and long horizon funds. *AROLM* and *AROLL* are both negative and significant at the 1% confidence level, with the coefficient of *AROLL* (-0.006) having a greater magnitude than *AROLM* (-0.004). The sign and significance of the other explanatory variables remain primarily the same.

Two interesting points can be made when comparing the results from Tables 1.9 and 1.10. First, greater ownership and longer ownership by short horizon funds is related to more upwards earnings management, and greater ownership and longer ownership by long horizon funds is negatively related to its overall level. Thus, the relationship between fund ownership characteristics and earnings management is not

only dependent on the type of fund owner but also how one measures earnings management. Second, although greater "ownership stability" by medium horizon funds is a positive predictor of signed discretionary accruals, it is a negative predictor of unsigned discretionary accruals. This result is suggestive of a push-and-pull between short term gains and long term value when the investment horizon of a fund is neither short nor long.

Ultimately, the correlation in the results between the two measures of institutional ownership (especially by *FIH* tercile) may stem from their positive correlation. To determine if shareholder composition and ownership length can both be significant predictors of earnings management or if one characteristic is more important than the other, I next estimate level regressions describing *DA* and *UnsDA* using both sets of variables. I follow the same test methodology as above, estimating three regressions for each measure of discretionary accruals. In the first regression, I control for ownership stability with *SIH* and *AROL*, and in the second, I control for ownership stability with the percentage of shares held and relative ownership length by *FIH* tercile. In the third regression, I again control for ownership with measures at the *FIH* tercile level but include interaction terms between the percentage of shares held and its corresponding ownership lengths.

Table 1.11 reports the results. In general, I find the same variables significant in the previous two regression remain significant here. This indicates that the two characteristics of ownership stability control for different aspects of fund ownership and can both be important determinants. There is one primary exception when I break fund ownership by *FIH* tercile. Both *Own%M* and *Own%L* lose their significance in describing unsigned discretionary accruals when I regress them with measures of ownership length. This indicates one characteristic of ownership can dominate the other depending on the measure of earnings management and fund type. Among interaction terms, only $Own\%M \times AROLS$ is a significant determinant of signed discretionary

accruals (no interaction terms are significant with respect to unsigned discretionary accruals). The negative sign of the coefficient indicates longer ownership and greater ownership by short horizon funds are substitutes with respect to their determinacy of *DA*.

1.6.2 Difference Regressions

The results from Tables 1.9, 1.10, and 1.11 indicate ownership stability is negatively related to the level of earnings management. However, the results could stem from firm-level characteristics that explains both ownership stability and the propensity to manage earnings. To account for this potential explanation, I next estimate difference regressions explaining changes in signed and unsigned discretionary accruals. I difference variables from year $t-1$ to year $t+1$ to account for mechanical changes in discretionary accruals as a result of transitioning revenues or expenses between consecutive periods. I straight-difference all variables except for firm debt, equal to long term debt in year $t+1$ minus long term debt in year $t-1$, divided by total assets in year $t-1$. I prefix difference variables with Δ. I winsorize all continuous variables at the 1^{st} and 99^{th} percentiles. I use firms held by at least 5 mutual funds prior to the end of fiscal year $t-1$ and fiscal year $t+1$ to ensure that changes in ownership measures are not driven by a small number of funds. I report coefficients and t-statistics from panel regressions clustering standard errors at the firm level. I use firm data from 1991 to 2006.[13]

Table 1.12 presents the results. There are eight columns. The first four columns present regression results explaining changes in signed discretionary accruals, and the next four columns present regression results with respect to changes in unsigned discretionary accruals. I first control for changes in ownership stability with ΔSIH and $\Delta AROL$.[14] In the next two regressions, I control for changes in ownership stability

[13] I also estimate Fama-Macbeth (1973) style regressions. The results do not change.

[14] I also estimate separate regressions controlling for changes in ownership with ΔSIH and $\Delta AROL$ independently. The sign and significance of the variables remain the same.

using measures at the *FIH* tercile level, first with respect to the percentage of shares held and then by ownership length. In the final regression, I include changes in both the percentage of shares held and relative ownership lengths by fund investment horizon tercile.

I continue to find strong evidence indicating ownership by funds with shorter investment horizons is positively related to signed discretionary accruals. ΔSIH is negative and significantly related to ΔDA at the 1% confidence level with a t-statistic equal to 3.75. I again find the sign and significance of ΔSIH stems from funds with short and medium investment horizons; both $\Delta Own\%S$ and $\Delta Own\%M$ are positive and significant regardless of whether I control for changes in ownership length. Although I find some evidence indicating short horizon fund ownership length is a positive determinant of ΔDA, the result is not robust to inclusion of ownership percentage change variables in the regression. I find all other measures of ownership length to be insignificant. With respect to unsigned discretionary accruals, I find little evidence indicating changes in any measure of fund ownership is significant. The lone exception is the change in medium horizon fund ownership. Consistent with the level regressions found in Table 1.9, $\Delta Own\%M$ is negatively related to $\Delta UnsDA$ at the 10% level.

In all difference regressions, firms transitioning from value to growth are more likely to manage earnings. ΔMB is positive and statistically significant at the 1% confidence level. Although firms increasing in size are found to engage in more positive earnings management, the overall use of discretionary accruals decreases. Consistent with the level regressions, an increase in analyst forecast dispersion is negatively related to changes in signed discretionary accruals but positively related to changes in unsigned discretionary accruals. Firms with a greater decline in stock price are also more likely to manage earnings upward and overall than before. I also find evidence indicating changes in debt is positively related to changes in unsigned discretionary

accruals.

Overall, the results in this section demonstrate a strong positive relationship between signed discretionary accruals and greater ownership by funds with shorter investment horizons. I also find consistent evidence indicating greater ownership by medium horizon funds is positively related to the direction of earnings management but not to its overall level. These two results relate to the differences in the way the two fund types interact with firm managers. Interestingly, I find little indication ownership by funds with long investment horizons is related to earnings management, suggesting that funds with shorter investment horizons are the more important shareholders in this case.

1.7 Chapter Conclusion

This chapter presents evidence indicating ownership stability by a firm's mutual fund shareholders is an important determinant in the direction and overall emphasis placed on earnings management. The results in this chapter also underscore how different aspects of ownership stability can be important in describing firm behavior. I find the strongest relationship between ownership stability and earnings management is the positive correlation between short horizon fund ownership and the direction of earnings management. Also important is ownership by medium horizon funds relating to more upwards earnings management but less earnings management overall.

Chapter 2: Corporate Spin-offs

2.1 Introduction

A justification often given by firm managers to spin-off one or more subsidiaries is to obtain greater and more specialized analyst coverage. Spin-offs increase analyst number by increasing investor demand for coverage, firm demand for investment services, and analyst ability by allowing for a more perfect match with analysts and their particular expertise.[15]

The increase in business focus that improves analyst coverage may also alter the level and type of institutional ownership. By increasing company focus, firms engaging in corporate spin-offs become more attractive to institutions that generally hold shares for longer periods of time (or have longer investment horizons) where portfolio composition is of greater importance. On the other hand, with the increase in business focus and transparency spin-off corporations may become less attractive to institutions with shorter investment horizons thought to hold an informational advantage (Wermers (2000), and Yan and Zhang (2007)).

The composition of institutional shareholders is important to firm management. In general, firm managers prefer institutional shareholders that hold firm stock for longer periods of time. Longer-term investors not only allow companies to pursue long-term strategies, but also are more likely to aid firm managers by communicating both their private outlooks as well as the opinions of sell-side analysts. Conversely, institutions that hold shares for shorter periods of time are more likely to exert greater pressure on firm managers to act myopically, oftentimes on threat of removal or company takeover (Useem(1996)).

In this chapter I investigate the relationship between business focus and institutional ownership stability by comparing positions before and after corporate spin-offs.

[15] For empirical evidence see Krishnaswami and Subramaniam (1999) and Gilson, Healy, Noe, and Palepu (2001).

I investigate not only the role of business focus in portfolio composition between institutions with differing levels of investment horizon, but also how changes in business focus relates to the level and length of institutional shareholder stability.

I take institutional stock positions at the fund level from the Thomson Reuters (S12) Mutual Fund dataset. The dataset consists of positions from most domestic mutual funds and some global funds that participate in US and Canadian equity markets. The primary source for the dataset is SEC N-30D filings. Although for the majority of the time period the SEC required mutual funds to file this form semi-annually, Thomson Reuters supplements the filings by examining fund prospectuses and contacting mutual funds directly. The other approach is to use the Thomson Reuters (13f) Investment Company dataset consisting of aggregate holdings of banks, insurance companies, parents of mutual funds, pensions, and endowments. The primary source for this dataset is quarterly SEC 13f filings required by all institutional investment managers that exercise investment discretion over $100 million.

A fund's investment horizon is equal to the average length of time (in months) each share of every stock positions is held from the date of initial stock investment to the date of measurement. Using the full ownership history of each stock position to classify a fund's investment horizon is a departure from past literature which uses either a range of portfolio characteristics (e.g. Bushee (1998), and Hotchkiss and Strickland (2003)) or portfolio turnover (e.g. Gaspar, Matos, and Massa (2005), and Yan and Zhang (2009)). By using mutual fund holding data and measuring an institution's investment horizon in this manner, I am able to increase the number of institutional shareholders in my dataset and create a more precise measure of shareholder investment horizon that is more directly related to the corporate governance aspects of institutional ownership.

I begin by investigating changes in the level of fund ownership around corporate spin-offs. Prior to the spin-off, I measure fund ownership of the parent company (the

original conglomerate) with the total percentage of shares held by all fund shareholders, and with the average fund shareholder investment horizon. I use the same ownership measures following the spin-off but create two sets. The first set measures the "overall" fund ownership of all firms originating from the same parent company with market-value weighted averages. The second set measures fund ownership of just the parent company. Initial results suggest a positive and significant increase in overall and parent company fund ownership not only by all funds but especially those with longer investment horizons. However, consistent with evidence found by Abarbanell et. al (2003), after controlling for similar changes in ownership by a control firm I find no indication ownership changes (both overall and in the parent company) are significant.

I explain the two sets of adjusted ownership changes with multivariate regressions. I first explain overall changes in fund ownership with measures of business focus with variables describing differences between parent companies and subsidiaries based on growth opportunities, size, operating performance, and industry classification. I also use the change in analyst coverage to measure the overall importance of the spin-off event. Consistent with spin-offs as a means to separate businesses of the original parent company with differing levels of performance, I find differences in operating performance between spin-off related firms and greater overall mean changes in operating performance predict greater overall change in total fund ownership. Second, I explain changes in parent company ownership with explanatory variables measuring changes in firm characteristics. Variables include changes in size, operating performance, market-to-book, capital expenditures, debt, and payout yields. I also control for the type of spin-off with changes in analyst coverage and differences in industry classification. I find funds increase ownership when growth opportunities increase and leverage ratios decrease. The change in growth opportunities also positively predicts a long-term increase in shareholder investment horizon.

Also of importance is the relationship between changes in adjusted measures of fund ownership with abnormal returns following the effective date. Consistent with past researchers, I find overall (parent companies and all spun-off subsidiaries) and parent company abnormal returns are positive and statistically significant 12 months, 24 months, and 36 months after the spin-off event. Although I find no indication the change in total adjusted fund ownership percentage is significant, I do find evidence indicating greater ownership by funds with shorter investment horizons is positively related to the distribution of abnormal returns. This evidence supports past work indicating the level of institutional ownership is not related to abnormal returns (Abarbanell et. al (2001)) but ownership by institutions with shorter investment horizons does (Wermers (2000), and Yan and Zhang (2009)).

I next investigate the ownership patterns of fund shareholders that hold firm stock prior to the spin-off announcement date. I use two measures at the fund-firm level to describe changes in ownership. The first measure is equal to a discrete variable that distinguishes between funds that holds no firms, a proportion of firms, and all firms originating from the pre-spin-off conglomerate. The second measure is equal to the change in ownership percentage using only those observations where the fund still holds a positive stake at the later date. The purpose of these tests is to determine not only the level at which pre-existing fund shareholders remain invested in the original company, but also whether fund shareholders increase their stake in those firms they do continue to hold.

In univariate tests I find roughly 40% of pre-existing shareholders hold at least one firm from the original parent following the spin-off event and that on average funds increase the positions in the stocks they continue to hold. I again estimate multivariate regressions explaining the proportion of spun-off firms held and the change in ownership percentage with variables describing differences between firms originating from the same parent company. pre-existing shareholders are more likely to hold onto

a greater proportion of firms following spin-offs when the difference between market-to-book ratios is greater and the difference between operating performances is lower. This is suggestive of funds holding onto more shares when the spin-off splits firms with varying levels of growth opportunities and the divestment of poorly performing businesses was not the motivation for the event. Interestingly, a positive relationship is also found with respect to changes in analyst coverage. This is suggestive of funds, even those holding the original parent company prior to the spin-off event, preferring companies that have separate and distinct businesses. Interestingly, the significance of the determinants decreases with investment horizon indicating the same determinants associated with longer ownership length also decreases the sensitivity to changes in firm characteristics. I find little evidence changes in fund ownership percentage are dependent on firm differences.

Instead of investigating changes in fund ownership around spin-off events, I lastly compare fund ownership patterns strictly before and strictly after spin-off events. In this instance, corporate spin-offs provide a unique environment to investigate whether fund ownership patterns differ between more stand alone entities and multibusiness corporations.

I estimate three sets of regressions with different fund ownership measures taken at the fund-firm level. The first dependent variable is equal to the change in ownership percentage, the second dependent variable is equal to the difference in the percentage of other firms held within the same fund portfolio but for a strictly shorter period of time, and the third is equal to the likelihood a fund closes an equity position. For the first two variables I difference the ownership measures in two distinct and consecutive time periods before and after the spin-off event using only those observations where the fund has a positive stake at the earlier date. For the last dependent variable I use fund data three years before the announcement date and three years following the effective date to determine dates of position close.

There are three sets of explanatory variables of interest. The first set controls for overall changes in fund behavior before and after the spin-off, testing for differences in fund behavior between conglomerates and more focused entities. The second set of variables controls for changes in operating performance. If there is a difference in ownership stability between firms based on focus, then it may be represented in the sensitivity fund positions have toward changes in firm profitability. The third set of explanatory variables of interest measures the magnitude of the spin-off with changes in analyst coverage from before to after the spin-off event. Fund positions may differ between firms with spin-offs of differing significance.

Although I find little indication changes in ownership percentage are significantly different following spin-offs, I do find strong evidence indicating funds, especially those with longer investment horizons, have more positive changes in ownership and hold shares relatively longer after spin-offs than before. Thus, one justification to spin-off businesses, especially those of a different industry, is to obtain not only more stable ownership by all fund shareholders but especially fund shareholders that typically hold onto shares for longer periods of time. This may be especially important for diversified companies that engage in spin-offs. Past research (Thomas (2002), and Denis, Denis, and Sarin (1997)) note decreases in diversification are associated with managerial turnover and financial distress. Consistent with evidence of Chemmanur and He (2008), I also find funds with shorter investment horizons seem to exhibit more informed trading after the effective date.

This chapter looks at specific holdings of mutual funds and relates it to the level and length of institutional ownership. Overall, this chapter finds evidence indicating corporate events, in this case spin-offs, have a significant effect on institutional ownership. The results have two sets of implications. First, the comparison in institutional ownership provides evidence indicating how differences between institutional shareholders based on ownership length can manifest itself itself in changes before

and after spin-off events. Second, the results indicate that although parent companies cannot significantly alter shareholder composition (with respect to shareholder investment horizon) by spinning off subsidiaries, they can attract longer ownership by shareholders which tend to have more of a positive role in firm management.

2.2 Spin-off Literature

In this section, I review related literature and discuss in further detail the contributions of this work.

Habib, Johnsen, and Naik (1997) and Nanda and Narayanan (1999) theorize firms engage in corporate divestitures to improve the information environment surrounding the firm. In both models, firms are able to improve the valuation of the firm by making cash flows more observable to market participants, thus increasing share value and improving investment decision quality. Krishnaswami and Subramaniam (1999) and Gilson, Healy, Noe, and Palepu (2001) find evidence of a decrease in information asymmetry by testing changes in analyst forecast errors and analyst coverage before and after spin-off events. Thomas (2002), however, finds no evidence indicating conglomerates in general suffer from information problems.

Another motivation for firms to engage in corporate spin-offs is to improve investment efficiency. Rajan, Servaes, and Zingales (2000) and Scharfstein and Stein (2000) both argue internal rent seeking can distort the investment efficiency of internal capital markets. Several researchers have used spin-offs as a environment to test changes in investment quality. Gertner, Powers, and Scharfstein (2002) find subsidiaries recently spun-off from their parent company increase investment in high Q (Tobin's) industries but decrease investment in low Q industries. This result is primarily found in subsidiaries with unrelated businesses to the parent company's or that had a positive market reaction to the spin-off event. Dittmar and Shivdasani (2003) finds the parent company improves investment efficiency following spin-offs compared to stand-alone entities. Burch and Nanda (2003) and Ahn and Denis (2004) find similar

evidence using the investment decisions of the combined firms (parent company and spun-off subsidiaries). However, after controlling for the decision to divest, Çolak and Whited (2006) finds no evidence of investment efficiency improvements. With a similar argument, Chemmanur and Yan (2004) theorize spin-offs improve the efficiency of management contests.

Evidence suggests corporate spin-offs are positively related to changes in firm value and operating performance. Hite and Owers (1983); Miles and Rosenfeld (1983); Schipper and Smith (1983); Vijh (1994); and Cusatis, Miles, and Rosenfeld (1993) all find positive abnormal returns following spin-off events. Using a comprehensive 36 year sample, McConnell and Ovtchinnikov (2004) find positive long-run abnormal returns for subsidiaries but not for parent companies. Daley, Mehrotra, and Sivakumar (1997) and Desai and Jain (1999) both find post-event abnormal returns and changes in operating performance are larger for firms engaging in focus-increasing spin-offs. Desai and Jain (1999) also find changes in operating performance are positively related to changes in business focus.

More recent work links institutional ownership to changes in firm value and information production around spin-off events. Abarbanell, Bushee, and Raedy (2003) find institutional ownership patterns are consistent with previous investment styles and fiduciary restrictions but no indication institutional ownership changes are related to short-term abnormal returns. Greenwood (2006) finds similar evidence; differences between parent companies and subsidiaries, especially in size and growth opportunities, induce predictable selling and buying between institutional investors and relate to short-term abnormal returns. Using proprietary institutional trading data, Chemmanur and He (2008) investigate the role of institutional trading in information production after corporate spin-offs. They find the trading imbalance between the parent companies and subsidiaries increases with the level of information asymmetry, difference in beta risk, and the difference in long-term growth prospects suggesting

information production, risk management, and investment in a particular business are all motivations of trade. They also find evidence indicating a positive relationship between institutional trading and abnormal returns. Although further evidence of informed trading after spin-offs is also found by Huson and MacKinnon (2003), Brown and Brooke (2003) find "uninformed" rebalancing by institutional investors placing downward price pressure. Patro (2008) examines changes in subsidiary block ownership after spin-off events. He finds overall block ownership increases after spin-offs and is positively related to monitoring needs.

This chapter is most similar to the work of Abarbanell et al. (2003) and Greenwood (2006). However, the focus of this chapter is not just institutional ownership patterns around spin-offs, but institutional ownership as it relates to ownership stability. This chapter also extends past work on informational advantages held by institutions with short investment horizons. Wermers (2000) finds evidence indicating value of active mutual fund management. As part of the evidence, he finds high-turnover firms beat the Vanguard Index 500 Fund on a net return basis. Yan and Zhang (2007) find a positive relationship between short-term institutional ownership and future returns with particularly strong evidence with respect to small firms and growth firms. To my knowledge, past literature does not use spin-offs as a testing environment to address the information advantage held by short horizon funds.

2.3 Data

In this section I describe the methodology used to create the spin-off event dataset and define base firm-level variables.

2.3.1 Spin-off Event Data

I use the Securities Data Company (SDC) Platinum U.S. Mergers and Acquisitions Database to obtain corporate spin-off data. I extract the following variables: announcement date, effective date, percent acquired, target ultimate parent cusip, target immediate parent cusip, target cusip, target ultimate parent name, target immediate parent name, target name, and spin-off status.

I match SDC dataset company names to the CRSP Monthly Stock Event Name History datafile to obtain current cusip identifiers as well as name history dates. I cross-reference each observation with the Dow Jones Factiva database, confirming the spin-off announcement and effective dates, classifying the form of stock distribution (e.g. tracking stock), and determining whether the spin-off relates to other restructuring events.

I take all completed spin-off transactions with announcement dates between January 1, 1990 to December 31, 2007 for a total of 641 observations. I first refine the dataset by combining concurrent spin-off observations stemming from the same original parent company into one. For these combined observations (33), I redefine the announcement date as the earliest date the original conglomerate announced a spin-off, and the effective date as the last date the parent company distributed shares. To be consistent with Abarbanell et al. (2003), I exclude 83 observations because the stock distribution is less than eighty percent of the equity in the subsidiary (and therefore does not qualify for tax-free treatment) or no stock distribution information is available. Of the remaining 525 observations, I eliminate 86 that relate to other corporate events such as mergers and acquisitions, reorganization as the result of bankruptcy, and corporate liquidations; 70 because the parent company prior to the announcement date is not listed on a major stock exchange (NYSE, AMEX, or NASDAQ); and 44 because either the parent company or one of spun-off subsidiaries following the effective date is not traded on one of these three exchanges. To more

accurately measure fund ownership and to ensure ownership changes are directly related to the spin-off event, I discard an additional 13 spin-off events because the parent company (or its newly formed subsidiaries) lists multiple share classes and 42 spin-off events because at least one spun-off subsidiary was traded one month prior to the announcement date. Lastly, to ensure share changes are not the result of past spin-off events, I exclude 24 spin-off events with an announcement date within three years of a previous spin-off related stock distribution. The remaining number of spin-off event observations is 246. The number of spin-off observations is similar to and greater than the total number of spin-off observations in past work. Table 2.1 reports the final number of spin-offs each year from 1990 to 2007. The number of observations in the tests below fluctuates based on the availability of other information.

2.3.2 Firm-Level Variables

I extract firm data from the Compustat Fundamentals Annual data file, the Center for Research in Securities Prices (CRSP) monthly stock return file, and the I/B/E/S detail file. I derive the following variables from Compustat data for each fiscal year t.

- ROA_t (return-on-assets) = Operating income before depreciation divided by total assets (data13$_t$ / data6$_t$).
- $ROACA_t$ (return on cash adjusted assets) = Operating income before depreciation divided by the difference between total assets and cash and short-term investments (data13$_t$ / (data6$_t$ − data1$_t$))
- ROS_t (return on sales) = Operating income before depreciation divided by net sales (data13$_t$ / data12$_t$).
- $Size_t$ (firm size) = The natural log of total assets (data6 or at).
- MB_t (market-to-book ratio) = Fiscal year end market value divided by book value (MV_t/BV_t). Book value (BV)is equal to the sum of total assets, deferred

tax and investment credit (data35 or txditc), and convertible debt (data79 or dcvt), minus preferred stock (data10 or pstkl) and total liabilities (data181 or lt).

- $CapEx_t$ (capital expenditures) = Capital expenditures (data128 or capx) divided by total assets ($\text{data128}_t/\text{data6}_t$).
- $Debt_t$ (debt) = Total long term debt (data9 or dltt) divided by total assets ($\text{data9}_t/\text{data6}_t$).
- $DivYld_t$ (dividend yield) = Dividends paid per share as of the ex-dividend date times fiscal year end shares outstanding, divided by total assets (data6 or at) ($\text{data26}_t \times \text{data25}_t$ / data6_t).
- $RepYld_t$ (repurchase yield) = The purchase of common and preferred stock divided by total assets (data115_t / data6_t).

I derive the following two variables from CRSP data.

- $AnnRet_t$ (annual return) = Annual compounded monthly return percentage $\left(\left(\prod_{m\in[\text{Jan, Dec}]}(1+ret_{m,t})\right)-1\right)$ in year t, using all 12 months m of data.
- ICD (industry classification difference) = 3 if at least one firm stemming from the same parent company (either the parent company or subsidiary) has a different Fama-French 12 industry classification, 2 if at least one firm has the same Fama-French 12 industry classification but different Fama-French 30 industry classification, 1 if at least one firm has the same Fama-French 12 and 30 industry classifications but different Fama-French 48 industry classification, and 0 if all firms stemming from the same parent company have the same Fama-French 48 industry classification.

I derive the last variable, the change in analyst number, from I/B/E/S.

- $\Delta AnNum$ (change in analyst number) = the number of analysts covering the firm following the effective date minus the number of analysts covering the firm six months before the announcement date divided by 100. I measure the number of analysts 12, 24, and 36 months following the effective date depending on the time period of the test.

2.4 Changes in Fund Ownership[16]

In this section I investigate changes in fund ownership and equity value following spin-off events. I explain changes with multivariate regressions.

2.4.1 Fund Ownership Variables

In this subsection I summarize fund ownership levels three years prior to the announcement date and three years following the effective date. I subdivide each time period into 6 month intervals, using the most recent filings at each breakpoint.

I first summarize fund ownership with the total percentage of shares held. Prior to the announcement date, the percentage of shares held by fund i in parent company (the original conglomerate) j at date t is equal to

$$Own\%_{i,j,t}^{Bef,P} = \frac{S_{i,j,t}}{ShrOut_{j,t}} \tag{11}$$

where S is the number of shares held and $ShrOut$ is the number of common shares outstanding taken from the CRSP database (shrout). The total percentage of shares held in the parent company ($TotOwn\%^{Bef,P}$) is equal to

$$TotOwn\%_{j,t}^{Bef,P} = \sum_{i \epsilon I} Own\%_{i,j,t}^{Bef,P} \tag{12}$$

[16] See Chapter 1.4 for a full discussion of the mutual fund sample and measurement of fund investment horizon.

where i indexes the set of fund shareholders I. Following the effective date, I calculate the overall percentage of shares held in the parent company and all spun-off subsidiaries as well as the percentage of shares held in just the parent company. To calculate the overall percentage of shares held ($TotOwn\%^{Aft,O}$), I first sum and then weight the total percentage of shares held in each firm by market value. In equation form, the overall percentage of shares held is equal to

$$TotOwn\%_{S,t}^{Aft,O} = \frac{\sum_{s \epsilon S} MV_{s,t} * TotOwn\%_{s,t}^{Aft}}{\sum_{s \epsilon S} MV_{s,t}} \tag{13}$$

where $TotOwn\%^{Aft}$ represents the total percentage of shares held after the effective date, MV represents market value, and s indexes the set S of firms stemming from the same original conglomerate. I define the percentage of shares held in just the parent company after the effective date ($TotOwn\%^{Aft,P}$) similar to Equation (13). I define a firm after the spin-off event as being the parent company if it retains the same cusip as the original conglomerate.

The number of observations at each date is dependent on whether the parent company or all firms originating from the same parent company trade for at least six months prior to measurement.[17] I exclude observations of overall ownership if either the parent company or one of the spun-off subsidiaries does not meet trading requirements, and parent company ownership observations if it alone does not meet trading requirements.

Table 2.2 presents sample mean ownership percentages three years before and three years after the spin-off event. In general, I find firms engaging in corporate spin-offs experience an increase in fund ownership before and after the event. Overall fund ownership (in the parent company and all spun-off subsidiaries) increases from

[17] Funds are required to file shareholdings semiannually. If the firm is not traded for at least over a six month interval, some fund observations may be absent from the measurement.

5.6% to 6.8% over the three years prior to the announcement date, and from 7.7% to 8.6% over the three years following the effective date (7.4% to 8.3% for just the parent company). This increase in fund ownership is driven primarily by long horizon funds. Long horizon funds increase their total ownership from 2.3% to 3.1% over the three years prior to the announcement date, and from 3.7% to 4.3% over the three years following the effective date (3.6% to 4.3% for the parent company). On the other hand, short and medium horizon funds either have no or just small increases in ownership over the same time periods.

2.4.2 Univariate Tests of Fund Ownership Changes

The results above indicate an increase in ownership following spin-offs especially by funds with longer investment horizons. In this subsection, I test whether the ownership increases are significant.

I test unadjusted changes in fund ownership 12 months, 24 months, and 36 months following the effective date using fund ownership levels 6 months prior to the announcement date as a baseline. I first test changes in total overall ($\Delta TotOwn\%^{O}$) fund ownership percentage and in the parent company ($\Delta TotOwn\%^{P}$). I use all observations regardless of how many funds hold firm stock before or after the spin-off event.

To investigate changes in ownership composition, I use average fund shareholder investment horizon (*SIH*). *SIH* is equal to the average investment horizon of funds holding firm j at date t, weighted by the number of shares held. In equation form, *SIH* is equal to

$$SIH_{j,t} = \sum_{i \epsilon I} \frac{S_{i,j,t} * Log\left(FIH_{i,t}\right)}{\sum\limits_{i \epsilon I} S_{i,j,t}} \tag{14}$$

I take the average with respect to the natural log of *FIH* to reduce the influence of fund age. Similar to total ownership percentage, I calculate *SIH* for the parent company 6 months prior to the announcement date ($SIH^{Bef,P}$), and overall ($SIH^{Aft,O}$)

and for the parent company ($SIH^{Aft,P}$) following the effective date. To ensure changes in shareholder investment horizon are not driven by a small number of funds, I require the parent company to be held by at least 5 mutual funds prior to the announcement date and 5 mutual funds following the effective date (either overall or just the parent company depending on the statistic). I designate the overall change in shareholder investment horizon change with ΔSIH^{O}, and the change in the parent company with ΔSIH^{P}.

For all measures I calculate both mean and median changes, using two-sided t-statistics to test for a difference in mean change and two-tailed z-statistics from Wilcoxon rank-sum tests to test for a difference in median change. Panel A of Table 2.3 presents results with respect to overall fund changes, and Panel B presents results with respect to fund changes in the parent company.

Consistent with the fund ownership levels in Table 2.2, mean and median changes in total fund ownership percentage is positive and statistically significant with confidence levels greater than 5%. This is true regardless of the whether I measure overall ownership or in just the parent company and the length of the time period (12, 24, or 36 months following the effective date). Furthermore, consistent with the relative increase in long horizon fund ownership, the mean and median changes in *SIH* are positive and statistically significant 24 months and 36 months following the effective date with confidence levels greater than 5%.

The strong results in Panels A and B, however, may instead stem from changes in mutual fund ownership patterns over time. To account for this potential explanation, I match each event firm with a control firm and difference the change in ownership in the event firm with a similar change in the match firm. Following Lie (2001) and Grullon and Michaely (2004), I narrow the number of potential control firms by requiring the same 48 Fama-French Industry Classification, and measures of MB_{t-1}, ROA_{t-1}, and ΔROA_{t-1} within 80% to 120% of the event firm's value. For each event

firm e, I then choose the control firm c which minimizes

$$|ROA_{e,t-1} - ROA_{c,t-1}| + |\Delta ROA_{e,t-1} \Delta ROA_{c,t-1}| + |MB_{e,t-1} - MB_{c,t-1}| \qquad (15)$$

If I cannot find a match from this sample, I repeat the procedure but loosen the industry restriction to all firms within the same Fama-French 12 Industry Classification. If I still cannot find a match, I use the control firm which minimizes Equation (15) with no regard to industry classification. If still no match is found, I choose the control firm which minimizes Equation (15) with no restrictions. Like with event firms, when testing changes in *SIH* I require control firms to be held by at least 5 funds at the beginning of the measurement period and 5 funds at the end of the measurement period. I again use tests of mean and median change to test for significance.

Panels C and D in Table 2.3 presents tests of adjusted ownership changes similar to Panels A and B. After adjusting for similar changes in ownership, I find no significant evidence indicating firms attract greater fund ownership or longer horizon fund ownership following spin-off events. However, I do find mean and median changes in total ownership percentage and shareholder investment horizon both overall and in the parent company are positive 24 months and 36 months after the effective date. Thus, there is at least some indication total fund ownership and fund ownership by long horizon funds increases.

2.4.3 Multivariate Regressions Explaining Adjusted Ownership Changes

In this subsection I explain the adjusted changes in fund ownership with multivariate regressions. I estimate two sets of regressions, the first explaining overall changes in fund ownership and the second explaining changes in just the parent company. I estimate regressions explaining adjusted ownership changes 12 months, 24 months, and 36 months after the effective date.

In the first set of regressions, I explain overall changes in fund ownership with

measures describing differences between firms stemming from the same parent company. I estimate linear panel regressions with one observation per spin-off event. Explanatory variables include

- *SDSize* (standard deviation of firm size) = the standard deviation of firm sizes for all firms originating from the same parent company.
- *SDMB* (standard deviation of market-to-book ratios) = the standard deviation of market-to-book ratios for all firms originating from the same parent company.
- *SDROA* (standard deviation return-on-asset ratios) = the standard deviation of return-on-asset ratios for all firms originating from the same parent company.
- $\Delta\overline{ROA}$ (the mean change of return-on-asset ratios) = the mean return-on-asset ratio for all firms originating from the same parent company following the effective date minus the return-on-asset ratio of the parent company taken six months prior to the announcement date.

Past work of Greenwood (2006) and Gompers and Metrick (2001) find evidence linking firm size and growth opportunities to institutional demand curves. Measures of operating performance account for the motivation of a spin-off as a means to separate underperforming businesses or improve investment allocations. I use standard deviations instead of absolute differences to account for spin-offs of more than one subsidiary. I also use *ICD* and $\Delta AnNum$ to control for differences in industry classification and the overall importance of the spin-off as it relates to analyst demand. I include an interaction term between *ICD* and *SDSize* ($ICD \times SDSize$) to differentiate between small and large spin-offs of differing industries.

Past authors have used revenue-based and asset-based Herfindahl indices, segment number, and industry dummy variables to control for business focus; and forecast errors, analyst number, and volatility of stock returns to control for information

asymmetry. *ICD* improves on past industry indicator variables because it controls for the degree of industry difference between spin-off related firms. I use $\Delta AnNum$ as the measure of information change because it relates to not only to the importance of the spun-off businesses based on future investor and investment service demand, but also the change in transparency based on the cost of information creation and ultimately analyst supply. Measures of forecast error, on the other hand, can be clouded by earnings volatility and manipulation.[18] Lastly, I include year fixed-effects based on the effective date. I do not include industry fixed effects because match firms were chosen based on industry classification. Standard errors are heteroscedastic-robust.

Panel A of Table 2.4 presents the regression results. Columns (1) through (3) presents regression results describing overall changes in total ownership percentage 12 months, 24 months, and 36 months after the effective date, and columns (4) through (6) presents regression results explaining overall changes in shareholder investment horizon. No factor is a significant determinant in all six regressions. However, I do find consistent evidence indicating differences in industry classification and operating performance as well as the overall mean change in operating performance are significant in describing changes in total ownership percentage.

Both the standard deviation and overall mean change in return-on-assets are positive and statistically significant with confidence levels greater than 10% in describing total ownership changes 12 months and 36 months after the effective date (both measures are positive but insignificant in describing total ownership changes at 24 months). Thus, differences and the subsequent gains in operating performance between the different businesses within the original parent company make all or parts of the company more attractive overall to institutional shareholders. This evidence is indicative of a positive reaction to conglomerates of either spinning off under-performing businesses or improving the management of the firm by decreasing its scope.

[18] Earnings manipulation is extensively researched in the accounting literature. See Graham, Harvey, and Rajgopal (2005) for CFO survey evidence.

Interestingly, industry classification differences is negatively related to the change in total ownership percentage in each regression, and significant at 24 and 36 months. Comparing these coefficient estimates to regressions describing changes in shareholder investment horizon, the negative relationship with respect to *ICD* seems to stem primarily from a decrease in short horizon fund ownership. The coefficients multiplying *ICD* is positive in each regression describing ΔSIH, and significant at the 10% level at 24 months. Consistent with the idea that differences in industry classification is more important the greater the relative size of the spin-off, the interaction between *ICD* and *SDSize* is a negative determinant in each regression describing changes in *SIH* with significance at 24 months. No other explanatory variable is significant in regressions describing changes in shareholder investment horizon.

In the second set of regressions, I explain fund ownership changes in just the parent company with measures describing changes in characteristics. Explanatory measures include changes in return-on-assets, market-to-book ratios, firm size, capital expenditures, debt ratio, dividend yield, and repurchase yield. Each variable is equal to its post-spin-off minus pre-spin-off value. I also include *ICD*, $\Delta AnNum$, and year fixed-effects. Standard errors are heteroscedastic-robust.

Panel B of Table 2.4 presents the regression results similar to Panel A. The first three columns present regression results explaining changes in total fund percentage ownership 12 months, 24 months, and 36 months after the effective date. The next three columns present regression results describing ΔSIH. Important to the change in total fund ownership is the change in debt and market-to-book ratio. I find an increase in leverage decreases total fund ownership, whereas an increase in growth opportunities increases total fund ownership. Both determinants are significant in describing ownership changes at 12 months and ownership changes at 36 months and have the same sign regardless of the time period. In addition, the increase in business focus as it relates to industry classification (*ICD*) is negatively and significantly

related to the change in total fund ownership 24 months and 36 months after the effective date at confidence levels greater than 5%.

Again, the relationship between ICD and the change in total ownership percentage seems to primarily stem from a decrease in short horizon funds. Although insignificant, ICD is a positive predictor of ΔSIH in each regression. Overall, little evidence is found indicating any explanatory variable is an important determinant in describing changes in shareholder investment horizon. However, the change in market-to-book ratio is again positive and statistically significant at the 1% confidence level at 36 months in describing ΔSIH^P. Thus, firms with an increase in growth opportunities attract not only more fund shareholders but funds which typically hold shares for longer periods of time.

These results are consistent with past evidence including Krishnawami and Subramaniam (1999), and Gilson et al. (2001) indicating spin-offs as a means to reduce information asymmetry and potentially increase ownership. In addition, the results especially with respect to change in market-to-book ratio is indicative of institutional shareholders increasing ownership of parent companies when internal capital markets improve (Gertner, Powers, and Scharfstein (2002), and Ahn and Denis (2004)).

2.4.4 Relation to Post-Event Returns

Past researchers (see Chapter 2.2) document positive abnormal returns after spin-off events. Here, I investigate changes in abnormal returns with respect to changes in fund ownership as well as other explanatory variables describing the spin-off event. I measure post-event stock returns 12 months, 24 months, and 36 months after the effective date. I do not investigate short-term returns because of the low frequency of ownership data. I measure both overall abnormal returns (of the parent company and all subsidiaries) and parent company abnormal returns. Overall post-event returns (RET^O) τ months following the effective date is equal to

$$RET^{O}_{S,\tau} = \left(\left(\prod_{t=1}^{\tau} \left(\sum_{s \epsilon S} \frac{MV_{s,t-1} \times (1 + ret_{s,t})}{\sum_{s \epsilon S} MV_{s,t-1}} \right) \right) - 1 \right) \tag{16}$$

where ret represents monthly returns taken from the CRSP monthly stock return file, MV represents market value, and s indexes the set S of firms stemming from the same parent company. When t is equal to 1, MV_{t-1} is equal to share price times shares outstanding on the first day of trading in the month. I use only spin-off observations where all firms stemming from the original parent company begin trading either the month or two months after the effective date and have continuous returns until month τ.

Post-event returns for the parent company j is equal to

$$RET^{P}_{j,\tau} = \left(\left(\prod_{t=1}^{\tau} (1 + ret_{s,t}) \right) - 1 \right) \tag{17}$$

Adjusted post-event returns ($AdjRET$) is equal to the returns of spin-off firms (both overall and the parent company) minus the returns of match firms designated in Chapter 2.4.2. I fill missing return data for match firms with the Fama-French 5x5 size and book-to-market sorted portfolios. I classify match firms using lagged data at the time of the match (see Equation (15)). I calculate two sets of adjusted returns, the first when I place no restrictions on the number of fund shareholders at the latter date (in tests of ownership percentage) and the second when I place restrictions (in tests of SIH). Following Barber, Lyon and Tsai (1999), I test that the mean adjusted returns are greater than zero using bootstrapped skewness adjusted t-statistics (Hall (1992)). Bootstrapping involves 1,000 drawings of half the sample. I also test for median significance with Wilcoxon rank-sum tests. Table 2.5 presents the results.

Panel A presents overall abnormal returns and Panel B presents abnormal returns for the parent company. When I place no ownership restrictions on the match algorithm, I find overall and parent company mean abnormal returns are positive and

significant from zero 12, 24, and 36 months after the effective date. Positive abnormal returns at 36 months are confirmed with tests of median significance. Interestingly, when I place restrictions on fund ownership (number of fund owners has to be greater than 5 prior to the announcement date and 5 after the effective date) I only find mean short-term returns both overall and for the parent company are positive and statistically significant. Tests of median returns are largely insignificant. The differences in results when I place no restrictions and some restrictions on fund ownership is indicative of sample selection effects.

I explain adjusted post-event returns with multivariate regressions using changes in fund ownership and measures describing the spin-off event as explanatory variables. I estimate 12 separate regressions distinguished by return length (12, 24, and 36 months), ownership measure (total ownership percentage and *SIH*), and firm set (all firms and parent company). The regressions follow the same specifications describing changes in fund ownership in Chapter 2.4.3. Table 2.6 presents the results.

Panel A presents the regression results for overall abnormal returns. Columns (1) and (2) present regression results describing abnormal returns 12 months after the effective date first using $\Delta TotOwn\%^O$ and then ΔSIH^O to control for changes in fund ownership. In a similar fashion, columns (3) and (4) presents regression results describing abnormal returns 24 months after the effective date, and columns (5) and (6) presents regression results describing abnormal returns 36 months after the effective date. Consistent with past evidence indicating institutions with short investment horizons influence stock returns (Wermers (2000), and Yan and Zhang (2009)), between the three time periods and the two measures of ownership change I find ΔSIH^O to be negative and significantly related to the abnormal overall returns 12 months after the effective date. The significance at 12 months is at the 5% level. ΔSIH^O is negative but statistically insignificant at 24 months, and positive and insignificant at 36 months. I do not find any evidence $\Delta TotOwn\%^O$ is a significant predictor over

any time period. Among other explanatory variables, again $\Delta\overline{ROA}$ is consistently significant at 12 and 24 months indicating spin-offs that improve overall operating performance is associated with more positive abnormal overall returns. No consistent evidence is found with respect to all other explanatory variables.

Panel B presents the regression results for parent company abnormal returns analogous to Panel A. Similar to the regression results describing overall abnormal returns, I find ΔSIH^P is a negative and significant predictor of abnormal parent company returns 12 months and 24 months after the effective date. Importantly, in these regressions significance is at the 1% confidence level. ΔSIH^P is a negative but insignificant predictor at 36 months, and $\Delta TotOwn\%^P$ is an insignificant predictor of abnormal returns over all time periods. Between other explanatory variables, I find the overall change in analyst number and the change in size are both positive and significant predictors of abnormal returns. Thus, returns are more positive for parent companies that engage in spin-offs of more important businesses and parent companies that spin-off smaller companies or have smaller decreases in size.

2.4.5 Chapter 2.4 Summary

Overall, this section provides evidence indicating spin-offs does not have a significant effect on the level of overall fund ownership or fund ownership of the parent company. However, operating performance, both between spin-off entities and overall changes from before to after the spin-off event, is the most important factor in describing the cross-section of institutional ownership changes. Thus, it is the ability to properly manage various business segments, not other factors such as growth opportunities and differences in industry classification, which initially limits investment. I also find evidence indicating short horizon funds opportunistically invest in companies with more positive abnormal returns following spin-off events, even after controlling for measures relating to the level of pre-spin-off transparency.

2.5 The Case of Pre-Existing Shareholders

In this section I detail the ownership patterns of funds that hold parent company firm stock six months prior to the announcement date.

2.5.1 Ownership Patterns

In this subsection I describe changes in shareholdings of funds holding original parent company stock before the announcement date. I take the most recent fund holdings 6 months prior to the announcement date and 12 months, 24 months, and 36 months following the effective date. I use all funds that have an investment horizon measure the year prior to the pre-spin-off report date and classify a fund's investment horizon at this date. I discard fund observations following the effective date if the number of consecutive years of meeting regulatory reporting requirements ends.

I use two fund-level measures to describe ownership patterns following the spin-off. The first measure, the proportion of firms held (*Prop*), is a count variable describing how many of the total number of firms stemming from the same parent company are still held. *Prop* is equal to 0 if the fund closes its position in all firms (parent company and all spun-off subsidiaries), 1 if the fund remains invested in at least one firm, and 2 if the fund remains invested in all firms. The second measure is the change in ownership percentage ($\Delta Own\%$). Because mutual funds may close positions in firms following the spin-off that are simply unrelated to the portfolio's investment strategy or the spin-off itself was an attempt to discard a poorly performing business, I use only those changes in ownership percentage where the fund retains a positive stake at the latter date. As a result, the second measure thus relates to whether funds increase or decrease their investment in firms they continue to hold following spin-off events.

Table 2.7 summarizes *Prop* and $\Delta Own\%$ by fund investment horizon tercile 12 months, 24, months, and 36 months following the effective date. Panel A reports the percentage of funds remaining in the sample by *Prop* ($\in \{0, 1, 2\}$). 20.2%, 16.8%, and

19.6% of long horizon funds remaining in the sample hold all firms (parent company and all spun-off subsidiaries) 12 months, 24 months, and 36 months following the effective date. An additional 34.1%, 30.1%, and 23.1% of long horizon funds remaining in the same hold at least one firm. Thus, a large proportion of these funds retain at least some ownership in the original parent company following a spin-off. The proportion of funds retaining ownership in all or just one firm following spin-offs decreases with investment horizon tercile. For instance, 42.8%, 37.9%, and 32.3% of medium horizon funds and 35.5%, 30.7%, and 27.4% of short horizon funds retain ownership in at least one firm 12 months, 24 months, and 36 months after the effective date.

Panel B reports summary statistics for $\Delta Own\%$. Summary statistics includes the mean change in ownership percentage, the percentage of positions exhibiting an increase or non-decrease, and the percentage of positions exhibiting a decrease. Overall, I find funds increase the size of the positions in firms still held following the effective date. Long horizon funds generally increase their investment in firms which they still hold following corporate spin-offs. 62.1%, 65.2%, and 66.2% of long horizon funds increase their ownership 12 months, 24 months, and 36 months following the effective date. Although these percentages are smaller for medium and short horizon funds, greater than 50% of the positions of these two fund types increase in size.

2.5.2 Multivariate Regressions

In this subsection I describe *Prop* and $\Delta Own\%$ with multivariate regressions. I describe both dependent variables using measures describing differences between firms describing the same parent company (*SDMB*, *SDSize*, *SDROA*, $\Delta\overline{ROA}$, $\Delta AnNum$, and *ICD*). I use all shareholdings in the same regression, investigating differences between funds by including *FIH* and interaction terms between *FIH* and all other explanatory variables. I model *Prop* with an ordered probit regression and $\Delta Own\%$ with a linear regression, estimating separate models for each time period following the

effective date (12, 24, and 36 months). I also include announcement year and industry fixed-effects. I define year fixed-effects using the year of the effective date and industry fixed-effects using the Fama-French 12 Industry Classification of the original parent company. Following Petersen (2009), I estimate panel regressions clustering standard errors at the fund level.

Table 2.8 presents the results. Columns (1) through (3) present regression estimates explaining *Prop*. I find several interesting relationships between the proportion of firms held and *SDMB*, *SDROA*, and $\Delta AnNum$. First, funds are more likely to hold more firms following the spin-off when the difference between growth opportunities is greater. Thus, funds are either willing to choose one firm or the other, or hold onto all firms when the investment opportunities of the conglomerate are separated. Second, contrary to the regressions explaining percentage changes in fund ownership in the previous section, here I find pre-existing shareholders are less likely to hold more positions following the spin-off when the differences in operating performance between firms is greater indicating pre-exisiting shareholders may choose one business over the other when differences between operating performances is high. Lastly, the change in analyst coverage is positively related to *Prop*. Thus, even funds holding parent company stock prior to the spin-off event react positively to an improved information environment surrounding the firms.

For $\Delta AnNum$, *SDROA*, and *SDMB*, the coefficient multiplying the respective interaction term with *FIH* has the opposite sign than the coefficients multiplying the stand alone variables. This suggests even after controlling for fund investment horizon firms that hold shares for longer periods of time are less sensitive to these factors. The results with respect to the interaction terms with $\Delta AnNum$ and *SDMB* are especially interesting considering funds with longer investment horizons should hold more of the original parent company the more "important" the spin-off and the more investment opportunities are distinguishable. These result are instead indicative

of long-horizon funds preferring to hold a portion of the original conglomerate and divest the remainder. At the same time however, long horizon funds hold more parts of an original conglomerate when operating performances differ than short horizon funds.

Columns (4) through (6) present regression estimates explaining $\Delta Own\%$. Overall, I find little indication the change in ownership percentage differs systematically between any explanatory variable or by *FIH*.

2.6 Ownership Stability Before & After Spin-off Events

In this section, I compare changes to fund ownership sensitivity with respect to business focus and firm operating performance before and after spin-off events. I estimate three regressions using one of three fund level measures of ownership: percentage of shares held, a within portfolio measure of ownership length, and the likelihood of position close.

I first estimate least-squares regressions explaining changes in ownership percentage before and after spin-off events. I difference fund ownership in two distinct time periods prior to the announcement date and in two distinct time periods following the effective date. Prior to the announcement date, I measure changes in fund ownership from 30 months to 18 months, and from 18 months to 6 months. I take the most recent fund holdings at each date, requiring positive fund holdings at 30 months for the first time period and at 18 months for the second time period. I define ownership changes following the effective date similarly, taking differences from 12 months to 24 months and from 24 months to 36 months. I do not take ownership changes from before the announcement date to after the effective date to avoid ownership changes specifically as a result of the event. I use holdings of funds that have investment horizon information (*FIH* and tercile classification) the year prior to earlier date.

The explanatory variables of primary interest include

- *PSOInd* (post spin-off indicator) = 1 if the observation occurs following the

effective date, 0 otherwise.

- FIH
- $PSOInd \times FIH$
- ΔROA (change in ROA) = the change in return-on-assets from the earlier date to the later date.
- $\Delta ROA \times PSOInd$ = an interaction variable between ΔROA and $PSOInd$.
- $\Delta ROA \times FIH$ = an interaction variable between ΔROA and FIH.
- $\Delta ROA \times PSOInd \times FIH$ = an interaction variable between ΔROA, $PSOInd$, and FIH.
- $\Delta AnNum$
- $\Delta AnNum \times PSOInd$ = an interaction variable between $\Delta AnNum$ and $PSOInd$.
- $\Delta AnNum \times FIH$ = an interaction variable between $\Delta AnNum$ and FIH.
- $\Delta AnNum \times PSOInd \times FIH$ = an interaction variable between $\Delta AnNum$, $PSOInd$, and FIH.

Consistent with the work of Barber and Lyon (1996), I use ROA as the primary measure of operating performance. I estimate alternate regressions instead using either $ROACA$ or ROS as the measure of operating performance. For the sake of brevity I do not present these additional tests because the results remain primarily the same. I use only $\Delta AnNum$ as the sole measure of business focus because to measures the added demand by investors in analyst coverage. I measure analyst number after the spin-off effective date at 12 months.

Other firm-level control variables include changes in size, market-to-book ratio, capital expenditures, debt, dividend yield, repurchase yield, and annual return. Previous work including Falkenstein (1996), Gompers and Metrick (2001), Grinstein and Michaely (2005), and Yan and Zhang (2009) have found these variables as important in describing fund ownership. Changes in return-on-assets and other firm-level control variables are coincide with changes in ownership percentage. I also include interaction terms between each variable and *FIH* to control for differences between funds. I include two indicator variables controlling for whether the mutual fund held the parent company prior to the spin-off (*HldBef*, equal to 1 if the fund held the parent company prior to the announcement date, 0 otherwise) and if the parent company retains its cusip following the spin-off (*PrntCo*, equal to 1 if the parent company retains its cusip, 0 otherwise). I also include announcement year fixed-effects and industry fixed-effects based on the Fama-French 48 Industry Classification. Following Petersen (2009), I estimate panel regressions clustering standard errors at the fund level.

Column (1) in Table 2.9 presents the results. In general, changes in fund ownership are more negative following the spin-off than before as *PSOInd* is negative following and statistically significant at the 1% level (t-statistic = 3.67). Importantly, ownership percentage changes are more positive for funds with longer investment horizons after the spin-off then before. The coefficient multiplying the interaction term between *PSOInd* and *FIH* is positive and statistically significant at the 1% confidence level with a t-statistic equal to 2.81.

Although I find no indication of a significant relationship between the change in return-on-assets and the change in ownership percentage, I do find the change in analyst coverage is an important determinant especially after the effective date. Those firms associated with a greater overall change in analyst number (and thus have a more important spin-off) experience greater increases in fund ownership after the spin-off event. However, the increases in ownership significantly decline with fund

investment horizon.

Instead of changes in ownership percentage, I next estimate a least-squares regression explaining changes in a within-fund measure of ownership length strictly before and strictly after the spin-off event similar to changes in ownership percentage.[19] Relative ownership length (ROL) is equal to the average percentage of stock positions held for a strictly shorter period of time within fund shareholder portfolios at the firm's fiscal year end. The percentage of positions held for a strictly shorter period of time than stock $j^{'}$ within the same fund portfolio is equal to

$$ROL_{i,j',t} = \frac{\sum_{j \epsilon J} I\left(\overline{LT}_{i,j',t} > \overline{LT}_{i,j,t}\right)}{N_{i,t}} \tag{18}$$

where j indexes the set of all fund positions J, $N_{i,t}$ represents the number of fund positions, and $I\left(\overline{LT}_{i,j',t} > \overline{LT}_{i,j,t}\right)$ is equal to 1 if firm j' has been held strictly longer than firm j, 0 otherwise.[20] ROL, with a range from $(0,\ 1]$, can be thought of as a cumulative distribution function of average ownership length for each fund portfolio.

$$\Delta ROL_{i,j,t2} = ROL_{i,j,t2} - ROL_{i,j,t1} \tag{19}$$

I use only fund positions held at the earlier date. If the fund closes its position at the later date, I set $ROL_{t2} = 0$.

ΔROL has two primary advantages over $\Delta Own\%$. First, the change in ownership length is unitless and is independent of fund size. Second, ROL accounts for other portfolio changes thus controlling for general fund behavior. The panel regression follows the empirical approach above. Column (2) in Table 2.9 presents the results.

I find no evidence indicating changes in relative ownership length are significantly larger after the spin-off than before. However, I do find significant evidence indicating

[19] See Chapter 1.4 for full discussion of mutual fund ownership length measurement.
[20] See Chapter 1.4 for a full definition of LT.

funds with longer investment horizons hold subsidiaries and parent companies longer after the effective date than before. The interaction term is positive and significant at the 1% confidence level with a t-statistic equal to 3.91. Changes in return-on-assets overall has an overall positive and significant relationship with respect to changes in relative ownership length, but interestingly decreases following the spin-off. Thus, funds are less sensitive to changes in operating performance after spin-offs than before. I find no evidence indicating differences between funds by investment horizon. Alternatively, I find the change in analyst number is positive and significantly related to changes in ownership length and decreases with fund investment horizon. I find no evidence of a difference post-effective date. Thus, in general long horizon funds do not hold parent companies and subsidiaries affiliated with more meaningful spin-offs.

Instead of changes in fund ownership I model the likelihood a fund closes its position. I use the semiparametric Cox proportional hazards model. The Cox model assumes the instantaneous rate of position close (or hazard rate) after elapsed time τ given firm characteristics $\mathbf{X}$, $h(\tau|\mathbf{X})$, takes the form

$$h(\tau|\mathbf{X}) = h_0(\tau)\exp(\boldsymbol{\beta}\mathbf{X}) \tag{20}$$

where $h_0(\tau)$ represents the baseline hazard rate and $\boldsymbol{\beta}$ represents the vector of model coefficients. The range of the hazard rate is from 0 (no risk of position close) to infinity (definite position close). Importantly, the model makes no assumptions about the baseline hazard rate or the shape of the hazard rate over time. Coefficient estimates maximize the product of the conditional probability of position close by comparing firm characteristics for positions that close to positions that remain open. Conditional probabilities are calculated at each point in time at least one fund position closes. I employ the Breslow (1974) approximation in case of tied failures.[21]

[21] Cleves, Gould, Gutierrez, and Marchenko (2008) provides a good overview of the Cox model.

To create the sample, I first measure the length of time in months each fund position is held from the date of initial investment ($\tau = 0$) to the date of position closure ($\tau = \tau^c$). The two dates correspond to *bdate* and *cdate* used in the computation of fund investment horizon in Chapter 1.4. If either the fund or stock drops from the dataset, I censor the fund position at the last known report date of ownership.

I next merge firm-level variables with the most recent data prior to the date of initial investment. If stock positions are held through the end of the fiscal year, I update firm variables by partitioning the full interval of fund ownership ($(0, \tau^c]$) at each fiscal year-end and merge to each new partition the most recent firm data. For example, if a fiscal year end occurs after τ' months of ownership, I partition the interval of fund ownership into two segments, $(0, \tau')$ and $(\tau' + 1, \tau^c]$, with the first partition continuing to have the most recent firm-level data prior to the date of initial investment and the second partition having firm-level data from the most recent fiscal year-end.

I use all ownership intervals of only those firms associated with spin-offs (parent companies and all spun-off subsidiaries) and that falls within either three years prior to the spin-off announcement date or three years following the effective date. I truncate ownership intervals that either begins or ends outside of either time period. For ownership intervals that begin before either time period, I redefine the beginning of the ownership interval to coincide with the beginning of the time period. For ownership intervals that end following the time period, I censor the observation by redefining the end of the ownership interval to coincide with the end of the time period.

I again follow the same empirical approach as above using the same set of explanatory variables including announcement year and industry fixed effects. I cluster standard errors at the fund level. Column (3) in Table 2.9 presents the results. *PSOInd* is positive and statistically significant at the 10% level indicating funds are

more likely to close positions following spin-offs. The likelihood of position close after spin-offs also increases with ΔROA and is more likely for funds with shorter investment horizons. That is, short horizon funds are more likely to close equity positions after larger changes in operating performance after spin-offs. Potentially, the spin-off event allows short horizon funds to better use their informational advantage and better time changes in firm performance similar to the evidence of Chemmanur and He (2008). Like with the change in relative ownership length, I find positions of parent companies and subsidiaries associated with spin-offs with greater increases in analyst number have a higher overall likelihood of close. I find no evidence indicating differences between time periods and between fund investment horizons.

Overall, the results in this section indicate long horizon funds increase ownership level and length after spin-offs than before. Furthermore, evidence indicates funds are more likely to shorten ownership length after increases in operating performance, but this result primarily stems from funds with shorter investment horizons. The importance of the spin-off is not a factor in changes of ownership length after the effective date, but does factor in changes in ownership percentage especially for short horizon funds.

2.7 Chapter Conclusion

This chapter finds evidence indicating significant changes in institutional ownership patterns surrounding corporate spin-offs. They include not only changes in the percentage of shares held but the relationship between firm performance and ownership length. The interpretation of the results can be taken from the context of differences between conglomerates and firms with greater business focus. Institutional shareholders, especially those with longer investment horizons, prefer firms with greater business focus. If firm managers are concerned with the make-up of institutional investors, then financial policy would be set to avoid investment into unrelated businesses or where growth prospects and profitability differ.

Chapter 3: Payout Policy

3.1 Introduction

In general, firm managers prefer greater ownership stability by their institutional shareholders. Longer-term investors not only allow companies to pursue long-term strategies, but also are more likely to aid firm managers by communicating both their private outlooks as well as the opinions of sell-side analysts. Conversely, institutions that hold shares for shorter periods of time are more likely to exert greater pressure on firm managers to act myopically, oftentimes on threat of removal or company takeover (Useem(1996)).

Although publicly traded companies cannot ultimately control the identity of its institutional shareholders, financial policy can impact its composition. Anecdotally, this can be seen in two examples. First, in 1989 Sealed Air Corporation engaged in a leveraged recapitalization by borrowing most of the market value of its common stock and distributing the funds in a special dividend. The event caused not only internal change, but also a turnover from an investor base interested in consistent growth to an investor base seeking large gains in profitability (Wruck (1994)). Another example is the high price of Berkshire Hathaway class A shares. Warren Buffett claims he is able to retain a "slightly more long-term-oriented group of investors" by not initiating a stock split.[22]

In this chapter, I empirically investigate the relationship between a firm's payout policy and the stability of its institutional shareholders. Institutions are typically linked to dividend paying firms because of their relative tax-advantage on dividend income compared to other investors. Shleifer and Vishny (1986) and Allen, Bernardo, and Welch (2000) use institutional tax-clienteles as the basis for their models of dividend payout. They theorize firms pay dividends as a means to attract tax-advantaged

[22] The quote is from a Brent Schlender interview with Warren Buffett and Bill Gates, printed in the July 20, 1998 edition of Fortune magazine.

institutions in exchange for greater corporate oversight. Even though a segment of the market faces higher tax rates on dividend income than capital gains, the combination of dividend payout and greater institutional ownership (and oversight) maximizes equity value. Share repurchases have also been linked to greater institutional ownership. Barclay and Smith (1988) and Brennan and Thakor (1990) use the informational advantage held by institutions over individual investors to predict greater institutional ownership for share repurchasing firms. The ability to profit at the expense of uninformed (individual) investors by tendering over-valued shares during buyback programs motivates institutional (informed) investors to own share repurchasing firms.

I create several variables to measure ownership stability describing the investment horizon and longevity of a firm's institutional shareholders. Unique to this study, all measures of ownership stability has as its basis the full ownership history of all current stock positions held by institutions. For this chapter, I take stock positions at the mutual fund level rather than at the investment company level. By focusing on mutual funds, I am able to increase the number of institutional shareholders in my dataset than what is typically utilized in related work.

I take fund positions from the Thomson Reuters (S12) Mutual Fund dataset from 1980 to 2007. The S12 database consists of positions from most domestic mutual funds and some global funds that participate in US and Canadian equity markets. The primary source for this dataset is SEC N-30D filings. For the majority of the time period, the SEC required mutual funds to file this form semiannually. Thomson Reuters supplements the N-30D filings by examining fund prospectuses and by contacting mutual funds directly. The other possible approach is to use the Thomson Reuters (13f) Investment Company dataset. The 13f database consists of holdings of banks, insurance companies, parents of mutual funds, pensions, and endowments. The primary source for this dataset is quarterly SEC 13f filings, required by all institutional investment managers that exercise investment discretion over $100 million.

Important to this study, the 13f dataset aggregates all holdings under a manager's control clouding any differences in investment styles between funds within the same institution.

The time period of study is from 1988 to 2007. I choose 1988 as the beginning of the time period to avoid the historically large differential tax rate between capital gains and ordinary income prior to the Tax Reform Act (TRA) of 1986. By 1988, the tax rate on both ordinary income and capital gains were set at 28% for individuals in the highest tax bracket. The beginning of the sample period also avoids the early 1980s when few funds are observed in the data.

In the first part of the analysis, I investigate the correlation between firm payout policy and fund ownership. I start by estimating a tobit model explaining aggregate ownership percentage by funds with short, medium, and long investment horizons. A fund's investment horizon is equal to the average number of months it holds each stock position from the date of initial investment to the date of measurement. I account for all position changes using the first-in-first-out queueing method. I calculate a fund's investment horizon annually, using only stock positions held for at least one month during the year of measurement. I classify funds as either having short, medium, or long investment horizons using annual tercile breakpoints.

For each investment horizon tercile I estimate four separate models using one of the following four sets of payout variables to control for a firm's payout policy: dividend and repurchase yields, total payout yield, dividend and repurchase indicator variables, and a payout indicator variable. I find mutual funds with longer investment horizons take greater ownership in dividend paying firms and share repurchasing firms than mutual funds with shorter investment horizons. However, whereas share repurchases attract greater ownership by long-horizon funds, dividends repel ownership by short-horizon funds. I find this result whether I use yields or indicator variables to control for firm payout policy.

The results from the tobit regressions confirm the findings of Grinstein and Michaely (2005) for mutual fund investors. The authors find greater institutional ownership for dividend paying and share repurchasing firms in general, but a greater attraction to firms with higher repurchase yields than dividend yields. The results here demonstrate the differences in ownership are not uniform across institutions and depend on the fund's investment horizon.

I next investigate the effect payout policy has on the length of time funds with short, medium, and long investment horizons hold stock positions. I estimate truncated regressions similar to the tobit regressions mentioned above, but instead use relative ownership length as the dependent variable. Relative ownership length is a within-fund measure, equal to the proportion of other stock positions held on average for a strictly shorter period of time. With a range from 0 to 1, this variable can be thought of as the output of a fund-specific cumulative distribution function of average ownership length. Similar to the regressions of aggregate fund ownership, I find fund shareholders with longer investment horizons hold dividend paying or share repurchasing firms for longer periods of time. However, I again find share repurchasing firms are more attractive to a broader range of funds than dividend paying firms. For instance, although long-horizon funds hold both dividend paying and share repurchasing firms longer, short-horizon funds hold dividend paying firms for significantly shorter periods of time.

The results in the first part of the chapter demonstrate how both dividends and repurchases are positively related to greater ownership stability by attracting more ownership and longer ownership by funds with longer investment horizons. Although dividend paying firms have less long-horizon fund ownership than share repurchasing firms, they are also held by fewer short-horizon funds.

In the second part of the analysis, I investigate whether payout events have significant effects on the composition and ownership length of fund shareholders. I use

as payout events dividend initiations, increases, decreases, and omissions, and share repurchases. I distinguish share repurchases by whether it is an initiation or a continuation of a repurchase program. I also distinguish share repurchases by non-dividend and dividend paying firms to account for ownership differences related to a firm's dividend policy. For the tests in this section, I measure fund ownership at the firm level with two primary measures. The first variable, shareholder investment horizon, is equal to the average investment horizon of a firm's fund shareholders. The second variable, current ownership length, is equal to the average length of time fund shareholders have held firm stock. I also quantify the changes in average shareholder investment horizon and current ownership length by investigating changes in ownership percentage by funds with short, medium, and long investment horizons.

Among all payout events, only dividend increases have a long-term significant change on average shareholder investment horizon. Dividend increases increase average shareholder investment horizon, with the change in fund composition primarily stemming from a decrease in short-horizon fund ownership. However, only sizable share repurchases, not dividend events, change fund ownership length. Interestingly, share repurchases can increase or decrease ownership length depending on a firm's dividend policy. For instance, although share repurchases of non-dividend paying firms decrease current ownership length, share repurchases of dividend paying firms increase current ownership length. The difference stems from a greater turnover in the shareholder base for non-dividend paying firms than for dividend paying firms.

The results to this point indicate that payout policy has a significant effect on shareholder composition and the length of fund ownership. I extend the analysis in two directions. First, I investigate the effect of dividend taxes on the relationship between payout policy and ownership stability by comparing fund ownership before and after the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003. The JGTRRA equated the tax rate on dividend income and capital gains at 15%

for individuals in the highest tax bracket. The tax-reform was made retroactive to January 1, 2003.

To begin, I test for differences in ownership percentage and relative ownership length by investment horizon tercile before and after the JGTRRA. I estimate tobit and truncated panel regression models similar to the ones above with firm-year observations from 2002 and 2004. I control for the tax-reform by including a tax-period indicator variable and interaction terms between the tax-period indicator variable and payout variables. Significance of the interaction terms represents a change in fund ownership as the result of the tax-reform. I find the JGTRRA had no significant effect on the percentage of fund ownership for all fund investment horizon classifications. However, short- and medium-horizon funds held dividend paying firms and firms with higher dividend yields longer after the tax-reform than before. I find no evidence indicating a difference in the relationship between share repurchases and fund ownership as a result of the JGTRRA.

Next, I test for differences in the change in fund ownership as the result of payout events between 1999 to 2001 and 2004 to 2006. I do not use payout events from 2002 and 2003 because changes in ownership may be related to the tax-reform, not a payout event. I again measure ownership stability with shareholder investment horizon, current ownership length, and the ownership percentage of funds by investment horizon tercile. I find little indication of a significant difference in ownership change as the result of dividend events or repurchase events between the two time periods. Overall, the results in this section suggest the tax-reform did not have an overall effect.

In the second extension, I investigate whether shareholder stability is a significant factor in payout choice. Specifically, I compare fund ownership composition and fund ownership length for dividend paying firms that either increase dividends or repurchase shares. I study dividend paying firms because of their relative homogeneity and

their already established long-term commitment to regularly pay dividends. I first study fund shareholder investment horizon characteristics with average shareholder investment horizon, current ownership length, and the ownership percentage of funds by investment horizon tercile before and after the payout events. I find dividend paying firms that increase dividends have lower average shareholder investment horizon, are held for shorter periods of time, and have greater short-horizon fund ownership and less long-horizon fund ownership prior to the event year than dividend paying firms that repurchase shares. As the result of the distributions, dividend increases raise shareholder investment horizon more so than share repurchases. Examination of ownership changes by funds with short, medium, and long investment horizons indicates the increase in shareholder composition stems from a significant decrease in short-horizon fund ownership and a significant increase in long-horizon fund ownership.

To investigate the effect of pre-event ownership stability more thoroughly, I estimate a bivariate probit model explaining a dividend paying firm's choice to either increase dividends or repurchase shares. I use pre-event shareholder investment horizon, current ownership length, and the ownership percentage by funds with short, medium, and long investment horizons in the regressions to control for the stability of fund shareholders. I initially find the probability a firm increases dividends is negatively related to shareholder investment horizon. That is, the longer the investment horizons of a firm's fund shareholders the less likely it will increase dividends. However, this negative relationship with respect to average shareholder investment horizon stems primarily from a positive relationship with short-horizon fund ownership. I find no evidence indicating the length of time fund shareholders hold firm shares is a determinant in payout choice. Lastly, I investigate whether changes in pre-event fund ownership differs between dividend paying firms that choose one payout form over the other. Prior to the event year, I find dividend paying firms that

increase dividends experience a larger increase in short-horizon fund ownership and a smaller increase in long-horizon fund ownership than dividend paying firms that repurchase shares. Overall, the results in this section suggest that investor clientele can be a significant determinant in firm payout choice.

3.2 Payout Literature

In this ection, I review past work relating to payout policy and institutional shareholder clienteles as well as adjacent literature that classifies institutional ownership with investment horizon measures.

The role of dividends as means to attract institutional investors is supported by two theoretical works. Shleifer and Vishny (1986) and Allen, Bernardo, and Welch (2000) theorize the combination of lower tax rates faced by institutions and their ability to monitor firm actions result in larger institutional ownership of dividend paying firms and greater firm value. In Section 5 of their paper, Shleifer and Vishny (1986) model dividends as a side payment from many small tax-disadvantaged shareholders to one large tax-advantaged investor to retain its stake in the firm. Allen et al. (2000) model dividends similarly; however, the authors provide a clientele tilting argument where the level of institutional ownership and thus oversight is directly related to the level of dividends paid.

The existence of dividend tax-clienteles among large or important shareholders has been investigated by several researchers. Pérez-González (2002) examines the effect tax reforms have on a firm's dividend policy with respect to the tax classification of their large shareholders. He finds firm dividend policy to be much more responsive to personal income tax changes when the firm's large shareholders are individuals. Desai and Jin (2007) test for dividend tax-clientele effects within institutions. The authors classify institutions based on the tax-sensitivity of its shareholder base. They find a negative relationship between a firm's dividend payout ratio and the percentage of its institutional shareholders with tax-sensitive clients, and a positive relationship

between changes in dividend policy and the tax-sensitivity of their institutional shareholders. Hotchkiss and Lawrence (2007) test for institutional dividend clienteles by relating dividend increases and decreases to changes in institutional shareholdings. They classify institutions by either portfolio dividend yield or the percentage of stock positions with high dividend yields. They confirm the existence of dividend clienteles by finding a positive relationship between an institution's demand for dividends and ownership changes surrounding dividend increases and dividend decreases. Hotchkiss and Lawrence do not examine shareholder horizons, nor do they investigate the effect repurchase activity has on institutional ownership. Barclay, Holderness, and Sheehan (2009) find no evidence of tax-clienteles among corporate blockholders.

International evidence of dividend clienteles is found by Desai and Dharmapala (2009) and Ferriera, Massa, and Matos (2009). Desai and Dharmapala (2009) use the JGTRRA of 2003 as an exogenous event to analyze domestic portfolio holdings of international firms. They find evidence indicating a greater increase in foreign portfolio investment in tax-favored countries than countries without a tax treaty with the United States. Ferriera, Massa, and Matos (2009) find international institutional ownership to be greater for firms that do not pay dividends. They attribute the relationship to transaction costs associated with dividend repatriation or dividend reinvestment.

In general, however, dividends do not attract greater institutional ownership. In an extensive analysis, Grinstein and Michaely (2005) investigate overall institutional ownership and firm payout policy. Although the authors find greater institutional ownership for dividend paying firms, ownership does not increase with dividend yield. Instead, they find some evidence indicating institutional ownership decreases with dividend yield.

Although the results of Grinstein and Michaely (2005) do not support Allen et al. (2000), the greater institutional ownership of share repurchasing firms and the positive

relationship between ownership and repurchase yield does support the theories of Barclay and Smith (1988) and Brennan and Thakor (1990). Both models predict firms will choose between dividends and repurchases based on its mix of informed and uninformed shareholders. Following repurchases, informed shareholders will own relatively more of an undervalued firm and relatively less of an overvalued firm than uninformed shareholders. Informed shareholders such as institutions will prefer share repurchasing firms, and uninformed shareholders like individuals will prefer dividends to avoid the adverse selection.

Although institutions may not be as attracted to dividends than repurchases, increases in institutional ownership of dividend paying firms has had an affect on equity returns following dividend events. Amihud and Li (2006) find institutional ownership to be partly responsible for the decline in short-run cumulative abnormal returns surrounding dividend increases and decreases. They conclude that as the level of institutional ownership has increased, the signaling function of dividends has decreased. Gompers and Metrick (2001) find evidence indicating the increase in institutional ownership has led to the disappearance of small stock premiums.

Past research has found evidence indicating the type of institution is important in explaining future returns. Hotchkiss and Strickland (2003) find the stock price response around negative earnings' announcements is more negative for firms held more widely by growth, momentum, and high turnover investors. Yan and Zhang (2009) find short-horizon institutional ownership positively relates to future returns and earnings surprises. Bushee (2001) finds investors less content to buy and hold stock positions are more likely to overweight near-term expected earnings.

The investment horizon of institutional shareholders is also related to corporate governance. Bushee (1998) finds firms with more transient institutional shareholders are more likely to cut research and development costs to meet earnings. On the other hand, Wahal and McConnell (2000) find no evidence indicating institutions,

short-horizon or otherwise, adversely affect corporate investment. Bøhren, Priestley, and Ødegaard (2005, 2008) find a negative relation between long-horizon institutional ownership and firm performance. They argue the decrease in firm performance the direct result of delegated monitoring by institutions more concerned with short-term gain, as opposed to direct monitoring by individual investors. Elyasiani, Jia, and Mao (2006) find greater ownership stability by institutional shareholders to be negatively related to the cost of debt.

Papers by Gaspar, Matos, and Massa (2005) and Chen, Harford, and Li (2007) investigate the effect of ownership by shareholders with different investment horizon around acquisitions. Consistent with short-horizon shareholders having a weaker bargaining position, Gaspar, Matos, and Massa (2005) discover short-horizon shareholders increase the probability of a takeover and lowers the acquisition premium for target firms. Furthermore, the returns of bidding firms post-merger announcement are negatively related to the proportion of short-horizon shareholders indicating an absence of strong outside governance. Similarly, Chen, Harford, and Li (2007) find independent long-horizon investors positively relates to post-merger performance.

3.3 Firm Data

In this section I describe the firm-level data I use in the remainder of the chapter.

3.3.1 Sample

I extract annual data from the Center for Research in Securities Prices (CRSP) monthly stock file and the Compustat Fundamentals Annual data file for each December from 1980 to 2008. For all tests, a firm must have ordinary common stock (CRSP share code 10 or 11) listed on the NYSE, AMEX, or NASDAQ (CRSP header exchange code 1, 2, or 3), have return data for 36 months and financial data for 3 years. I include utilities (SIC codes 4949 to 4999) and financials (SIC codes 6000 to 6999) due to their propensity to pay dividends and repurchase shares.

3.3.2 Payout Event Specifications & Measures

I use annual Compustat variables to measure firm payout activity. To measure dividend payout, I use common dividends paid per share by the ex-dividend date (data26 or dvpsx_f). Unlike common dividends (data21 or dvc), this variable excludes payments in preferred stock in lieu of cash and other non-cash payments.

I classify a firm as initiating dividends if the firm did not pay dividends in year $t-1$ ($\text{data26}_{t-1} = 0$), but did so in year t ($\text{data26}_t > 0$). Likewise, I classify a firm as omitting dividends if the firm did not pay dividends in year t but did so in year $t-1$. For dividend paying firms, I identify a dividend change increase when the percentage change in dividends from year $t-1$ to year t (($\text{data26}_t - \text{data26}_{t-1}$) / data26_t) is greater than 10%. If the percentage change in dividends is less than -10%, then I classify a firm as decreasing dividends. This specification is similar to Denis, Denis, and Sarin (1995) and Yoon and Starks (1995), who distinguish quarterly dividend changes greater than 10%.

I use the purchase of common and preferred stock (data115 or prstkc) to measure a firm's repurchasing activity. Other authors, notably Grullon and Michaely (2002), adjust this measure with reductions in preferred stock redemption value (data56 or pstkrv). However, because repurchases of preferred stock have been found to constitute only a small portion of repurchase activity (Stephens and Weisbach (1998)), I make no adjustment.

Following Stephens and Weisbach (1998), I classify a firm as repurchasing shares if repurchases in year t are greater than 1% of the previous year's fiscal year end market value (data115_t / MV_{t-1}). Market value (MV) is equal to the fiscal year end share price (data199 or prcc_f) times the fiscal year end number of common shares outstanding (data25 or csho). If a firm repurchases greater than 1% of the previous year's fiscal year end market value in either year t, $t-1$, $t-2$, then I classify the firm as having an active repurchase program. Grinstein and Michaely (2005) use a similar

specification. Lastly, I classify a firm that repurchases shares in year t but not in year $t-1$ or year $t-2$ as initiating a share repurchase program.

I use the following variables to control for a firm's payout activity. The divisor for payout yields is firm size, similar to Grinstein and Michaely (2005).

- $DivYld_t$ (dividend yield) = Dividends paid per share as of the ex-dividend date times fiscal year end shares outstanding, divided by total assets (data6 or at) (data26$_t$ $\times$ data25$_t$ / data6$_t$).
- $RepYld_t$ (repurchase yield) = The purchase of common and preferred stock divided by total assets (data115$_t$ / data6$_t$).
- $TotYld_t$ (total payout yield) = Dividends paid per share times shares outstanding plus share repurchases, all divided by total assets ((data26$_t$ $\times$ data25$_t$ +data115$_t$) / data6$_t$).
- $DivInd_t$ (dividend indicator variable) = A dummy variable equal to 1 if the firm paid dividends in year t, 0 otherwise.
- $RepInd_t$ (repurchase indicator variable) = A dummy variable equal to 1 if the firm has an active repurchase program in year t, 0 otherwise.
- $PayInd_t$ (payout indicator variable) = A dummy variable equal to 1 if the firm either pays dividends or has active repurchase program in year t, 0 otherwise.

3.3.3 Control Variables

I use the following firm-level control variables in the tests below. Past authors have found the following variables to be significantly related to either institutional ownership or firm payout policy. I derive the following variables from CRSP data.

- $AnnRet_t$ (annual return) = Annual compounded monthly return percentage $\left(\left(\prod_{m\in[\text{Jan, Dec}]}(1+ret_{m,t})\right)-1\right)$ in year t, using all 12 months m of data.

- $SDRet_t$ (return standard deviation) = Standard deviation of daily returns $\left(\underset{d \in [\text{Jan 1, Dec 31}]}{st.dev.} (ret_{d,t}) \right)$ in year t, using all daily returns.

- $SP500_t$ (S&P 500 dummy) = A dummy variable equal to 1 if the firm is a member of the S&P 500 as of December of year t, 0 otherwise.

- $Beta_t$ (beta) = The sum of coefficients $(\beta_1 + \beta_2)$ from OLS regressions monthly returns on current and lagged market returns ($ret_t = \alpha + \beta_1 Mkt_t + \beta_2 Mkt_{t-1} + \epsilon_t$). Regressions use up to 60 months of past monthly return data ending in December of year t. I use monthly returns previous to the 36 required months until the first month of a missing return. I use NYSE/AMEX value weighted returns for market returns. Falkenstein (1996), and Bennett, Sias, and Starks (2003) use a similar specification.

- $Volm_t$ (trading volume) - The average monthly ratio of trading volume to shares outstanding $\left(\underset{m \in [\text{Jan, Dec}]}{mean} (Trad.\ Vol._{m,t} / ShrOut_{m,t}) \right)$ in year t, using all 12 m months of data.

- Age_t (firm age) - The number of months a firm has its stock listed on a public exchange since the first list date at the end of calendar year t. I use the CRSP begin exchange date variable to define the start date.

I derive the following variables from Compustat data. I define the firm's current fiscal year as of December of year t.

- $Size_t$ (firm size) = The natural log of total assets (data6 or at).

- MB_t (market-to-book ratio) = Fiscal year end market value divided by book value (MV_t/BV_t). Book value (BV)is equal to the sum of total assets, deferred tax and investment credit (data35 or txditc), and convertible debt (data79 or dcvt), minus preferred stock (data10 or pstkl) and total liabilities (data181 or lt).

- ROA_t (return-on-assets) = Operating income before depreciation (data13 or oibdp) divided by total assets (data13_t/data6_t).

- $NonOp_t$ (non-operating income) = non-operating income (data61 or nopi) divided by total assets (data61_t/data6_t).

- $CapEx_t$ (capital expenditures) = Capital expenditures (data128 or capx) divided by total assets (data128_t/data6_t).

- $Debt_t$ (debt) = Total long term debt (data9 or dltt) divided by total assets (data9_t/data6_t).

I also use the difference in annual return, standard deviation of returns, beta, trading volume, firm size, return-on-assets, non-operating income, capital expenditures, and debt from year $t-1$ to year t. I straight difference all variables except for return-on-assets, non-operating income, capital expenditures, and firm debt which are equal to their respective Compustat measure at year t minus the measure at year $t-1$, all divided by total assets in year t. I also create a measure of the abnormal change in return-on-assets ($AbROA_t$) equal to the ratio at year t minus the mean ratio between years $t-1$ and $t-2$.

3.4 Fund Ownership Characteristics

In this section, I investigate fund ownership characteristics by investment horizon tercile. I start by summarizing fund ownership by firm size quintile, market-to-book quintile, and general payout policy. I then investigate the determinants of aggregate ownership and relative ownership length.

Table 3.1 presents fund ownership and the number of fund shareholders per firm by size quintile, market-to-book quintile, and general payout policy using observations from 1988 to 2007. I aggregate ownership using all funds and by fund investment horizon tercile. I define fund ownership as the percentage of common shares outstanding

by funds at year end ($Own\%$). In equation form, $Own\%$ for firm j in year t held by funds indexed by i is equal to

$$Own\%_{j,t} = \frac{\sum_{i \epsilon I} S_{i,j,t}}{ShrOut_{j,t}} \tag{21}$$

where S is the number of shares held, I is the set of fund shareholders, and $ShrOut$ is the monthly CRSP measure of shares outstanding (shrout). I also calculate aggregate ownership each year by fund investment horizon tercile. I distinguish aggregate short-horizon fund ownership with $Own\%S$, medium-horizon fund ownership with $Own\%M$, and long-horizon fund ownership with $Own\%L$.

With respect to firm size, I find aggregate fund ownership to be weighted more towards large stocks than small stocks. Aggregate fund ownership is equal to 1.0% for firms in the lowest size quintile, and increases monotonically to 13.2% for firms in the highest size quintile. The general preference for large stocks stems primarily from long-horizon funds. Short- and medium-horizon funds had ownership patterns more evenly distributed between size quintiles. Sample funds also had a tendency to invest more into firms with higher market-to-book ratios. For firms in the highest two market-to-book quintiles, average fund ownership is equal to 9.3% and 8.8%. On the other hand, firms in the lowest two market-to-book quintile had ownership percentages of 4.4% and 6.6%. The ownership patterns of short, medium, and long investment horizon funds reflect the aggregate statistics.

Lastly, I separate firms into one of four following categories: non-dividend paying and non-share repurchasing, non-dividend paying and share repurchasing, dividend paying and non-share repurchasing, and dividend paying and share repurchasing. Similar to Grinstein and Michaely (2005), I find average mutual fund ownership to be greater for firms that either pay dividends or repurchase shares than firms that do not. Furthermore, firms that pay dividends and repurchase shares or just repurchase shares

are held more widely than firms that just pay dividends. Across investment horizon terciles, I find the greater ownership of divided paying stocks stemming primarily from long-horizon funds. Medium-horizon funds also have greater ownership in firms that distribute excess capital. Short-horizon funds exhibit no ownership patterns across payout groups.

The following analysis investigates the determinants of ownership percentage and ownership length for short, medium, and long investment horizon funds. Overall, I find evidence indicating dividend paying and share repurchasing firms have a more stable shareholder base than non-paying firms.

3.4.1 Determinants of Fund Ownership

I first investigate the role of a firm's payout policy in explaining fund ownership. I estimate a tobit model for each fund investment horizon tercile explaining aggregate ownership using data from 1988 to 2007. The dependent variable is equal to *Own%S*, *Own%M*, or *Own%L* for funds in the first (short), second (medium), and third (long) investment horizon terciles. I estimate four separate models using one of the following four sets of payout variables to control for a firm's payout policy: dividend and repurchase yields, total payout yield, dividend and repurchase indicator variables, and a payout indicator variable. Other explanatory variables include operating income, non-operating income, capital expenditures, debt, size, market-to-book, annual returns, standard deviation of returns, beta, trading volume, firm age, S&P 500 inclusion, and industry fixed-effects based on the Fama-French 48 Industry Classification.[23] I report Fama-MacBeth (1973) time-series average coefficients and t-statistics from annual cross-sectional regressions. I adjust coefficient standard errors for autocorrelation using a Newey-West adjustment to two lags.

Columns (1) through (3) of Panel A of Table 3.2 present the Fama-MacBeth estimates for short-horizon fund ownership, medium-horizon fund ownership, and

[23] Fama-French 12 and 48 Industry Classifications can be found on Ken French's website.

long-horizon fund ownership. For short- and medium-horizon funds, I find dividend yield to be a negative and significant determinant of aggregate ownership. Dividend yield is negative and significant at the 1% for short-horizon funds, and at the 10% level for medium-horizon funds. Dividend yield is not a significant determinant for long-horizon fund ownership. Conversely, I find share repurchase yield to be a positive predictor of fund ownership for each investment horizon tercile. Coefficient estimates increase from short-horizon funds to long-horizon funds, with short-horizon funds showing indifference to a firm's repurchase yield, and medium- and long-horizon funds showing a significant preference for firms with higher repurchase yields. Results for medium- and long-horizon funds are significant at the 1% confidence level. I find similar results when I replace dividend yield and repurchase yield with the dividend indicator variable and the repurchase indicator variable. Columns (4) through (6) present the results. Although short-horizon funds still prefer non-dividend paying firms to dividend paying firms, a firm's dividend status is not a significant predictor of medium- and long-horizon fund ownership. Conversely, although short- and medium-horizon funds show no preference for share repurchasing firms, long-horizon funds have greater ownership in share repurchasing firms.

The results in Panel A of Table 3.2 add to the institutional ownership patterns found by Grinstein and Michaely (2005). I find all mutual funds are either indifferent or completely adverse to holding dividend paying firms. On the hand, no mutual fund type has an aversion to share repurchasing firms. Stated differently, share repurchases attract a broader range of mutual fund investors than dividends, consistent with the payout theories of Barclay and Smith (1988) and Brennan and Thakor (1990).

Regressions describing the determinants of institutional ownership can also be found in Falkenstein (1996), Gompers and Metrick (2001), Grinstein and Michaely (2005), and Yan and Zhang (2009). Falkenstein (1996) uses mutual fund data from 1991 and 1992. He does not include payout measures in his regressions. Gompers and

Metrick (2001) use institutional (13f) data and control for dividend yield only. They find dividend yield to be negatively related to institutional ownership. Grinstein and Michaely (2005) use institutional (13f) data and control for dividend and repurchase activity with both yields and indicator variables. They do not sort institutions by investment horizon. Lastly, Yan and Zhang (2009) sort institutions (13f) by their measure of investment horizon (TOM), but do not control for a firm's repurchase activity. Similar to the results in this chapter, they find dividend yield to be negative and significant determinant for short-horizon institutional ownership, and a negative but insignificant determinant for long-horizon institutional ownership.

With respect to other firm characteristics, I find short- and medium-horizon funds are more likely to take on greater market risk and follow growth strategies than long-horizon funds. For instance, firm beta and market-to-book ratio are both positive and significantly related at the 1% level for short-horizon and medium-horizon fund ownership, but are insignificant determinants of long-horizon fund ownership. The relationship between fund ownership and annual return decreases with investment horizon, with short-horizon funds more likely to be momentum investors, and long-horizon funds less likely to follow returns. Other differences between fund investment horizon terciles include inclusion in the S&P 500 and firm age. Long-horizon funds are more likely to invest in older firms and firms in the S&P 500 than short- and medium-horizon funds. For both short- and medium-horizon funds, I find S&P 500 inclusion and firm age to be negatively related to fund ownership at the 1% confidence level. Similarities across funds include their preference for firms with higher operating income, capital expenditures, firm size, and volume, and their dislike for firms with higher debt and return standard deviation.

Past research has reached similar conclusions with respect to volume, size, age, and S&P 500 inclusion. Differences with past work can be found with respect to the market-to-book, annual return, and return standard deviation. Gompers and Metrick

(2001) and Yan and Zhang (2009) find past returns to be a negative and significant determinant of aggregate ownership. However, both papers separate annual returns into three-month and nine-month intervals. These authors also find book-to-market (not market-to-book) to be a positive determinant of aggregate institutional ownership. The positive relationship I find with market-to-book, however, agrees with a similar result in Grinstein and Michaely (2005). Lastly, Falkenstein (1996), Gompers and Metrick (2001), Yan and Zhang (2009) find mixed evidence with respect to return volatility, whereas I find this variable to be negative and highly significant. However, their measures of return standard deviation use at least two years of monthly return data, while I use daily returns over a 12 month period.

Panel B of Table 3.2 presents the results when I replace the dividend and repurchase yield variables with the total payout yield variable, and the dividend and repurchase indicator variables with the payout indicator variable. Otherwise, the test specification remains the same. Columns (1) through (3) present the Fama-MacBeth estimates for short-horizon fund ownership, medium-horizon fund ownership, and long-horizon fund ownership. I find total payout yield to be a negative and insignificant determinant of short-horizon fund ownership, but a positive and significant determinant of medium- and long-horizon fund ownership at the 5% level. Columns (4) through (6) present the results when I replace the total payout yield variable with the payout indicator variable. I find payout firms are held significantly less than non-payout firms by short-horizon funds, and are held significantly more by long-horizon funds. The implications of other firm variables remain the same.

3.4.2 Determinants of Ownership Length

The results of Table 3.2 demonstrate the significant effects a firm's payout policy can have on fund ownership across investment horizon terciles. I next investigate the effect a firm's payout policy has on ownership length. Each year, I calculate a stock position's relative ownership length (ROL) as the percentage of other positions held

within the same fund portfolio but for a strictly shorter period of time. For stock j' held by fund i at the end of year t, ROL is equal to

$$ROL_{i,j',t} = \frac{\sum_{j \epsilon J} I\left(\overline{LT}_{i,j',t} > \overline{LT}_{i,j,t}\right)}{N_{i,t}} \tag{22}$$

where j indexes the set of all fund positions J, $N_{i,t}$ represents the number of fund positions, and $I\left(\overline{LT}_{i,j',t} > \overline{LT}_{i,j,t}\right)$ is equal to 1 if firm j' has been held strictly longer than firm j, 0 otherwise.[24] ROL, with a range from $[0, 1)$, can be thought of as a cumulative distribution function of average ownership length for each fund portfolio. I only use open positions as of the fund's last report date in the year of measurement. This variable can be considered a measure of ownership stability; the longer a fund buys and does not adjust its stock position, the greater the value of ROL.

I estimate a truncated regression model to explain ROL for each fund investment horizon tercile using data from 1988 to 2007. Other than the regression model and dependent variable, the test methodology remains the same as the tobit regressions of aggregate fund ownership. This implies estimating four separate models using the four sets of payout variables to control for a firm's payout policy, including the same explanatory variables, reporting Fama-MacBeth (1973) time-series average coefficients and t-statistics, and adjusting coefficient standard errors for autocorrelation using a Newey-West adjustment. To my knowledge, these tests are unique.

Columns (1) through (3) of Panel A of Table 3.3 presents results for short-, medium-, and long-horizon funds, with dividend yield and repurchase yield controlling for firm payout activity. I find dividend yield to be a negative and significant determinant of relative ownership length within short-horizon fund portfolios at the 5% level. I do not find a significant relationship between dividend yield and relative ownership length within medium- and long-horizon fund portfolios. Thus, although dividend

[24] See Chapter 1.4 for a full definition of LT.

yield does not lengthen the amount of time firms are held by funds with longer investment horizons, it does shorten the time its equity is held by short-horizon funds. Like aggregate ownership, repurchase yield has a positive effect on relative ownership length for each fund investment horizon tercile. While I find a firm's repurchase yield to be positive but insignificantly related to short-horizon fund ownership, this variable is a positive and significant predictor for the relative length of time medium- and long-horizon funds hold firm equity. This result is significant at the 5% confidence level for long-horizon funds, and at the 10% confidence level for medium-horizon funds.

Columns (4) through (6) present the results when I replace dividend yield and repurchase yield with the dividend indicator variable and the repurchase indicator variable. The results remain primarily the same. However, with this specification, I find dividend paying firms are held significantly longer by long-horizon funds than non-dividend paying firms. The coefficient estimate is equal to 0.023 and is significant at the 1% confidence level (t-statistic = 5.59). Although the coefficient estimate itself is not large (firms that pay dividends are held relatively longer than 2.3% of other positions within long-horizon fund portfolios), it does indicate that dividends lengthen the amount of time firms are held by their long-term fund investors. On the other hand, I now find medium-horizon funds hold dividend paying firms for significantly shorter periods of time. The results for share repurchases remain the same.

The results from Panel A of Table 3.3 indicate that firms paying dividends or repurchasing shares are held significantly longer than non-payout firms. Important to increasing the ownership stability of a firm's fund shareholders, both dividends and repurchases attract longer ownership by funds with longer investment horizons. I again find dividends reducing the ownership by funds with short investment horizons, this time with respect to ownership length.

With respect to other firm variables, factors found to increase or decrease the level of fund ownership typically have the same effect on the length of fund ownership

regardless of investment horizon tercile. This is true for debt, market-to-book, firm size, annual return, return standard deviation, age, and S&P 500 inclusion. However, trading volume, which was a positive and significant determinant of ownership level, is a negative and significant determinant of ownership length. Also, although firms with high beta are found to have higher ownership by short- and medium-horizon funds, they are held for a shorter period of time by all funds.

Panel B of Table 3.3 presents the results when I replace the dividend and repurchase yield variables with the total payout yield variable and the dividend and repurchase indicator variables with the payout indicator variable. Otherwise the test specification remains the same. Columns (1) through (3) present the Fama-MacBeth estimates for short-, medium-, and long-horizon funds. I find total payout yield to be significant determinant of relative ownership length for long-horizon funds only. For short-horizon funds, total payout yield is a negative but insignificant determinant. Columns (4) through (6) present the results when I use the payout indicator variable to control for firm payout policy. I find firms that distribute excess capital are held for significantly shorter periods of time by short-horizon funds, but significantly longer by long-horizon funds. The significance of the payout indicator variables for short- and long-horizon funds is at the 1% confidence level.

3.5 Ownership Changes Around Payout Events

In this section, I conduct event studies investigating the effect payout changes have on fund ownership. I use as payout events dividend increases, decreases, initiations, and omissions, as well as share repurchase initiations and non-initiations. I distinguish between share repurchases by non-dividend paying firms and dividend paying firms to account for differences in ownership related to a firm's dividend policy. I exclude firms with multiple payout events in the same year. I measure fund ownership with average fund shareholder investment horizon and average current ownership length of fund investors. I then quantify the changes in shareholder investment horizon and current

ownership length by investigating changes in ownership percentage by fund investment horizon tercile. Overall, I find evidence indicating payout events can cause changes to the ownership composition and ownership length of fund shareholders. Furthermore, the changes in ownership is dependent on the type of payout event and the dividend policy of the firm.

For each payout event in year t, I measure an initial ownership changes from $t-1$ to $t+1$, a subsequent ownership changes from $t+1$ to $t+2$, and an overall ownership changes from $t-1$ to $t+2$. I use payout events from 1988 to 2006 for tests of ownership change from $t-1$ to $t+1$, and payout events from 1988 to 2005 for tests of ownership change from $t+1$ to $t+2$, and from $t-1$ to $t+2$.

3.5.1 Changes in Shareholder Investment Horizon

I first measure changes in fund ownership around payout events with average fund shareholder investment horizon. I measure average shareholder investment horizon (SIH) as the average investment horizon of funds holding firm j at year end. In year t, SIH is equal to

$$SIH_{j,t} = \frac{\sum_{i \epsilon I} S_{i,j,t} * Log\left(FIH_{i,t}\right)}{\sum_{i \epsilon I} S_{i,j,t}} \tag{23}$$

where S represents the number of shares held and i indexes the set I of all fund shareholders. Because measurement of fund investment horizon is influenced by fund age, I take the average with respect to the natural log of fund investment horizon (FIH).[25] The change in shareholder investment horizon between dates is equal to $\Delta SIH_{j,t'} = SIH_{j,t'} - SIH_{j,t}$.

To ensure changes in shareholder investment horizon are not influenced by changes in the fund sample, I use funds present in the sample in year $t-1$ only, and use their measure of investment horizon in year $t-1$ for year $t+1$ and year $t+2$. I require event firms to be held by at least 10 mutual funds at the start of each measurement

[25] See Chapter 1.4 for a full definition of FIH.

period. This requirement is to ensure that changes in fund composition are not driven by the trading behavior of a small number of funds. The results remain primarily the same when I require just 5 fund shareholders.

I calculate both unadjusted and adjusted ownership changes. I define unadjusted changes as the difference in fund ownership between dates. Adjusted ownership change is equal to the ownership change of the payout event firm minus the ownership change of a control firm. I initially match an event firm with a control firm based on similar payout policies at the start of the event year. I then exclude from this sample all control firms that had a payout event regardless of payout type. Following Lie (2001) and Grullon and Michaely (2004), I then narrow the number of potential control firms by requiring the same 48 Fama-French Industry Classification, and measures of MB_{t-1}, ROA_{t-1}, and ΔROA_{t-1} within 80% to 120% of the event firm's value. For each event firm e, I then choose the control firm c which minimizes

$$|ROA_{e,t-1} - ROA_{c,t-1}| + |\Delta ROA_{e,t-1}\Delta ROA_{c,t-1}| + |MB_{e,t-1} - MB_{c,t-1}| \qquad (24)$$

If I cannot find a match from this sample, I repeat the procedure but loosen the industry restriction to all firms within the same Fama-French 12 Industry Classification. If I still cannot find a match, I use the control firm which minimizes Equation (24) with no regard to industry classification. The last iteration chooses the control firm which minimizes Equation (24) with no restrictions. Like event firms, I require control firms to be held by at least 10 funds at the start of the measurement period. Tests of significance are based on the mean and median changes of both unadjusted and adjusted changes. I use a two-tailed t-statistic to determine significance of mean change, and a two-tailed z-statistic from Wilcoxon rank tests to determine significance of median change.

Panel A of Table 3.4 reports changes in the average shareholder investment horizon

for firms that either increase, decrease, initiate, or omit dividends. Panel A reports both unadjusted and adjusted changes. I find dividend increasing firms have a positive and significant increase in unadjusted *SIH* over each time interval. All tests of mean and median unadjusted changes are significant at the 1% level. The mean *SIH* change from $t-1$ to $t+2$ is equal to 0.055. Considering average *SIH* for dividend increasing firms in year $t-1$ is equal to 3.029 and average *SIH* in year $t+2$ is equal to 3.084, the change in *SIH* is equal to 1.16 months ($\exp(3.084) - \exp(3.029)$), or a 5.63% increase. Dividend initiations, like dividend increases, increases unadjusted shareholder investment horizon over each measurement period and are significant at the 1% level. Opposite results hold for firms that either decrease or omit dividends. I find a mean decrease in unadjusted *SIH* for firms decreasing dividends equal to -0.028, significant at the 5% level, and median decrease equal to -0.43, significant at the 1% level. Lastly, I find dividend omissions have a negative effect on unadjusted *SIH* from $t-1$ to $t+1$, but no evidence of an overall unadjusted change is found from $t-1$ to $t+2$.

Except for dividend increases, changes in *SIH* as the result of dividend events are not robust to similar ownership changes in control firms. For dividend increases, both mean and median adjusted changes over each measurement period are again significant at the 1% level.

Panel B of Table 3.4 mirrors Panel A, but reports changes in *SIH* around share repurchase events. I find firms that repurchase shares have significant unadjusted increases in shareholder investment horizon. This is true for both non-dividend paying firms and dividend paying firms, and for repurchase initiations and non-initiations. However, I find much more positive and significant results with respect to share repurchases of non-dividend paying firms than dividend-paying firms. For instance, the overall mean unadjusted change in *SIH* for all repurchases of non-dividend paying firms is equal to 0.070, and is significant at the 1% level with a t-statistic equal to

12.05. The overall mean unadjusted *SIH* change for share repurchases of dividend paying firms is equal to 0.013, with a t-statistic equal to 2.67.

I find little evidence indicating changes in ownership composition are robust to similar changes in control firms. However, I do find an abnormal initial increase in *SIH* as the result of share repurchases of dividend paying firms. This is especially true for non-initiation share repurchases with a mean adjusted change equal to 0.013, significant at the 5% level.

3.5.2 Changes in Ownership Length

I next measure changes in fund ownership around payout events with current ownership length (*COL*) of fund shareholders. *COL* for firm j in year t is equal to

$$COL_{j,t} = \frac{\sum_{i \epsilon I} MV_{i,j,t} * Log\left(\overline{LT}_{i,j,t}\right)}{\sum_{i \epsilon I} MV_{i,j,t}} \tag{25}$$

where i indexes the set I of all funds holding firm j. The change in current ownership length between dates is equal to $\Delta COL_{j,t'} = COL_{j,t'} - COL_{j,t}$. I include all open fund positions held as of the fund's last report date in a given year as long as it is not a new position (since these positions have no ownership length). I use funds present in the sample the year before the payout event only, and require firms to be held by at least 10 funds at the start of the measurement period. Because I am excluding new fund shareholders from this statistic, I have fewer event firms that meet data requirements than with tests of *SIH* change. I follow the same test methodology as with changes in *SIH*, calculating both mean and median unadjusted and adjusted changes.

Panel A of Table 3.5 presents the unadjusted and adjusted changes in *COL* as the result of dividend events. I find evidence indicating an (unadjusted) increase in ownership length for all dividend events. However, these results may be the result of a natural increase in *COL* from one period to the next. After controlling for a similar

change in ownership length in a control firm, I find no significant difference in the length of time fund shareholders hold firm stock as the result of any dividend event.

Panel B presents tests of current ownership length change as the result of share repurchases. I again find for all share repurchases a positive and significant increase in unadjusted current ownership length. However, after I subtract a similar change in ownership length by a control firm, I find the effect of share repurchases to be dependent on a firm's dividend policy. For non-dividend paying firms, I find the adjusted overall change in *COL* from $t-1$ to $t+2$ to decrease by roughly one month. These results are significant at the 1% level, and hold regardless of repurchase type. For dividend-paying firms, however, share repurchases lengthen current ownership. The overall mean adjusted change for all share repurchases of dividend-paying firms is positive (0.029) and significant at the 5% level.

3.5.3 Explaining Changes in Shareholder Investment Horizon & Current Ownership Length with Fund Investment Horizon Tercile Ownership Changes

The first two parts of this section demonstrate that payout events can cause significant changes to the composition and ownership length of a firm's fund shareholders. Here, I attempt to quantify the changes in *SIH* and *COL* by examining changes in ownership percentage by funds in each investment horizon tercile (*Own%S*, *Own%M*, and *Own%L*). Tests follow the same methodology as above. For the sake of brevity, I report adjusted ownership changes only.

Panel A of Table 3.6 presents the results with respect to dividend events. Dividend increasing firms have significant decreases in short-horizon fund ownership over each time period. Tests of both mean and median change for each time period are negative and significant at the 1% level. This evidence implies the positive increase in *SIH* around dividend increases is the result of a decrease in short-horizon fund ownership. I also find a similar overall significant (10% level) decrease in short-horizon fund ownership for firms that initiate dividends. Dividend decreases, conversely, cause a

decrease in long-horizon fund ownership. Like dividend initiations, the results are significant at the 10% level. I find no evidence indicating dividend omissions have a significant effect on the ownership patterns of any fund type.

Panel B presents changes in ownership percentage as the result of share repurchases. For non-dividend paying firms, share repurchases create much greater turnover but no significant overall change in shareholder composition. For instance, short-horizon funds initially decrease ownership from $t-1$ to $t+1$, but subsequently increase ownership the following year. For dividend paying firms that repurchase shares, I again find an initial significant decrease in all fund investment horizon terciles. Unlike non-dividend paying firms, I do not find reversals in fund ownership after share repurchases of dividend paying firms.

The changes in ownership by each fund investment horizon tercile explain the changes in *SIH* and *COL* around share repurchases. Share repurchases of non-dividend paying firms do not change the overall composition of share investment horizon but do cause greater turnover in fund shareholders. This explains the absence of change in shareholder investment horizon but the decrease in average ownership length of its fund investors. On the other hand, for dividend paying firms the overall decrease in fund ownership and lack of new shareholders has no effect on shareholder composition but increases the average length of time the firm equity is held.

3.6 The Effect of the JGTRRA

Noted in the introduction, one part of the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003 equated the tax rate on dividend income and capital gains at 15% for individuals in the highest tax bracket. One effect of the tax-reform was a reverse in the dramatic decline in the propensity for firms to pay dividends from the previous decades (Fama and French (2001)). Chetty and Saez (2005) find a 20% increase in dividend payout over the following six quarters starting in the beginning of 2003, with a large number of firms initiating or increasing dividends. The authors

also find a positive relationship after the tax-reform between a change in ownership by taxable institutions and changes in dividend payout.

In this section, I investigate whether tax-effects have an impact on the investment horizon and length of fund shareholders holding dividend paying or share repurchasing firms. Overall, the results from this section indicate little change in fund ownership as the result of the tax-reform. However, I find evidence suggesting an intricate relationship between the disproportionate tax rates on dividend income and capital gains and fund ownership length.

3.6.1 Ownership Characteristics

I first investigate the change in ownership percentage and relative ownership length as a consequence of the tax-reform. I repeat the regressions of Chapter 3.4, but instead use observations just before and just after passage of the JGTRRA. First, I estimate a tobit regression with all firm-year observations from 2002 and 2004 explaining the ownership percentage by fund investment horizon tercile. I again estimate four regressions depending on the set of payout control variables while including all other explanatory variables and industry fixed-effects. Within each specification, I also include variables controlling for an overall change in fund ownership and ownership change relating to firm payout. To control for overall changes in fund ownership between the two periods, I include a tax-period (*TaxPd*) indicator variable. *TaxPd* is equal to 1 if the firm-year observation is from 2004, 0 otherwise. To control for changes in fund ownership percentage specifically relating to firm payout, I include interaction terms between *TaxPd* and each payout variable in the regression. Tests of fund ownership change relating to the JGTRRA are based on the significance of the interaction terms. I cluster standard errors at the firm level.

Columns (1) through (3) of Table 3.7 present the regression estimates for *TaxPd*, the payout control variables, and the interaction terms between *TaxPd* and the payout control variables, for short, medium, and long investment horizon funds. To conserve

space, the table does not report the coefficient estimates of the other explanatory variables. Table 3.7 is separated into four panels, one for each of the four sets of payout control variables. Overall, I find no evidence indicating the JGTRRA had a significant effect on the relationship between fund ownership and payout policy. Regardless of payout specification or fund investment horizon tercile, all payout variable and *TaxPd* interaction terms were insignificant.

Second, I estimate a truncated regression model by fund investment horizon explaining *ROL* with all stock positions taken from 2002 and 2004. Other than the regression model and dependent variable, the test methodology remains the same as the tobit regressions above. Columns (4) though (6) present the results. Unlike the regressions with ownership percentage, I find a significant increase in the relative length of time short- and medium-horizon funds hold stock positions. Panel A reports regression estimates when payout yields are included in the regression. I find stocks with high dividend yields are held longer after 2003 by short- and medium-horizon funds with significance at the 5% level. Interestingly, I find long-horizon funds hold stocks with higher dividend yields for relatively shorter periods of time after 2003. I do not find any evidence indicating funds own firms with higher repurchase yields after the tax-reform.

The results with dividend and repurchase yields for short- and medium-horizon funds are confirmed when I instead use dividend and repurchase indicator variables. Panel B presents evidence indicating short- and medium-horizon funds hold dividend paying firms significantly longer after 2003. Both results are significant at the 1% level and indicate dividend paying stocks are held 3% longer than other fund positions within short-horizon fund portfolios, and 2.3% longer within medium-horizon fund portfolios. Unlike the regressions using dividend yield, I find no evidence indicating long-horizon funds hold dividend-paying firms differently after 2003 than before. Little evidence is again found regarding a change in ownership length for share re-

purchasing firms. Panels C and D report coefficient estimates with respect to total payout yield and the total payout indicator variable. Across both regressions, I find a firm's payout status to affect short-horizon funds only, as they hold payout firms relatively longer after 2003 than before. Overall, the results from this section indicate that although investor clienteles did not change as the result of the tax-reform, the length of time funds with shorter investment horizons hold the stock of dividend paying firms has increased.

3.6.2 Ownership Changes Around Payout Events

Next, I compare changes in ownership as the result of payout events before and after the JGTRRA. To measure the difference in ownership change, I compare mean- and median-adjusted changes before and after the 2003 tax-reform. I only study adjusted changes to account for differences in the fund sample between periods.

I use a similar methodology to compare ownership change here as in Chapter 3.5. I measure ownership changes around event year t with *SIH*, *COL*, *Own%S*, *Own%M*, and *Own%L* from $t-1$ to $t+1$, from $t+1$ to $t+2$, and from $t-1$ to $t+2$. Tests of ownership change from $t-1$ to $t+1$ use payout events from 1999 to 2001 and 2004 to 2006, and tests of ownership change from $t+1$ to $t+2$ and $t-1$ to $t+2$ use payout events from 1999 to 2000 and 2004 to 2005. I do not use payout events from 2002 and 2003 to avoid ownership changes related to the tax-reform. All other methodology remains the same including using only funds present in sample at time $t-1$, measuring a fund's investment horizon at time $t-1$, excluding firms with less than 10 fund shareholders at the start of each time period, and determining the control firms. I use the two-sided t-statistic to test for a difference in mean change, and the two-tailed z-statistic from Wilcoxon rank-sum to test for a difference in median change.

Table 3.8 presents tests of differences in *SIH* change, and Table 3.9 presents tests of differences in *COL* change. In both tables, the third and fourth columns present

the number of firm events before and after 2003 and the fifth column through the eigth column presents the difference in mean and median change before and after the tax-reform (change before minus change after) as well as test statistics. Overall, I find little evidence indicating a difference in changes in shareholder composition or ownership length as the result of payout events between the two time periods.

Similar to Tables 3.8 and 3.9, Panel A of Table 3.10 presents the tests of differences in ownership percentage change by fund investment horizon tercile for firms with dividend events. I find a more positive change in short-horizon fund ownership percentage from $t-1$ to $t+1$ after the JGTRRA than before. The difference in initial mean (and median) adjusted change from before 2003 to after 2003 is equal to -0.005, and is significant at the 5% level. This provides further evidence indicating a lengthening in the ownership of short-horizon funds as the result of the tax-reform. Although, I do not find a significant overall change (from $t-1$ to $t+2$) by short-horizon funds, I do find an overall change by medium horizon funds The difference in mean adjusted ownership change from $t-1$ to $t+2$ for medium-horizon funds is equal to 0.015, and is significant at the 1% level. Interestingly, I find a more positive change in long-horizon fund ownership after 2003 for dividend decreasing firms, but a more negative change in ownership for dividend initiating firms.

Panel B presents the tests of differences in ownership change around share repurchases. Although I find no evidence with respect to dividend paying firms, I do find evidence of a difference in ownership change with respect to non-dividend paying firms. Short-, medium-, and long-horizon funds have more positive ownership changes before the JGTRRA than after for non-dividend paying firms that repurchase shares. This is true for changes from $t-1$ to $t+1$ (short- and long-horizon funds), changes from $t+1$ to $t+2$ (medium-horizon funds), and changes from $t-1$ to $t+2$ (short- and medium-horizon funds). Overall, this subsection presents some evidence indicating the JGTRRA had some effect on fund ownership changes around

payout events.

3.7 The Effect of Ownership Stability on Payout Choice

In this section, I investigate whether shareholder stability is a significant factor in firm payout choice. I compare fund ownership characteristics surrounding a dividend paying firms choice to either increase dividends or repurchase shares. I investigate dividend paying firms because of their relative homogeneity compared to non-dividend paying firms and their already established long-term commitment to regularly pay dividends. I find evidence suggesting that short-horizon funds, not long-horizon funds, are important in explaining the payout choice of dividend paying firms. Whether short-horizon funds compel managers to increase dividends or firm managers increase dividends to attract more long-term shareholders, I find dividend paying firms experience a greater shift in investor clientele from short- to long-horizon funds with dividend increases than share repurchases.

3.7.1 Pre-Event Comparison & Change in Fund Ownership

I begin by comparing pre-event and unadjusted changes in fund ownership between dividend paying firms that either increase dividends or repurchase shares. I employ the same methodology used in Chapter 3.5 to compute unadjusted ownership changes from $t-1$ to $t+1$, from $t+1$ to $t+2$, and from $t-1$ to $t+2$ around event year t. This includes measuring fund ownership with *SIH*, *COL*, *Own%S*, *Own%M*, and *Own%L*, using only funds available in the dataset in $t-1$, measuring fund investment horizon at $t-1$, and requiring firms to be held by at least 10 funds at the start of each time period. I employ tests of mean and median ownership differences between the payout choices. The results are presented in Table 3.11.

Panel A presents tests of pre-event and ownership change differences in *SIH* between dividend paying firms that either increase dividends or repurchase shares. In the year prior the payout event, I find dividend increasing firms have lower share-

holder stability than share repurchasing firms. Mean *SIH* for dividend paying firms that increase dividends is equal to 3.041, and mean *SIH* for dividend paying firms that repurchase shares is equal to 3.114. The difference in means, -0.073, is significant at the 1% level with a t-statistic equal to 10.24. A similar result holds for tests of median difference. However, as the result of the payout events, dividend increases increase average shareholder investment horizon more so than share repurchases. Firms that increase dividends observe a change in *SIH* from $t-1$ to $t+2$ equal to 0.056. The increase is significantly greater than the change in *SIH* as the result of share repurchases (0.014) at the 1% level. Similar results are found from $t-1$ to $t+1$ and from $t+1$ to $t+2$.

Panel B presents the results with respect to *COL*. Prior to the event year, I find dividend paying firms that repurchase shares are held significantly longer than dividend paying firms that increase dividends. The mean difference is equal to -0.065, and is significant at the 1% level. However, unlike shareholder investment horizon, share repurchases of dividend paying firms increases current ownership length more so than dividend increases. The overall change from $t-1$ to $t+2$ for dividend increases is equal to 0.115, and for share repurchases is equal to 0.145. The mean difference, -0.30, is significant at the 10% level with a t-statistic equal to 1.74.

Panel C presents comparisons in pre-event and changes in ownership percentage of funds by investment horizon tercile. Prior to the event year, I find dividend paying firms that increase dividends have significantly higher ownership by short-horizon funds and significantly lower ownership by medium- and long-horizon funds. As the result of the payout event, however, dividend paying firms that increase dividends have a significantly greater decrease in short-horizon fund ownership and a greater increase in long-horizon fund ownership. These results relate directly to the changes in *SIH* and *COL* found in Panels A and B. For instance, the increase in new long-horizon fund ownership for dividend increasing firms increases average shareholder

investment horizon but at the same time causes a relative decrease in the average length of time fund shareholders hold firm stock.

3.7.2 Tests of Pre-Event Fund Ownership

The evidence above indicates dividends lengthen shareholder investment horizon more so than share repurchases. The results also indicate dividend paying firms that increase dividends instead of repurchase shares have less long-horizon shareholders and more short-horizon shareholders prior to the event year. To determine whether or not shareholder composition and ownership length is a determinate in payout choice, I estimate a bivariate probit model explaining the choice of a dividend paying firm to either increase dividends or repurchase shares. The dependent variable for the first equation is equal to 1 if the firm increases dividends, 0 otherwise. The dependent variable for the second equation is equal to 1 if the firm repurchases shares, 0 otherwise. Similar to a seemingly unrelated regression, the model allows for correlated disturbances between the two equations. Specifically, for indicator variables y_1 and y_2, and the corresponding sets of dependent variables x_1 and x_2, the bivariate probit model can be written as

$$
\begin{aligned}
& y_1 = x_1\beta_1 + \epsilon_1, \qquad y_1 = 1 \text{ if dividend increase, 0 otherwise,} \\
& y_2 = x_2\beta_2 + \epsilon_2, \qquad y_2 = 1 \text{ if share repurchase, 0 otherwise,} \\
& E\left[\epsilon_1 |\ x_1, x_2\right] = E\left[\epsilon_2 |\ x_1, x_2\right] = 0, \\
& Var\left[\epsilon_1 |\ x_1, x_2\right] = Var\left[\epsilon_2 |\ x_1, x_2\right] = 0\,, \text{ and} \\
& Cov\left[\epsilon_1, \epsilon_2 |\ x_1, x_2\right] = \rho
\end{aligned}
\tag{26}
$$

where ϵ_1 and ϵ_2 are regression error terms for the first and second equations, and ρ is a constant.

I estimate three sets of regressions depending on the measure of fund ownership

stability. In the first set, I use as explanatory variables pre-event *SIH*, operating income, non-operating income, abnormal operating income, capital expenditures, debt, size, market-to-book, annual returns, standard deviation of returns, beta, and trading volume. In the second set of regressions, I replace pre-event *SIH* with pre-event *COL*. In the third set of regressions, I use pre-event *Own%S*, *Own%M*, and *Own%L* as measures of fund ownership. I again employ the Fama-MacBeth methodology, estimating annual bivariate models from 1988 to 2006, and adjusting coefficient standard errors with a Newey-West adjustment to two lags. I use dividend paying firms that either increase dividends and/or repurchase shares, and are held by at least 10 mutual funds prior to the event year. Due to the relatively small number of firms each year, I include fixed-effects based on the Fama-French 12 Industry Classification, not 48. Lastly, for both equations I report average annual marginal effects of the independent variables at the respective means.

Columns (1) through (4) of Table 3.12 presents the results of the model when I use *SIH* as the measure of pre-event ownership. *SIH* is a negative and significant predictor of a dividend paying firm's choice to increase dividends. The coefficient, equal to -0.365 (marginal effect = -0.129), is significant at the 5% level with a t-statistic equal to 2.25. On the other hand, I do not find average shareholder investment horizon to be a significant predictor of the firm's choice to repurchase shares.

Similar to the results found by Stephens, Jagannathan, and Weisbach (2000), I find dividend paying firms with higher returns, beta, standard deviation of returns, capital expenditures, and market-to-book ratio are more likely to increase dividends than repurchase shares. Conversely, firms with greater volume, operating income, non-operating income, and size are more likely to repurchase shares. Stephens et al. (2000) also include institutional ownership in their regressions, however, the authors find no evidence indicating ownership by institutions is a significant predictor of payout choice.

Columns (5) through (8) presents regression estimates when *COL* is the measure of pre-event ownership. I do not find evidence indicating current ownership length is a significant predictor of either payout choice. Columns (9) through (12) present the results when I classify pre-event ownership by the percentage of shares held by short-, medium-, and long-horizon funds. I find greater ownership by short- and medium-horizon funds increases the probability a firm will increase dividends, but greater ownership by long-horizon funds decreases the probability a firm will increase dividends. The result is especially strong for *Own%S*, with a marginal effect equal to 1.232 and significance at the 1% level (t-statistic = 3.91). The results for medium- and long-horizon fund ownership are significant at the 10% level. Again, no evidence is found indicating a significant relationship between fund ownership and a firm's choice to repurchase shares. Implications of other control variables remain the same.

The results of the bivariate probit model indicate that overall shareholder investment horizon is important, but ownership by short-horizon funds may be the most significant factor in a firm's choice to increase dividends. For the last part of this analysis, I investigate whether changes in fund ownership prior to the payout event are related to a dividend paying firms choice in payout. For dividend paying firms that either increase dividends or repurchase shares in year t, I compare fund ownership in year $t-3$ and fund ownership changes from $t-3$ to $t-2$, from $t-2$ to $t-1$, and from $t-3$ to $t-1$. I again measure fund ownership with respect to *SIH*, *COL*, and the ownership percentage by funds in each investment horizon tercile. The test methodology remains the same as before.

Panel A of Table 3.13 presents the results with respect to *SIH*. I find dividend increasing firms have significantly lower average shareholder investment horizon in year $t-3$. Furthermore, whereas dividend paying firms that repurchase shares experience an increase in *SIH* prior to the event year, dividend increasing firms experience a decline. The difference in mean and median changes are significant at the 1% level.

The difference in mean *SIH* change from $t-3$ to $t-1$ is equal to -0.029, equivalent to 0.631 months.[26] Panel B presents changes in current ownership length. Although both payout firms have similar ownership lengths at $t-3$, the ownership length of share repurchasing firms increases prior to the event year more so than dividend increasing firms. The mean difference in *COL* is equal to -0.021 and is significant at the 5% level.

Panel C presents comparisons of ownership percentage by fund investment horizon tercile. Overall, I find dividend increasing firms have more short-horizon and less long-horizon fund ownership three years prior to the event year. Furthermore, dividend increasing firms experience a greater increase in short-horizon fund ownership and a smaller increase in long-horizon fund ownership than share repurchasing firms prior to the event year. However, the changes in short-horizon fund ownership is larger and more significant than ownership changes by long-horizon funds. Taken together, the results in ownership change before and around dividend increases and share repurchases of dividend paying firms indicate dividend increases are not just associated with a greater change in shareholder composition but also with a greater reversal in short-horizon fund ownership.

3.8 Chapter Conclusion

The results of this chapter demonstrate how payout policy is related to the ownership stability of a firm's fund shareholders. Both dividend paying and share repurchasing firms have greater ownership and are held relatively longer by funds with longer investment horizons. Furthermore, payout events can alter the identity and longevity of fund shareholders. Whether fund investors dictate payout policy to match their preferences or firm managers match payout policy to the preferences of their fund investors, what matters is that payout policy is positively related to ownership stability.

[26] 0.631 months is equal to the difference between $\exp(SIH_{t-1}) - \exp(SIH_{t-3})$ for dividend increasing and share repurchasing firms.

This implies a benefit to distributing excess capital that stems from the attraction of greater and longer ownership by shareholders more focused on long-term growth. Empirically, the heterogeneity I find between mutual funds provides a clear example in the importance of controlling for institution type beyond general classifications (pension fund, endowment, etc.). Seen here, a wide range of investment horizons exist even within mutual funds.

Table 1.1: Fund Investment Horizon Summary Statistics

		***FIH* Summary Statistics**				**Tercile Breakpoints**		**Short *FIH***		**Medium *FIH***		**Long *FIH***	
Year	N	Mean	Std. Dev.	Min	Max	1-2	2-3	%	#	%	#	%	#
1990	215	23.8	14.1	5.1	79.4	15.5	25.5	0.52%	69.4	0.57%	87.4	0.72%	127.9
1991	245	22.5	15.2	3.2	107.3	14.9	23.7	0.40%	74.1	0.68%	110.4	0.76%	109.4
1992	251	21.9	13.6	3.0	90.4	14.0	23.7	0.51%	85.0	0.67%	94.7	0.62%	135.0
1993	304	24.8	17.1	5.0	134.1	16.0	25.4	0.49%	86.3	0.65%	109.8	0.59%	175.7
1994	309	24.8	14.9	3.0	99.0	16.6	26.7	0.67%	101.3	0.53%	105.2	0.65%	143.4
1995	353	24.0	14.1	5.4	100.5	15.9	26.7	0.55%	91.9	0.86%	110.8	0.61%	167.2
1996	426	22.8	16.4	4.7	197.8	15.5	23.2	0.50%	111.3	0.88%	125.4	0.60%	149.0
1997	549	21.5	11.9	5.8	96.4	15.4	22.9	0.54%	112.3	0.63%	124.7	0.76%	150.1
1998	740	21.7	13.7	4.2	167.4	15.4	22.7	0.32%	108.5	0.45%	123.3	0.61%	149.8
1999	882	21.0	11.7	4.7	106.9	15.3	22.2	0.29%	102.4	0.43%	128.4	0.50%	164.4
2000	1027	21.9	15.9	3.9	169.5	14.3	22.3	0.26%	97.5	0.28%	105.9	0.48%	150.9
2001	1015	18.8	13.6	4.3	190.2	13.3	19.3	0.22%	104.0	0.29%	113.7	0.31%	159.7
2002	1334	20.2	13.2	3.6	184.8	14.2	21.0	0.17%	108.4	0.25%	112.8	0.33%	145.1
2003	1464	20.1	12.7	3.0	208.1	13.9	21.4	0.16%	100.4	0.20%	121.4	0.30%	169.3
2004	1880	20.8	13.8	2.4	189.7	14.5	21.9	0.12%	98.7	0.19%	132.5	0.27%	182.8
2005	2189	21.8	15.4	2.8	223.1	14.7	22.4	0.12%	117.5	0.18%	133.6	0.27%	187.1
2006	2386	22.0	13.0	3.3	110.7	15.2	23.3	0.12%	125.4	0.16%	142.1	0.25%	185.2
2007	2537	21.2	13.0	3.4	102.3	14.2	22.7	0.10%	128.7	0.14%	145.5	0.21%	217.0

This table reports summary statistics for fund investment horizon (*FIH*) from 1990 to 2007. Mean, maximum, minimum, and standard devation, and tercile breakpoints are in months. Tercile breakpoints are computed annually using sample mutual funds. 1-2 represents the breakpoint between short and medium investment horizon funds, and 2-3 represents the breakpoint between medium and long investment horizon funds. The last six columns compares stock positions at year-end between funds with short, medium, and long investment horizons. % is the average ownership percentage for each stock position, and # is the average number of stock positions per fund. *FIH* is defined in Chapter 1.4.

Table 1.2: Average Change in Fund Investment Horizon from Initial Measure

Years in Sample	All		Short		Medium		Long	
	#	ΔFIH	#	ΔFIH	#	ΔFIH	#	ΔFIH
1	6189	-	1804	-	1681	-	2704	-
2	3642	-0.56	1295	2.56	1120	0.28	1227	-4.63
3	2431	0.29	947	1.25	767	0.48	717	-1.17
4	1687	0.67	666	0.78	523	0.89	498	0.30
5	1085	0.14	433	0.61	345	0.21	307	-0.59
6	796	0.57	336	1.09	249	0.59	211	-0.30
7	595	0.22	266	-0.05	179	0.29	150	0.60
8	467	0.55	211	0.68	144	1.03	112	-0.33
9	345	0.24	158	0.10	104	0.32	83	0.41
10	271	0.74	125	0.87	81	-0.27	65	1.75
11	192	-0.55	84	0.21	57	-1.27	51	-0.99
12	132	0.96	58	1.17	43	0.91	31	0.64
13	87	1.48	38	0.01	26	4.57	23	0.42
14	58	1.26	24	1.74	17	0.74	17	1.10
15	45	1.13	20	-2.19	13	3.65	12	3.94
16	33	-0.79	16	0.65	9	-1.59	8	-2.76
17	28	1.97	13	2.14	7	0.29	8	3.17
18	23	-0.37	11	-0.01	6	-3.13	6	1.72

This table reports the number of funds and the average change in fund investment horizon (*FIH*) from the fund's first year in the sample to all subsequent years. Averages are computed for all funds and by initial *FIH* tercile classification. The average change in *FIH* is in months. *FIH* is defined in Chapter 1.4.

Table 1.3: Comparison Between Fund Investment Horizon & Other Measures of Portfolio Turnover

Panel A: Correlation Between *FIH*, *TOT*, and *TOM* Terciles*

	FIH	***TOT***	***TOM***
FIH	1.00		
TOT	0.45	1.00	
TOM	0.44	0.78	1.00

Panel B: *FIH* Tercile Classification as a Percentage of *TOT* and *TOM* Terciles

	Short *FIH*			**Med. *FIH***			**Long *FIH***		
	Short	Med.	Long	Short	Med.	Long	Short	Med.	Long
TOT	0.565	0.335	0.100	0.276	0.411	0.314	0.160	0.255	0.585
TOM	0.563	0.313	0.124	0.294	0.419	0.287	0.143	0.270	0.587

Panel C: Between Year Percentage Change in Tercile Classifications

	$\mathbf{Short_{t-1}}$			$\mathbf{Med._{t-1}}$			$\mathbf{Long_{t-1}}$		
	FIH	*TOT*	*TOM*	*FIH*	*TOT*	*TOM*	*FIH*	*TOT*	*TOM*
$\mathbf{Short_{t-1}}$	0.683	0.681	0.677	0.280	0.261	0.274	0.047	0.058	0.075
$\mathbf{Med._{t-1}}$	0.244	0.252	0.252	0.513	0.507	0.500	0.270	0.269	0.273
$\mathbf{Long_{t-1}}$	0.073	0.068	0.071	0.207	0.232	0.226	0.683	0.673	0.652

This table compares the investment horizon tercile classifications between fund investment horizon (*FIH*) and two turnover based measures (*TOT* and *TOT*). Investment horizon terciles are calculated annually. All sample funds from 1990 to 2007 are used. Panel A reports correlation coefficients between classifications. Panel B reports the proportion of funds with short, medium, and long investment horizons based on *FIH*, that have short, medium, and long investment horizons based on either *TOT* or *TOM*. Panel C reports the proportion of funds within an investment horizon tercile one year that either keep the same tercile classification the following year, or switch to one of the other two. *FIH*, *TOT*, and *TOM* are defined in Chapter 1.4.

*All correlations signficant at the 1% level.

Table 1.4: Firm and Ownership Variable Correlation Matrix

	SIH	*S*	*Own-M*	*L*	*AROL*	*S*	*AROL-M*	*L*	*DA*	*Uns-DA*	*ES*	*MB*	*Debt*	*Size*	*FY-Ret*	*3M-Ret*	*Fcst-SD*
Own%S	-0.51																
Own%M	-0.28	0.37															
Own%L	0.37	0.16	0.24														
AROL	0.17	-0.05	0.06	0.16													
AROLS	-0.16	0.23	0.10	0.08	0.36												
AROLM	-0.02	0.00	0.24	0.11	0.53	0.17											
AROLL	0.18	-0.08	-0.03	0.15	0.66	0.10	0.17										
DA	-0.03	0.02	0.03	-0.01	0.01	0.01	0.02	0.00									
UnsDA	-0.07	0.06	0.01	-0.04	-0.07	-0.05	-0.08	-0.06	-0.04								
ES	-0.04	0.05	0.04	0.01	0.00	0.03	0.02	0.02	0.01	-0.05							
MB	-0.14	0.18	0.11	-0.03	-0.04	0.05	0.01	-0.04	-0.05	0.09	0.04						
Debt	0.02	-0.09	-0.06	-0.06	0.03	0.02	0.03	0.03	0.03	-0.11	-0.05	-0.06					
Size	0.00	-0.08	-0.05	-0.03	0.04	0.15	0.14	0.05	-0.02	-0.21	0.04	-0.09	0.34				
FYRet	-0.21	0.18	0.08	-0.09	-0.14	-0.06	-0.10	-0.07	-0.01	0.02	0.11	0.31	-0.06	-0.08			
3MRet	-0.09	0.03	-0.01	-0.04	-0.07	-0.05	-0.05	-0.03	-0.05	0.02	0.12	0.18	-0.02	0.00	0.43		
FcstSD	0.03	-0.08	-0.09	-0.10	-0.06	-0.06	-0.06	-0.06	-0.03	0.03	-0.27	-0.08	0.13	0.12	-0.05	-0.04	
AnNum	-0.10	0.03	0.03	-0.09	-0.02	0.12	0.10	-0.02	-0.04	-0.11	0.05	0.12	0.05	0.60	-0.04	0.00	0.00

This table reports correlation coefficients between firm-level variables. Ownership variables are defined in Chapter 1.4. All other variables are defined in Chapter 1.3.

Table 1.5: Summary of Earnings Announcements within One Penny of Analyst Forecasts

Panel A: Overall

ES	**Overall**		
	Obs.	%	Cum. %
-$0.01	1,534	21.8	21.8
$0.00	2,779	39.5	61.2
$0.01	2,732	38.8	100.0
Total	7,045	100.0	

Panel B: SIH Tercile

ES	**Short**			**Medium**			**Long**		
	Obs.	%	Cum. %	Obs.	%	Cum. %	Obs.	%	Cum. %
-$0.01	480	18.6	18.6	556	23.2	23.2	498	24.2	24.2
$0.00	1,026	39.7	58.2	915	38.2	61.4	838	40.6	64.8
$0.01	1,081	41.8	100.0	925	38.6	100.0	726	35.2	100.0
Total	2,587	100.0		2,396	100.0		2,062	100.0	

Panel C: AROL Tercile

ES	**Short**			**Medium**			**Long**		
	Obs.	%	Cum. %	Obs.	%	Cum. %	Obs.	%	Cum. %
-$0.01	470	21.6	21.6	519	21.5	21.5	545	22.3	22.3
$0.00	831	38.1	59.7	941	39.0	60.4	1,007	41.1	63.4
$0.01	880	40.4	100.0	956	39.6	100.0	896	36.6	100.0
Total	2,181	100.0		2,416	100.0		2,448	100.0	

This table reports the percentage of firms overall and by average shareholder investment horizon (*SIH*) and average relative ownership length (*AROL*) terciles that either just beat (*ES* = $0.01), meet (*ES* = $0.00), or just miss (*ES* = -$0.01) analyst earnings forecasts. I use firm observations from 1990 to 2007. Firms are classified into *SIH* and *AROL* terciles annually. *SIH* and *AROL* are defined in Chapter 1.4. *ES* is defined in Chapter 1.3.

Table 1.6: Ordered Probit Regressions Describing Earnings Surprises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIH_t	-0.206^a(3.56)					-0.202^a(3.49)	
$Own\%S_t$		2.768^a(4.31)					2.594^a(3.88)
$Own\%M_t$		0.685 (1.50)					0.785^c(1.68)
$Own\%L_t$		-0.085 (0.24)					-0.050 (0.14)
$TotOwn\%_t$			0.776^a(3.53)				
$AROL_t$				-0.082 (0.98)		-0.048 (0.57)	
$AROLS_t$					0.108^b(2.01)		0.045 (0.81)
$AROLM_t$					-0.032 (0.55)		-0.055 (0.93)
$AROLL_t$					-0.052 (0.75)		-0.024 (0.34)
MB_t	0.004 (0.68)	0.003 (0.58)	0.005 (0.84)	0.005 (0.85)	0.004 (0.68)	0.004 (0.71)	0.003 (0.59)
$Debt_t$	-0.237b(2.18)	-0.245b(2.26)	-0.235b(2.16)	-0.219b(2.01)	-0.214b(1.97)	-0.238b(2.20)	-0.246b(2.27)
$Size_t$	0.003 (0.22)	0.008 (0.56)	0.006 (0.39)	0.003 (0.20)	0.000 (0.01)	0.004 (0.27)	0.009 (0.58)
$FYRet_t$	0.119^a(4.10)	0.113^a(3.96)	0.132^a(4.62)	0.134^a(4.59)	0.139^a(4.77)	0.117^a(3.99)	0.112^a(3.87)
$FcstSD_t$	-1.829^a(4.35)	-1.783^a(4.26)	-1.781^a(4.23)	-1.902^a(4.44)	-1.856^a(4.41)	-1.852^a(4.36)	-1.799^a(4.28)
$AnNum_t$	0.003 (0.94)	0.002 (0.69)	0.003 (0.83)	0.003 (1.06)	0.003 (1.13)	0.003 (0.88)	0.002 (0.67)
Obs.	7045	7045	7045	7045	7045	7045	7045

This table reports estimates from ordered probit regressions explaining the difference between announced and analyst forecasted earnings-per-share (ES). t-statistics are in parentheses. Standard errors are clustered at the firm-level to the right of coefficients. Each regression uses firms that announce earnings within one penny of median analyst estimates from 1990 to 2007. Independent variables include firm-level measures of ownership stability, market-to-book ratio, debt, size, annual return, standard deviation of analyst forecasts, number of analysts covering the firm, year fixed-effects and industry fixed-effects based on the Fama-French 12 Industry Classification. Ownership measures are defined in Chapter 1.4. The dependent variable and all other explanatory variables are defined in Chapter 1.3. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 1.7: Linear Regressions Describing Earnings Surprises

	$ES >$ \$0.01 or $ES <$ -\$0.01			$ES >$ \$0.01		
SIH	-0.013^c (1.70)			-0.010 (1.11)		
$Own\%S_t$		0.168^c (1.87)			0.046 (0.38)	
$Own\%M_t$		0.027 (0.43)			0.158 (1.30)	
$Own\%L_t$		-0.093^b (2.28)			0.036 (0.48)	
$TotOwn\%_t$			-0.005 (0.17)			0.076 (0.88)
MB_t	-0.001 (1.12)	-0.001 (1.27)	-0.001 (0.99)	0.002 (1.21)	0.002 (1.23)	0.002 (1.24)
$Debt_t$	-0.061^a (3.89)	-0.060^a (3.88)	-0.060^a (3.87)	0.041^c(1.72)	0.039^c(1.74)	0.040^c(1.74)
$Size_t$	0.012^a (5.84)	0.013^a (5.88)	0.012^a (5.84)	0.003 (0.74)	0.004 (0.93)	0.004 (0.93)
$FYRet_t$	0.041^a (9.41)	0.041^a (9.29)	0.042^a (9.85)	-0.002 (0.39)	-0.002 (0.34)	-0.001 (0.30)
$FcstSD_t$	-0.601^a(10.42)	-0.601^a(10.39)	-0.600^a(10.37)	1.200^a(3.10)	1.204^a(3.07)	1.204^a(3.07)
$AnNum_t$	0.000 (0.42)	0.000 (0.41)	0.000 (0.52)	-0.003^a(3.77)	-0.003^a(3.67)	-0.003^a(3.69)
Obs.	14644	14644	14644	8486	8486	8486
Adj. R^2	0.11	0.11	0.11	0.12	0.12	0.12

This table reports estimates from linear regressions explaining the difference between announced and analyst forecasted earnings-per-share (ES). t-statistics are in parentheses. Standard errors are clustered at the firm-level to the right of coefficients. The regressions use firms that announce earnings either outside of one penny or just greater than one penny of median analyst estimates from 1990 to 2007. Independent variables include firm-level measures of ownership stability, market-to-book ratio, debt, size, annual return, standard deviation of analyst forecasts, number of analysts covering the firm, year fixed-effects and industry fixed-effects based on the Fama-French 12 Industry Classification. Ownership measures are defined in Chapter 1.4. The dependent variable and all other explanatory variables are defined in Chapter 1.3. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 1.8: Linear Regressions Describing Changes in Analyst Forecasts

	(1)	(2)	(3)	(4)
SIH_t	-0.032^a(5.16)		-0.032^a(5.08)	
$AROL_t$	0.016^b(2.19)		0.018^b(2.33)	
$SIH_t \times ES_t$			0.423^a(3.16)	
$AROL_t \times ES_t$			-1.133 (1.57)	
$Own\%S_t$		0.246^a(5.39)		0.223^a(4.24)
$Own\%M_t$		0.040 (1.28)		0.035 (1.01)
$Own\%L_t$		-0.061^b(2.25)		-0.067^b(2.40)
$AROLS_t$		-0.004 (0.87)		-0.004 (0.80)
$AROLM_t$		0.003 (0.71)		0.003 (0.54)
$AROLL_t$		0.015^a(3.02)		0.015^a(2.93)
$Own\%S_t \times ES_t$				5.614 (0.94)
$Own\%M_t \times ES_t$				0.061 (0.01)
$Own\%L_t \times ES_t$				3.576 (1.44)
$AROLS_t \times ES_t$				-0.236 (0.45)
$AROLM_t \times ES_t$				0.743 (1.44)
$AROLL_t \times ES_t$				0.049 (0.11)
MB_t	0.001^a(5.37)	0.001^a(5.50)	0.001^a(5.29)	0.001^a(5.40)
$Debt_t$	-0.035^a(4.56)	-0.034^a(4.32)	-0.034^a(4.41)	-0.033^a(4.23)
$Size_t$	0.000 (0.23)	0.000 (0.42)	0.000 (0.17)	0.000 (0.33)
$3MRet_t$	0.042^a(6.31)	0.042^a(6.26)	0.040^a(6.04)	0.041^a(6.05)
Constant	0.039 (1.63)	-0.065^a(3.10)	0.035 (1.43)	-0.066^a(3.08)
Adjusted R^2	0.03	0.03	0.04	0.03
Obs.	7675	7675	7675	7675

This table reports estimates from linear regressions explaining changes in median analyst forecasts from the first month to the last month in the final quarter of the fiscal year. One panel regression is estimated for each model using firms that announce earnings within one penny of median analyst estimates between 1990 and 2007. Standard errors are clustered at the firm-level. t-statistics are in parentheses. Independent variables include measures of ownership stability, market-to-book ratio, debt, size, fiscal year stock return, year-fixed effects, industry fixed-effects based on the Fama-French 48 Industry Classification, and a constant. The dependent variable is defined in Chapter 1.5. Ownership measures are defined in Chapter 1.4. All other explanatory variables are defined in Chapter 1.3. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 1.9: Level Regressions Describing Discretionary Accruals - Shareholder Composition

	$\boldsymbol{DA}_t$			$\boldsymbol{UnsDA}_t$		
	(1)	(2)	(3)	(4)	(5)	(6)
SIH_t	-0.007^a(4.32)			-0.004^a (3.79)		
$Own\%S_t$		0.055^a(2.98)			0.039^a (3.30)	
$Own\%M_t$		0.042^a(3.34)			-0.014^c (1.71)	
$Own\%L_t$		-0.005 (0.57)			-0.011^c (1.91)	
$TotOwn\%_t$			0.022^a(3.67)			-0.003 (0.64)
MB_t	-0.001^a(4.76)	-0.001^a(4.83)	-0.001^a(4.60)	0.001^a (6.69)	0.001^a (6.64)	0.001^a (6.92)
$Debt_t$	0.015^a(4.81)	0.015^a(4.69)	0.015^a(4.76)	-0.006^a (3.02)	-0.006^a (2.91)	-0.006^a (2.91)
$Size_t$	0.000 (0.92)	0.001 (1.26)	0.000 (1.15)	-0.003^a(10.86)	-0.003^a(10.77)	-0.003^a(10.87)
$FYRet_t$	-0.001 (0.94)	-0.001 (0.90)	0.000 (0.36)	-0.001^b (2.18)	-0.001^b (2.02)	-0.001 (1.45)
$FcstSD_t$	-0.027^a(4.50)	-0.026^a(4.32)	-0.026^a(4.30)	0.029^a (6.92)	0.029^a (6.88)	0.029^a (6.90)
$Constant$	0.029^b(2.19)	0.006 (0.51)	0.006 (0.49)	0.072^a(12.66)	0.060^a(12.57)	0.060^a(12.65)
Adjusted R^2	0.01	0.01	0.01	0.10	0.10	0.10
Obs.	21669	21669	21669	21669	21669	21669

This table reports panel regressions results describing signed (DA) and unsigned ($UnsDA$) discretionary accruals controlling for ownership stability with measures of shareholder composition. Standard errors are clustered at the firm level. t-statistics are located to the right of coefficient estimates in parentheses. The dependent variable is equal to either signed or absolute discretionary accruals calculated using a modified Jones (1991) model. Independent variables include firm-level measures of fund investment horizon composition, market-to-book, standard deviation of analyst forecasts, debt, size, annual return, year fixed-effects, and industry fixed-effects based on the Fama-French 48 Industry Classification. Ownership measures are defined in Chapter 1.4. Both dependent variables and all other explanatory variables are defined in Chapter 1.3. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 1.10: Level Regressions Describing Discretionary Accruals - Ownership Length

	$\boldsymbol{DA}_t$		$\boldsymbol{UnsDA}_t$	
	(1)	(2)	(3)	(4)
$AROL_t$	0.002 (0.85)		-0.009^a (6.20)	
$AROLS_t$		0.003^b(2.38)		0.000 (0.51)
$AROLM_t$		0.004^a(2.75)		-0.004^a (4.32)
$AROLL_t$		-0.001 (0.29)		-0.006^a (4.85)
MB_t	-0.001^a(4.58)	-0.001^a(4.76)	0.001^a (7.05)	0.001^a (7.04)
$Debt_t$	0.015^a(4.91)	0.016^a(4.97)	-0.006^a (3.06)	-0.006^a (3.12)
$Size_t$	0.000 (0.87)	0.000 (0.52)	-0.003^a(10.55)	-0.003^a(10.17)
$FYRet_t$	0.000 (0.08)	0.000 (0.19)	-0.001^b (2.34)	-0.001^b (2.23)
$FcstSD_t$	-0.026^a(4.43)	-0.025^a(4.21)	0.028^a (6.54)	0.027^a (6.38)
$Constant$	0.006 (0.53)	0.006 (0.46)	0.064^a(13.62)	0.064^a(13.34)
Adjusted R^2	0.01	0.01	0.10	0.10
Obs.	21669	21669	21669	21669

This table reports panel regressions results describing signed (DA) and unsigned ($UnsDA$) discretionary accruals controlling for ownership stability with measures of ownership length. Standard errors are clustered at the firm level. t-statistics are located to the right of coefficient estimates in parentheses. The dependent variable is equal to either signed or absolute discretionary accruals calculated using a modified Jones (1991) model. Independent variables include firm-level measures of fund investment horizon composition, market-to-book, standard deviation of analyst forecasts, debt, size, annual return, year fixed-effects, and industry fixed-effects based on the Fama-French 48 Industry Classification. Ownership measures are defined in Chapter 1.4. Both dependent variables and all other explanatory variables are defined in Chapter 1.3. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 1.11: Level Regressions Describing Discretionary Accruals - Shareholder Composition & Ownership Length

	$\boldsymbol{DA}_t$			$\boldsymbol{UnsDA}_t$		
	(1)	(2)	(3)	(4)	(5)	(6)
SIH_t	-0.007^a(4.50)			-0.003^a (3.02)		
$Own\%S_t$		0.052^a(2.78)	0.109^a(2.70)		0.035^a (2.98)	0.035 (1.41)
$Own\%M_t$		0.035^a(2.69)	0.066^b(2.21)		-0.006 (0.70)	-0.006 (0.30)
$Own\%L_t$		-0.006 (0.71)	-0.019 (0.82)		-0.005 (0.92)	0.014 (0.92)
$AROL_t$	0.003 (1.47)			-0.008^a (5.74)		
$AROLS_t$		0.002 (1.44)	0.004^b(2.22)		-0.001 (1.25)	-0.001 (1.02)
$AROLM_t$		0.003^b(2.04)	0.005^b(2.45)		-0.004^a (3.95)	-0.004^a (3.13)
$AROLL_t$		0.000 (0.20)	0.000 (0.10)		-0.005^a (4.46)	-0.004^b (2.54)
$Own\%S_t \times AROLS_t$			-0.120^c(1.66)			0.000 (0.00)
$Own\%M_t \times AROLM_t$			-0.062 (1.23)			-0.001 (0.02)
$Own\%L_t \times AROLL_t$			0.023 (0.59)			-0.036 (1.40)
MB_t	-0.001^a(4.81)	-0.001^a(4.95)	-0.001^a(4.91)	0.001^a (6.85)	0.001^a (6.83)	0.001^a (6.84)
$Debt_t$	0.015^a(4.83)	0.015^a(4.78)	0.015^a(4.81)	-0.006^a (3.12)	-0.006^a (3.16)	-0.006^a (3.14)
$Size_t$	0.000 (0.85)	0.000 (0.93)	0.000 (0.84)	-0.003^a(10.58)	-0.003^a(10.01)	-0.003^a (10.03)
$FYRet_t$	-0.001 (0.78)	0.000 (0.56)	-0.001 (0.82)	-0.001^a (2.82)	-0.001^a (2.71)	-0.001^a (2.62)
$FcstSD_t$	-0.026^a(4.39)	-0.024^a(4.13)	-0.024^a(4.11)	0.028^a (6.55)	0.027^a (6.38)	0.027^a (6.41)
$Constant$	0.028^b(2.14)	0.005 (0.40)	0.004 (0.31)	0.074^a(13.05)	0.064^a(13.26)	0.063^a (13.06)
Adjusted R^2	0.01	0.01	0.01	0.10	0.10	0.10
Obs.	21669	21669	21669	21669	21669	21669

This table reports panel regressions results describing signed (DA) and unsigned ($UnsDA$) discretionary accruals controlling for ownership stability with measures of shareholder composition and ownership length. Standard errors are clustered at the firm level. t-statistics are located to the right of coefficient estimates in parentheses. The dependent variable is equal to either signed or absolute discretionary accruals calculated using a modified Jones (1991) model. Independent variables include firm-level measures of fund investment horizon composition, market-to-book, standard deviation of analyst forecasts, debt, size, annual return, year fixed-effects, and industry fixed-effects based on the Fama-French 48 Industry Classification. Ownership measures are defined in Chapter 1.4. Both dependent variables and all other explanatory variables are defined in Chapter 1.3. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 1.12: Difference Regressions Describing Changes in Discretionary Accruals

	ΔDA_{t+1}				$\Delta UnsDA_{t+1}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔSIH_{t+1}	-0.008^{a}(3.75)				0.000 (0.31)			
$\Delta AROL_{t+1}$	0.003 (0.84)				-0.002 (1.07)			
$\Delta Own\%S_{t+1}$		0.069^{a}(2.73)		0.063^{b}(2.49)		0.008 (0.51)		0.005 (0.31)
$\Delta Own\%M_{t+1}$		0.039^{b}(2.26)		0.034^{c}(1.93)		-0.021^{c}(1.88)		-0.019^{c}(1.65)
$\Delta Own\%L_{t+1}$		-0.012 (0.87)		-0.012 (0.86)		-0.001 (0.09)		0.000 (0.05)
$\Delta AROLS_{t+1}$			0.004^{b}(1.98)	0.003 (1.39)			0.001 (0.88)	0.001 (0.82)
$\Delta AROLM_{t+1}$			0.003 (1.60)	0.003 (1.27)			-0.002 (1.60)	-0.002 (1.23)
$\Delta AROLL_{t+1}$			0.001 (0.30)	0.001 (0.44)			-0.002 (1.48)	-0.003 (1.55)
ΔMB_{t+1}	0.001^{b}(2.02)	0.001^{c}(1.83)	0.001^{b}(2.14)	0.001^{c}(1.70)	0.001^{a}(3.22)	0.001^{a}(3.17)	0.001^{a}(3.23)	0.001^{a}(3.24)
$\Delta Debt_{t+1}$	0.002 (0.46)	0.002 (0.56)	0.001 (0.35)	0.002 (0.61)	0.004^{c}(1.91)	0.004^{c}(1.88)	0.005^{b}(1.96)	0.004^{c}(1.92)
$\Delta Size_{t+1}$	0.019^{a}(7.92)	0.019^{a}(7.56)	0.020^{a}(8.05)	0.019^{a}(7.49)	-0.005^{a}(3.09)	-0.005^{a}(2.93)	-0.005^{a}(3.16)	-0.005^{a}(2.98)
$\Delta FYRet_{t+1}$	-0.004^{a}(3.37)	-0.004^{a}(3.41)	-0.003^{a}(2.77)	-0.004^{a}(3.16)	-0.001^{b}(2.03)	-0.001^{b}(1.99)	-0.001^{b}(2.09)	-0.001^{b}(2.05)
$\Delta FcstSD_{t+1}$	-0.037^{a}(3.58)	-0.036^{a}(3.51)	-0.037^{a}(3.55)	-0.036^{a}(3.47)	0.034^{a}(4.88)	0.034^{a}(4.88)	0.034^{a}(4.86)	0.034^{a}(4.83)
Constant	-0.010^{a}(3.59)	-0.010^{a}(3.55)	-0.010^{a}(3.74)	-0.010^{a}(3.66)	-0.001 (0.76)	-0.001 (0.75)	-0.001 (0.74)	-0.001 (0.71)
Adjusted R^2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Obs.	14927	14927	14927	14927	14927	14927	14927	14927

This table reports panel regressions results describing changes in signed (DA) and unsigned ($UnsDA$) discretionary accruals. Standard errors are clustered at the firm level. t-statistics are located to the right of coefficient estimates in parentheses. The dependent variable is equal to the difference in either signed or unsigned discretionary accruals from year $t-1$ to year $t+1$. Annual discretionary accruals are calculated using a modified Jones (1991) model. Independent variables include changes in measures of shareholder composition and ownership length, market-to-book, standard deviation of analyst forecasts, debt, size, and annual return from year $t-1$ to year $t+1$. I also include year fixed-effects. All change variables are defined in Chapter 1.6. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 2.1: Spin-off Events By Announcement Year

Year	N
1990	13
1991	7
1992	15
1993	17
1994	17
1995	26
1996	26
1997	19
1998	13
1999	20
2000	16
2001	7
2002	7
2003	13
2004	5
2005	7
2006	6
2007	12
Total	246

This table reports the number of spin-off observations by announcement year. Description of the methodology used to create dataset is presented in Chapter 2.3.

Table 2.2: Percentage of Shares Held Before & After Spin-off Event

			All		Long		Medium		Short	
	Months	N	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Before Spin-off										
	36	230	0.056	0.037	0.023	0.012	0.021	0.010	0.010	0.005
	30	235	0.061	0.043	0.027	0.014	0.021	0.013	0.012	0.005
	24	240	0.063	0.050	0.027	0.014	0.021	0.014	0.014	0.005
	18	245	0.065	0.044	0.028	0.015	0.020	0.012	0.015	0.006
	12	247	0.066	0.049	0.030	0.016	0.020	0.013	0.013	0.005
	6	248	0.068	0.052	0.031	0.017	0.023	0.015	0.012	0.005
After Spin-off										
Overall	6	234	0.077	0.063	0.037	0.022	0.023	0.016	0.014	0.009
	12	235	0.080	0.064	0.039	0.024	0.024	0.018	0.016	0.010
	18	211	0.083	0.068	0.040	0.029	0.025	0.017	0.017	0.011
	24	193	0.081	0.067	0.038	0.028	0.026	0.017	0.014	0.008
	30	173	0.083	0.073	0.041	0.032	0.024	0.018	0.015	0.008
	36	158	0.086	0.085	0.043	0.034	0.026	0.019	0.014	0.010
Parent Co.	6	248	0.074	0.061	0.036	0.021	0.023	0.015	0.013	0.006
	12	242	0.075	0.053	0.037	0.021	0.022	0.014	0.015	0.008
	18	226	0.077	0.060	0.037	0.024	0.023	0.013	0.015	0.007
	24	213	0.078	0.062	0.036	0.024	0.025	0.013	0.014	0.006
	30	202	0.079	0.069	0.039	0.029	0.023	0.016	0.014	0.006
	36	194	0.083	0.069	0.043	0.031	0.025	0.015	0.012	0.006

This table presents the mean and median fund ownership percentage 3 years prior to the spin-off announcement date and 3 years following the spin-off effective date. Fund holdings are taken at 6 months intervals using the most recent SEC filings, aggregated using either all fund shareholders or fund shareholders by investment horizon (FIH) tercile. Ownership percentage of the parent company prior to and after the announcement date is equal to the total number of shares held divided by shares outstanding. Overall shareholdings after the effective date is equal to the market-value weighted average of the percentage of shares held of all firms stemming from the same parent company.

Table 2.3: Fund Ownership Changes

Panel A: Overall Fund Ownership - Unadjusted

Months	N	Mean	t-stat	Median	z-stat
Total Ownership Percentage					
12	218	0.013[a]	(3.59)	0.009[a]	(4.26)
24	181	0.017[a]	(3.91)	0.019[a]	(4.24)
36	155	0.028[a]	(6.02)	0.023[a]	(5.66)
Shareholder Investment Horizon					
12	166	0.044	(1.54)	0.049	(1.49)
24	134	0.100[a]	(3.15)	0.090[a]	(2.91)
36	111	0.082[a]	(2.70)	0.054[a]	(2.63)

Panel B: Parent Company Fund Ownership - Unadjusted

Total Ownership Percentage					
12	225	0.010[b]	(2.56)	0.005[a]	(3.06)
24	199	0.014[a]	(3.11)	0.011[a]	(3.67)
36	188	0.026[a]	(5.37)	0.015[a]	(5.39)
Shareholder Investment Horizon					
12	162	0.017	(0.66)	0.038	(0.90)
24	141	0.059[b]	(2.14)	0.074[b]	(2.10)
36	131	0.097[a]	(3.31)	0.056[a]	(3.06)

Continued Next Page...

Panel C: Overall Fund Ownership - Adjusted

Months	N	Mean	t-stat	Median	z-stat
Total Ownership Percentage					
12	188	0.001	(0.20)	0.007	(0.32)
24	158	0.001	(0.08)	0.005	(0.31)
36	136	0.004	(0.57)	0.009	(0.76)
Shareholder Investment Horizon					
12	145	0.005	(0.11)	-0.040	(0.51)
24	118	0.035	(0.92)	0.046	(0.75)
36	98	0.004	(0.12)	0.042	(0.20)

Panel D: Parent Company Fund Ownership - Adjusted

Total Ownership Percentage					
12	195	0.001	(0.11)	0.001	(0.09)
24	174	0.001	(0.13)	0.005	(0.57)
36	165	0.006	(0.87)	0.008	(0.85)
Shareholder Investment Horizon					
12	144	-0.032	(0.84)	-0.054	(0.84)
24	126	0.002	(0.05)	0.016	(0.11)
36	116	0.008	(0.21)	0.046	(0.25)

This table presents the mean and median unadjusted changes in fund ownership from 6 months before the announcement date to 12 months, 24 months, and 36 months following the effective date. Ownership variables are equal to overall changes in total ownership percentage, and shareholder investment horizon (*SIH*). Overall shareholdings after the effective date is equal to the market-value weighted average of the percentage of shares held of all firms stemming from the same parent company. Ownership percentage of the parent company prior to and after the announcement date is equal to the total number of shares held divided by shares outstanding. Ownership variables are defined in Chapter 2.4. Adjusted ownership changes are equal to ownership changes in the event firm minus ownership changes in the match firms. The algorithm to choose match firms is detailed in Chapter 2.4.2. For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank-sum test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 2.4: Panel Regressions Describing Changes in Adjusted Ownership

Panel A: Overall Fund Ownership Changes

	Total Ownership Percentage						**Shareholder Investment Horizon**					
	12 Months		24 Months		36 Months		12 Months		24 Months		36 Months	
	(1)		(2)		(3)		(4)		(5)		(6)	
$\Delta AnNum$	0.057	(0.52)	0.246	(1.50)	0.201	(1.36)	0.702	(0.77)	0.308	(0.37)	0.176	(0.25)
ICD	-0.002	(0.27)	-0.019^{c}	(1.81)	-0.021^{c}	(1.85)	0.063	(0.88)	0.117^{c}	(1.92)	0.096	(1.35)
$ICD \times SDSize$	0.004	(0.85)	0.003	(0.45)	0.012	(1.54)	-0.006	(0.13)	-0.083^{c}	(1.83)	-0.073	(1.58)
$SDMB$	0.002	(1.02)	-0.001	(0.18)	0.001^{c}	(1.78)	-0.004	(0.19)	0.017	(0.99)	-0.001	(0.06)
$SDSize$	-0.004	(0.41)	0.005	(0.31)	-0.015	(0.93)	0.004	(0.04)	-0.002	(0.02)	0.079	(0.99)
$SDROA$	0.119^{b}	(2.18)	0.043	(0.40)	0.124^{b}	(2.24)	0.093	(0.20)	-0.724	(1.27)	-0.583	(0.80)
$\Delta\overline{ROA}$	0.094^{c}	(1.87)	0.024	(0.22)	0.183^{b}	(2.62)	0.339	(0.93)	-0.825	(1.39)	-0.205	(0.23)
Obs.	175		141		121		119		97		80	
Adj. R^2	0.10		0.15		0.24		0.11		0.21		0.20	

Continued Next Page...

Panel B: Parent Company Fund Ownership Changes

	Total Ownership Percentage						**Shareholder Investment Horizon**					
	12 Months		24 Months		36 Months		12 Months		24 Months		36 Months	
	(1)		(2)		(3)		(4)		(5)		(6)	
$\Delta AnNum$	-0.034	(0.31)	0.061	(0.45)	0.139	(0.97)	1.498	(1.64)	1.095	(1.39)	0.691	(1.03)
ICD	0.001	(0.21)	-0.014^a	(2.61)	-0.011^b	(2.11)	0.028	(0.87)	0.029	(0.93)	0.047	(1.27)
ΔROA	0.043	(1.12)	0.069	(1.02)	0.068	(1.08)	-0.460	(0.98)	-0.001	(0.00)	0.260	(0.47)
$\Delta Size$	0.000	(0.04)	0.006	(0.71)	0.000	(0.04)	0.051	(0.49)	0.067	(0.91)	0.049	(0.83)
ΔMB	0.003^c	(1.71)	0.001	(1.16)	0.001^a	(4.88)	-0.009	(0.77)	0.011	(0.81)	0.005^a	(3.42)
$\Delta CapEx$	0.076	(1.01)	0.282	(1.52)	0.127	(0.84)	0.139	(0.15)	0.218	(0.15)	-0.967	(0.63)
$\Delta Debt$	-0.131^c	(1.88)	-0.060	(1.00)	-0.096^b	(2.01)	-0.017	(0.04)	0.171	(0.46)	-0.197	(0.52)
$\Delta DivYld$	0.060	(0.40)	0.752^a	(4.37)	0.627	(1.46)	8.598^c	(1.71)	-0.719	(0.53)	4.317	(1.09)
$\Delta RepYld$	-0.043	(0.35)	-0.021	(0.17)	0.198	(1.50)	0.408	(0.56)	-0.161	(0.17)	-1.320	(1.42)
Obs.	198		175		165		128		113		102	
Adj. R^2	0.11		0.17		0.25		0.16		0.14		0.24	

This table reports estimates from linear regressions explaining adjusted overall and parent company fund ownership changes 12, 24 and 36 months after the effective date. t-statistics are in parentheses. Standard errors are heteroscedastic robust. Dependent variables are equal to overall changes in total ownership percentage and shareholder investment horizon (SIH). Ownership changes occur from 6 months prior to the announcement date to 36 months following the effective date. Overall measures of fund ownership use all firms stemming from the same parent company following the effective date, and the parent company prior to the announcement date. Adjusted ownership changes are equal to ownership changes in the event firm minus ownership changes in the match firms. The algorithm to choose match firms is detailed in Chapter 2.4.2. Overall fund ownership changes are explained with variables describing differences between the parent company and distributed subsidiaries. Parent company fund ownership changes are explained with parent company specific variables as well as overall measures of spin-off importance. Both sets of regressions also include a constant and year fixed-effects. All variables are defined in Chapters 2.3 and 2.4. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 2.5: Tests of Mean and Median Abnormal Returns

Months	N	Mean	t-stat	Median	z-stat
Panel A: Overall Fund Ownership					
Ownership Percentage Match					
12	183	0.181[a]	(3.02)	0.027	(1.55)
24	151	0.340[a]	(2.65)	0.081[c]	(1.94)
36	125	0.488[a]	(3.60)	0.162[b]	(2.49)
Shareholder Investment Horizon Match					
12	141	0.102[c]	(1.78)	-0.018	(0.64)
24	114	0.186[b]	(1.98)	0.057	(1.19)
36	94	0.161	(1.31)	0.051	(0.62)
Panel B: Parent Company					
Ownership Percentage Match					
12	182	0.203[a]	(3.29)	0.002	(1.48)
24	150	0.349[a]	(2.60)	0.043	(1.08)
36	124	0.499[a]	(3.54)	0.137[c]	(1.77)
Shareholder Investment Horizon Match					
12	137	0.107[c]	(1.95)	-0.005	(0.71)
24	111	0.134	(1.35)	-0.010	(0.57)
36	90	0.103	(0.78)	0.040	(0.14)

This table presents tests of mean and median abnormal returns 12 months, 24 months, and 36 months following the effective date. Abnormal returns are calculated both overall and the parent company, using both ownership percentage and shareholder investment horizon (*SIH*) match firms as a benchmark. Abnormal returns are defined in Chapter 2.4. The algorithm to choose match firms is detailed in Chapter 2.4.2. For the difference in means, I use the two-tailed skewness adjusted t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank-sum test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 2.6: Panel Regressions Describing Changes in Adjusted Returns

Panel A: Overall Adjusted Returns

	12 Months				24 Months				36 Months			
	(1)		(2)		(3)		(4)		(5)		(6)	
$\Delta TotOP$	0.498	(0.60)			-0.337	(0.18)			-2.722	(0.89)		
ΔSIH			-0.184^{b}	(2.00)			-0.306	(1.32)			0.068	(0.21)
$\Delta AnNum$	-1.759	(1.45)	-0.327	(0.40)	0.593	(0.24)	-0.236	(0.12)	3.235	(0.72)	-3.527	(1.17)
ICD	-0.083	(0.84)	0.096	(1.27)	-0.293	(1.31)	-0.156	(1.49)	-0.573^{c}	(1.86)	-0.135	(0.82)
$ICD \times SDSize$	0.110	(0.93)	-0.016	(0.30)	0.325	(1.16)	0.172^{c}	(1.67)	0.461	(1.48)	0.070	(0.64)
$SDMB$	0.033^{b}	(2.02)	-0.003	(0.13)	-0.010	(0.16)	0.001	(0.02)	0.030^{c}	(1.69)	0.066	(0.85)
$SDSize$	-0.099	(0.96)	-0.049	(0.70)	-0.192	(1.07)	-0.132	(0.99)	-0.242	(0.96)	-0.040	(0.21)
$SDROA$	0.714	(0.98)	2.077^{a}	(3.22)	1.097	(0.81)	2.470	(1.41)	-1.155	(0.78)	2.756	(1.43)
$\Delta\overline{ROA}$	1.526^{a}	(3.61)	2.613^{a}	(4.78)	3.691^{b}	(2.36)	5.653^{a}	(4.17)	1.223	(0.80)	3.033	(1.43)
Obs.	154		117		122		95		102		77	
R^2	0.19		0.42		0.25		0.52		0.23		0.41	

Continued Next Page...

Panel B: Parent Company Adjusted Returns

	12 Months				**24 Months**				**36 Months**			
	(1)		(2)		(3)		(4)		(5)		(6)	
$\Delta TotOP$	2.105	(1.35)			0.043	(0.02)			0.476	(0.24)		
ΔSIH			-0.265[a]	(2.68)			-0.709[a]	(3.37)			-0.159	(0.47)
$\Delta AnNum$	0.578[c]	(1.66)	3.042[a]	(4.34)	1.241	(0.86)	3.963[a]	(3.08)	-0.394	(0.18)	2.352[c]	(1.73)
ICD	-1.711	(1.44)	-0.116	(0.13)	-0.012	(0.01)	0.632	(0.38)	-0.054	(0.02)	-3.204	(1.27)
ΔROA	-0.012	(0.23)	0.140[b]	(2.16)	-0.012	(0.14)	0.143	(1.34)	-0.051	(0.39)	-0.091	(0.86)
$\Delta Size$	0.383[a]	(2.80)	0.060	(0.62)	1.112[c]	(1.67)	0.250[c]	(1.93)	1.073[c]	(1.71)	0.107	(0.68)
ΔMB	-0.003	(0.19)	-0.013	(0.56)	-0.003	(0.10)	0.037	(0.98)	0.049	(0.73)	0.155[c]	(1.99)
$\Delta CapEx$	6.119[b]	(2.45)	-2.497	(1.10)	-2.744	(0.74)	-5.016	(1.18)	-5.677	(1.00)	0.958	(0.26)
$\Delta Debt$	-0.798	(1.18)	-1.911[b]	(2.35)	-0.537	(0.25)	-2.692	(1.48)	-1.339	(0.95)	-1.439	(1.13)
$\Delta DivYld$	0.267	(0.06)	4.794	(0.75)	3.524	(0.76)	1.254	(0.46)	18.412	(1.42)	-4.575	(0.35)
$\Delta RepYld$	0.198	(0.13)	-3.795[c]	(1.94)	1.173	(0.58)	3.670	(1.59)	-1.146	(0.37)	1.279	(0.46)
Obs.	164		123		136		102		113		81	
R^2	0.43		0.40		0.33		0.43		0.38		0.56	

This table reports estimates from linear regressions explaining overall and parent company abnormal returns 12, 24 and 36 months after the effective date. t-statistics are in parentheses. Standard errors are heteroscedastic robust. Abnormal returns are calculated both overall and the parent company, using both ownership percentage and shareholder investment horizon (SIH) match firms as a benchmark. Abnormal returns are defined in Chapter 2.4. The algorithm to choose match firms is detailed in Chapter 2.4.2. Overall abnormal returns are explained with variables describing differences between the parent company and distributed subsidiaries. Fund ownership is equal to either the change in the total percentage of shares held or the change in SIH, depending on the match algorithm. Parent company abnormal returns are explained with parent company specific variables as well as overall measures of spin-off importance. Both sets of regressions also include a constant and year fixed-effects. All variables are defined in Sections 2.3 and 2.4. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 2.7: Pre-Eexisting Fund Shareholder Ownership Patterns

Panel A: Proportion of Firms Held (Prop)

	12 Months			24 Months			36 Months		
	0	1	2	0	1	2	0	1	2
Long FIH Tercile									
Frequency	1,588	1,187	702	1,463	830	464	1,176	473	401
Percent	45.7%	34.1%	20.2%	53.1%	30.1%	16.8%	57.4%	23.1%	19.6%
Med. FIH Tercile									
Frequency	1,761	1,001	312	1,519	726	200	1,195	365	204
Percent	57.3%	32.6%	10.2%	62.1%	29.7%	8.2%	67.7%	20.7%	11.6%
Short FIH Tercile									
Frequency	1,469	644	163	1,253	444	111	956	252	108
Percent	64.5%	28.3%	7.2%	69.3%	24.6%	6.1%	72.6%	19.2%	8.2%

Panel B: Change in Ownership Percentage (ΔOP)

	12 Months			24 Months			36 Months		
	Mean	$\% \geq 0$	$\% < 0$	Mean	$\% \geq 0$	$\% < 0$	Mean	$\% \geq 0$	$\% < 0$
Long *FIH* Tercile	0.0003	62.1%	37.9%	0.0005	65.2%	34.8%	0.0007	66.2%	33.8%
Med. *FIH* Tercile	0.0007	54.8%	45.2%	0.0005	55.7%	44.3%	0.0004	54.5%	45.5%
Short *FIH* Tercile	0.0003	54.3%	45.7%	0.0004	54.2%	45.8%	0.0004	53.0%	47.0%

This table reports summary statistics for the two variables describing shareholdings of pre-existing fund shareholdings following the effective date: the proportion of firms held stemming from the same parent company (*Prop*) and the change in ownership percentage in firms still held following the spin-off date (ΔOP). Fund ownership is measured 12 months, 24 months, and 36 months following the effective date. Fund ownership is described by investment horizon (*FIH*) tercile. *Prop* and ΔOP are defined in Chapter 2.5.

Table 2.8: Panel Regressions Describing Pre-Existing Fund Shareholder Ownership Patterns

Dependent Variable	*Prop*						ΔOP					
Time Period	12 Months		24 Months		36 Months		12 Months		24 Months		36 Months	
	(1)		(2)		(3)		(4)		(5)		(6)	
$\Delta AnNum$	8.468^a	(4.27)	8.210^a	(3.24)	10.170^a	(3.99)	-0.002	(0.27)	0.004	(0.44)	-0.019	(1.29)
ICD	-0.055	(0.35)	-0.144	(0.75)	-0.275	(1.03)	0.000	(0.15)	0.001	(1.49)	-0.001	(0.63)
$ICD \times SDSize$	-0.030	(0.26)	0.036	(0.26)	0.224	(1.27)	0.000	(0.24)	-0.001	(0.90)	0.001	(0.72)
$SDMB$	0.094^b	(2.23)	0.098^c	(1.82)	0.044	(0.75)	-0.001	(1.57)	-0.001^c	(1.77)	0.000	(0.28)
$SDSize$	0.018	(0.09)	0.220	(1.00)	-0.299	(1.02)	0.000	(0.30)	0.000	(0.04)	0.000	(0.27)
$SDROA$	-5.219^b	(1.98)	-6.141^a	(2.81)	-5.533^b	(2.47)	0.039	(1.60)	0.000	(0.02)	-0.005	(0.37)
$\Delta\overline{ROA}$	-0.289	(0.20)	-0.233	(0.11)	-0.577	(0.25)	0.014	(1.52)	0.024	(2.11)	-0.002	(0.11)
FIH	0.706^a	(5.49)	0.658^a	(3.61)	0.467^b	(2.58)	0.000	(0.76)	0.000	(0.24)	0.000	(0.31)
$\Delta AnNum \times FIH$	-2.352^a	(3.54)	-1.783^b	(2.13)	-2.010^b	(2.33)	0.002	(0.61)	0.000	(0.15)	0.004	(0.92)
$ICD \times FIH$	0.014	(0.28)	0.036	(0.57)	0.071	(0.84)	0.000	(0.18)	0.000	(1.47)	0.000	(0.49)
$ICD \times SDSize \times FIH$	0.008	(0.22)	0.007	(0.16)	-0.052	(0.92)	0.000	(0.16)	0.000	(0.84)	0.000	(0.75)
$SDMB \times FIH$	-0.030^b	(2.22)	-0.030	(1.62)	-0.008	(0.47)	0.000	(1.63)	0.000	(1.46)	0.000	(0.29)
$SDSize \times FIH$	-0.052	(0.83)	-0.130^c	(1.85)	0.025	(0.28)	0.000	(0.46)	0.000	(0.26)	0.000	(0.14)
$SDROA \times FIH$	1.583^c	(1.86)	2.081^a	(2.94)	1.949^a	(2.71)	-0.010^c	(1.65)	0.000	(0.00)	0.001	(0.26)
$\Delta\overline{ROA} \times FIH$	-0.050	(0.11)	0.517	(0.78)	0.327	(0.45)	-0.004	(1.55)	-0.007^b	(2.16)	0.000	(0.08)
N	5935		3847		3098		3741		1846		1388	
Adj. R^2							0.03		0.03		0.05	

This table reports estimates from ordered probit regressions and linear regressions explaining the proportion of shares held (*Prop*) and the change in ownership percentage from before to after the spin-off event by pre-existing shareholders at the fund level. For each dependent variable one regression is estimated using shareholdings at the fund-level 12 months, 24 months, and 36 months after the effective date. For the change in ownership percentage regressions only fund positions with a positive stake at the later date. t-statistics are in parentheses. Standard errors are clustered at the fund level. Independent variables include measures describing differences between the parent company and distributed subsidiaries, a constant, year fixed-effects, and original parent company industry fixed-effects based on the Fama-French 48 Industry Classification. Fund investment horizon (*FIH*) and interaction terms between *FIH* and all independent variables are also included. All variables are defined in Chapters 2.3 through 2.5. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 2.9: Panel Regressions Describing Changes in Fund Ownership Before & After Spin-off Events

Dependent Variable	ΔOP	ΔROL	*Pos. Close*
	(1)	(2)	(3)
PSOInd	-0.001[a] (4.22)	-0.023 (0.79)	0.084[c] (1.68)
FIH	0.000[a] (2.59)	0.071[a] (9.19)	-0.026[a] (11.60)
PSOInd×*FIH*	0.000[a] (2.81)	0.036[a] (3.91)	0.002 (0.94)
ΔROA	0.000 (0.08)	1.089[a] (2.76)	-0.165 (0.32)
$\Delta ROA \times PSOInd$	-0.008 (1.35)	-1.126[a] (2.67)	0.980[c] (1.70)
$\Delta ROA \times FIH$	0.000 (0.01)	-0.159 (1.40)	0.031 (1.37)
$\Delta ROA \times PSOInd \times FIH$	0.002 (1.06)	0.174 (1.40)	-0.049[c] (1.83)
$\Delta AnNum$	0.003 (1.04)	0.907[a] (2.79)	-1.135[b] (2.55)
$\Delta AnNum \times PSOInd$	0.012[a] (3.85)	-0.144 (0.40)	0.684 (1.47)
$\Delta AnNum \times FIH$	0.000 (0.12)	-0.223[b] (2.25)	0.028 (1.37)
$\Delta AnNum \times PSOInd \times FIH$	-0.003[a] (3.34)	0.026 (0.23)	-0.034 (1.58)
$\Delta Size$	0.000 (0.99)	0.148[a] (3.65)	-0.061 (1.39)
ΔMB	0.000 (0.46)	-0.001 (0.78)	0.000 (0.08)
$\Delta CapEx$	0.000 (0.06)	0.295 (1.36)	-0.979[b] (2.33)
$\Delta Debt$	-0.002 (0.82)	0.003 (0.02)	-0.065 (0.41)
$\Delta DivYld$	0.003[c] (1.68)	-0.515 (1.56)	-0.422[c] (1.91)
$\Delta RepYld$	0.003 (1.23)	-0.274 (1.38)	-0.552[b] (2.07)
$\Delta AnnRet$	0.000 (0.28)	0.059[a] (4.57)	-0.013 (0.95)
$\Delta Size \times FIH$	0.000 (0.25)	-0.016 (1.29)	0.001 (0.31)
$\Delta MB \times FIH$	0.000 (0.18)	0.000 (0.82)	0.000[a] (3.50)
$\Delta CapEx \times FIH$	0.000 (0.00)	-0.064 (1.06)	0.023 (1.24)
$\Delta Debt \times FIH$	0.001 (0.96)	-0.016 (0.40)	0.014[b] (2.08)
$\Delta DivYld \times FIH$	-0.001[c] (1.74)	0.125 (1.36)	-0.008 (0.81)
$\Delta RepYld \times FIH$	0.000 (0.73)	0.086 (1.48)	0.019 (1.35)
$\Delta AnnRet \times FIH$	0.000 (0.30)	-0.013[a] (3.35)	0.000 (0.67)
PrntCo	0.001[a] (4.37)	-0.003 (0.45)	0.035 (1.44)
HldBef	0.000 (1.16)	-0.160[a] (26.59)	-0.014 (0.68)
Obs.	39057	39079	62890
Adj. R^2	0.02	0.05	

This table reports estimates from linear and Cox panel regressions explaining changes in fund ownership before the spin-off announcement date and after the effective date. t-statistics are in parentheses. Standard errors are clustered at the fund level. The variables of interest include those incorporating the post spin-off indicator variable, the change in return-on-assets, and the change in analyst coverage. Other independent variables include changes in firm characteristics, a pre-existing shareholder indicator variable, a parent company indicator variable, announcement year fixed-effects, and industry fixed-effects based on the Fama-French 48 Industry Classification. Linear regressions also include a constant. Variables are defined in Chapters 1.4, 2.3, and 2.6. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 3.1: Fund Ownership by Firm Type - Size, Market-to-Book, & Payout Policy

		All Funds		**Short *FIH***		**Medium *FIH***		**Long *FIH***	
	# Firms	Own.	#Funds	Own.	#Funds	Own.	#Funds	Own.	#Funds
Size Quintile									
Small	13251	0.010	1.0	0.001	0.1	0.002	0.2	0.006	0.7
2	13251	0.041	4.2	0.008	0.8	0.009	1.0	0.024	2.3
3	13251	0.080	12.1	0.020	3.6	0.022	3.5	0.038	5.1
4	13251	0.111	29.7	0.031	9.9	0.034	9.2	0.046	10.7
Large	13251	0.132	110.8	0.030	29.9	0.038	35.7	0.064	45.2
MB Quintile									
Value	13251	0.044	8.6	0.007	1.9	0.011	2.5	0.026	4.2
2	13251	0.066	20.5	0.013	4.9	0.018	6.4	0.036	9.2
3	13251	0.083	32.0	0.019	8.5	0.024	10.2	0.040	13.3
4	13251	0.093	42.0	0.025	12.1	0.027	13.2	0.041	16.7
Growth	13251	0.088	54.7	0.027	16.9	0.026	17.3	0.035	20.5
Payout Policy									
Div = 0, Rep = 0	28993	0.056	13.7	0.016	4.4	0.016	4.1	0.024	5.2
Div = 0, Rep > 0	12131	0.087	31.6	0.023	10.0	0.025	9.9	0.039	11.7
Div > 0, Rep = 0	10748	0.081	31.8	0.017	8.4	0.023	10.0	0.041	13.4
Div > 0, Rep > 0	14377	0.097	67.4	0.019	17.2	0.027	21.8	0.051	28.5

This table presents average fund ownership and the number of fund shareholders for firms classified by size quintile, market-to-book quintile, and payout policy. Firm ownership statistics are measured annually at year-end, using either all funds or classifed by fund investment horizon (*FIH*) tercile. *FIH* is defined in Chapter 1.4. Fund ownership is the proportion of shares held at year end divided by common shares outstanding. Size quintiles, market-to-book quintiles, and payout policy is classified annually. A firm's payout policy is based on whether or not the firm pays dividends or does not pay dividends (Div. > 0, Div. $= 0$), and whether or not the firm has an active share repurchase program (Rep. > 0, Rep. $= 0$). All firm-year observations from 1988 to 2007 are used.

Table 3.2: Determinants of Ownership Proportion by Fund Investment Horizon Tercile

Panel A: Dividend and Share Repurchase Control Variables

	Fund Investment Horizon Tercile					
	Short	**Med.**	**Long**	**Short**	**Med.**	**Long**
	(1)	(2)	(3)	(4)	(5)	(6)
$DivYld_t$	-0.054^a	-0.013^c	-0.001			
	(3.47)	(1.92)	(0.29)			
$RepYld_t$	0.009	0.015^a	0.018^a			
	(1.54)	(3.47)	(3.39)			
$DivInd_t$				-0.005^a	-0.001	0.002
				(3.07)	(0.57)	(1.43)
$RepInd_t$				-0.001	0.000	0.003^a
				(1.12)	(0.01)	(3.03)
ROA_t	0.018^a	0.016^a	0.004	0.018^a	0.017^a	0.003
	(6.12)	(3.57)	(1.34)	(6.30)	(3.81)	(1.41)
$NonOp_t$	0.009	0.005	-0.006	0.009	0.006	-0.006
	(1.63)	(0.56)	(0.85)	(1.63)	(0.72)	(0.84)
$CapEx_t$	0.025^a	0.018^a	0.008^c	0.024^a	0.018^a	0.009^c
	(5.37)	(3.85)	(2.06)	(5.48)	(3.76)	(2.04)
$Debt_t$	-0.010^a	-0.009^a	-0.009^a	-0.010^a	-0.009^a	-0.008^a
	(5.98)	(3.80)	(6.41)	(6.39)	(3.71)	(5.34)
$Size_t$	0.011^a	0.011^a	0.008^a	0.011^a	0.011^a	0.008^a
	(10.24)	(9.46)	(7.09)	(10.16)	(9.29)	(6.79)
MB_t	0.000^a	0.000^a	0.000	0.000^a	0.000^a	0.000
	(3.10)	(3.12)	(0.05)	(3.09)	(3.19)	(0.24)
$AnnRet_t$	0.005^a	-0.001	-0.003^b	0.005^a	-0.001	-0.003^b
	(5.07)	(1.59)	(2.58)	(5.22)	(1.61)	(2.63)
$SDRet_t$	-0.679^a	-0.750^a	-0.508^a	-0.702^a	-0.754^a	-0.492^a
	(11.99)	(10.38)	(5.71)	(11.15)	(10.02)	(5.35)
$Beta_t$	0.003^a	0.003^a	0.001	0.003^a	0.003^a	0.001
	(5.82)	(3.21)	(1.11)	(5.04)	(3.02)	(1.17)
Vol_t	0.108^a	0.070^a	0.015^a	0.107^a	0.071^a	0.018^a
	(7.91)	(9.14)	(4.21)	(7.87)	(8.79)	(4.01)
$Log(Age_t)$	-0.006^a	-0.005^a	0.002^b	-0.005^a	-0.005^a	0.002^b
	(6.31)	(4.43)	(2.52)	(6.96)	(4.38)	(2.41)
$SP500_t$	-0.017^a	-0.016^a	-0.001	-0.017^a	-0.015^a	-0.001
	(4.64)	(5.24)	(0.16)	(4.79)	(5.17)	(0.13)

Continued Next Page...

Panel B: Aggregate Payout Control Variables

	Fund Investment Horizon Tercile					
	Short	**Med.**	**Long**	**Short**	**Med.**	**Long**
	(1)	(2)	(3)	(4)	(5)	(6)
$TotYld_t$	-0.002	0.008^b	0.010^b			
	(0.40)	(2.19)	(2.15)			
$PayInd_t$				-0.003^a	0.001	0.004^a
				(5.21)	(0.92)	(4.55)
ROA_t	0.018^a	0.016^a	0.004	0.018^a	0.017^a	0.003
	(6.35)	(3.60)	(1.39)	(6.73)	(3.84)	(1.41)
$NonOp_t$	0.008	0.004	-0.006	0.009	0.005	-0.007
	(1.46)	(0.49)	(0.85)	(1.56)	(0.61)	(0.97)
$CapEx_t$	0.025^a	0.018^a	0.009^b	0.024^a	0.018^a	0.009^c
	(5.35)	(3.88)	(2.09)	(5.53)	(3.84)	(2.08)
$Debt_t$	-0.009^a	-0.009^a	-0.009^a	-0.010^a	-0.009^a	-0.008^a
	(6.20)	(3.80)	(6.56)	(6.38)	(3.77)	(6.42)
$Size_t$	0.011^a	0.011^a	0.008^a	0.011^a	0.011^a	0.008^a
	(10.20)	(9.46)	(7.10)	(10.29)	(9.43)	(7.05)
MB_t	0.000^a	0.000^a	0.000	0.000^a	0.000^a	0.000
	(3.10)	(3.12)	(0.10)	(3.07)	(3.19)	(0.31)
$AnnRet_t$	0.005^a	-0.001	-0.003^b	0.005^a	-0.001	-0.003^b
	(5.15)	(1.61)	(2.58)	(5.25)	(1.61)	(2.58)
$SDRet_t$	-0.676^a	-0.750^a	-0.510^a	-0.696^a	-0.751^a	-0.492^a
	(11.69)	(10.38)	(5.65)	(11.43)	(10.23)	(5.59)
$Beta_t$	0.003^a	0.003^a	0.001	0.003^a	0.003^a	0.001
	(5.93)	(3.23)	(1.11)	(5.58)	(3.11)	(1.24)
Vol_t	0.108^a	0.070^a	0.015^a	0.108^a	0.070^a	0.017^a
	(7.97)	(9.21)	(4.23)	(8.06)	(9.09)	(4.23)
$Log(Age_t)$	-0.006^a	-0.005^a	0.002^a	-0.006^a	-0.005^a	0.002^b
	(6.16)	(4.43)	(2.41)	(6.24)	(4.42)	(2.10)
$SP500_t$	-0.017^a	-0.016^a	-0.001	-0.017^a	-0.015^a	0.000
	(4.74)	(5.29)	(0.13)	(4.78)	(5.25)	(0.07)

This table reports Fama and MacBeth (1973) style estimates of tobit regressions. Newey-West t-statistics (two-lags) are in parentheses. One cross-sectional regression for each fund investment horizon tercile is estimated per year from 1988 to 2007. The dependent variable is the proportion of common shares outstanding held by mutual funds. Independent variables include total payout yield, a payout indicator variable, operating income, non-operating income, capital expenditures, debt, size, market-to-book, annual return, standard deviation of returns, beta, volume, firm age, and S&P 500 inclusion. Independent variables are defined in Chapter 3.3. I also include industry fixed-effects based on the Fama-French 48 Industry Classification. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.3: Determinants of Relative Ownership Length by Fund Investment Horizon Tercile

Panel A: Dividend & Share Repurchase Control Variables

	Fund Investment Horizon Tercile					
	Short	**Med.**	**Long**	**Short**	**Med.**	**Long**
	(1)	(2)	(3)	(4)	(5)	(6)
$DivYld_t$	-0.239^b	-0.096	0.122			
	(2.72)	(1.17)	(1.51)			
$RepYld_t$	0.020	0.065^c	0.089^b			
	(0.61)	(1.86)	(2.21)			
$DivInd_t$				-0.010^b	-0.011^b	0.023 ^{a}
				(2.74)	(2.81)	(5.59)
$RepInd_t$				0.000	0.007^b	0.024 ^{a}
				(0.10)	(2.37)	(10.02)
ROA_t	0.061^b	0.042^c	-0.012	0.049^b	0.043^c	-0.007
	(2.39)	(1.80)	(0.95)	(2.56)	(2.06)	(0.42)
$NonOp_t$	0.391^a	0.375^a	0.100	0.381^a	0.367^a	0.115
	(6.26)	(3.65)	(1.28)	(6.42)	(3.40)	(1.31)
$CapEx_t$	0.006	-0.002	0.000	0.023	0.001	0.007
	(0.39)	(0.08)	(0.01)	(1.46)	(0.05)	(0.39)
$Debt_t$	-0.034^b	-0.057^a	-0.023	-0.035	-0.057^a	-0.017 ^{a}
	(2.77)	(5.79)	(4.32)	(2.76)	(5.94)	(3.15)
$Size_t$	0.012^a	0.016^a	0.007^a	0.013^a	0.016^a	0.005 ^{b}
	(5.27)	(5.39)	(3.31)	(6.05)	(5.97)	(2.28)
MB_t	0.001^a	0.001^b	0.000	0.001^a	0.001^b	0.000
	(3.09)	(2.03)	(0.55)	(2.98)	(2.19)	(0.02)
$AnnRet_t$	-0.019^a	-0.014^a	0.011^b	-0.019^a	-0.014^a	0.010 ^{b}
	(4.76)	(3.09)	(2.28)	(3.89)	(2.89)	(2.28)
$SDRet_t$	-0.592	-0.515	-1.024^b	-0.643	-0.598	-0.782
	(1.54)	(1.05)	(2.24)	(1.49)	(1.35)	(1.67)
$Beta_t$	-0.006^a	-0.013^a	-0.018^a	-0.006^a	-0.013^a	-0.017 ^{a}
	(3.25)	(5.49)	(5.01)	(3.19)	(5.11)	(4.87)
Vol_t	-0.205^a	-0.395^a	-0.501^a	-0.211^a	-0.404^a	-0.482 ^{a}
	(5.19)	(5.70)	(4.99)	(5.26)	(5.60)	(4.97)
$Log(Age_t)$	-0.006	0.004	0.069^a	-0.006^b	0.005	0.067 ^{a}
	(2.57)	(1.65)	(25.45)	(2.74)	(1.70)	(25.91)
$SP500_t$	-0.041^a	-0.050^a	-0.075^a	-0.042^a	-0.050^a	-0.076 ^{a}
	(6.47)	(7.08)	(14.44)	(6.73)	(7.22)	(14.53)

Continued Next Page...

Panel B: Aggregate Payout Control Variables

	Fund Investment Horizon					
	Short	**Med.**	**Long**	**Short**	**Med.**	**Long**
$TotYld_t$	-0.022	0.017	0.088^a			
	(0.58)	(0.45)	(2.90)			
$PayInd_t$				-0.011^a	-0.007	0.024^a
				(4.86)	(1.48)	(7.21)
ROA_t	0.053^b	0.038	-0.012	0.053^a	0.049^b	-0.001
	(2.42)	(1.65)	(0.91)	(2.88)	(2.35)	(0.05)
$NonOp_t$	0.385^a	0.374^a	0.102	0.386^a	0.376^a	0.119
	(6.27)	(3.63)	(1.28)	(6.32)	(3.49)	(1.34)
$CapEx_t$	0.009	0.000	0.001	0.017	-0.006	-0.002
	(0.56)	(0.02)	(0.03)	(1.12)	(0.26)	(0.11)
$Debt_t$	-0.031^b	-0.056^a	-0.023^a	-0.034^b	-0.056^a	-0.020^a
	(2.62)	(5.58)	(4.60)	(2.75)	(5.52)	(3.43)
$Size_t$	0.012^a	0.016^a	0.007^a	0.013^a	0.016^a	0.006^a
	(5.42)	(5.49)	(3.30)	(6.00)	(5.86)	(2.87)
MB_t	0.001^a	0.000^a	0.000	0.001^a	0.001^b	0.000
	(3.01)	(2.04)	(0.52)	(2.93)	(2.14)	(0.11)
$AnnRet_t$	-0.018^a	-0.013^a	0.010^b	-0.019^a	-0.015^a	0.010^b
	(4.32)	(2.94)	(2.25)	(3.79)	(2.92)	(2.17)
$SDRet_t$	-0.550	-0.511	-1.043^b	-0.648	-0.585	-0.893^c
	(1.42)	(1.05)	(2.27)	(1.57)	(1.25)	(1.91)
$Beta_t$	-0.005^a	-0.012^a	-0.018^a	-0.006^a	-0.013^a	-0.017^a
	(2.90)	(5.72)	(5.21)	(2.92)	(5.50)	(5.07)
Vol_t	-0.200^a	-0.391^a	-0.499^a	-0.207^a	-0.395^a	-0.494^a
	(5.16)	(5.74)	(5.12)	(5.14)	(5.70)	(5.14)
$Log(Age_t)$	-0.007^a	0.004	0.069^a	-0.007^a	0.004	0.069^a
	(3.34)	(1.42)	(25.91)	(3.74)	(1.44)	(24.89)
$SP500_t$	-0.041^a	-0.050^a	-0.075^a	-0.042^a	-0.049^a	-0.074^a
	(6.57)	(7.22)	(13.94)	(6.58)	(7.33)	(12.90)

This table reports Fama and MacBeth (1973) style estimates of truncated regressions. Newey-West t-statistics (two-lags) are in parentheses. One cross-sectional regression for each fund investment horizon tercile is estimated per year from 1988 to 2007. The dependent variable is the relative ownership length of a stock position within its mutual fund portfolio. Relative ownership length is defined in Chapter 3.4. Independent variables include total payout yield, a payout indicator variable, return-on-assets, non-operating income, capital expenditures, debt, size, market-to-book, annual return, standard deviation of returns, beta, volume, firm age, and S&P 500 inclusion. Independent variables are defined in Chapter 3.3. I also include industry fixed-effects based on the Fama-French 48 Industry Classification. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.4: Shareholder Investment Horizon Changes Around Payout Events

Panel A: Dividend Events

	$t-1$ to $t+1$			$t+1$ to $t+2$			$t-1$ to $t+2$		
	N	Mean	Med.	N	Mean	Med.	N	Mean	Med.
Unadjusted Changes									
Increase	2150	0.045^a	0.027^a	1761	0.017^a	0.013^a	1860	0.055^a	0.048^a
		(9.29)	(8.54)		(4.00)	(3.67)		(9.48)	(9.47)
Decrease	492	-0.014	-0.011	382	0.005	-0.003	425	-0.028^b	-0.043^a
		(1.17)	(1.54)		(0.57)	(0.13)		(2.09)	(2.90)
Initiation	215	0.045^a	0.049^a	184	0.039^a	0.050^a	180	0.093^a	0.081^a
		(2.62)	(3.06)		(3.51)	(4.39)		(4.77)	(4.85)
Omission	152	-0.033^c	-0.038^c	117	0.013	0.005	132	-0.002	-0.023
		(1.79)	(1.92)		(0.71)	(0.46)		(0.09)	(0.44)
Adjusted Changes									
Increase	2150	0.020^a	0.013^a	1761	0.027^a	0.018^a	1860	0.041^a	0.038^a
		(2.95)	(2.69)		(4.45)	(4.06)		(4.94)	(4.95)
Decrease	492	0.002	-0.010	382	0.005	0.004	425	-0.010	0.003
		(0.12)	(0.35)		(0.38)	(0.41)		(0.55)	(0.04)
Initiation	215	-0.010	-0.010	184	-0.004	0.013	180	0.031	0.043
		(0.40)	(0.17)		(0.25)	(0.24)		(1.19)	(1.46)
Omission	152	0.016	0.007	117	0.013	0.025	132	0.028	-0.003
		(0.61)	(0.85)		(0.57)	(0.80)		(0.88)	(0.61)

Continued Next Page...

Panel B: Share Repurchase Events

	$t-1$ to $t+1$			$t+1$ to $t+2$			$t-1$ to $t+2$		
	N	Mean	Med.	N	Mean	Med.	N	Mean	Med.
Unadjusted Changes									
Non-Dividend Paying Firms									
All	2560	0.049^a	0.038^a	1940	0.032^a	0.020^a	2063	0.070^a	0.054^a
		(11.27)	(11.20)		(7.71)	(8.15)		(12.05)	(11.87)
Initiation	880	0.063^a	0.052^a	651	0.044^a	0.025^a	711	0.092^a	0.081^a
		(7.73)	(7.74)		(5.78)	(5.92)		(8.65)	(8.79)
Non-Init.	1680	0.042^a	0.033^a	1289	0.025^a	0.016^a	1352	0.058^a	0.038^a
		(8.25)	(8.17)		(5.26)	(5.75)		(8.52)	(8.13)
Dividend Paying Firms									
All	2701	0.012^a	0.009^a	2171	0.003	0.002	2360	0.013^a	0.007^a
		(3.13)	(3.45)		(1.01)	(1.07)		(2.67)	(2.42)
Initiation	690	0.010	0.012^c	513	0.011	0.006	596	0.019^c	0.022^a
		(1.22)	(1.79)		(1.56)	(1.14)		(1.82)	(2.10)
Non-Init.	2011	0.013^a	0.008^a	1658	0.001	0.002	1764	0.011^b	0.004
		(2.93)	(2.94)		(0.28)	(0.57)		(2.01)	(1.55)
Adjusted Changes									
Non-Dividend Paying Firms									
All	2560	-0.001	0.002	1940	-0.006	0.002	2063	-0.006	-0.002
		(0.12)	(0.27)		(1.00)	(0.44)		(0.70)	(0.53)
Initiation	880	0.004	0.010	651	0.012	0.009	711	0.010	0.011
		(0.34)	(0.61)		(1.11)	(0.95)		(0.66)	(0.82)
Non-Init.	1680	-0.003	-0.002	1289	-0.015^b	-0.001	1352	-0.014	-0.007
		(0.41)	(0.10)		(2.12)	(1.22)		(1.50)	(1.29)
Dividend Paying Firms									
All	2701	0.011^c	0.015^a	2171	0.000	-0.002	2360	0.005	0.007
		(1.93)	(2.60)		(0.02)	(0.47)		(0.74)	(0.65)
Initiation	690	0.003	0.015	513	-0.003	-0.006	596	0.002	0.008
		(0.26)	(1.10)		(0.29)	(0.40)		(0.12)	(0.20)
Non-Init.	2011	0.013^b	0.015^b	1658	0.001	-0.001	1764	0.006	0.006
		(2.13)	(2.37)		(0.15)	(0.30)		(0.81)	(0.64)

This table reports changes in average shareholder investment horizon (*SIH*) for payout event firms. I calculate both mean and median un-adjusted and adjusted changes. Test-statistics are located below the reported change. *SIH* is defined in Chapter 3.5. Unadjusted change is equal to the difference in *SIH* between dates. Adjusted change is equal to the difference in *SIH* between dates minus a similar change in a control firm. Control firms are chosen based on similar *MB*, *ROA*, ΔROA, and industry classification. The algorithm to match event firms with control firms is defined in Chapter 3.5. For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.5: Current Ownership Length Changes Around Payout Events

Panel A: Dividend Events

	$t-1$ to $t+1$			$t+1$ to $t+2$			$t-1$ to $t+2$		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Unadjusted Changes									
Increase	2067	0.099[a]	0.123[a]	1670	0.051[a]	0.092[a]	1773	0.130[a]	0.158[a]
		(9.91)	(11.16)		(5.00)	(8.03)		(10.91)	(11.86)
Decrease	478	0.061[b]	0.092[a]	368	0.065[a]	0.122[a]	416	0.079[a]	0.087[a]
		(2.43)	(3.00)		(2.72)	(3.92)		(2.66)	(2.82)
Initiation	204	0.115[a]	0.096[a]	169	0.064[b]	0.131[a]	170	0.141[a]	0.144[a]
		(3.05)	(2.98)		(2.04)	(3.29)		(3.71)	(4.08)
Omission	140	0.078	0.091[c]	106	0.052	0.101	122	0.114[c]	0.133[b]
		(1.64)	(1.88)		(1.24)	(1.53)		(1.94)	(2.21)
Adjusted Changes									
Increase	2067	0.010	0.013	1670	-0.005	-0.018	1773	-0.002	-0.014
		(0.71)	(0.46)		(0.39)	(0.18)		(0.11)	(0.35)
Decrease	478	0.047	0.062	368	-0.023	0.007	416	0.016	0.007
		(1.35)	(1.49)		(0.75)	(0.23)		(0.40)	(0.39)
Initiation	204	0.004	0.020	169	-0.054	0.009	170	-0.051	0.000
		(0.08)	(0.27)		(1.20)	(0.64)		(0.95)	(0.77)
Omission	140	0.049	-0.008	106	0.005	0.069	122	0.096	0.119
		(0.78)	(0.48)		(0.09)	(0.06)		(1.32)	(1.42)

Continued Next Page...

Panel B: Share Repurchase Events

	$t-1$ to $t+1$			$t+1$ to $t+2$			$t-1$ to $t+2$		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Unadjusted Changes									
Non-Dividend Paying Firms									
All	2390	0.148[a]	0.173[a]	1790	0.077[a]	0.102[a]	1905	0.183[a]	0.194[a]
		(15.06)	(16.25)		(8.09)	(9.80)		(15.30)	(15.43)
Initiation	832	0.172[a]	0.178[a]	606	0.058[a]	0.113[a]	664	0.189[a]	0.209[a]
		(10.12)	(10.09)		(3.33)	(4.83)		(9.17)	(9.31)
Non-Init.	1558	0.135[a]	0.172[a]	1184	0.087[a]	0.100[a]	1241	0.179[a]	0.184[a]
		(11.24)	(12.75)		(7.67)	(8.58)		(12.25)	(12.30)
Dividend Paying Firms									
All	2600	0.121[a]	0.147[a]	2075	0.047[a]	0.090[a]	2265	0.148[a]	0.173[a]
		(13.70)	(15.09)		(5.45)	(9.04)		(14.24)	(14.64)
Initiation	654	0.124[a]	0.153[a]	487	0.057[a]	0.107[a]	560	0.148[a]	0.189[a]
		(6.66)	(7.67)		(3.05)	(4.83)		(6.75)	(7.12)
Non-Init.	1946	0.120[a]	0.145[a]	1588	0.044[a]	0.087[a]	1705	0.148[a]	0.170[a]
		(11.99)	(13.00)		(4.53)	(7.67)		(12.55)	(12.78)
Adjusted Changes									
Non-Dividend Paying Firms									
All	2390	-0.001	0.003	1790	-0.016	-0.014	1905	-0.051[a]	-0.074[a]
		(0.10)	(0.25)		(1.10)	(1.34)		(3.00)	(3.08)
Initiation	832	-0.004	-0.018	606	-0.038[c]	-0.017	664	-0.060[b]	-0.080[c]
		(0.16)	(0.10)		(1.65)	(1.44)		(1.99)	(1.82)
Non-Init.	1558	0.000	0.008	1184	-0.002	-0.013	1241	-0.046[b]	-0.071[b]
		(0.01)	(0.24)		(0.12)	(0.60)		(2.25)	(2.50)
Dividend Paying Firms									
All	2600	0.021	0.031[c]	2075	0.034[a]	0.033[a]	2265	0.029[b]	0.022[b]
		(1.64)	(1.76)		(2.68)	(2.83)		(1.99)	(2.18)
Initiation	654	-0.009	-0.007	487	0.049[c]	0.072[b]	560	0.027	0.016
		(0.35)	(0.56)		(1.88)	(2.36)		(0.85)	(0.75)
Non-Init.	1946	0.031[b]	0.046[b]	1588	0.029[b]	0.023[c]	1705	0.030[c]	0.023[b]
		(2.14)	(2.38)		(2.02)	(1.91)		(1.81)	(2.11)

This table reports changes in average current ownership length (COL) for payout event firms. I calculate both mean and median un-adjusted and adjusted changes. Test-statistics are located below the reported change. COL is defined in Chapter 3.5. Unadjusted change is equal to the difference in COL between dates. Adjusted change is equal to the difference in COL between dates minus a similar change in a control firm. Control firms are chosen based on similar MB, ROA, ΔROA, and industry classification. The algorithm to match event firms with control firms is defined in Chapter 3.5. For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.6: Adjusted Changes in Ownership Proportion Around Payout Events

Panel A: Dividend Events

	$t-1$ to $t+1$			$t+1$ to $t+2$			$t-1$ to $t+2$		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Increase									
Own%S	2150	-0.003[a]	-0.001[a]	1761	-0.002[a]	-0.002[a]	1860	-0.005[a]	-0.004[a]
		(3.57)	(3.39)		(2.80)	(3.53)		(5.97)	(6.19)
Own%M		0.001	0.000		0.000	0.000		0.000	-0.001
		(0.72)	(0.33)		(0.52)	(0.47)		(0.30)	(0.22)
Own%L		0.001	0.001		0.000	0.000		0.001	0.001
		(0.61)	(0.40)		(0.20)	(0.11)		(1.06)	(1.16)
Decrease									
Own%S	492	-0.002	-0.002	382	0.000	0.000	425	-0.001	-0.002
		(0.94)	(1.43)		(0.29)	(0.28)		(0.61)	(1.16)
Own%M		-0.005[a]	-0.002[b]		-0.001	-0.001		-0.003	-0.002
		(2.66)	(2.31)		(0.44)	(0.84)		(1.57)	(1.25)
Own%L		-0.007[a]	-0.003[b]		0.000	0.001		-0.005[c]	-0.004[c]
		(2.83)	(2.34)		(0.16)	(0.38)		(1.66)	(1.81)
Initiation									
Own%S	215	-0.003	-0.004	184	0.002	0.001	180	-0.007[c]	-0.006[c]
		(0.85)	(1.06)		(0.87)	(0.49)		(1.83)	(1.76)
Own%M		0.002	0.000		0.000	-0.001		-0.001	0.000
		(0.54)	(0.85)		(0.13)	(0.11)		(0.26)	(0.16)
Own%L		-0.004	-0.003		0.002	0.003		-0.001	0.000
		(1.13)	(0.63)		(0.69)	(1.23)		(0.13)	(0.57)
Omission									
Own%S	152	0.000	0.000	117	0.001	-0.002	132	0.000	-0.002
		(0.06)	(0.19)		(0.38)	(0.14)		(0.04)	(0.12)
Own%M		-0.003	-0.002		0.004	0.004		0.000	0.003
		(0.87)	(0.75)		(1.50)	(1.29)		(0.06)	(0.02)
Own%L		-0.002	-0.002		0.001	-0.001		-0.001	-0.001
		(0.46)	(0.34)		(0.19)	(0.34)		(0.35)	(0.20)

Continued Next Page...

Panel B: Share Repurchase Events

	$t-1$ to $t+1$			$t+1$ to $t+2$			$t-1$ to $t+2$		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Non-Dividend Paying Firms									
All									
Own%S	2560	-0.003^{a}	-0.003^{a}	1940	0.002^{a}	0.001^{a}	2063	0.000	0.000
		(2.60)	(2.66)		(2.71)	(2.71)		(0.06)	(0.50)
Own%M		-0.002^{b}	-0.001^{b}		0.001	0.000		-0.001	0.000
		(2.31)	(1.95)		(0.84)	(0.33)		(1.03)	(0.76)
Own%L		-0.002	-0.001		0.000	0.000		0.001	0.002
		(1.57)	(1.30)		(0.33)	(0.09)		(0.47)	(0.90)
Initiation									
Own%S	880	-0.003	-0.001	651	-0.002	-0.003	711	-0.003	-0.002^{c}
		(1.36)	(1.58)		(1.13)	(1.32)		(1.46)	(1.94)
Own%M		-0.002	0.000		0.002	0.001		0.000	-0.001
		(0.96)	(0.61)		(1.25)	(1.18)		(0.04)	(0.05)
Own%L		-0.001	0.000		0.003^{b}	0.002^{b}		0.002	0.002
		(0.64)	(0.31)		(2.23)	(2.55)		(1.07)	(1.28)
Non-Initiation									
Own%S	1680	-0.003^{b}	-0.003^{b}	1289	0.005^{a}	0.003^{a}	1352	0.002	0.001
		(2.24)	(2.14)		(4.39)	(4.35)		(1.10)	(0.82)
Own%M		-0.003^{b}	-0.002^{b}		0.000	-0.001		-0.002	0.000
		(2.17)	(1.99)		(0.11)	(0.46)		(1.27)	(0.97)
Own%L		-0.002	-0.001		-0.001	-0.001		0.000	0.001
		(1.49)	(1.38)		(1.08)	(1.60)		(0.18)	(0.18)
Dividend Paying Firms									
All									
Own%S	2701	-0.002^{a}	-0.001^{a}	2171	-0.001	-0.001^{c}	2360	-0.002^{b}	-0.001^{a}
		(2.65)	(2.57)		(1.54)	(1.81)		(2.34)	(2.61)
Own%M		-0.001	-0.001^{c}		0.000	0.000		0.000	0.000
		(1.28)	(1.92)		(0.40)	(0.58)		(0.13)	(0.00)
Own%L		-0.001	-0.001^{c}		-0.001	0.000		-0.002^{c}	-0.002^{b}
		(1.26)	(1.65)		(1.07)	(1.09)		(1.93)	(2.13)
Initiation									
Own%S	690	-0.001	-0.002	513	-0.001	0.000	596	0.000	-0.001
		(0.72)	(1.28)		(0.50)	(0.51)		(0.06)	(1.20)
Own%M		0.001	0.000		-0.001	0.000		-0.001	0.000
		(0.52)	(0.40)		(0.94)	(0.23)		(0.56)	(0.30)
Own%L		-0.001	0.000		-0.001	-0.001		-0.001	-0.002
		(0.40)	(0.24)		(0.55)	(0.76)		(0.36)	(0.73)
Non-Initiation									
Own%S	2011	-0.002^{a}	-0.001^{b}	1658	-0.001	-0.001^{c}	1764	-0.002^{a}	-0.001^{b}
		(2.63)	(2.22)		(1.49)	(1.75)		(2.65)	(2.33)
Own%M		-0.001^{c}	-0.001^{b}		0.001	0.000		0.000	0.000
		(1.82)	(2.46)		(0.99)	(0.79)		(0.19)	(0.18)
Own%L		-0.001	-0.001^{c}		-0.001	0.000		-0.002^{b}	-0.002^{b}
		(1.21)	(1.76)		(0.91)	(0.80)		(2.01)	(2.04)

This table reports changes in ownership proportion by fund investment horizon tercile (*Own%S*, *Own%M*, *Own%L*) for payout event firms. I calculate both mean and median adjusted changes. Test-statistics are located below the reported change. Adjusted change is equal to the difference in ownership between dates minus a similar change in a control firm. Control firms are chosen

based on similar MB, ROA, ΔROA, and industry classification. The algorithm to match event firms with control firms is defined in Chapter 3.5. For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.7: The Effect of the JGTRRA on Fund Ownership Characteristics

	Ownership Percentage			Current Own. Length		
	Short	Medium	Long	Short	Medium	Long
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Dividend and Repurchase Yields						
$TaxPd_t$	-0.005^a	0.008^a	0.007^b	-0.025^a	-0.030^a	-0.014^b
	(3.80)	(7.55)	(5.68)	(3.74)	(4.17)	(2.15)
$DivYld_t$	-0.079	-0.024	-0.040	-0.486^b	-0.117	0.659^a
	(1.57)	(0.76)	(0.80)	(2.09)	(0.59)	(3.66)
$RepYld_t$	0.032^b	0.014	0.058^c	0.261^a	0.289^a	0.090
	(2.27)	(1.09)	(1.77)	(3.62)	(3.25)	(1.16)
$TaxPd_t \times DivYld_t$	0.057	0.024	0.029	0.498^b	0.354^b	-0.485^a
	(1.09)	(0.74)	(0.61)	(2.22)	(1.83)	(2.75)
$TaxPd_t \times RepYld_t$	-0.010	0.007	-0.032	-0.023	-0.055	0.093
	(0.65)	(0.51)	(0.94)	(0.28)	(0.53)	(1.04)
Panel B: Dividend and Repurchase Indicator Variables						
$TaxPd_t$	-0.004^a	0.008^a	0.006^a	-0.045^a	-0.038^a	-0.006
	(2.87)	(6.39)	(3.94)	(5.12)	(3.96)	(0.61)
$DivInd_t$	-0.008^a	-0.002	-0.004^c	-0.036^a	-0.009	0.038^a
	(4.98)	(1.01)	(1.69)	(3.74)	(0.87)	(3.29)
$RepInd_t$	0.001	0.000	0.004^b	0.000	0.021^b	0.026^a
	(0.59)	(0.26)	(2.11)	(0.04)	(2.53)	(2.90)
$TaxPd_t \times DivInd_t$	-0.002	-0.002	0.003	0.030^a	0.023^a	-0.012
	(1.05)	(1.51)	(1.56)	(3.42)	(2.36)	(1.32)
$TaxPd_t \times RepInd_t$	0.002	0.003	0.002	0.015^c	0.001	0.000
	(1.46)	(1.66)	(0.79)	(1.86)	(0.12)	(0.01)

Continued Next Page...

Panel C: Total Payout Yield						
$TaxPd_t$	-0.004[a]	0.008[a]	0.008[a]	-0.020[a]	-0.026[a]	-0.019[a]
	(3.60)	(7.86)	(5.87)	(3.24)	(3.76)	(3.05)
$TotYld_t$	0.016	0.008	0.044	0.157[b]	0.229[a]	0.183[a]
	(1.36)	(0.73)	(1.55)	(2.48)	(3.08)	(2.76)
$TaxPd_t \times TotYld_t$	-0.009	0.004	-0.032	0.044	0.010	-0.008
	(0.74)	(0.33)	(1.12)	(0.63)	(0.12)	(0.12)
Panel D: Payout Indicator Variable						
$TaxPd_t$	-0.005[a]	0.006[a]	0.005[b]	-0.043[a]	-0.032[a]	-0.011
	(2.98)	(4.18)	(2.57)	(4.68)	(3.25)	(1.07)
$PayInd_t$	-0.004[b]	-0.003[c]	0.001	-0.025[a]	0.008	0.036[a]
	(2.35)	(1.78)	(0.39)	(3.06)	(0.96)	(3.63)
$TaxPd_t \times PayInd_t$	0.001	0.003	0.004[b]	0.031[a]	0.010	-0.005
	(0.38)	(1.56)	(2.08)	(3.48)	(1.13)	(0.52)

This table reports estimates from tobit regressions explaining changes in aggregate fund ownership and truncated regressions explaining changes in relative ownership length by fund investment horizon tercile before and after the JGTRRA. Dependent variables are defined in Chapter 3.4. For each specification, one regression with panel data from 2002 and 2004 is estimated using one of four sets of payout variables: dividend and repurchase yields, dividend and repurchase indicator variables, total payout yield, and the payout indicator variable. t-statistics are in parentheses, with standard errors clustered at the firm level. Other independent variables include a tax-period indicator variable, interaction terms between the tax-period indicator variable and included payout variables, other firm level variables, and industry fixed effects. Firm specific variables are defined in Chapter 3.4. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c. To conserve space, only tax-period and payout related variables are presented.

Table 3.8: The Difference in Shareholder Investment Horizon Changes Before & After the JGTRRA (Before - After)

		# Obs.		Diff. Mean Change		Diff. Med. Change	
		Before	After	ΔSIH	t-stat.	ΔSIH	z-stat.
Panel A: Dividend Events							
Increase	$t-1$ to $t+1$	204	638	0.015	(0.76)	-0.020	(0.22)
	$t+1$ to $t+2$	118	396	-0.011	(0.62)	-0.011	(0.83)
	$t-1$ to $t+2$	129	381	-0.023	(0.87)	-0.016	(1.02)
Decrease	$t-1$ to $t+1$	88	98	-0.049	(1.10)	-0.028	(1.43)
	$t+1$ to $t+2$	37	62	-0.013	(0.34)	0.004	(0.11)
	$t-1$ to $t+2$	51	61	-0.056	(1.11)	0.015	(0.62)
Inititation	$t-1$ to $t+1$	11	89	0.020	(0.20)	-0.027	(0.21)
	$t+1$ to $t+2$	4	70	-0.055	(0.63)	0.037	(0.36)
	$t-1$ to $t+2$	4	64	0.048	(0.36)	0.007	(0.34)
Omission	$t-1$ to $t+1$	29	32	-0.113	(1.57)	-0.111^{c}	(1.86)
	$t+1$ to $t+2$	15	13	-0.209^{b}	(2.52)	-0.200^{b}	(2.19)
	$t-1$ to $t+2$	16	14	-0.184	(1.38)	-0.255	(1.58)

Continued Next Page...

Panel B: Share Repurchase Events

		# Obs.		Diff. Mean Change		Diff. Med. Change	
		Before	After	*SIH*	t-stat.	*SIH*	z-stat.
Non-Dividend Paying Firms							
All	$t-1$ to $t+1$	588	969	0.000	(0.01)	-0.008	(0.09)
	$t+1$ to $t+2$	362	572	-0.012	(0.81)	0.000	(0.32)
	$t-1$ to $t+2$	413	560	-0.034	(1.62)	-0.068^b	(2.09)
Inititation	$t-1$ to $t+1$	169	315	-0.024	(0.82)	-0.028	(0.75)
	$t+1$ to $t+2$	111	193	0.014	(0.52)	0.007	(0.47)
	$t-1$ to $t+2$	131	184	0.006	(0.14)	-0.032	(0.24)
Non-Inititation	$t-1$ to $t+1$	419	654	0.011	(0.59)	-0.002	(0.64)
	$t+1$ to $t+2$	251	379	-0.023	(1.30)	-0.007	(0.57)
	$t-1$ to $t+2$	282	376	-0.052^b	(2.12)	-0.076^b	(2.32)
Dividend Paying Firms							
All	$t-1$ to $t+1$	647	541	0.001	(0.04)	0.000	(0.32)
	$t+1$ to $t+2$	435	281	0.016	(1.13)	0.027	(1.57)
	$t-1$ to $t+2$	495	274	0.003	(0.13)	-0.001	(0.60)
Inititation	$t-1$ to $t+1$	110	168	0.032	(1.11)	0.057^c	(1.78)
	$t+1$ to $t+2$	69	99	0.034	(1.12)	0.045	(1.32)
	$t-1$ to $t+2$	93	96	0.026	(0.68)	0.022	(1.05)
Non-Inititation	$t-1$ to $t+1$	537	373	-0.012	(0.76)	-0.015	(0.78)
	$t+1$ to $t+2$	366	182	0.003	(0.20)	0.024	(0.88)
	$t-1$ to $t+2$	402	178	-0.016	(0.59)	-0.009	(0.22)

This table reports the difference in average shareholder investment horizon (*SIH*) changes as the result of payout events before and after the JGTRRA. I calculate the difference in mean and median adjusted changes. Test-statistics are located below the reported change. *SIH* is defined in Chapter 3.5. Adjusted change is equal to the difference in *SIH* between dates minus a similar change in a control firm. Control firms are chosen based on similar *MB*, *ROA*, ΔROA, and industry classification. The algorithm to match event firms with control firms is defined in Chapter 3.5. For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank-sum test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.9: The Difference in Current Ownership Length Changes Before & After the JGTRRA (Before - After)

		# Obs.		Diff. Mean Change		Diff. Med. Change	
		Before	After	*COL*	t-stat.	*COL*	z-stat.
Panel A: Dividend Events							
Increase	$t-1$ to $t+1$	196	623	0.032	(0.61)	0.013	(0.56)
	$t+1$ to $t+2$	112	393	0.130[b]	(2.15)	0.103[b]	(1.96)
	$t-1$ to $t+2$	122	371	0.001	(0.01)	0.024	(0.04)
Decrease	$t-1$ to $t+1$	89	96	0.017	(0.14)	-0.114	(0.23)
	$t+1$ to $t+2$	35	61	0.129	(1.21)	0.272	(1.36)
	$t-1$ to $t+2$	43	59	0.000	(0.00)	0.030	(0.11)
Inititation	$t-1$ to $t+1$	11	86	0.397[c]	(1.75)	0.241	(1.18)
	$t+1$ to $t+2$	4	67	0.096	(0.34)	0.078	(0.30)
	$t-1$ to $t+2$	4	61	0.320	(0.91)	0.568	(1.09)
Omission	$t-1$ to $t+1$	25	30	0.177	(0.99)	0.223	(0.96)
	$t+1$ to $t+2$	14	13	-0.519[b]	(2.33)	-0.407[c]	(1.84)
	$t-1$ to $t+2$	14	14	-0.159	(0.52)	-0.312	(0.78)

Continued Next Page...

Panel B: Share Repurchase Events

		# Obs.		Diff. Mean Change		Diff. Med. Change	
		Before	After	*COL*	*t*-stat.	*COL*	*z*-stat.
Non-Dividend Paying Firms							
All	$t-1$ to $t+1$	547	919	-0.022	(0.62)	-0.057	(1.31)
	$t+1$ to $t+2$	331	374	-0.047	(1.12)	-0.022	(1.17)
	$t-1$ to $t+2$	379	516	-0.051	(1.05)	-0.013	(1.29)
Inititation	$t-1$ to $t+1$	160	312	0.001	(0.02)	-0.031	(0.20)
	$t+1$ to $t+2$	101	191	-0.089	(1.41)	-0.055	(1.49)
	$t-1$ to $t+2$	123	182	-0.004	(0.04)	-0.036	(0.26)
Non-Inititation	$t-1$ to $t+1$	387	607	-0.032	(0.77)	-0.063	(1.43)
	$t+1$ to $t+2$	230	183	-0.038	(0.66)	0.009	(0.57)
	$t-1$ to $t+2$	256	334	-0.075	(1.30)	-0.004	(1.33)
Dividend Paying Firms							
All	$t-1$ to $t+1$	626	537	-0.028	(0.78)	0.006	(0.52)
	$t+1$ to $t+2$	413	280	0.031	(0.68)	-0.004	(0.02)
	$t-1$ to $t+2$	476	271	-0.040	(0.77)	0.017	(0.95)
Inititation	$t-1$ to $t+1$	104	167	0.264[a]	(3.40)	0.267[a]	(3.49)
	$t+1$ to $t+2$	63	98	-0.108	(1.21)	-0.018	(0.89)
	$t-1$ to $t+2$	87	95	0.079	(0.67)	0.029	(0.55)
Non-Inititation	$t-1$ to $t+1$	522	370	-0.113[a]	(2.73)	-0.078[b]	(2.40)
	$t+1$ to $t+2$	350	182	0.067	(1.24)	0.006	(0.57)
	$t-1$ to $t+2$	389	176	-0.065	(1.08)	0.020	(1.11)

This table reports the difference in average current ownership length (*COL*) changes as the result of payout events before and after the JGTRRA. I calculate the difference in mean and median adjusted changes. Test-statistics are located below the reported change. *COL* is defined in Chapter 3.5. Adjusted change is equal to the difference in *COL* between dates minus a similar change in a control firm. Control firms are chosen based on similar *MB*, *ROA*, ΔROA, and industry classification. The algorithm to match event firms with control firms is defined in Chapter 3.5. For the difference in means, I use the two-tailed *t*-statistic to test signficance. For the difference in medians I use the two-tailed *z*-statistic from the Wilcoxon rank-sum test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.10: The Difference in Ownership Proportion Changes Before & After the JGTRRA (Before - After) by Fund Investment Horizon Tercile

Panel A: Dividend Events

		$t-1$ **to** $t+1$		$t+1$ **to** $t+1$		$t-1$ **to** $t+2$	
Δ Change		Mean	Median	Mean	Median	Mean	Median
Increase	*Own%S*	-0.005^{b}(2.29)	-0.005^{b}(2.15)	0.004^{c}(1.71)	-0.002(0.01)	-0.001 (0.15)	-0.003 (0.43)
	Own%M	-0.010 (1.48)	0.007^{b}(2.06)	0.003 (1.00)	0.003(1.21)	0.015^{a}(3.82)	0.018^{a}(3.96)
	Own%L	-0.005 (0.07)	-0.004 (0.37)	-0.003 (0.65)	-0.004(1.39)	0.000 (0.04)	0.000 (0.17)
Decrease	*Own%S*	0.001 (0.14)	0.001 (0.82)	0.003 (0.46)	-0.001(0.21)	0.001 (0.23)	0.003 (0.63)
	Own%M	-0.010 (1.63)	-0.010 (1.27)	0.000 (0.06)	0.001(0.28)	-0.009 (1.12)	-0.002 (0.55)
	Own%L	-0.024^{b}(2.44)	-0.014^{b}(2.14)	-0.002 (0.27)	-0.001(0.55)	-0.028^{b}(2.20)	-0.023^{b}(2.18)
Initiation	*Own%S*	0.007 (0.38)	-0.009 (0.27)	0.008 (0.52)	0.004(0.33)	-0.001 (0.02)	-0.021 (0.36)
	Own%M	-0.003 (0.21)	-0.010 (0.01)	-0.027^{c}(1.67)	-0.009(0.93)	-0.037 (1.45)	-0.037 (0.96)
	Own%L	-0.049^{b}(2.28)	-0.013 (0.88)	0.006 (0.24)	0.001(0.36)	-0.106^{a}(2.73)	-0.001 (0.63)
Omission	*Own%S*	-0.012 (1.36)	-0.001 (0.85)	0.005 (0.44)	-0.002(0.12)	0.002 (0.14)	0.017 (0.62)
	Own%M	0.004 (0.35)	-0.006 (0.36)	-0.002 (0.11)	-0.003(0.25)	-0.023 (1.03)	-0.027 (1.41)
	Own%L	-0.019^{c}(1.71)	-0.011 (1.16)	-0.009 (0.82)	-0.005(1.22)	-0.022 (1.23)	-0.026 (1.33)

Continued Next Page...

Panel B: Share Repurchase Events

		$t-1$ **to** $t+1$		$t+1$ **to** $t+1$		$t-1$ **to** $t+2$	
Δ Change		Mean	Median	Mean	Median	Mean	Median
Non-Dividend Paying Firms							
All	*Own%S*	0.007^b(2.39)	0.003^c(1.74)	0.004 (1.64)	0.001 (1.18)	0.006^c(1.78)	0.008^b(2.38)
	Own%M	0.000 (0.01)	-0.002 (0.67)	0.009^a(4.13)	0.005^a(3.73)	0.007^c(1.89)	0.006 (1.43)
	Own%L	0.006^b(2.12)	0.005^b(2.11)	-0.003 (1.28)	-0.002 (1.54)	0.002 (0.49)	-0.004 (0.23)
Initiation	*Own%S*	0.014^a(2.65)	0.002 (1.65)	0.012^b(2.49)	0.007^b(2.55)	0.016^b(2.46)	0.014^a(2.68)
	Own%M	0.000 (0.01)	-0.002 (0.09)	0.012^a(2.91)	0.008^a(2.68)	0.004 (0.71)	0.005 (0.54)
	Own%L	-0.004 (0.81)	-0.004 (0.56)	-0.001 (0.14)	-0.002 (0.22)	-0.002 (0.25)	-0.004 (0.12)
Non-Initiation	*Own%S*	0.004 (1.15)	0.003 (1.00)	0.001 (0.19)	-0.002 (0.33)	0.002 (0.41)	0.006 (1.05)
	Own%M	0.000 (0.07)	-0.003 (0.68)	0.008^a(3.03)	0.004^a(2.69)	0.008^c(1.82)	0.008 (1.41)
	Own%L	0.011^a(3.01)	0.008^a(2.87)	-0.005 (1.35)	-0.004 (1.57)	0.004 (0.78)	-0.004 (0.15)
Dividend-Paying Firms							
All	*Own%S*	0.000 (0.21)	0.000 (0.40)	0.000 (0.02)	-0.001 (0.28)	0.002 (0.74)	0.001 (0.68)
	Own%M	-0.001 (0.27)	0.001 (0.12)	-0.002 (1.20)	-0.001 (0.84)	-0.002 (0.51)	-0.003 (0.94)
	Own%L	-0.005^c(1.73)	0.001 (0.35)	-0.004 (1.39)	-0.003^c(1.93)	0.000 (0.06)	0.003 (0.68)
Initiation	*Own%S*	-0.006^c(1.66)	-0.004^b(2.25)	-0.001 (0.30)	-0.001 (0.69)	-0.005 (1.19)	-0.003 (1.09)
	Own%M	-0.001 (0.13)	0.003 (0.52)	-0.005 (1.16)	-0.001 (0.81)	-0.005 (0.84)	0.000 (0.49)
	Own%L	0.003 (0.51)	0.002 (0.41)	-0.002 (0.39)	-0.008 (1.04)	0.003 (0.36)	0.006 (1.25)
Non-Initiation	*Own%S*	0.002 (1.27)	0.001^c(1.74)	0.000 (0.12)	0.000 (0.05)	0.005^c(1.68)	0.004 (1.49)
	Own%M	0.000 (0.03)	0.001 (0.03)	-0.001 (0.59)	-0.001 (0.36)	0.000 (0.08)	-0.003 (0.70)
	Own%L	-0.008^b(2.29)	0.001 (0.74)	-0.005 (1.58)	-0.003^c(1.92)	-0.002 (0.41)	-0.002 (0.12)

This table reports the difference in ownership proportion by fund investment horizon tercile (*Own%S*, *Own%M*, *Own%L*) changes as the result of payout events before and after the JGTRRA. I calculate the difference in mean and median adjusted changes. Test-statistics are located below the reported change. The proportion of fund ownership is defined in Chapter 3.4. Adjusted change is equal to the difference in ownership proportion between dates minus a similar change in a control firm. Control firms are chosen based on similar *MB*, *ROA*, ΔROA, and industry classification (see Chapter 3.5). For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank-sum test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.11: Fund Ownership Comparisons Around Dividend Increases & Share Repurchases

		Dividend Increase			**Share Repurchase**			**Mean Diff.**		**Median Diff.**	
Stat.	Time Period	N	Mean	Median	N	Mean	Median	Δ	t-stat.	Δ	z-val.
Panel A: Shareholder Investment Horizon											
Mean	$t-1$	1806	3.041	3.046	2458	3.114	3.132	-0.073^a	(10.24)	-0.087^a	(10.50)
Change	$t-1$ to $t+1$	1806	0.043	0.025	2458	0.013	0.009	0.031^a	(4.63)	0.017^a	(3.66)
Change	$t+1$ to $t+2$	1449	0.018	0.013	1956	0.003	0.002	0.015^a	(2.62)	0.010^b	(2.24)
Change	$t-1$ to $t+2$	1521	0.056	0.049	2122	0.014	0.006	0.042^a	(5.26)	0.043^a	(5.47)
Panel B: Current Ownership Length											
Mean	$t-1$	1758	2.868	2.869	2381	2.932	2.941	-0.065^a	(4.58)	-0.072^a	(5.13)
Change	$t-1$ to $t+1$	1758	0.086	0.107	2381	0.116	0.145	-0.030^b	(2.15)	-0.038^b	(2.36)
Change	$t+1$ to $t+2$	1381	0.045	0.089	1884	0.046	0.089	-0.001	(0.05)	0.001	(0.03)
Change	$t-1$ to $t+2$	1468	0.115	0.145	2051	0.145	0.168	-0.030^c	(1.74)	-0.023^c	(1.74)

Continued Next Page...

Panel C: Ownership Percentage

		Dividend Increase			**Share Repurchase**			**Mean Diff.**		**Median Diff.**	
Stat.	Time Period	N	Mean	Median	N	Mean	Median	Δ	t-stat.	Δ	z-val.
Own%S											
Mean	$t-1$	1806	0.029	0.021	2458	0.022	0.014	0.007^a	(8.68)	0.006^a	(8.52)
Change	$t-1$ to $t+1$	1806	-0.006	-0.003	2458	-0.002	-0.001	-0.004^a	(5.57)	-0.002^a	(5.59)
Change	$t+1$ to $t+2$	1449	-0.003	-0.001	1956	-0.001	0.000	-0.002^b	(2.43)	-0.001^a	(3.16)
Change	$t-1$ to $t+2$	1521	-0.009	-0.004	2122	-0.003	-0.001	-0.006^a	(6.76)	-0.003^a	(6.62)
Own%M											
Mean	$t-1$	1806	0.034	0.026	2458	0.036	0.028	-0.002^b	(2.15)	-0.001^c	(1.94)
Change	$t-1$ to $t+1$	1806	-0.003	-0.002	2458	-0.004	-0.002	0.002^b	(2.08)	0.000	(1.28)
Change	$t+1$ to $t+2$	1449	-0.001	0.000	1956	-0.002	-0.001	0.001^c	(1.92)	0.000	(0.80)
Change	$t-1$ to $t+2$	1521	-0.004	-0.003	2122	-0.006	-0.004	0.002^b	(1.96)	0.001^c	(1.80)
Own%L											
Mean	$t-1$	1806	0.049	0.034	2458	0.057	0.044	-0.008^a	(5.17)	-0.009^a	(6.40)
Change	$t-1$ to $t+1$	1806	0.003	0.002	2458	-0.002	0.000	0.005^a	(5.08)	0.002^a	(4.85)
Change	$t+1$ to $t+2$	1449	0.001	0.000	1956	0.000	0.000	0.000	(0.44)	0.000	(0.16)
Change	$t-1$ to $t+2$	1521	0.003	0.001	2122	-0.003	-0.001	0.006^a	(4.93)	0.002^a	(4.16)

This table reports the difference in shareholder investment horizon (*SIH*), current ownership length (*COL*), and the proportion of ownership by fund investment horizon tercile (*Own%S*, *Own%M*, *Own%L*) changes between dividend increases and share repurchases of dividend paying firms. Differences are taken around event year t from $t-1$ to $t+1$, $t+1$ to $t+2$, and $t-1$ to $t+2$. I calculate the difference in mean and median unadjusted changes. Test-statistics are located below the reported change. The proportion of ownership by fund investment horizon tercile is defined in Section 3.4, and *SIH* and *COL* are defined in Section 3.5. For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank-sum test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

Table 3.12: Bivariate Probit Models Describing Payout Choice

Panel A: Shareholder Investment Horizon & Current Ownership Length

	Div. Increase		**Share Rep.**		**Div. Increase**		**Share Rep.**	
	Est.	MFX	Est.	MFX	Est.	MFX	Est.	MFX
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SIH_{t-1}	-0.365^{b}	-0.129	0.109	0.028				
	(2.25)		(1.49)					
COL_{t-1}					0.059	0.019	0.025	0.012
					(1.41)		(0.60)	
$AnnRet_{t-1}$	0.723^{a}	0.244	-0.537^{a}	-0.164	0.815^{a}	0.279	-0.539^{a}	-0.158
	(5.85)		(5.53)		(6.32)		(5.28)	
$Beta_{t-1}$	0.129^{c}	0.042	-0.055	-0.020	0.123^{c}	0.040	-0.091	-0.034
	(1.79)		(1.22)		(2.01)		(1.71)	
$SDRet_{t-1}$	38.704^{a}	13.322	-34.108^{a}	-10.885	44.205^{a}	15.210	-32.329^{a}	-9.730
	(4.66)		(5.47)		(5.02)		(5.25)	
Vol_{t-1}	-2.041^{c}	-0.790	1.442^{b}	0.400	-1.502	-0.628	1.370^{a}	0.374
	(2.07)		(2.83)		(1.60)		(2.92)	
ROA_{t-1}	0.634	0.253	2.246^{a}	0.725	0.318	0.179	2.640^{a}	0.833
	(0.77)		(4.14)		(0.28)		(4.24)	
$NonOp_{t-1}$	-0.343	-0.212	1.648	0.277	-0.476	-0.273	1.612	0.295
	(0.15)		(0.78)		(0.21)		(0.78)	
$AbROA_{t-1}$	1.717	0.551	0.066	-0.029	1.963	0.594	0.403	0.074
	(1.28)		(0.06)		(1.37)		(0.37)	
$CapEx_{t-1}$	2.182^{b}	0.706	-3.630^{a}	-1.183	2.308^{b}	0.708	-3.759^{a}	-1.178
	(2.49)		(6.36)		(2.85)		(6.04)	
$Debt_{t-1}$	-0.240^{b}	-0.075	-0.445^{b}	-0.155	-0.184^{c}	-0.055	-0.434^{b}	-0.148
	(2.11)		(2.31)		(1.75)		(2.53)	
MB_{t-1}	0.096^{c}	0.027	-0.038^{c}	-0.014	0.101^{c}	0.027	-0.050^{b}	-0.018
	(2.09)		(2.05)		(1.99)		(2.13)	
$Size_{t-1}$	-0.016	-0.004	0.157^{a}	0.052	-0.031	-0.008	0.165^{a}	0.054
	(0.86)		(8.25)		(1.02)		(7.12)	

Continued Next Page...

Panel B: Ownership Proportion by Fund Investment Horizon Tercile

	Div. Increase		**Share Rep.**	
	Est.	MFX	Est.	MFX
	(1)	(2)	(3)	(4)
$Own\%S_{t-1}$	3.754[a]	1.232	-1.641	-0.482
	(3.91)		(1.44)	
$Own\%M_{t-1}$	3.066[c]	0.875	-1.071	-0.488
	(1.79)		(0.82)	
$Own\%L_{t-1}$	-1.880[c]	-0.587	1.026	0.241
	(1.80)		(1.26)	
$AnnRet_{t-1}$	0.739[a]	0.248	-0.543[a]	-0.166
	(6.46)		(5.37)	
$Beta_{t-1}$	0.096	0.032	-0.034	-0.013
	(1.33)		(0.69)	
$SDRet_{t-1}$	40.360[a]	13.924	-34.012[a]	-10.998
	(4.94)		(5.20)	
Vol_{t-1}	-2.421[b]	-0.922	1.877[a]	0.572
	(2.60)		(3.37)	
ROA_{t-1}	0.572	0.238	2.205[a]	0.709
	(0.71)		(3.97)	
$NonOp_{t-1}$	0.537	0.089	1.777	0.315
	(0.22)		(0.86)	
$AbROA_{t-1}$	1.802	0.593	0.175	-0.001
	(1.33)		(0.16)	
$CapEx_{t-1}$	2.374[b]	0.760	-3.618[a]	-1.180
	(2.75)		(7.05)	
$Debt_{t-1}$	-0.291[b]	-0.085	-0.451[b]	-0.151
	(2.54)		(2.54)	
MB_{t-1}	0.095[c]	0.026	-0.039[c]	-0.014
	(2.06)		(2.03)	
$Size_{t-1}$	-0.012	-0.002	0.151[a]	0.051
	(0.60)		(6.60)	

This table reports Fama-MacBeth (1973) estimates from bivariate probit regressions explaining the choice of dividend paying firms to either increase dividends or repurchase shares. Marginal Effects (MFX) are presented to the right of the coefficient estimates. Newey-West t-statistics are in parentheses. One cross-section regression is estimated per year from 1988 to 2007. For the dividend equation, the dependent variable is equal to 1 if the firm increased dividends, 0 otherwise. For the repurchase equation, the dependent variable is equal to 1 if the firm repurchased shares, 0 otherwise. Fund ownership is controlled with either shareholder investment horizon (*SIH*), current ownership length (*COL*), or the proportion of ownership by fund investment horizon tercile (*Own%S*, *Own%M*, and *Own%L*). The proportion of ownership by fund investment horizon tercile is defined in Chapter 3.4, and *SIH* and *COL* are defined in Chapter 3.5. Other explanatory variables are defined in Chapter 3.3. Significance at the 1% level is designated with a, the 5% level with b, and the 10% level with c.

Table 3.13: Fund Ownership Comparisons Prior to Dividend Increases & Share Repurchases

		Dividend Increase			Share Repurchase			Mean Diff.		Median Diff.	
		N	Mean	Median	N	Mean	Median	Δ	t-stat.	Δ	z-val.
Panel A: Shareholder Investment Horizon											
Mean	$t-3$	1667	3.049	3.053	2756	3.087	3.097	-0.038^a	(5.21)	-0.044^a	(5.37)
Change	$t-3$ to $t-2$	1667	0.004	0.001	2756	0.010	0.004	-0.005	(1.00)	-0.003	(1.20)
Change	$t-2$ to $t-1$	1697	-0.007	-0.002	2664	0.014	0.011	-0.021^a	(3.98)	-0.013^a	(4.00)
Change	$t-3$ to $t-1$	1667	-0.009	-0.004	2756	0.020	0.013	-0.029^a	(4.44)	-0.016^a	(4.29)
Panel B: Current Ownership Length											
Mean	$t-3$	1548	2.876	2.888	2567	2.883	2.892	-0.007	(0.47)	-0.004	(0.71)
Change	$t-3$ to $t-2$	1548	0.056	0.097	2567	0.064	0.104	-0.008	(0.68)	-0.007	(0.83)
Change	$t-2$ to $t-1$	1581	0.047	0.088	2478	0.055	0.090	-0.008	(0.66)	-0.002	(0.57)
Change	$t-3$ to $t-1$	1548	0.077	0.120	2566	0.110	0.141	-0.033^b	(2.28)	-0.021^b	(2.25)

Continued Next Page...

Panel C: Ownership Percentage

		Dividend Increase			**Share Repurchase**			**Mean Diff.**		**Median Diff.**	
		N	Mean	Median	N	Mean	Median	Δ	t-stat.	Δ	z-val.
Own%S											
Mean	$t-3$	1667	0.022	0.015	2756	0.019	0.012	0.003^a	(4.12)	0.003^a	(4.75)
Change	$t-3$ to $t-2$	1667	0.006	0.003	2756	0.004	0.002	0.001^a	(3.17)	0.001^a	(2.75)
Change	$t-2$ to $t-1$	1697	0.001	0.000	2664	-0.001	0.000	0.000^a	(2.85)	0.000^b	(2.41)
Change	$t-3$ to $t-1$	1667	0.007	0.004	2756	0.003	0.001	0.002^a	(4.97)	0.002^a	(4.50)
Own%M											
Mean	$t-3$	1667	0.028	0.020	2756	0.031	0.023	-0.003^a	(3.71)	-0.003^a	(3.75)
Change	$t-3$ to $t-2$	1667	0.003	0.002	2756	0.005	0.003	-0.001^a	(3.11)	-0.001^a	(3.36)
Change	$t-2$ to $t-1$	1697	0.000	0.000	2664	-0.002	-0.001	0.002^a	(3.16)	0.000^b	(2.52)
Change	$t-3$ to $t-1$	1667	0.002	0.001	2756	0.003	0.002	-0.001	(0.63)	-0.001	(1.27)
Own%L											
Mean	$t-3$	1667	0.049	0.035	2756	0.050	0.037	-0.002	(0.48)	-0.002	(1.22)
Change	$t-3$ to $t-2$	1667	0.002	0.001	2756	0.004	0.002	-0.001^a	(2.87)	-0.001^a	(3.20)
Change	$t-2$ to $t-1$	1697	0.000	0.000	2664	0.000	0.000	0.000	(0.56)	0.000	(1.07)
Change	$t-3$ to $t-1$	1667	0.002	0.001	2756	0.004	0.002	-0.002^b	(2.56)	-0.002^a	(3.16)

This table reports the difference in shareholder investment horizon (*SIH*), current ownership length (*COL*), and the proportion of ownership by fund investment horizon tercile (*Own%S*, *Own%M*, *Own%L*) changes between dividend increases and share repurchases of dividend paying firms. Differences are taken prior to event year t from $t-3$ to $t-2$, $t-2$ to $t-1$, and $t-3$ to $t-1$. I calculate the difference in mean and median unadjusted changes. Test-statistics are located below the reported change. The proportion of ownership by fund investment horizon tercile is defined in Chapter 3.4, and *SIH* and *COL* are defined in Chapter 3.5. For the difference in means, I use the two-tailed t-statistic to test signficance. For the difference in medians I use the two-tailed z-statistic from the Wilcoxon rank-sum test. Significance at the 1% level is denoted with a, the 5% level with b, and the 10% level with c.

List of References

Abarbanell, Jeffery S., Brian J. Bushee, and Jana Smith Raedy, 2003, Institutional investor preferences and price pressure: The case of corporate spin-offs, *Journal of Business* 76, 233-261.

Ajinkya, Bipin, Sanjeev Bhojraj, and Partha Sengupta, 2005, The association between outside directors, institutional investors and the properties of management earnings forecasts, *Journal of Accounting Research* 43, 343-376.

Allen, Franklin, Antonio E. Bernardo, and Ivo Welch, 2000, A theory of dividends based on tax clienteles, *The Journal of Finance* 55, 2499-2536.

Anderson, T.W., and C. Hsiao, 1982, Formulation and estimation of dynamic models using panel data, *Journal of Econometrics* 18, 570-606.

Barber, Brad M., and John D. Lyon, 1996, Detecting abnormal operating performance: The empirical power and specification of test statistics, *Journal of Financial Economics* 41, 359-399.

Barber, Brad M., John D. Lyon, and Chih-Ling Tsai, 1999, Improved methods for tests of long-run abnormal stock returns, *The Journal of Finance* 54, 165-201.

Barclay, Michael J., Clifford G. Holderness, and Dennis P. Sheehan, 2009, Dividends and corporate shareholders, *The Review of Financial Studies* 22, 2423-2455.

Barclay, Michael J., and Clifford W. Smith, 1988, Corporate payout policy: Cash dividends versus open-market repurchases, *Journal of Financial Economics* 22, 61-82.

Bartov, Eli, Dan Givoly, and Carla Hayn, 2002, The rewards to meeting or beating earnings expectations, *Journal of Accounting and Economics* 33, 173-204.

Bennett, James A., Richard W. Sias, and Laura T. Starks, 2003, Greener pastures and the importance of dynamic institutional preferences, *The Review of Financial Studies* 16, 1203-1238.

Bøhren, Øyvind, Richard Priestley, and Bernt Arne Ødegaard, 2005, The duration of equity ownership, Working paper, Norwegian School of Management.

Bøhren, Øyvind, Richard Priestley, and Bernt Arne Ødegaard, 2008, Investor short-horizonism and firm value, Working paper, Norwegian School of Management, University of Stavenger.

Brennan, Michael J., and Anjan V. Thakor, 1990, Shareholder preferences and dividend policy, *The Journal of Finance* 45, 993-1018.

Brown, Jeffrey R., Nellie Liang, and Scott Weisbenner, 2007, Executive financial incentives and payout policy: Firm response to the 2003 dividend tax cut, *The Journal*

of Finance 62, 1935-1965.

Brown, Keith C., and Bryce A. Brooke, 1993, Institutional demand and security price pressure: The case of corporate spin-offs, *Financial Analysts Journal* 49, 53-62.

Burch, Timothy R., and Vikram Nanda, 2003, Divisional diversity and the conglomerate discount: Evidence from spin-offs, *Journal of Financial Economics* 70, 69-98.

Burgstahler, David, and Ilia Dichev, 1997, Earnings Management to avoid earnings decreases and losses, *Journal of Accounting and Economics* 24, 99-126.

Burgstahler, David, and Michael Eames, 2003, Earnings management to avoid losses and earnings decreases: Are analysts fooled? *Contemporary Accounting Research* 20, 253-294.

Burgstahler, David, and Michael Eames, 2006, Management of earnings and analysts' forecasts to achieve zero and small positive earnings surprises, *Journal of Business Finance and Accounting* 33, 633-652.

Burns, Natasha, Simi Kedia, and Marc Lipson, 2006, The effects of institutional ownership on financial reporting practices, Working paper, University of Georgia, Rutgers University, and University of Virginia.

Bushee, Brian J., 1998, The influence of institutional investors on myopic r&d investment behavior, *The Accounting Review* 73, 305-333.

Bushee, Brian J., 2001, Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research* 18, 207-246.

Bushee, Brian J., and Christopher Noe, 2000, Corporate disclosure practices, institutional investors, and stock return volatility, *Journal of Accounting Research* 38, 171-202.

Cleves, Mario, William Gould, Roberto Gutierrez, and Yulia Marchenko, 2008, An introduction to survival analysis using Stata, Stata Press, College Station, Texas.

Chemmanur, Thomas J., and Shan He, 2008, Institutional trading, information production, and corporate spin-offs, Working paper, Boston College and Louisiana State University.

Chemmanur, Thomas J., and An Yan, 2004, A theory of coporate spin-offs, *Journal of Financial Economics* 72, 259-290.

Chen, Xia, Jarrad Harford, and Kai Li, 2007, Monitoring: Which institutions matter? *Journal of Financial Economics* 86, 279-305.

Cheng, C.S. Agnes, and Austin Reitenga, 2001, Characteristics of Institutional In-

vestors and Discretionary Accruals, Working paper, University of Houston.

Chetty, Raj, and Emmanuel Saez, 2005, Dividend taxes and corporate behavior: Evidence from the 2003 tax cut, *The Quarterly Journal of Economics* 120, 791-833.

Chiyachantana, Chiraphol, Christine Jiang, Nareerat Taechapiroontong, and Robert Wood, 2004, The impact of Regulation Fair Disclosure on information asymmetry and trading: An intraday analysis, *The Financial Review* 39, 549-577.

Chung, Richard, Michael Firth, and Joeng-Bon Kim, 2002, Institutional monitoring and opportunistic earnings management, *Journal of Corporate Finance* 8, 29-48.

Çolak, Gönül, and Toni M. Whited, 2006, Spin-offs, divestitures, and conglomerate investment, *The Review of Financial Studies* 20, 557-595.

Cusatis, Patrick J., James A. Miles, and J. Randall Woolridge, Restructuring through spin-offs: The stock market evidence, *Journal of Financial Economics* 33, 293-311.

Daley, Lane, Vikas Mehrota, and Ranjini Sivakumar, 1997, Corporate focus and value creation: Evidence from spin-offs, *Journal of Financial Economics* 45, 257-281.

Das, Somnath, and Huai Zhang, 2003, Rounding-up in reported EPS, behavioral thresholds, and earnings management, *Journal of Accounting and Economics* 35, 31-50.

Dechow, Patricia, Richard Sloan, and Amy Sweeney, 1995, Detecting earnings management, *The Accounting Review* 70, 193-225.

Degeorge, François, Jayendu Patel, and Richard Zeckhauser, 1999, Earnings management to exceed thresholds, *Journal of Business* 72, 1-33.

Del Guercio, Diane, 1996, The distorting effect of the prudent-man laws on institutional equity investments, *Journal of Financial Economics* 40, 31-62.

Del Guercio, Diane, and Jennifer Hawkins, 1999, The motivation and impact of pension fund activism, *Journal of Financial Economics* 52, 293-340.

Denis, David J., Diane K. Denis, and Atulya Sarin, 1994, The information content of dividend changes: Cash flow signaling, overinvestment, and dividend clienteles, *Journal of Financial and Quantitative Analysis* 29, 567-587.

Desai, Hemang, and Prem C. Jain, 1999, Firm performance and focus: Long-run stock market performance following spin-offs, *Journal of Financial Economics* 54, 75-101.

Desai, Mihir A., and Dhammika Dharmapala, 2009, Dividend taxes and international portfolio choice, Working paper, Harvard University and University of Illinois

at Urbana-Champaign.

Dittmar, Amy, 2004, Capital structure in corporate spin-offs, *Journal of Business* 77, 9-43.

Dittmar, Amy, and Anil Shivdasani, 2003, Divestitures and divisional investment policies, *The Journal of Finance* 68, 2711-2743.

Falkenstein, Eric G., 1996, Preferences for stock characteristics as revealed by mutual fund portfolio holdings, *The Journal of Finance* 51, 111-135.

Fama, Eugene, and Kenneth French, 2001, Disappearing dividends: Changing firm characteristics or lower propensity to pay?, *Journal of Financial Economics* 60, 3-44.

Fama, Eugene, and James MacBeth, 1973, Risk, return, and equilibrium: Empirical tests, *Journal of Political Economy* 71, 607-636.

Ferreira, Miguel A., Massimo Massa, and Pedro Matos, 2009, Dividend clienteles around the world: Evidence from institutional holdings, Working paper, Universidade nova de Lisboa, INSEAD, and University of Southern California.

Gaspar, José-Miguel, Massimo Massa, and Pedro Matos, 2005, Shareholder investment horizons and the market for corporate control, *Journal of Financial Economics* 76, 136-165.

Gertner, Robert, Eric Powers, and David Scharfstein, 2002, Learning about internal capital markets from corporate spin-offs, *The Journal of Finance* 57, 2479-2506.

Gilson, Stuart C., Paul M. Healy, Christopher F. Noe, and Krishna G. Palepu, 2001, Analyst specialization and conglomerate stock breakups, *Journal of Accounting Research* 39, 565-582.

Gompers, Paul A., and Andrew Metrick, 2001, Institutional investors and equity prices, *The Quarterly Journal of Economics* 116, 229-259.

Graham, John R., Campbell R. Harvey, and Shiva Rajgopal, 2005, The economic impact of corporate finance reporting, *Journal of Accounting and Economics* 40, 3-73.

Greenwood, Robin, 2006, Price pressure in corporate spin-offs, Working paper, Harvard University.

Grinblatt, Mark, and Sheridan Titman, 1989, Mutual fund performance: An analysis of quarterly portfolio holdings, *Journal of Business* 62, 394-415.

Grinstein, Yaniv, and Roni Michaely, 2005, Institutional holdings and payout policy, *The Journal of Finance* 60, 1389-1426.

Grullon, Gustavo, and Roni Michaely, 2002, Dividends, share repurchases, and the substitution hypothesis, *The Journal of Finance* 57, 1649-1684.

Grullon, Gustavo, and Roni Michaely, 2005, The information content of share repurchase programs, *The Journal of Finance* 59, 651-680.

Guay, Wayne, and Jarrad Harford, 2000, The cash-flow permanence and information content of dividend increases versus repurchases, *Journal of Financial Economics* 57, 385-415.

Habib, Michel A., D. Bruce Johnsen, and Narayanan Y. Naik, 1997, Spin-offs and information, *Journal of Financial Intermediation* 6, 153-176.

Hall, Peter, 1992, On the removal of skewness by transformation, *Journal of the Royal Statistical Society*, Series B 54, 221–228.

Hite, Gailen L., and James E. Owers, 1983, Security price reactions around coporate spin-off announcements, *Journal of Financial Economics* 12, 409-436.

Hotchkiss, Edith S., and Stephen Lawrence, 2007, Empirical evidence on the existence of dividend clienteles, Working paper, Boston College.

Hotchkiss, Edith S., and Deon Strickland, 2003, Does shareholder composition matter? Evidence from the market reaction to corporate earnings announcements, *The Journal of Finance* 58, 1469-1498.

Hribar, Paul, Nicole Jenkins, and Juan Wang, 2004, Institutional investors and accounting restatements, Working paper, Cornell University and Washington University in St. Louis.

Hsu, Grace C.-M., and Ping-Sheng Koh, 2005, Does the presence of institutional investors influence accruals management? Evidence from Australia, *Corporate Governance* 13, 809-823.

Huson, Mark R., and Gregory MacKinnon, 2003, Corporate spin-offs and information asymmetry between investors, *Journal of Corporate Finance* 9, 481-503.

Jagannathan, Murali, Clifford P. Stephens, and Michael S. Weisbach, 2000, Financial flexibility and the choice between dividends and stock repurchases, *Journal of Financial Economics* 57, 355-384.

Janakiraman, Surya, Suresh Radhakrishnan, and Rafal Szwejkowski, 2006, Regulation Fair Disclosure and analysts' first-forecast horizon, Working paper, University of Texas at Dallas.

Jenkins, David, and Uma Velury, 2006, Institutional ownership and the quality of earnings, *Journal of Business Research* 59, 1043-1051.

Jensen, Michael C., 1986, Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review* 76, 323-329.

Jensen, Michael C., 2005, Agency costs of overvalued equity, *Financial Management* 34, 5-19.

Jones, Jennifer, 1991, Earnings Management during import relief investigations, *Journal of Accounting Research* 29, 193-228.

Kasznik, Ron, and Maureen McNichols, 2002, Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices, *Journal of Accounting Research* 40, 727-759.

Kenney, William, David Burgstahler, and Roger Martin, 2002, Earnings surprise "materiality" as measured by stock returns, *Journal of Accounting Research* 40, 1297-1329.

Ke, Bin, Kathy Petroni, and Yong Yu, 2008, The effect of Regulation FD on transient institutional investors' trading behavior, *Journal of Accounting Research* 46, 853-883.

Koh, Ping-Sheng, 2003, On the association between institutional ownership and aggressive corporate earnings management in Australia, *The British Accounting Review* 35, 105-128.

Krishnaswami, Sudha, and Venjat Subramaniam, 1999, Information asymmetry, valuation, and the corporate spin-off decision, *Journal of Financial Economics* 53, 73-112.

Li, Xu, Suresh Radhakrishnan, Haeyoung Shin, and Jin Zhang, 2006, Regulation FD, accounting restatements and transient institutional investors' trading behavior, Working Paper, University of Texas at Dallas.

Lie, Erik, 2001, Detecting abnormal operating performance: Revisited, *Financial Management* 30, 77-91.

Matsumoto, Dawn, 2002, Management's incentives to avoid negative earnings surprise, *The Accounting Review* 77, 483-514.

Mehrota, Vikas, Wayne Mikkelson, and Megan Partch, 2003, The design of financial policies in corporate spin-offs, *Review of Financial Studies* 16, 1359-1388.

Miles, James A., and James D. Rosenfeld, 1983, The effect of voluntary spin-off announcements on shareholder wealth, The *Journal of Finance* 38, 1597-1606.

Nanda, Vikram, and M.P. Narayanan, 1999, Disentangling value: Financing needs, firm scope, and divestitures, *Journal of Financial Intermediation* 8, 174-204.

Patro, Sukesh, 2008, The evolution of ownership structure of corporate spin-offs,

Journal of Corporate Finance 14, 596-613.

Perez-Gonzalez, Francisco, 2002, Large shareholders and dividends: Evidence from U.S. tax reforms, Working paper, Columbia University.

Petersen, Mitchell A., 2009, Estimating standard errors in finance panel data sets: Comparing approaches, *Review of Financial Studies* 22, 435-480.

Rajan, Raghuram, Henri Servaes, and Luigi Zingales, 2000, The cost of diversity: The diversification discount and inefficient investment, *The Journal of Finance* 55, 35-80.

Rajgopal, Shivram, Mohan Venkatachalam, and James Jiambalvo, 1999, Is institutional ownership associated with earnings management and the extent to which stock prices reflect future earnings? Working paper, Stanford University and University of Washington.

Roychowdhury, Sugata, 2006, Earnings manipulation through real activities manipulation, *Journal of Accounting and Economics* 42, 335-370.

Skinner, Douglas, and Richard Sloan, 2002, Earnings surprises, growth expectations, and stock returns or don't let an earnings torpedo sink your portfolio, *Review of Accounting Studies* 7, 289-312.

Scharfstein, David, and Jeremy Stein, 2000, The dark side of internal capital markets: Divisional rent-seeking and inefficient investment, *The Journal of Finance* 55, 2537-2564.

Schipper, Katherine, and Abbie Smith, 1983, Effects of recontracting on shareholder wealth: The case of voluntary spin-offs, *Journal of Financial Economics* 12, 437-467.

Shleifer, Andrei, and Robert W. Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461-488.

Thomas, Shawn, 2002, Firm diversification and asymmetric information: Evidence from analysts' forecasts and earnings announcements, *Journal of Financial Economics* 64, 373-396.

Useem, Michael, 1996, Investor capitalism, BasicBooks, New York.

Vijh, Anand M., 1994, The spin-off and merger ex-date effects, *The Journal of Finance* 49, 581-609.

Wahal, Sunil, and John J. McConnell, 2000, Do institutional investors exacerbate managerial myopia? *Journal of Corporate Finance* 6, 307-329.

Wermers, Russell, 2000, Mutual fund performance: An empirical decomposition into stock-picking talent, style, transaction costs, and expenses, *The Journal of Finance*

55, 1655-1695.

Wruck, Karen H., 1994, Financial policy, internal control, and performance: Sealed air corporation's leveraged special dividend, Journal of Financial Economics, 36, 157-192.

Yan, Xuemin, and Zhe Zhang, 2009, Institutional investors and equity returns: Are short term institutions better informed? *The Review of Financial Studies* 22, 893-924.

Yoon, Pyung Sig, and Laura T. Starks, 1995, Signaling, investment opportunities, and dividend announcements, *The Review of Financial Studies* 8, 995-1018.

Yu, Fang, 2008, Analyst coverage and earnings management, *Journal of Financial Economics* 88, 245-271.