Do Long-Term Investors Improve Corporate Decision Making?

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Abstract

We study the effect of investor horizons on a comprehensive set of corporate decisions. Long-term investors have the means and motive to monitor corporate managers, which generates corporate decisions that are consistent with shareholder value maximization. We find that long-term investors strengthen corporate governance and restrain managerial misbehaviors such as earnings management and financial fraud. They discourage a range of investment and financing activities but encourage payouts. Shareholders benefit through higher stock returns, higher profitability that is not fully anticipated by the market, and lower risk. Firms diversify their operations. We use a popular identification strategy to establish causality of our results.

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"Companies are most likely to describe their ideal shareholder as having a "long-term investment horizon" but about half of companies' shareholder base has a short- or medium-term horizon … Companies want long-term shareholders in particular because it allows them to implement their corporate strategy and make long-term investments without the distraction and short-term performance pressures that come from active traders." (Beyer, Larcker, and Tayan (2014))

1. Introduction

It is well established that managers of publicly traded firms, left to their own devices, tend to maximize their private benefits of control rather than the value of their shareholders' stake in the firm (Berle and Means (1932) and Jensen and Meckling (1976)). At the same time, imperfectly informed market participants can lead managers to make myopic investment decisions (Stein (1988)). Indeed, most managers admit that they are willing to sacrifice long-term shareholder value for short-term profits (Graham, Harvey, and Rajgopal (2005)). Numerous mechanisms have been proposed to counter this mismanagement problem. One of the most important of these is monitoring by investors with long investment horizons (Drucker (1986), Porter (1992), and Monks and Minow (1995)). By spreading both the costs and benefits of ownership over a long period of time, such investors can be very effective at monitoring managers (Gaspar, Massa, and Matos (2005) and Chen, Harford, and Li (2007)).

In this paper, we ask two basic questions. First, do long-term investors in publicly traded firms improve managerial decision making? Second, does their influence on managerial decision making improve returns to shareholders of the firm? To this end, we study a wide swath of managerial behaviors. According to theory, if long-term investors exert a positive influence on managers, we should observe an improvement in corporate governance (for instance, in the quality of the board of directors). We should also observe a decline in managerial misbehaviors

(such as financial fraud). However, regarding investment, financing, and payout decisions, the predictions of theory are somewhat less clear (e.g., see Bebchuk and Stole (1993) regarding managerial horizons and corporate investment).

The dominant view in the literature on manager-shareholder conflicts is that poorly monitored managers will destroy shareholder value by overinvesting (Baumol (1959) and Williamson (1964)). This empire building hypothesis has broad empirical support (e.g., Morck, Shleifer, and Vishny (1990) and Gompers, Ishii, and Metrick (2003)). Another view holds that managers will underinvest, under certain conditions, thereby also destroying shareholder value (Holmström (1979) and Grossman and Hart (1983)). This quiet life hypothesis is supported empirically as well (e.g., Bertrand and Mullainathan (2003) and Giroud and Mueller (2010)). We let the data settle this debate about whether managers invest too much or too little.

Our view of financing, like that of Stulz (1990), is that it is determined by management's investment decisions. In other words, managers that overinvest also raise too much financing, and those that underinvest raise too little. Payouts should follow the opposite pattern to financing, but only if managers mainly pursue a residual payout policy. If instead they accumulate corporate resources in any event, then payouts should be higher with sufficient monitoring by investors. Finally, theory clearly predicts that, on the whole, greater monitoring should increase shareholder value, whether as a result of higher profitability or lower risk.

We test these predictions using a large panel of firm-years comprising an average of roughly three thousand firms annually over close to thirty years. We follow the literature (e.g., Gaspar, Massa, and Matos (2005) and Chen, Harford, and Li (2007)), and we use portfolio turnover to capture the investment horizons of investors and then group investors into short-term or long-term categories based according to their investment horizons. We measure investor

horizons of firms as the ownership of their long-term investors. We also control for the total ownership of institutional investors because their monitoring role is widely recognized in the literature (Grossman and Hart (1980) and Shleifer and Vishny (1986)).

Since our study uses panel data, we design our empirical analysis from the start with the objective of demonstrating causality. To this end, we perform all of our tests using not only long-term investor ownership as a whole but also its plausibly exogenous part (while controlling for its possibly endogenous part). Specifically, we establish causality based on the ownership of long-term investors that index their portfolios (motivated by, e.g., Aghion, Van Reenen, and Zingales (2013)). We describe our procedure in detail below.

In our analysis, we first examine corporate governance. We find that long-term investors improve corporate governance by increasing shareholder proposals, board quality, and executive turnover. Underscoring their monitoring role, we also find that long-term investors restrain managerial misbehaviors. Specifically, they reduce not only earnings management but also accounting misconduct, financial fraud, and option backdating.

Next, we examine investment. We find that long-term investors reduce investment, both in tangible and intangible assets as well as through both organic and inorganic growth. As a byproduct of this decrease in growth, firms also provide less trade credit to their suppliers and stockpile less inventory. Altogether, firms invest less by about 2.0 percentage points of total assets.[1] These results on investment are consistent with the empire building hypothesis rather than the quiet life hypothesis.

Long-term investors also reduce financing by roughly 1.4 percentage points. Balance sheet and off balance sheet debt financing decrease, as does equity financing. These changes coupled with a decrease in the maturity of debt leave firms more dependent on external financing

[1] We report the effect of a one-standard deviation change in long-term investor ownership.

and thus more disciplined. At the same time, long-term investors increase payouts, both dividends and share repurchases, by a total of approximately 0.6 p.p.

Next, since the theoretical predictions for investment, financing, and payouts are ambiguous, we use shareholder value as arbiter of the effect of long-term investors. Accordingly, we examine the value implications of long-term investors on managerial decision making by looking at stock returns. In time-series regressions, a long-short portfolio formed based on investor horizons earns positive abnormal returns of roughly 30 basis points per month. Excess returns from cross-sectional regressions are also higher, by approximately one percentage point per year.

We dig deeper to discover the source of these higher returns to shareholders: unexpected profitability versus risk. We find that realized earnings are higher by about 0.5 percentage points of total assets and are generated by sales growing faster than costs. The higher earnings of firms with longer investor horizons are somewhat of a surprise to stock market participants. We also find that earnings volatility is lower, by about 3.9%, and is driven by a decrease in the volatility of both sales and costs. Stock return volatility is lower as well, by roughly 2.7%, and is corroborated by a decrease in extreme stock returns as well as a lower rate of covenant violations, defaults, and bankruptcies.

Furthermore, we examine real diversification to better understand how this reduction in risk is achieved. While theory has long argued that diversification can lower financial distress costs by overcoming market imperfections (Lewellen (1971)), the conventional wisdom holds that diversification should not affect shareholder value. Indeed, the early evidence has found that diversification is value destroying (Lang and Stulz (1994) and Berger and Ofek (1995)), but recent evidence has found the opposite (Denis, Denis, and Yost (2002), Mansi and Reeb (2002),

and Hann, Ogneva, and Ozbas (2013)). We find that long-term investors lead to greater diversification along business, industry, and geographic lines as well as across customers and products. Our results are consistent with inadequately monitored managers taking too much risk. In summary, long-term investors increase shareholder value by raising profitability and lowering risk.

We establish causality of our results using indexing by long-term investors. Several recent papers show that the ownership of investors that are indexers and investors in index firms affects various market prices and corporate policies (see Kecskés, Mansi, and Nguyen (2014) for details). As the literature shows, long-term investors that index their portfolios are relevant because they can influence corporate managers, but they are exogenous to managerial decision making because they have no control over the composition of their portfolio. (We explain this further below.) We implement our identification strategy by splitting long-term investor ownership in two components: one that is exogenous and another that may be endogenous. Using two different splits, our results are similar for both the plausibly exogenous and possibly endogenous components, which suggests that our results are causal. Interpreted another way, these splits of long-term investor ownership based on indexing establish that we are not simply identifying the effect of being in an index, nor are our results driven by long-term investors choosing to invest in certain types of firms.

The principal contributions of our paper are several. First, a large literature shows that governance improvements lead to a decrease in corporate investment and growth (e.g., Morck, Shleifer, and Vishny (1990), Lang, Poulsen, and Stulz (1995), Allen and McConnell (1998), and Harford (1999)) and an increase in payouts (e.g., Denis (1990) and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000)). We show that long-term investors are an additional force for good

governance. Moreover, our findings indicate that real diversification and the accompanying reduction in risk is value enhancing when managers are monitored, for instance, by long-term investors. This contrasts with the generally unfavorable assessment of real diversification (e.g., Amihud and Lev (1981), Aggarwal and Samwick (2003), and Low (2009)). Furthermore, our study about long-term investors attempting to influence managers is complementary to studies about managers trying to attract certain types of investors (e.g., Bushee and Miller (2012) and Karolyi and Liao (2015)).

Second, investors have historically voted with their feet rather than voicing their dissatisfaction with corporate management (Admati and Pfleiderer (2009) and Edmans (2009)). Our findings show that long-term investors affect managerial behavior by occupying the middle ground between exit and voice. They achieve similar results to other institutional investors (Holderness and Sheehan (1985), Barclay and Holderness (1991), Bethel, Liebeskind, and Opler (1998), Brav, Jiang, Partnoy, and Thomas (2008), and Klein and Zur (2009)). However, the effect of long-term investors on corporate investment, financing, payouts, and performance takes place with little publicity or confrontation.

Finally, we contribute to the growing literature on investor horizons, which examines some specific consequences of long-term investors. For example, such investors relieve pressure on firms to cut research and development expenditures to meet short-term earnings expectations (Bushee (1998)). They also improve the outcomes of takeovers (Gaspar, Massa, and Matos (2005) and Chen, Harford, and Li (2007)) and influence the tradeoff between dividends and share repurchases (Gaspar, Massa, Matos, Patgiri, and Rehman (2012)). Likewise, they attenuate the effect of mispricing on corporate policies (Derrien, Kecskés, and Thesmar (2013)). Indeed, being publicly traded may distort corporate investment, innovation, and leadership behavior

(Asker, Farre-Mensa, and Ljungqvist (2015), Gao, Hsu, and Li (2014), and Gao, Harford, and Li (2014)). Our paper is the first to show that long-term investors influence a wide range of managerial behaviors in publicly traded firms and thus prevent a significant destruction of shareholder value.

The rest of this paper is organized as follows. Section 2 presents the sample, data, and variable measurements. Section 3 and Section 4 present the results for corporate decision making and its value implications, respectively. Section 5 concludes.

2. Sample and Data

2.1. Sample Construction and Data Sources

We construct our sample as follows. We begin with all publicly traded U.S. firms in CRSP and Compustat between 1985 and 2012. We keep U.S. operating firms defined as firms with CRSP share codes of 10 or 11. We drop firms that are financials or utilities. This leaves our sample of 95,463 firm-year observations comprising 11,206 unique firms between 1985 and 2012.

Our investor portfolio data are from Thomson's 13f filings, stock trading data are from CRSP, factor returns data are from Ken French's website, accounting data are from Compustat, and analyst data are from I/B/E/S. We use shareholder proposals data from RiskMetrics, director data from IRRC and RiskMetrics, and executive turnover data from Execucomp. We also use accounting misconduct data from the SEC AAER database (see Dechow, Ge, Larson, and Sloan (2011) for details); financial fraud data from the Stanford Securities Class Action Lawsuit database; and option backdating data from Lucian Bebchuk's website (see Bebchuk, Grinstein, and Peyer (2010) for details). Covenant violations data are from Michael Roberts' website (see Roberts and Sufi (2009) for details); default data are from the Compustat credit ratings database;

and bankruptcy data are from the SDC bankruptcy database. Segment data are from the Compustat segments database. For brevity, we refer to institutional investors in Thomson's 13f filings as "investors" unless otherwise specified. We winsorize all continuous variables at the 1st and 99th percentiles.

2.2. Measuring Investor Horizons

Like Gaspar, Massa, and Matos (2005) and Chen, Harford, and Li (2007), we argue that the costs of monitoring are lower and the benefits are higher for investors with longer horizons, so they engage in greater monitoring. These costs include gathering information about firms and influencing the behavior of their managers, and the benefits include better information, more efficient usage of information, and greater influence with managers. As long as there are fixed costs of monitoring, the net benefit of monitoring increases with the time an investor holds a firm in its portfolio.

We follow the aforementioned literature to measure investor horizons. We start at the investor level by measuring the horizons of investors based on their portfolio turnover. For every investor and every year, we look back three years and compute the fraction of the investor's portfolio that is no longer held at the end of the period. This measure of the investor's portfolio turnover ranges from zero to one. We then classify investors as short-term or long-term based on their horizons. To this end, we use a portfolio turnover cutoff of 35% (similar to Froot, Perold, and Stein (1992)). The distribution of investor horizons is stable over time, and our cutoff is approximately the bottom quartile of investor turnover. By construction, short-term and long-term investors collectively comprise all institutional investors. Finally, we measure investor

horizons at the firm level by aggregating the ownership of long-term investors in the firm. We refer the reader to Derrien, Kecskés, and Thesmar (2013) for details.[2]

Furthermore, we replicate Figure 1 and Figure 3 of Derrien, Kecskés, and Thesmar (2013) to demonstrate the persistence of investor horizons. First, at the investor level, we sort investors into quartiles based on portfolio turnover and then compute the mean portfolio turnover of the investors in each quartile during each of next twenty quarters. Our Figure 1 shows that turnover increase gradually over time, but the relative ranking of investors by portfolio turnover persists.

[Insert Figure 1 about here]

Second, at the firm level, we sort firms into quartiles based on long-term investor ownership and then compute the mean long-term investor ownership of the firms in each quartile during each of the next twenty quarters. Our Figure 2 shows that although there are slight changes in ownership over time, the relative ranking of firms by long-term investor ownership persists. The results are similar for short-term investor ownership. In summary, the results show that it reasonable to treat horizons as characteristics at both the investor and firm levels.

[Insert Figure 2 about here]

2.3. Identifying Investor Horizons

We establish that investor horizons lead to improved corporate decision making using indexing by long-term investors. This approach has been used to study, among other outcomes, capital structure, payouts, and governance (Michaely and Vincent (2013), Crane, Michenaud,

[2] They also provide evidence of the validity of our measure of investor horizons by showing that it captures what is generally considered to be the horizon of many well known investors. For example, our measure typically classifies pension funds as long-term investors, consistent with pension funds being widely perceived to be long-term investors (80%-90% of the time). Similarly, hedge funds are usually classified as short-term by our measure, consistent with the widespread perception that hedge funds are short-term investors (95% of the time). (See Beyer, Larcker, and Tayan (2014) for these statistics.)

and Weston (2014), Mullins (2014), and Appel, Gormley, and Keim (2014)). We refer the reader to Kecskés, Mansi, and Nguyen (2014) for arguments and references supporting this identification strategy. In this paper, we only provide a brief summary of this material.

Several early papers argue that indexers can affect managerial decision making (Carleton, Nelson, and Weisbach (1998), Del Guercio and Hawkins (1999), and Gillan and Starks (2000)). Engagements with firms by such investors tend to occur privately, which minimizes the public attention they receive. These investors also interact with firms through shareholder votes, often strengthened by block voting, vote trading, and advisory voting (Christoffersen, Geczy, Musto, and Reed (2007), Matvos and Ostrovsky (2010), and Appel, Gormley, and Keim (2014)). These low profile, high potency approaches can minimize the costs to investors of producing information and exerting influence.

To implement our identification strategy, we split long-term investor ownership in two components: one that is exogenous and another that may be endogenous. We do not use indexer ownership as such but rather the component of long-term investor ownership attributable to indexing. Our first split uses indexers and non-indexers determined by Cremers and Petajisto (2009)'s active share measure. Active share measures the difference in weights between the firms in the investor's portfolio and the firms in the benchmark index. We use the CRSP value weighted index as the benchmark index because institutional investors combine disparate lines of businesses (more akin to a mutual fund family than an individual fund), so their holdings are best compared to the most general stock market index available. We take this cross-sectional approach because we only have holding data and not returns data for our investors and thus we cannot take a time-series approach. To classify investors as indexers, we use an active share cutoff of 25% (similar to Harford, Jenter, and Li (2011)).

Our second split of long-term investor ownership uses index and non-index firms determined by their membership in the S&P 500. If we use a split based on memberships in the Russell 1000 versus the Russell 2000, we obtain similar results. However, since the appropriate regression discontinuity design based on index reconstitutions is still under investigation in the literature (Appel, Gormley, and Keim (2014)), we use an indirect implementation of this methodology. As the final step, we compute the ownership of firms by long-term indexers and non-indexers and also the long-term investor ownership of index firms and non-index firms.

While we examine a large panel of firm-years, the ownership structure of a given firm is relatively stable over time. This is evidenced by our finding that horizons at both the investor and firm levels are highly persistent (Figure 1 and Figure 2, respectively). Therefore, rather than attempting to identify corporate outcomes based merely on cross-sectional and/or time-series changes in long-term investor ownership, our identification strategy ultimately depends on long-term investors that index their portfolios and long-term investors in index firms.

2.4. Descriptive Statistics

[Insert Table 1 about here]

Table 1 presents descriptive statistics for our main independent and dependent variables. We define all variables in Appendix Table 1, and we multiply them by 100. Institutional ownership is 38.0% on average, and long-term investor ownership is 13.6% on average. The latter breaks down into 4.9% and 8.7% for indexers and non-indexers, respectively. For index firm and non-index firm ownership, the breakdown is 2.7% and 10.8%, respectively. In terms of the distribution of our dependent variables, it is representative for a large sample of publicly traded firms.

3. Results for Corporate Decision Making

3.1. Corporate Governance and Managerial Misbehaviors

We begin our analysis by examining whether long-term investors improve corporate governance. Specifically, we look at shareholder proposals because they are well known to influence operating performance (Del Guercio, Seery, and Woidtke (2008) and Ertimur, Ferri, and Muslu (2011)). We also look at the quality of the board of directors because it is through the board that shareholders can affect the behavior of management. Finally, we look at executive turnover because it is a well known consequence of shareholder activism (Holderness and Sheehan (1985) and Barclay and Holderness (1991)).

For shareholder proposals, we use the natural logarithm of one plus the number of proposals. For board quality, we use board independence and board attendance measured as the fraction of directors that are independent and the fraction of directors that attend at least three-quarters of board meetings, respectively. We also use board experience measured as the mean number of other directorships held by directors. Finally, for executive turnover, we use a dummy variable that equals one if it occurs in a given firm-year and zero otherwise.

Throughout our empirical analysis, we regress each outcome of interest on long-term investor ownership, which is the focus of our analysis. To avoid data mining concerns, we use a specification that is standard in the literature as well as consistent across our analyses. In particular, we begin by controlling for total institutional ownership. As additional controls, we include size, market-to-book, cash-flow-to-total assets, stock returns, and volatility. We use industry-year fixed effects to control for unobserved heterogeneity at the industry-year level.[3]

[3] On econometric grounds, the popular approach of including industry-year fixed effects dominates adjusting by the industry-year mean (Gormley and Matsa (2014)).

Finally, we cluster standard errors by industry-year to capture clustering across industries and years concurrently. We multiply the dependent variables by 100. We standardize the independent variables so that each coefficient estimate captures the effect of a one-standard deviation change in long-term investor ownership.[4]

It is worth clarifying the interpretation of the coefficient on long-term investor ownership. Total institutional ownership equals the sum of short-term and long-term investor ownership. Therefore, after controlling for institutional ownership, long-term investor ownership isolates the investor horizons effect. In our specifications, the overall impact of short-term investors is captured by the coefficient on institutional ownership. The overall impact of long-term investors is captured by the sum of the coefficients on long-term investor ownership and institutional ownership. Since we are interested in the effect of investor horizons, we focus on the differential impact of long-term investors compared to short-term investors. The coefficient on long-term investor ownership readily captures this incremental effect of interest.

[Insert Table 2 about here]

Table 2 presents the results. Long-term investor ownership increases the number of shareholder proposals by 3.5%. In addition to all shareholder proposals, we examine successful shareholder proposals. Following Bauer, Moers, and Viehs (2012), we do not ignore withdrawn shareholder proposals but rather treat them as passed. We do so because investors frequently use shareholder proposals to attract the attention of corporate managers, which often leads to

[4] We are mindful of the possibility that investor horizons may be correlated with other governance mechanisms that affect managerial behavior. In untabulated robustness tests, we control for various prominent governance variables. Investor concentration does not appear to be an alternative explanation because we control for blockholder ownership and find similar results. Other governance variables include dual class stock ownership, antitakeover provisions, managerial incentive compensation, and managerial ownership. We control for these variables as well and find that they too are unable to explain our results. Data availability is the reason we do not include these variables in our empirical analysis. Including these variables decreases the sample size dramatically, by about 75%-80%, because the data are not available during the first decade of our sample period, they are only available for roughly 1,500 of our 3,500 firms per year, and they are tilted toward firms that are bigger, older, etc.

remedial action by managers. In this case, the proposal is ultimately withdrawn but is nevertheless effective. Our results for successful proposals (not tabulated) are similar to our results for all proposals. This is also the case if we examine the net effect of shareholder proposals that pass minus those that fail (not tabulated).

Similarly, long-term investor ownership improves the quality of the board of directors. Independence increases by 1.36 or about 2% relative to its mean. Attendance increases by a more modest 0.16 or 0.2% compared to its mean. Board experience increases by more meaningful 2.0%.[5] Finally, long-term investor ownership increases the rate of executive turnover by 0.87 or roughly 7% compared to its mean. For shareholder proposals, board quality, and executive turnover, the results are similar in Panel B and Panel C, which underscores our causal interpretation of the results in Panel A.

We also examine whether long-term investors reduce the occurrence of managerial misbehaviors. We include earnings management as one manifestation of such activities. We then proceed to accounting misconduct and financial fraud, which are well known to destroy considerable shareholder value when they are eventually discovered (Dechow, Sloan, and Sweeney (1996) and Karpoff, Lee, and Martin (2008)). We also include option backdating as another instance of managerial behavior with potentially important economic ramifications (Yermack (1997), Lie (2005), Heron and Lie (2007), and Narayanan and Seyhun (2008)).

As is customary, we measure earnings management using discretionary accruals, accounting misconduct using enforcement actions by the SEC, financial fraud using shareholder lawsuits, and option backdating using suspiciously well timed option grants. The first variable is expressed as a percentage of total assets and the next three variables are dummy variables that equal one if they occur in a given firm-year and zero otherwise.

[5] The results are similar if we measure board experience as the mean age of directors.

[Insert Table 3 about here]

Table 3 presents the results. For expositional simplicity, we only tabulate selected results. Panel A shows that long-term investor ownership significantly reduces managerial misbehaviors. In particular, earnings management decreases by 0.28% of total assets or about 3% relative to its mean. The rates of accounting misconduct and financial fraud decrease by 0.33 and 1.62, respectively, or roughly 28% and 33% compared to their means. Finally, the incidence of option backdating decreases by 1.45 or about 10% relative to its mean.[6] The results are similar for long-term indexer and non-indexer ownership (Panel B) as well as for long-term index firm and non-index firm ownership (Panel C). This supports a causal interpretation of our results. In summary, our results thus far are consistent with long-term investors improving corporate governance and managerial behavior. In a later analysis, we also examine the incidence of large losses to the firm's owners and creditors, events such as extreme negative stock returns and bankruptcies that may or may not be the result of managerial misbehavior.

3.2. Corporate Investment, Financing, and Payouts

Next, we examine whether long-term investors affect a range of corporate investment: internal and external, short-term and long-term. We use the usual measures of long-term investment: capital expenditures, research and development expenditures, and acquisitions expenditures. Additionally, we consider investment in trade credit and inventories: two measures of short-term investment that support the firm's growth and are essential to the daily operations of firms. We express all of these variables as a percentage of total assets. Our specification is the same as before. Consequently, each coefficient estimate captures the effect of a one-standard deviation change in long-term investor ownership.

[Insert Table 4 about here]

[6] If we examine options granted to the firm's directors rather than its CEO, the results are similar (not tabulated).

Table 4 presents the results. As before, we only tabulate selected results for expositional simplicity. Panel A shows that long-term investor ownership reduces capital, research and development, and acquisitions expenditures by 0.41%, 0.51%, and 0.26% of total assets, respectively. Trade credit and inventories decrease by 0.49% and 0.33% of total assets, respectively. In other words, investment in capital decreases by about 2.0 percentage points in total. To put this decrease in investment into perspective, it amounts to approximately $36 million for the average firm with total assets of $1,819 million. Similar results for long-term indexer and non-indexer ownership (Panel B) as well as for long-term index firm and non-index firm ownership (Panel C) support our causal interpretation of the results. In summary, long-term investors cause a generalized reduction in investment, which is consistent with corporate managers engaging in empire building if they are not adequately monitored.

We now turn to the effect of long-term investors on financing. We examine financing from a variety of sources: the issuance of short-term and long-term debt on the balance sheet, the use of off balance sheet debt, equity issuance, and the accumulation of internal funds. We include off balance sheet debt because it is a significant source of financing for many firms and an important alternative to balance sheet debt (Eisfeldt and Rampini (2009) and Rampini and Viswanathan (2013)).[7] To capture off balance sheet debt, we use operating leases, as is common. All of these variables are expressed as a percentage of total assets. We also examine the maturity of debt on the balance sheet, which we measure as long-term debt expressed as a percentage of total debt. We use the same specification as before.

[Insert Table 5 about here]

[7] Moreover, new regulations are expected to require firms to treat operating leases as liabilities on the balance sheet (The Economist (2013)).

Table 5 presents the results. According to Panel A, long-term investor ownership reduces balance sheet debt issuance by 0.48% of total assets of which 0.05% comes from short-term debt and 0.43% is attributable to long-term debt. Incremental off balance sheet debt usage also falls, by 0.34% of total assets. Equity issuance diminishes by 0.58% of total assets. The accumulation of internal funds, however, is unaffected. Overall, total financing decreases by about 1.4 percentage points. To put this decrease in financing into context, it amounts to roughly $26 million for the average firm. Furthermore, debt maturity also decreases, by 1.32 p.p. or roughly 2% relative to its mean. Panel B and Panel C show that the results are similar for long-term indexer and non-indexer ownership as well as for long-term index firm and non-index firm ownership, respectively. This supports our causal interpretation of the results. To summarize, the generalized reduction in financing caused by long-term investors along with the shorter maturity of debt suggests that firms become more exposed to financial market discipline.

Lastly, we examine the effect that long-term investors have on payouts. Accordingly, we consider both dividends and share repurchases, and we express them as a percentage of total assets. Our specification is the same as before.

[Insert Table 6 about here]

Table 6 presents the results. Panel A indicates that long-term investor ownership increases both dividends and share repurchases by 0.29% and 0.35% of total assets, respectively. Put another way, total payouts are higher by about 0.6 percentage points. For the average firm, this amounts to a rise in payouts of approximately $12 million. The results in Panel B and Panel C support our causal interpretation of these results. To summarize, the increase in payouts generated by long-term investors is consistent with managers being more carefully watched with respect to their use of corporate funds.

4. Results for Value Implications

4.1. Stock Returns

Taken as a whole, our results thus far show that, absent monitoring by long-term investors, corporate managers are more likely to engage in misbehavior ranging from earnings management to financial fraud, and they tend to invest too much, raise too much financing, and pay out too little cash to shareholders. Since the theoretical predictions for investment, financing, and payouts are unclear, we evaluate the effect of long-term investors using shareholder value. Accordingly, we now examine whether the countervailing influence of long-term investors is beneficial to shareholders. To this end, we follow the literature (e.g., Gompers, Ishii, and Metrick (2003)) and examine stock returns both in the time-series and the cross-section.

We start with the time-series stock returns analysis. We sort our firm-year observations into quintiles based on investor horizons. Investor horizons are the difference between various measures of long-term investor ownership and short-term investor ownership. These measures include not just long-term investor ownership itself but also long-term indexer and non-indexer ownership as well as long-term index firm and non-index firm ownership. Each month during the year after portfolio formation, i.e., between January 1985 and December 2012, we compute mean raw returns for portfolios formed based on quintiles of investor horizons. Finally, each month, we compute mean raw returns for the portfolio that is long the top quintile and short the bottom quintile of investor horizons.

We run a monthly time-series regression of the excess stock returns of this portfolio on the returns of the four factors. We measure excess stock returns as raw returns minus the risk-free rate. We measure all returns variables in percentages.

[Insert Table 7 about here]

Table 7 presents the results.[8] For the long-term investors portfolio, abnormal returns are 30 basis points per month, meaning that firms with long investor horizons outperform firms with short investor horizons by roughly 3.6% per year. Splitting long-term investor ownership into that of indexers and non-indexers as well as index firms and non-index firms produces similar results. Indeed, the long-term indexers portfolio has abnormal returns of 60 basis points per month while for the long-term index firms portfolio the corresponding figure is 50 basis points. This supports our causal interpretation of the results.

Additionally, we compute the information ratio to capture the return-risk tradeoff of an investor horizons trading strategy. Using monthly returns, the ratio is approximately 0.20 for the long-term investors portfolio. For the long-term indexers and non-indexers portfolios, it is 0.11 and 0.15, respectively. Similarly, for the long-term index firms and non-index firms portfolios, the corresponding figures are 0.09 and 0.22, respectively.

[Insert Figure 3 about here]

We also examine the monotonicity of our time-series results. Figure 3 shows the alphas of the four-factor model regressions for each quintile of investor horizons. The results are similar whether we consider the ownership of long-term investors, indexers and non-indexers, or index firms and non-index firms. Abnormal returns are negligible for the lowest quintile of investor horizons, and they generally increase in successively higher quintiles. For the highest quintiles, abnormal returns are about 30 basis points per month. The results also suggest that it is possible to implement a profitable trading strategy based on long-term investor ownership of firms.

[8] We examine the possibility that long-term investors reduce liquidity and thus our abnormal returns are simply compensation for lower liquidity. We control for Pastor and Stambaugh (2003)'s traded liquidity factor and find that our results are similar. We also consider the possibility that long-term investors increase profitability and so our abnormal returns capture a premium for higher profitability. When we control for Novy-Marx (2013)'s profitability factor, our results are actually stronger.

We continue with the cross-sectional stock returns analysis. We run cross-sectional regressions for each month between January 1985 and December 2012, and we compute the means and t-statistics of the resulting time-series of 336 monthly coefficient estimates. More precisely, we regress excess stock returns on long-term investor ownership. We measure excess stock returns as raw returns minus industry returns. Our specification includes institutional ownership. We also follow Brennan, Chordia, and Subrahmanyam (1998) and control for market capitalization, book-to-market, lagged returns, volume, the dividend yield, and the stock price. We standardize the investor ownership variables, so each coefficient estimate captures the change in excess stock returns in percentage points of a one-standard deviation increase in long-term investor ownership.

[Insert Table 8 about here]

Table 8 presents the results. Long-term investor ownership increases excess returns by 8 basis points per month. For long-term indexer ownership and long-term index firm ownership, the results are economically larger at 16 and 14 basis points, respectively. In other words, excess returns are higher by 1 percentage points per year, very roughly. We note that differences in the magnitude of our time-series and cross-sectional returns results are not surprising. In part, they may be due to our focus on extreme quintiles of investor horizons in our time-series analysis in contrast to our focus on a one-standard change in investor horizons in the cross-sectional analysis. The differences may also be partly due to firm characteristics in the cross-sectional analysis capturing risk that is not captured by risk factors in the time-series analysis, thereby overstating abnormal returns relative to excess returns. Overall, our results show that long-term investors lead to higher stock returns.

4.2. Profitability

We examine whether the increase in shareholder value generated by long-term investors is the result of unexpectedly higher profitability. We begin with realizations of profitability. Specifically, we look at earnings as well as sales and costs. We do so because we are interested in whether firms boost earnings by selling more products and services at higher prices or by cutting costs instead. We express these variables as a percentage of total assets. We use the same specification as in Table 4, so each coefficient estimate captures the effect of a one-standard deviation change in long-term investor ownership.

[Insert Table 9 about here]

Table 9 present the results in the first three columns of each panel. Panel A shows that long-term investor ownership increases earnings by 0.49% of total assets or by roughly $9 million for the average firm. Both sales and costs rise, but the former increases by more than the latter, so the net effect is higher earnings for firms with greater long-term investor ownership. Panel B and Panel C show similar results for long-term indexers and index firms, respectively, which validates our causal interpretation.

Next, we look at whether stock market participants correctly anticipate the increase in profitability caused by long-term investors. To this end, we use analysts' earnings forecast errors as well as stock returns around earnings announcements. We regress our measures of earnings surprises on long-term investor ownership and control for institutional ownership. We follow the literature (e.g., Core, Guay, and Rusticus (2006)) and also control for market capitalization and book-to-market (both in natural logarithms). Additionally, we include industry-year fixed effects. As before, we multiple the dependent variables by 100 and standardize the independent variables.

The results are presented in the last two columns of each panel in Table 9. Panel A shows that stock market participants are positively surprised by the profitability of firms with greater long-term investor ownership. Both earnings forecast errors and earnings announcement returns are higher, by 0.07% and 0.11%, respectively. These profitability surprises also manifest themselves for long-term indexers and index firms (Panel B and Panel C, respectively). This validates our causal interpretation of the results. In other words, stock market participants initially underestimate the increase in profitability caused by long-term investors, which leads to undervaluation. As market participants eventually raise their estimates of profitability, stock prices rise, thus generating higher stock returns for firms with longer investor horizons.

4.3. Risk

Finally, we examine whether the increase in shareholder value generated by long-term investors is the result of unexpectedly lower risk. If market participants initially underestimate the reduction in risk caused by long-term investors, then as they eventually lower their risk estimates, stock prices rise and generate higher stock returns. Like for profitability, we look at the volatility of earnings as well as sales and costs. Our definition of the volatility of profitability follows the literature (e.g., Minton and Schrand (1999) and Rountree, Weston, and Allayanis (2008)). Specifically, we measure the volatility of profitability as the coefficient of variation of quarterly earnings per share. We also look at the volatility of stock returns because it should at least partly capture cash flow risk. We use the same specification as in Table 4. As a consequence, each coefficient estimate captures the effect of a one-standard deviation change in long-term investor ownership.

[Insert Table 10 about here]

Table 10 presents the results. Panel A shows that long-term investor ownership reduces the volatility of earnings by 3.9%. Sales and costs also become less volatile by 4.5% and 4.8%, respectively. Moreover, this decrease in cash flow risk manifests itself in lower stock return volatility, which falls by 2.7%. We find generally similar results for long-term indexer and non-indexer ownership (Panel B) as well as for long-term index firm and non-index firm ownership (Panel C). Therefore, our interpretation is that long-term investors reduce the volatility of both profitability and stock returns.

In a closely related analysis, we return to our point of departure and look at extreme stock returns as well as covenant violations, defaults, and bankruptcies. The decrease in the occurrence of managerial misbehaviors should show up in a lower incidence of devastating corporate news (e.g., the revelation of accounting misconduct). As a result, we should see fewer extreme negative stock returns for the firm's owners and adverse credit events for its creditors. Moreover, Cella, Ellul, and Giannetti (2013) provide evidence that long-term investors soften the blow of negative systematic shocks to the stock prices of firms that they own. More generally, the presence of long-term investors should alter the profile of corporate news and stock returns away from the very negative and toward the very positive.

Motivated by these arguments, we repeat our preceding analysis for extreme stock returns and credit events. We capture extreme stock returns using two popular measures from the literature. In particular, we use the negative skewness of returns (Chen, Hong, and Stein (2001)) as well as stock price plunges and surges (Hutton, Marcus, and Tehranian (2009)). We estimate extreme negative and positive returns as dummy variables that equal one if weekly stock returns are three standard deviations below or above their mean, respectively, during at least one week of the year.

To capture credit events, we use covenant violations, defaults, and bankruptcies. These variables equal one if they occur for a firm following a given year and zero otherwise. For covenant violations, we use our customary horizon of one year because these events occur frequently and they usually lead to renegotiation rather than default or bankruptcy (Roberts and Sufi (2009)). By contrast, defaults and bankruptcies are rare events and they are generally irreversible. However, they can take years to occur, so we use a horizon of three years for these events. Nevertheless, our findings are similar over horizons of one, two, and three years.

[Insert Table 11 about here]

Table 11 presents the results. Panel A shows that long-term investor ownership reduces the negative skewness of stock returns as well as extreme stock returns. The incidence of stock price plunges decreases by 1.60% or about 8% relative to its mean. For stock price surges, the corresponding figures are an increase of 2.05% or roughly 7%, respectively. The rate of credit events is also lower. The rate of covenant violations is 0.58 percentage points lower or approximately 10% less than its mean. The default rate is 0.46 p.p. lower or about 40% less relative to its mean while the bankruptcy rate is 0.53 p.p. lower or roughly 20% less compared to its mean. (Although default and bankruptcy can occur at the same time, neither one necessarily implies the other.)

Additionally, we look at whether firms are more likely to be acquired. Firms that perform poorly usually become takeover targets. Conversely, firms that are well run, owing to monitoring by long-term investors, for instance, are unlikely to become takeover targets. This is indeed what we find: firms with greater long-term investor ownership are roughly 20% less likely to become takeover targets during the next three years (not tabulated). Long-term investors thus have the opposite effect of hedge funds with respect to acquisitions: firms targeted by hedge funds with

activist intentions are likely to be acquired (Greenwood and Schor (2009)). The lower likelihood of being taken over together with the lower likelihood of going bankrupt suggests that long-term investors increase the firm's survival. This is consistent with the superior stock and operating performance that we also document.

Panel B and Panel C show results for extreme stock returns that are somewhat weaker but broadly comparable for long-term indexers and non-indexers as well as for long-term index firms and non-index firms. For credit events, Panel B and Panel C show results that, on the whole, are stronger than the results in Panel A. The results are also similar for takeovers (not tabulated). This provides support for interpreting our results causally. Taken together, our results indicate that long-term investors mitigate the occurrence of devastating corporate outcomes and they thereby reduce risk.

4.4. Real Diversification

To better understand how this reduction in risk is achieved, we examine real diversification. In frictionless markets, diversification should not affect shareholder value, but in the presence of market frictions, diversification can create value by lowering financial distress costs. We examine whether long-term investors encourage diversification instead of concentration. Specifically, we compute the Herfindahl-Hirschman index of the firm's segment sales relative to the firm's total sales for business, industry, and geographic segments. These variables capture process diversification. We also capture global diversification using a dummy variable that equals one if the firm has foreign operations and zero otherwise. Finally, we compute the HHI of the firm's major customers and key products in order to capture output diversification. The specification we use is the same as in Table 4. Accordingly, each coefficient estimate captures the effect of a one-standard deviation change in long-term investor ownership.

[Insert Table 12 about here]

Table 12 presents the results using the Herfindahl-Hirschman index as our measure of concentration. The results using the number of segments are similar (not tabulated). Panel A shows that long-term investor ownership increases diversification across the board. Business segment concentration is 2.8 percentage points lower or about 3% relative to its mean. For industry segment concentration, the corresponding figures are 1.2 p.p. and roughly 1.5%.

Similarly, geographic segment concentration is 0.56 percentage points lower or roughly 1% compared to its mean, and the prevalence of foreign operations is 2.8 p.p. higher or about 8%. Finally, customer concentration is lower, by 0.61 p.p. or roughly 15% relative to its mean, as is product concentration, by 1.9 p.p. or about 4%. The results in Panel B (long-term indexer and non-indexer ownership) and Panel C (long-term index firm and non-index firm ownership) are similar, which lends support to our causal interpretation of the results. Overall, our results indicate that long-term investors encourage managers to reduce risk by diversifying their firms along business, industry, and geographic lines as well as customers and products.

5. Conclusion

We examine whether long-term investors improve corporate decision making. Our argument is that these investors have the means and motive to better monitor corporate managers. As a result, managers are induced to make corporate policy choices that increase shareholder value.

Our first finding is that long-term investors strengthen corporate governance and restrain managerial misbehaviors. We also find they cause a decrease in various types of investment activity as well as external financing, but they lead to an increase in payouts to shareholders. As a consequence of these corporate policies, shareholders earn higher returns on their investment as

a result of both unexpectedly higher profitability and lower risk. We adopt a recent but widespread identification strategy to establish causality of our results. Our overarching conclusion is that long-term investors lead to a range of managerial behaviors that increase shareholder value.

References

Admati, Anat R., and Paul Pfleiderer, 2009, The "Wall Street Walk" and shareholder activism: Exit as a form of voice, *Review of Financial Studies* 22, 2445-2485.

Aggarwal, Rajesh K., Andrew A. Samwick, 2003, Why do managers diversify their firms? Agency reconsidered, *Journal of Finance* 58, 71-118.

Allen, Jeffrey W., and John J. McConnell, 1998, Equity carve-outs and managerial discretion, *Journal of Finance* 53, 163-186.

Amihud, Yakov, and Baruch Lev, 1981, Risk reduction as a motive for conglomerate mergers, *Bell Journal of Economics* 12, 605-617.

Appel, Ian R., Todd A. Gormley, and Donald B. Keim, 2014, Passive investors, not passive owners, working paper.

Asker, John, Joan Farre-Mensa, and Alexander Ljungqvist, 2015, Corporate investment and stock market listing: A puzzle?, *Review of Financial Studies* 28, 342-390.

Barclay, Michael J., and Clifford G. Holderness, 1991, Negotiated block trades and corporate control, *Journal of Finance* 46, 861-878.

Bauer, Rob, Frank Moers, and Michael Viehs, 2012, The determinants of withdrawn shareholder proposals, working paper.

Baumol, William J., 1959, *Business Behavior, Value and Growth* (Macmillan, New York).

Bebchuk, Lucian A., Yaniv Grinstein, and Urs Peyer, 2010, Lucky CEOs and lucky directors, *Journal of Finance* 65, 2363-2401.

Bebchuk, Lucian Arye, and Lars A. Stole, 1993, Do short-term objectives lead to under- or overinvestment in long-term projects, *Journal of Finance* 48, 719-729.

Berger, Philip G., and Eli Ofek, 1995, Diversification's effect on firm value, *Journal of Financial Economics* 37, 39-65.

Berle, Adolf, and Gardiner Means, 1932, *The Modern Corporation and Private Property* (MacMillan, New York).

Bertrand, Marianne, Sendhil Mullainathan, 2003, Enjoying the quiet life? Corporate governance and managerial preferences, *Journal of Political Economy* 111, 1043-1075.

Bethel, Jennifer, Julia Liebeskind, and Tim Opler, 1998, Block share purchases and corporate performance, *Journal of Finance* 53, 605-634.

Beyer, Anne, David F. Larcker, and Brian Tayan, 2014, *Study on How Investment Horizon and Expectations of Shareholder Base Impact Corporate Decision-Making*, National Investor Relations Institute and The Rock Center for Corporate Governance.

Brav, Alon, Wei Jiang, Frank Partnoy, and Randall Thomas, 2008, Hedge fund activism, corporate governance, and firm performance, *Journal of Finance* 63, 1729-1775.

Brennan, Michael J., Tarun Chordia, and Avanidhar Subrahmanyam, 1998, Alternative factor specifications, security characteristics, and the cross-section of expected returns, *Journal of Financial Economics* 49, 345-373.

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

Bushee, Brian J., and Gregory S. Miller, 2012, Investor relations, firm visibility, and investor following, *Accounting Review* 87, 867-897.

Carleton, Willard T., James M. Nelson, and Michael S. Weisbach, 1998, The influence of institutions on corporate governance through private negotiations: Evidence from TIAA-CREF, *Journal of Finance* 53, 1335-1362.

Cella, Cristina, Andrew Ellul, and Mariassunta Giannetti, 2013, Investors' horizons and the amplification of market shocks, *Review of Financial Studies* 26, 1607-1648.

Chen, Joseph, Harrison Hong, and Jeremy C. Stein, 2001, Forecasting crashes: Trading volume, past returns, and conditional skewness in stock prices, *Journal of Financial Economics* 61, 345-381.

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

Christoffersen, Susan E. K., Christopher C. Geczy, David K. Musto, and Adam V. Reed, 2007, Vote trading and information aggregation, *Journal of Finance* 62, 2897-2929.

Crane, Alan D., Sébastien Michenaud, and James P. Weston, 2014, The effect of institutional ownership on payout policy: Evidence from index thresholds, working paper.

Cremers, K. J. Martijn, and Antti Petajisto, 2009, How active is your fund manager? A new measure that predicts performance, *Review of Financial Studies* 22, 3329-3365.

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

Dechow, Patricia M., Richard G. Sloan, and Amy P. Sweeney, 1996, Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC, *Contemporary Accounting Research* 13, 1-36.

Dechow, Patricia M., Weili Ge, Chad R. Larson, Richard G. Sloan, 2011, Predicting material accounting misstatements, *Contemporary Accounting Research* 28, 17-82.

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

Del Guercio, Diane, Laura Seery, and Tracie Woidtke, 2008, Do boards pay attention when institutional investor activists "just vote no"?, *Journal of Financial Economics* 90, 84-103.

Denis, David J., 1990, Defensive changes in corporate payout policy: Share repurchases and special dividends, *Journal of Finance* 45, 1433-1456.

Denis, David J., Diane K. Denis, and Keven Yost, 2002, Global diversification, industrial diversification, and firm value, *Journal of Finance* 57, 1951-1979.

Derrien, François, Ambrus Kecskés, and David Thesmar, 2013, Investor horizons and corporate policies, *Journal of Financial and Quantitative Analysis* 48, 1755-1780.

Drucker, Peter, 1986, A crisis of capitalism, *The Wall Street Journal*, September 30, 32.

Edmans, Alex, 2009, Blockholder trading, market efficiency, and managerial myopia, *Journal of Finance* 64, 2481-2513.

Eisfeldt, Andrea L., and Adriano A. Rampini, 2009, Leasing, ability to repossess, and debt capacity, *Review of Financial Studies* 22, 1621-1657.

Ertimur, Yonca, Fabrizio Ferri, and Volkan Muslu, 2011, Shareholder activism and CEO pay, *Review of Financial Studies* 24, 535-592.

Froot, Kenneth A., Andre F. Perold, and Jeremy C. Stein, 1992, Shareholder trading practices and corporate investment horizons, *Journal of Applied Corporate Finance* Summer, 42-58.

Gao, Huasheng, Jarrad Harford, and Kai Li, 2014, Investor horizon and CEO turnover-performance sensitivity, working paper.

Gao, Huasheng, Po-Hsuan Hsu, and Kai Li, 2014, Managerial short-termism and corporate innovation strategies, working paper.

Gaspar, José-Miguel, Massimo Massa, and Pedro Matos, 2005, Shareholder investment horizons and the market for corporate control, *Journal of Financial Economics* 76, 135-165.

Gaspar, José-Miguel, Massimo Massa, Pedro Matos, Rajdeep Patgiri, and Zahid Rehman, 2012, Payout policy choices and shareholder investment horizons, *Review of Finance* 17, 261-320.

Gillan, Stuart L., and Laura T. Starks, 2000, Corporate governance proposals and shareholder activism: The role of institutional investors, *Journal of Financial Economics* 57, 275-305.

Giroud, Xavier, and Holger M. Mueller, 2010, Does corporate governance matter in competitive industries?, *Journal of Financial Economics* 95, 312-331.

Gompers, Paul, Joy Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118, 107-155.

Gormley, Todd A., and David A. Matsa, 2014, Common errors: How to (and not to) control for unobserved heterogeneity, *Review of Financial Studies* 27, 617-661.

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

Greenwood, Robin, and Michael Schor, 2009, Investor activism and takeovers, *Journal of Financial Economics* 92, 362-375.

Grossman, Sanford J., and Oliver D. Hart, 1980, Takeover bids, the free-rider problem, and the theory of the corporation, *Bell Journal of Economics* 11, 42-54.

Grossman, Sanford J., and Oliver Hart, 1983, An analysis of the principal-agent problem, *Econometrica* 51, 7-46.

Hann, Rebecca N., Maria Ogneva, and Oguzhan Ozbas, 2013, Corporate diversification and the cost of capital, *Journal of Finance* 68, 1961-1999.

Harford, Jarrad, 1999, Corporate cash reserves and acquisitions, *Journal of Finance* 54, 1969-1997.

Harford, Jarrad, Dirk Jenter, and Kai Li, 2011, Institutional cross-holdings and their effect on acquisition decisions, *Journal of Financial Economics* 99, 27-39.

Heron, Randall A., and Erik Lie, 2007, Does backdating explain the stock price pattern around executive stock option grants?, *Journal of Financial Economics* 83, 271-295.

Holderness, Clifford G., and Dennis P. Sheehan, 1985, Raiders or saviors? The evidence on six controversial investors, *Journal of Financial Economics* 14, 555-579.

Holmström, Bengt, 1979, Moral hazard and observability, *Bell Journal of Economics* 10, 74-91.

Hutton, Amy P., Alan J. Marcus, and Hassan Tehranian, 2009, Opaque financial reports, R^2, and crash risk, *Journal of Financial Economics* 94, 67-86.

Jensen, Michael C., and William H. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, 305-360.

Karolyi, G. Andrew, and Rose C. Liao, 2015, The economic consequences of investor relations: A global perspective, working paper.

Karpoff, Jonathan M., D. Scott Lee, and Gerald S. Martin, 2008, The cost to firms of cooking the books, *Journal of Financial and Quantitative Analysis* 43, 581-612.

Kecskés, Ambrus, Sattar Mansi, and Phuong-Anh Nguyen, 2014, Does corporate investment in stakeholder capital create value for shareholders? The importance of long-term investors, working paper.

Klein, April, and Emanuel Zur, 2009, Entrepreneurial shareholder activism: Hedge funds and other private investors, *Journal of Finance* 64, 187-229.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, 2000, Agency problems and dividend policies around the world, *Journal of Finance* 55, 1-33.

Lang, Larry H. P., and René M. Stulz, 1994, Tobin's q, corporate diversification, and firm performance, *Journal of Political Economy* 102, 1248-1280.

Lang, Larry H. P., Annette B. Poulsen, and René M. Stulz, 1995, Asset sales, firm performance, and the agency costs of managerial discretion, *Journal of Financial Economics* 37, 3-37.

Lewellen, Wilbur G., 1971, A pure financial rationale for the conglomerate merger, *Journal of Finance* 26, 527-537.

Lie, Erik, 2005, On the timing of CEO stock option awards, *Management Science* 51, 802-812.

Low, Angie, 2009, Managerial risk-taking behavior and equity-based compensation, *Journal of Financial Economics* 92, 470-490.

Mansi, Sattar A., and David M. Reeb, 2002, Corporate diversification: What gets discounted?, *Journal of Finance* 57, 2167-2183.

Matvos, Gregor, and Michael Ostrovsky, 2010, Heterogeneity and peer effects in mutual fund proxy voting, *Journal of Financial Economics* 98, 90-112.

Michaely, Roni, and Christopher Vincent, 2013, Do institutional investors influence capital structure decisions?, working paper.

Minton, Bernadette A., and Catherine Schrand, 1999, The impact of cash flow volatility on discretionary investment and the costs of debt and equity financing, *Journal of Financial Economics* 54, 423-460.

Monks, Robert A. G., and Nell Minow, 1995, *Corporate Governance* (Blackwell, Cambridge, Massachusetts).

Morck, Randall, Andrei Shleifer, and Robert W. Vishny, 1990, Do managerial objectives drive bad acquisitions?, *Journal of Finance* 45, 31-48.

Mullins, William, 2014, The governance impact of index funds: Evidence from regression discontinuity, working paper.

Narayanan, M. P., and H. Nejat Seyhun, 2008, The dating game: Do managers designate option grant dates to increase their compensation?, *Review of Financial Studies* 21, 1907-1955.

Novy-Marx, Robert, 2013, The other side of value: The gross profitability premium, *Journal of Financial Economics* 108, 1-28.

Pastor, Lubos, Robert F. Stambaugh, 2003, Liquidity risk and expected stock returns, *Journal of Political Economy* 111, 642-685.

Porter, Michael E., 1992, *Capital Choices: Changing the Way America Invests in Industry* (Council on Competitiveness/Harvard Business School, Boston).

Rampini, Adriano A., S. Viswanathan, 2013, Collateral and capital structure, *Journal of Financial Economics* 109, 466-492.

Roberts, Michael R., and Amir Sufi, 2009, Control rights and capital structure: An empirical investigation, *Journal of Finance* 64, 1657-1695.

Rountree, Brian, James P. Weston, and George Allayanis, 2008, Do investors value smooth performance?, *Journal of Financial Economics* 90, 237-251.

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

Stein, Jeremy C., 1988, Takeover threats and managerial myopia, *Journal of Political Economy* 96, 61-80.

Stulz, René M., 1990, Managerial discretion and optimal financing policies, *Journal of Financial Economics* 26, 3-27.

The Economist, 2013, Company accounts: The lease bad solution, November 16.

Williamson, Oliver E., 1964, *The Economics of Discretionary Behavior* (Prentice-Hall, Englewood Cliffs, New Jersey).

Yermack, David, 1997, Good timing: CEO stock option awards and company news announcements, *Journal of Finance* 52, 449-476.

Table 1
Descriptive Statistics

This table presents descriptive statistics for investor ownership variables and all dependent variables. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. With the exception of excess stock returns, all variables are defined in Appendix Table 1. Excess stock returns are raw returns minus market returns, and they are annualized. All variables are multiplied by 100.

	Mean	Standard deviation	25th percentile	Median	75th percentile
Investor ownership variables					
- Long-term investor ownership	13.6	13.0	3.0	9.4	21.3
- Long-term indexer ownership	4.9	5.3	1.0	2.8	7.0
- Long-term non-indexer ownership	8.7	9.2	1.3	5.7	13.2
- Long-term index firm ownership	2.7	8.6	0.0	0.0	0.0
- Long-term non-index firm ownership	10.8	12.2	1.0	6.4	16.3
- Institutional ownership	38.0	29.3	11.4	33.5	61.4
Corporate governance variables					
- Shareholder proposals	22.8	85.6	0.0	0.0	0.0
- Board independence	68.5	17.9	57.1	71.4	83.3
- Board attendance	98.5	4.3	100.0	100.0	100.0
- Board experience	83.6	57.2	40.0	75.0	120.0
- Executive turnover	11.7	32.1	0.0	0.0	0.0
Managerial misbehavior variables					
- Earnings management	8.6	10.4	2.2	5.2	10.7
- Accounting misconduct	1.2	10.9	0.0	0.0	0.0
- Financial fraud	4.9	21.5	0.0	0.0	0.0
- Option backdating	14.6	35.3	0.0	0.0	0.0
Investment variables					
- Capital expenditures	6.0	6.4	1.9	4.0	7.6
- Research and development expenditures	5.0	10.2	0.0	0.0	5.4
- Acquisitions expenditures	2.1	5.7	0.0	0.0	0.6
- Change in trade credit	-0.9	18.8	-4.9	0.5	6.3
- Change in inventory	0.3	5.8	-0.5	0.0	2.0
Financing variables					
- Change in short-term debt	0.0	3.9	0.0	0.0	0.0
- Change in long-term debt	1.0	9.1	-1.6	0.0	1.6
- Debt maturity	70.4	32.5	52.7	84.1	96.5
- Change in off balance sheet debt	0.6	4.9	-0.5	0.0	1.3
- Change in equity	4.0	11.5	0.0	0.3	1.6
- Internal financing	0.0	11.0	-2.3	0.1	3.0
Payout variables					
- Dividends	0.7	1.5	0.0	0.0	0.8
- Share repurchases	1.4	3.7	0.0	0.0	0.6
Excess stock returns	2.1	58.2	-29.2	0.3	29.9

Profitability variables					
- Earnings	-4.5	26.1	-5.0	2.9	7.3
- Sales	121.4	82.2	65.0	107.7	158.1
- Costs	115.6	80.9	60.0	99.0	149.2
- Earnings forecast errors	0.8	3.7	-0.1	0.0	0.3
- Earnings announcement returns	0.2	4.8	-2.4	0.1	2.6
Volatility variables					
- Earnings	319.2	750.4	48.3	112.1	255.7
- Sales	27.2	29.3	11.2	17.7	30.2
- Costs	24.7	23.1	10.7	17.1	29.9
- Stock returns	59.5	38.3	32.6	49.1	74.2
Extreme stock returns and credit event var.s					
- Negative skewness	-11.1	119.8	-59.7	-18.2	20.9
- Extreme negative returns	19.7	39.8	0.0	0.0	0.0
- Extreme positive returns	28.6	45.2	0.0	0.0	100.0
- Covenant violations	5.9	23.6	0.0	0.0	0.0
- Default	1.1	10.5	0.0	0.0	0.0
- Bankruptcy	2.8	16.5	0.0	0.0	0.0
Real diversification variables					
- Business concentration	82.7	24.6	60.4	100.0	100.0
- Industry concentration	90.8	18.0	96.1	100.0	100.0
- Geographic concentration	82.0	23.9	61.7	100.0	100.0
- Foreign operations	36.0	48.0	0.0	0.0	100.0
- Customer concentration	4.0	11.3	0.0	0.0	1.0
- Product concentration	45.5	27.1	25.0	44.3	64.2

Table 2
The Effect of Investor Horizons on Corporate Governance

This table presents the results of regressions of corporate governance on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. The dependent variables are expressed as follows. The shareholder proposals and board experience variables are expressed as the natural logarithm of one plus the variable. Board independence and board experience are expressed as a fraction. Executive turnover is a dummy variable that equals one if it occurs in a given firm-year and zero otherwise. The dependent variables are multiplied by 100. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is governance (t)				
	Shareholder proposals	Board independence	Board attendance	Board experience	Executive turnover
Long-term investor ownership (t-1)	3.50***	1.36***	0.16**	2.03***	0.87**
	(10.66)	(6.02)	(2.51)	(4.68)	(2.20)
Institutional ownership (t-1)	-7.61***	4.39***	-0.02	0.98*	-1.62***
	(-16.76)	(13.87)	(-0.20)	(1.68)	(-3.48)
ln(Total assets) (t-1)	20.52***	3.39***	-0.29***	20.70***	1.41***
	(31.05)	(17.58)	(-5.23)	(60.79)	(3.80)
Market-to-book (t-1)	2.15***	0.57***	-0.07	3.15***	-0.06
	(10.15)	(4.65)	(-1.61)	(15.06)	(-0.24)
Cash flow-to-total assets (t-1)	-1.59***	-0.64**	0.12	-3.44***	-3.51***
	(-5.63)	(-2.20)	(1.64)	(-6.02)	(-6.50)
Stock returns (t-1)	-0.64***	-0.70***	-0.01	-0.69*	-3.01***
	(-3.00)	(-3.79)	(-0.10)	(-1.91)	(-7.52)
Volatility (t-1)	-0.76*	-0.55*	-0.16*	-0.29	2.58***
	(-1.95)	(-1.82)	(-1.92)	(-0.50)	(4.19)
Industry-year fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	28,632	19,233	19,233	17,070	23,172
Adjusted R^2	0.239	0.301	0.035	0.279	0.015

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership					
	Dependent variable is governance (t)				
	Shareholder proposals	Board independence	Board attendance	Board experience	Executive turnover
Long-term indexer ownership (t-1)	6.18***	2.88***	0.23***	4.38***	0.33
	(13.35)	(11.45)	(3.70)	(10.12)	(0.86)
Long-term non-indexer ownership (t-1)	1.10***	0.45***	0.07	0.49	0.64**
	(4.70)	(2.73)	(1.42)	(1.56)	(2.12)
Other control variables?	Yes	Yes	Yes	Yes	Yes
Observations	28,632	19,233	19,233	17,070	23,172
Adjusted R^2	0.247	0.307	0.035	0.284	0.015
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership					
	Dependent variable is governance (t)				
	Shareholder proposals	Board independence	Board attendance	Board experience	Executive turnover
Long-term index firm ownership (t-1)	7.28***	1.63***	0.16***	2.65***	0.79**
	(22.16)	(10.09)	(3.22)	(7.99)	(2.52)
Long-term non-index firm ownership (t-1)	0.61**	0.84***	0.12*	1.09**	0.73*
	(2.24)	(3.56)	(1.94)	(2.52)	(1.92)
Other control variables?	Yes	Yes	Yes	Yes	Yes
Observations	28,632	19,233	19,233	17,070	23,172
Adjusted R^2	0.284	0.306	0.035	0.284	0.015

Table 3
The Effect of Investor Horizons on Managerial Misbehaviors

This table presents the results of regressions of managerial misbehaviors on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. The dependent variables are expressed as follows. Earnings management is discretionary accruals as a percentage of total assets. Accounting misconduct, financial fraud, and option backdating are dummy variables that equal one if they occur in a given firm-year and zero otherwise. The dependent variables are multiplied by 100. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is misbehavior (t)			
	Earnings management	Accounting misconduct	Financial fraud	Option backdating
Long-term investor ownership (t-1)	-0.28***	-0.33***	-1.62***	-1.45**
	(-4.18)	(-4.22)	(-9.54)	(-2.33)
Institutional ownership (t-1)	-0.33***	0.54***	2.08***	1.82***
	(-4.90)	(6.08)	(9.72)	(2.64)
ln(Total assets) (t-1)	-1.11***	0.51***	2.66***	-2.30***
	(-12.11)	(5.83)	(13.17)	(-3.82)
Market-to-book (t-1)	1.03***	0.19***	1.71***	-0.27
	(16.12)	(4.26)	(14.02)	(-0.70)
Cash flow-to-total assets (t-1)	-1.17***	-0.01	-0.15	0.14
	(-14.81)	(-0.14)	(-1.25)	(0.33)
Stock returns (t-1)	-0.04	0.17***	0.76***	-0.11
	(-0.50)	(3.23)	(6.51)	(-0.23)
Volatility (t-1)	1.27***	0.04	0.75***	1.11*
	(14.84)	(0.85)	(6.58)	(1.74)
Industry-year fixed effects?	Yes	Yes	Yes	Yes
Observations	80,351	85,752	59,866	10,274
Adjusted R^2	0.145	0.009	0.037	0.014

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership				
	Dependent variable is misbehavior (t)			
	Earnings management	Accounting misconduct	Financial fraud	Option backdating
Long-term indexer ownership (t-1)	0.01	-0.28***	-0.62***	-1.25*
	(0.22)	(-4.57)	(-3.51)	(-1.95)
Long-term non-indexer ownership (t-1)	-0.24***	-0.01	-1.14***	-0.76
	(-5.04)	(-0.06)	(-9.02)	(-1.57)
Other control variables?	Yes	Yes	Yes	Yes
Observations	80,351	85,752	59,866	10,274
Adjusted R^2	0.145	0.009	0.037	0.014
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership				
	Dependent variable is misbehavior (t)			
	Earnings management	Accounting misconduct	Financial fraud	Option backdating
Long-term index firm ownership (t-1)	-0.14**	-0.09	-0.92***	-1.30***
	(-2.40)	(-1.17)	(-5.62)	(-2.62)
Long-term non-index firm ownership (t-1)	-0.29***	-0.37***	-1.62***	-1.23*
	(-4.73)	(-5.12)	(-10.19)	(-1.96)
Other control variables?	Yes	Yes	Yes	Yes
Observations	80,351	85,752	59,866	10,274
Adjusted R^2	0.145	0.009	0.037	0.014

Table 4
The Effect of Investor Horizons on Investment

This table presents the results of regressions of investment on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. The dependent variables are expressed as a percentage of total assets. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is investment (t)				
	Capital expenditures	Res. and dev. expenditures	Acquisitions expenditures	Change in trade credit	Change in inventory
Long-term investor ownership (t-1)	-0.41***	-0.51***	-0.26***	-0.49***	-0.33***
	(-9.84)	(-7.18)	(-5.86)	(-4.08)	(-8.87)
Institutional ownership (t-1)	0.43***	1.23***	0.76***	1.30***	0.44***
	(8.25)	(14.94)	(15.18)	(10.49)	(11.82)
ln(Total assets) (t-1)	-0.20***	-1.22***	-0.15***	-0.70***	-0.53***
	(-4.33)	(-15.90)	(-4.40)	(-6.76)	(-14.42)
Market-to-book (t-1)	0.49***	1.05***	-0.02	1.21***	0.16***
	(16.20)	(19.05)	(-1.24)	(10.37)	(5.86)
Cash flow-to-total assets (t-1)	0.82***	-4.24***	0.39***	3.50***	0.57***
	(15.99)	(-17.89)	(14.85)	(14.92)	(11.78)
Stock returns (t-1)	0.23***	0.06	0.25***	3.15***	0.94***
	(7.62)	(0.84)	(10.17)	(25.19)	(19.79)
Volatility (t-1)	-0.31***	-0.06	-0.29***	-1.32***	-0.81***
	(-9.14)	(-0.70)	(-10.37)	(-9.85)	(-17.92)
Industry-year fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	90,564	90,564	90,564	90,564	90,564
Adjusted R^2	0.272	0.420	0.048	0.107	0.099

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership					
	Dependent variable is investment (t)				
	Capital expenditures	Res. and dev. expenditures	Acquisitions expenditures	Change in trade credit	Change in inventory
Long-term indexer ownership (t-1)	-0.30***	-0.30***	-0.01	-0.48***	-0.15***
	(-8.11)	(-3.54)	(-0.19)	(-3.85)	(-3.99)
Long-term non-indexer ownership (t-1)	-0.24***	-0.55***	-0.22***	-0.24***	-0.24***
	(-7.69)	(-10.14)	(-6.65)	(-2.75)	(-8.46)
Other control variables?	Yes	Yes	Yes	Yes	Yes
Observations	90,564	90,564	90,564	90,564	90,564
Adjusted R^2	0.272	0.421	0.048	0.107	0.099
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership					
	Dependent variable is investment (t)				
	Capital expenditures	Res. and dev. expenditures	Acquisitions expenditures	Change in trade credit	Change in inventory
Long-term index firm ownership (t-1)	-0.35***	0.03	-0.30***	-0.45***	-0.19***
	(-10.63)	(0.56)	(-8.49)	(-4.83)	(-7.20)
Long-term non-index firm ownership (t-1)	-0.36***	-0.64***	-0.19***	-0.41***	-0.34***
	(-8.99)	(-9.17)	(-4.27)	(-3.46)	(-9.02)
Other control variables?	Yes	Yes	Yes	Yes	Yes
Observations	90,564	90,564	90,564	90,564	90,564
Adjusted R^2	0.272	0.421	0.048	0.107	0.099

Table 5
The Effect of Investor Horizons on Financing

This table presents the results of regressions of financing on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. The dependent variables are expressed as a percentage of total assets except for debt maturity. Debt maturity is long-term debt expressed as a percentage of total debt. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is financing (t)					
	Change in short-term debt	Change in long-term debt	Debt maturity	Change in off balance sheet debt	Change in equity	Internal financing
Long-term investor ownership (t-1)	-0.05**	-0.43***	-1.32***	-0.34***	-0.58***	-0.01
	(-2.13)	(-6.99)	(-5.44)	(-10.61)	(-8.34)	(-0.15)
Institutional ownership (t-1)	0.02	0.62***	3.74***	0.49***	0.85***	0.37***
	(0.75)	(9.35)	(14.87)	(14.38)	(10.75)	(5.08)
ln(Total assets) (t-1)	-0.08***	-0.25***	5.85***	-0.43***	-1.55***	-0.18**
	(-3.92)	(-4.82)	(28.52)	(-15.88)	(-19.89)	(-2.49)
Market-to-book (t-1)	0.01	0.39***	-0.41***	0.29***	2.19***	0.47***
	(0.72)	(9.58)	(-2.98)	(10.27)	(29.20)	(7.16)
Cash flow-to-total assets (t-1)	0.03*	-0.03	1.25***	0.68***	-4.74***	1.44***
	(1.67)	(-0.66)	(6.21)	(13.03)	(-20.20)	(10.12)
Stock returns (t-1)	0.04**	0.38***	1.17***	0.38***	1.77***	0.88***
	(2.28)	(8.53)	(7.10)	(15.38)	(18.15)	(13.59)
Volatility (t-1)	-0.08***	-0.63***	-2.61***	-0.43***	-0.66***	-0.27***
	(-3.37)	(-12.92)	(-14.87)	(-12.83)	(-9.04)	(-3.41)
Industry-year fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90,564	90,564	77,445	90,564	90,564	90,564
Adjusted R^2	0.004	0.035	0.141	0.104	0.297	0.034

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership						
	Dependent variable is financing (t)					
	Change in short-term debt	Change in long-term debt	Debt maturity	Change in off balance sheet debt	Change in equity	Internal financing
Long-term indexer ownership (t-1)	-0.06***	-0.06	-0.35	-0.16***	-0.54***	-0.02
	(-2.99)	(-0.94)	(-1.47)	(-5.27)	(-9.97)	(-0.25)
Long-term non-indexer ownership (t-1)	-0.02	-0.36***	-0.98***	-0.23***	0.06	0.01
	(-1.11)	(-7.61)	(-5.06)	(-10.03)	(0.89)	(0.17)
Other control variables?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90,564	90,564	77,445	90,564	90,564	90,564
Adjusted R^2	0.005	0.035	0.141	0.104	0.297	0.034
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership						
	Dependent variable is financing (t)					
	Change in short-term debt	Change in long-term debt	Debt maturity	Change in off balance sheet debt	Change in equity	Internal financing
Long-term index firm ownership (t-1)	-0.01	-0.30***	-3.26***	-0.26***	-0.12**	-0.06
	(-0.75)	(-5.95)	(-17.72)	(-11.16)	(-2.35)	(-1.15)
Long-term non-index firm ownership (t-1)	-0.05**	-0.41***	-0.06	-0.31***	-0.69***	0.02
	(-2.43)	(-6.89)	(-0.24)	(-9.99)	(-10.23)	(0.33)
Other control variables?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90,564	90,564	77,445	90,564	90,564	90,564
Adjusted R^2	0.004	0.035	0.148	0.104	0.298	0.034

Table 6
The Effect of Investor Horizons on Payouts

This table presents the results of regressions of payouts on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. The dependent variables are expressed as a percentage of total assets. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is payouts (t)	
	Dividends	Share repurchases
Long-term investor ownership (t-1)	0.29***	0.35***
	(18.85)	(10.70)
Institutional ownership (t-1)	-0.38***	0.08***
	(-24.68)	(2.69)
ln(Total assets) (t-1)	0.26***	0.16***
	(15.95)	(6.21)
Market-to-book (t-1)	0.16***	0.41***
	(14.64)	(19.59)
Cash flow-to-total assets (t-1)	0.21***	0.54***
	(13.72)	(23.48)
Stock returns (t-1)	-0.01**	-0.12***
	(-2.25)	(-7.20)
Volatility (t-1)	-0.31***	-0.18***
	(-32.92)	(-9.76)
Industry-year fixed effects?	Yes	Yes
Observations	90,564	90,564
Adjusted R^2	0.188	0.103

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership		
	Dependent variable is payouts (t)	
	Dividends	Share repurchases
Long-term indexer ownership (t-1)	0.12***	0.76***
	(7.18)	(16.58)
Long-term non-indexer ownership (t-1)	0.20***	0.02
	(16.63)	(0.78)
Other control variables?	Yes	Yes
Observations	90,564	90,564
Adjusted R^2	0.188	0.113
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership		
	Dependent variable is payouts (t)	
	Dividends	Share repurchases
Long-term index firm ownership (t-1)	0.36***	0.57***
	(23.36)	(16.64)
Long-term non-index firm ownership (t-1)	0.20***	0.19***
	(15.56)	(6.49)
Other control variables?	Yes	Yes
Observations	90,564	90,564
Adjusted R^2	0.200	0.112

Table 7
The Effect of Investor Horizons on Stock Returns: Time-Series Analysis

This table presents the results of four-factor model regressions. Monthly time-series regressions are run for portfolios formed based on investor horizons. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. Observations are sorted into quintiles based on investor horizons. Investor horizons are the difference between various measures of long-term investor ownership and short-term investor ownership. Each month during the year after portfolio formation, mean raw returns are computed for portfolios formed based on quintiles of investor horizons. Finally, each month, mean raw returns are computed for the portfolio that is long the top quintile and short the bottom quintile of investor horizons. A time-series regression is run of the excess stock returns of this portfolio on the returns of the four factors, and the results are presented. Excess stock returns are raw returns minus the risk-free rate. All returns variables are measured in percentages. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable is excess stock returns				
	Measure of investor horizons				
	Long-term investor ownership minus short-term investor ownership	Long-term indexer ownership minus short-term investor ownership	Long-term non-indexer ownership minus short-term investor ownership	Long-term index firm ownership minus short-term investor ownership	Long-term non-index firm ownership minus short-term investor ownership
α	0.29*	0.59**	0.41**	0.47*	0.34*
	(1.80)	(2.06)	(2.10)	(1.91)	(1.88)
β(MKT)	-0.24***	-0.29***	-0.28***	-0.30***	-0.23***
	(-5.88)	(-4.75)	(-6.00)	(-5.48)	(-5.54)
β(SMB)	0.13**	0.34***	0.22***	0.12	0.45***
	(2.04)	(3.33)	(2.92)	(1.32)	(6.24)
β(HML)	0.27***	-0.09	0.15	-0.06	0.20**
	(3.33)	(-0.67)	(1.50)	(-0.52)	(2.30)
β(UMD)	-0.02	-0.15	-0.01	-0.08	-0.06
	(-0.52)	(-1.28)	(-0.26)	(-0.82)	(-1.06)
Observations	336	336	336	336	336

Table 8
The Effect of Investor Horizons on Stock Returns: Cross-Sectional Analysis

This table presents the results of Fama-MacBeth regressions of excess stock returns on long-term investor ownership. Cross-sectional regressions are run for each month, and the means and t-statistics of the resulting time-series of monthly coefficient estimates are computed. The sample comprises 1,128,483 firm-month observations corresponding to 11,206 unique firms between January 1985 and December 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. Excess stock returns are raw returns minus industry returns, and they are measured during month t. Industry is defined using two-digit SIC codes. Investor ownership variables are defined in Appendix Table 1, and they are measured as of the calendar year before the current year. Size is the natural logarithm of market capitalization, and it is measured at the end of month t-2. Book-to-market is the natural logarithm of book-to-market. Returns 2-3, returns 4-6, and returns 7-12 are the natural logarithm of cumulative raw stock returns from month t-3 to month t-2, month t-6 to month t-4, and month t-12 to month t-7, respectively. Volume is the natural logarithm of the dollar value of trading during month t-2. Dividend yield is the ratio of dividends paid during the fiscal year to market capitalization at the end of the fiscal year. Stock price is the natural logarithm of the stock price, and it is measured at the end of month t-2. Both book-to-market and dividend yield are measured as of the most recent fiscal year. The dependent variables are multiplied by 100. Investor ownership variables are standardized. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable is excess stock returns (t)		
Long-term investor ownership (t-1)	0.08*		
	(1.70)		
Long-term indexer ownership (t-1)		0.16***	
		(2.68)	
Long-term non-indexer ownership (t-1)		0.04	
		(1.09)	
Long-term index firm ownership (t-1)			0.14***
			(2.91)
Long-term non-index firm ownership (t-1)			0.03
			(0.66)
Institutional ownership (t-1)	0.14**	0.12*	0.17**
	(2.13)	(1.80)	(2.59)
Size (t-1)	0.11*	0.09	0.07
	(1.72)	(1.48)	(1.17)
Book-to-market (t-1)	0.22***	0.22***	0.22***
	(5.56)	(5.44)	(5.41)
Returns month t-3 to month t-2	0.42*	0.44*	0.44*
	(1.70)	(1.79)	(1.76)
Returns month t-6 to month t-4	0.61***	0.63***	0.63***
	(3.18)	(3.32)	(3.26)
Returns month t-12 to month t-7	0.62***	0.64***	0.62***
	(4.66)	(4.82)	(4.72)
Volume (t-1)	-0.10	-0.11*	-0.10
	(-1.59)	(-1.65)	(-1.57)
Dividend yield (t-1)	1.53	0.87	0.95
	(0.94)	(0.55)	(0.61)
Stock price (t-1)	-0.32***	-0.31***	-0.29***
	(-3.07)	(-3.03)	(-2.82)
Constant	1.59**	1.79**	1.71**
	(2.37)	(2.58)	(2.45)
Observations	1,067,592	1,067,592	1,067,592
Number of groups	336	336	336

Table 9
The Effect of Investor Horizons on Profitability

This table presents the results of regressions of profitability on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. The first three dependent variables are expressed as a percentage of total assets. The last two dependent variables are expressed as the natural logarithm of one plus the variable and are multiplied by 100. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is profitability (t)				
	Earnings	Sales	Costs	Earnings forecast errors	Earnings announcement returns
Long-term investor ownership (t-1)	0.49***	4.46***	4.19***	0.07***	0.11***
	(3.35)	(8.88)	(8.51)	(2.98)	(3.05)
Institutional ownership (t-1)	0.74***	-6.97***	-7.83***	-0.26***	0.16***
	(5.62)	(-12.91)	(-14.98)	(-9.84)	(4.40)
ln(Total assets) (t-1)	0.18	-8.40***	-10.23***		
	(0.98)	(-14.43)	(-18.13)		
Market-to-book (t-1)	-0.40***	-0.61*	-0.65*		
	(-3.24)	(-1.75)	(-1.92)		
Cash flow-to-total assets (t-1)	14.18***	13.48***	-2.15***		
	(45.39)	(21.21)	(-4.06)		
Stock returns (t-1)	3.07***	-0.80	-2.20***		
	(18.67)	(-1.64)	(-5.02)		
Volatility (t-1)	-3.69***	1.05**	2.11***		
	(-16.72)	(2.23)	(4.77)		
ln(Market capitalization) (t-1)				-0.55***	-0.10***
				(-19.04)	(-3.33)
ln(Book-to-market) (t-1)				0.22***	0.25***
				(8.85)	(10.91)
Industry-year fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	90,465	90,466	90,465	56,789	84,879
Adjusted R^2	0.444	0.331	0.307	0.075	0.009

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership					
	Dependent variable is profitability (t)				
	Earnings	Sales	Costs	Earnings forecast errors	Earnings announcement returns
Long-term indexer ownership (t-1)	0.20 (1.24)	1.96*** (3.64)	1.97*** (3.77)	0.10*** (3.74)	0.10*** (3.31)
Long-term non-indexer ownership (t-1)	0.37*** (3.48)	3.17*** (7.88)	2.92*** (7.56)	0.03 (1.38)	0.06** (2.16)
Other control variables?	Yes	Yes	Yes	Yes	Yes
Observations	90,465	90,466	90,465	56,789	84,879
Adjusted R^2	0.444	0.331	0.307	0.075	0.010
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership					
	Dependent variable is profitability (t)				
	Earnings	Sales	Costs	Earnings forecast errors	Earnings announcement returns
Long-term index firm ownership (t-1)	0.43*** (3.52)	3.32*** (8.08)	3.40*** (8.40)	0.16*** (9.13)	0.12*** (4.78)
Long-term non-index firm ownership (t-1)	0.44*** (3.22)	4.22*** (8.73)	3.83*** (8.09)	0.01 (0.35)	0.08** (2.32)
Other control variables?	Yes	Yes	Yes	Yes	Yes
Observations	90,465	90,466	90,465	56,789	84,879
Adjusted R^2	0.444	0.331	0.307	0.077	0.010

Table 10
The Effect of Investor Horizons on Volatility

This table presents the results of regressions of volatility on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. The dependent variables are multiplied by 100. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is ln(volatility) (t)			
	Earnings	Sales	Costs	Stock returns
Long-term investor ownership (t-1)	-3.94***	-4.51***	-4.75***	-2.69***
	(-3.66)	(-7.98)	(-9.45)	(-12.95)
Institutional ownership (t-1)	-1.32	1.52**	-1.02*	2.51***
	(-1.27)	(2.43)	(-1.85)	(15.00)
ln(Total assets) (t-1)	-6.87***	-13.07***	-5.72***	-6.70***
	(-8.99)	(-26.40)	(-12.05)	(-34.14)
Market-to-book (t-1)	-10.98***	5.03***	3.51***	0.51***
	(-16.20)	(15.27)	(12.34)	(5.57)
Cash flow-to-total assets (t-1)	0.86	-19.53***	-10.77***	0.30
	(0.81)	(-24.00)	(-26.00)	(1.54)
Stock returns (t-1)	-9.43***	0.30	-0.94***	-1.67***
	(-14.95)	(0.70)	(-2.65)	(-12.06)
Volatility (t-1)	20.41***	10.06***	10.57***	45.76***
	(29.58)	(20.25)	(22.94)	(130.92)
Industry-year fixed effects?	Yes	Yes	Yes	Yes
Observations	84,478	84,110	84,480	90,654
Adjusted R^2	0.089	0.256	0.191	0.908

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership				
	Dependent variable is ln(volatility) (t)			
	Earnings	Sales	Costs	Stock returns
Long-term indexer ownership (t-1)	-5.73***	-0.05	-0.75	-0.30
	(-5.64)	(-0.08)	(-1.42)	(-1.32)
Long-term non-indexer ownership (t-1)	-1.09	-3.93***	-3.83***	-2.21***
	(-1.31)	(-9.15)	(-9.88)	(-15.11)
Other control variables?	Yes	Yes	Yes	Yes
Observations	84,478	84,110	84,480	90,654
Adjusted R^2	0.089	0.257	0.191	0.908
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership				
	Dependent variable is ln(volatility) (t)			
	Earnings	Sales	Costs	Stock returns
Long-term index firm ownership (t-1)	-10.02***	-2.76***	-3.52***	-3.54***
	(-12.49)	(-5.93)	(-8.50)	(-19.31)
Long-term non-index firm ownership (t-1)	-0.45	-4.64***	-4.54***	-1.77***
	(-0.43)	(-8.54)	(-9.30)	(-9.60)
Other control variables?	Yes	Yes	Yes	Yes
Observations	84,478	84,110	84,480	90,654
Adjusted R^2	0.093	0.257	0.191	0.909

Table 11
The Effect of Investor Horizons on Extreme Stock Returns and Credit Events

This table presents the results of regressions of extreme stock returns and credit events on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. Extreme negative and positive returns as well as covenant violation, default, and bankruptcy are dummy variables that equal one if they occur in a given firm-year and zero otherwise. The dependent variables are multiplied by 100. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dep. var. is extreme stock returns (t)			Dep. var. is credit event (t)		
	Negative skewness	Extreme negative returns	Extreme positive returns	Covenant violation	Default	Bankruptcy
Long-term investor ownership (t-1)	-5.92***	-1.60***	2.05***	-0.58***	-0.46***	-0.53***
	(-6.42)	(-5.37)	(6.59)	(-3.01)	(-5.23)	(-4.34)
Institutional ownership (t-1)	22.42***	4.53***	-5.61***	-1.13***	0.04	-0.40***
	(20.71)	(14.23)	(-17.98)	(-5.49)	(0.45)	(-3.26)
ln(Total assets) (t-1)	-1.44*	-1.43***	-4.14***	-1.32***	1.18***	1.30***
	(-1.96)	(-5.92)	(-16.43)	(-7.84)	(12.18)	(12.50)
Market-to-book (t-1)	6.68***	0.82***	-1.63***	-0.45***	-0.03	0.10
	(14.04)	(5.46)	(-9.52)	(-3.94)	(-0.58)	(1.34)
Cash flow-to-total assets (t-1)	6.14***	0.36*	-1.49***	0.51***	-0.08*	-0.86***
	(9.53)	(1.90)	(-6.24)	(3.17)	(-1.92)	(-8.26)
Stock returns (t-1)	6.07***	1.12***	-2.97***	-1.65***	-0.48***	-1.07***
	(11.62)	(6.81)	(-15.26)	(-9.68)	(-8.02)	(-10.43)
Volatility (t-1)	-1.71**	-1.71***	-0.14	1.96***	0.79***	1.66***
	(-2.29)	(-8.36)	(-0.50)	(9.67)	(9.13)	(13.84)
Industry-year fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	89,744	89,755	89,755	45,765	74,094	74,094
Adjusted R^2	0.049	0.027	0.039	0.043	0.039	0.047

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership						
	Dep. var. is extreme stock returns (t)			Dep. var. is credit event (t)		
	Negative skewness	Extreme negative returns	Extreme positive returns	Covenant violation	Default	Bankruptcy
Long-term indexer ownership (t-1)	-1.11	0.43	1.77***	-1.16***	-0.67***	-0.76***
	(-1.18)	(1.55)	(5.77)	(-6.93)	(-7.21)	(-5.56)
Long-term non-indexer ownership (t-1)	-5.39***	-1.49***	1.05***	-0.11	-0.15**	-0.19**
	(-7.89)	(-6.38)	(4.51)	(-0.72)	(-2.25)	(-2.15)
Other control variables?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	89,744	89,755	89,755	45,765	74,094	74,094
Adjusted R^2	0.049	0.027	0.040	0.044	0.040	0.048
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership						
	Dep. var. is extreme stock returns (t)			Dep. var. is credit event (t)		
	Negative skewness	Extreme negative returns	Extreme positive returns	Covenant violation	Default	Bankruptcy
Long-term index firm ownership (t-1)	-3.96***	-1.14***	1.38***	-0.45***	-0.84***	-0.98***
	(-5.05)	(-4.74)	(5.39)	(-3.29)	(-9.88)	(-9.74)
Long-term non-index firm ownership (t-1)	-5.44***	-1.40***	1.94***	-0.58***	-0.15*	-0.18
	(-6.08)	(-4.74)	(6.41)	(-3.02)	(-1.88)	(-1.56)
Other control variables?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	89,744	89,755	89,755	45,765	74,094	74,094
Adjusted R^2	0.049	0.027	0.039	0.043	0.043	0.049

Table 12
The Effect of Investor Horizons on Real Diversification

This table presents the results of regressions of real diversification on long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1. All of the dependent variables except the fourth range from zero to one. The fourth dependent variable is a dummy variable that equals one if the firm has foreign operations and zero otherwise. The dependent variables are multiplied by 100. The independent variables are standardized. Standard errors are clustered by industry-year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. In Panel A, all results are tabulated, whereas in Panel B and Panel C, only selected results are tabulated.

Panel A: All Long-Term Investor Ownership

	Dependent variable is real diversification (t)					
	Business concentration	Industry concentration	Geographic concentration	Foreign operations	Customer concentration	Product concentration
Long-term investor ownership (t-1)	-2.77***	-1.24***	-0.56***	2.79***	-0.61***	-1.89***
	(-15.64)	(-8.88)	(-3.02)	(7.56)	(-7.97)	(-5.45)
Institutional ownership (t-1)	4.18***	2.99***	-0.84***	1.27***	0.33***	3.72***
	(22.52)	(21.44)	(-3.90)	(3.21)	(3.52)	(9.89)
ln(Total assets) (t-1)	-9.20***	-5.09***	-8.46***	16.72***	-0.97***	-7.81***
	(-46.40)	(-34.88)	(-40.86)	(49.94)	(-13.18)	(-19.51)
Market-to-book (t-1)	1.34***	0.93***	-0.61***	-0.35*	-0.13**	1.61***
	(14.75)	(15.17)	(-6.39)	(-1.91)	(-2.40)	(7.42)
Cash flow-to-total assets (t-1)	-0.05	0.50***	-0.31*	1.98***	-0.34***	-1.02***
	(-0.32)	(6.62)	(-1.93)	(9.03)	(-5.01)	(-3.58)
Stock returns (t-1)	-0.55***	-0.53***	0.15	0.30	0.10*	-0.29
	(-4.81)	(-6.82)	(1.27)	(1.30)	(1.72)	(-1.08)
Volatility (t-1)	1.27***	1.23***	-0.73***	-0.54**	0.01	1.62***
	(8.39)	(12.82)	(-6.88)	(-2.15)	(0.23)	(4.43)
Industry-year fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	89,495	89,475	82,271	90,565	90,107	18,228
Adjusted R^2	0.213	0.135	0.363	0.258	0.108	0.165

Panel B: Long-Term Investor Ownership Split into Indexer Ownership and Non-Indexer Ownership						
	Dependent variable is real diversification (t)					
	Business concentration	Industry concentration	Geographic concentration	Foreign operations	Customer concentration	Product concentration
Long-term indexer ownership (t-1)	-1.81***	-0.07	-0.50***	2.10***	-0.48***	-1.48***
	(-9.82)	(-0.47)	(-2.64)	(5.66)	(-6.70)	(-4.09)
Long-term non-indexer ownership (t-1)	-1.69***	-1.04***	-0.33**	1.73***	-0.35***	-1.06***
	(-12.71)	(-9.94)	(-2.28)	(6.26)	(-5.86)	(-4.05)
Other control variables?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	89,495	89,475	82,271	90,565	90,107	18,228
Adjusted R^2	0.213	0.135	0.364	0.258	0.108	0.166
Panel C: Long-Term Investor Ownership Split into Index Firm Ownership and Non-Index Firm Ownership						
	Dependent variable is real diversification (t)					
	Business concentration	Industry concentration	Geographic concentration	Foreign operations	Customer concentration	Product concentration
Long-term index firm ownership (t-1)	-2.78***	-1.44***	-1.01***	3.52***	-0.46***	-2.29***
	(-17.64)	(-10.56)	(-6.72)	(11.13)	(-8.00)	(-7.95)
Long-term non-index firm ownership (t-1)	-2.30***	-0.94***	-0.26	2.10***	-0.56***	-1.53***
	(-13.67)	(-7.40)	(-1.51)	(5.90)	(-7.36)	(-4.56)
Other control variables?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	89,495	89,475	82,271	90,565	90,107	18,228
Adjusted R^2	0.215	0.136	0.364	0.259	0.108	0.167

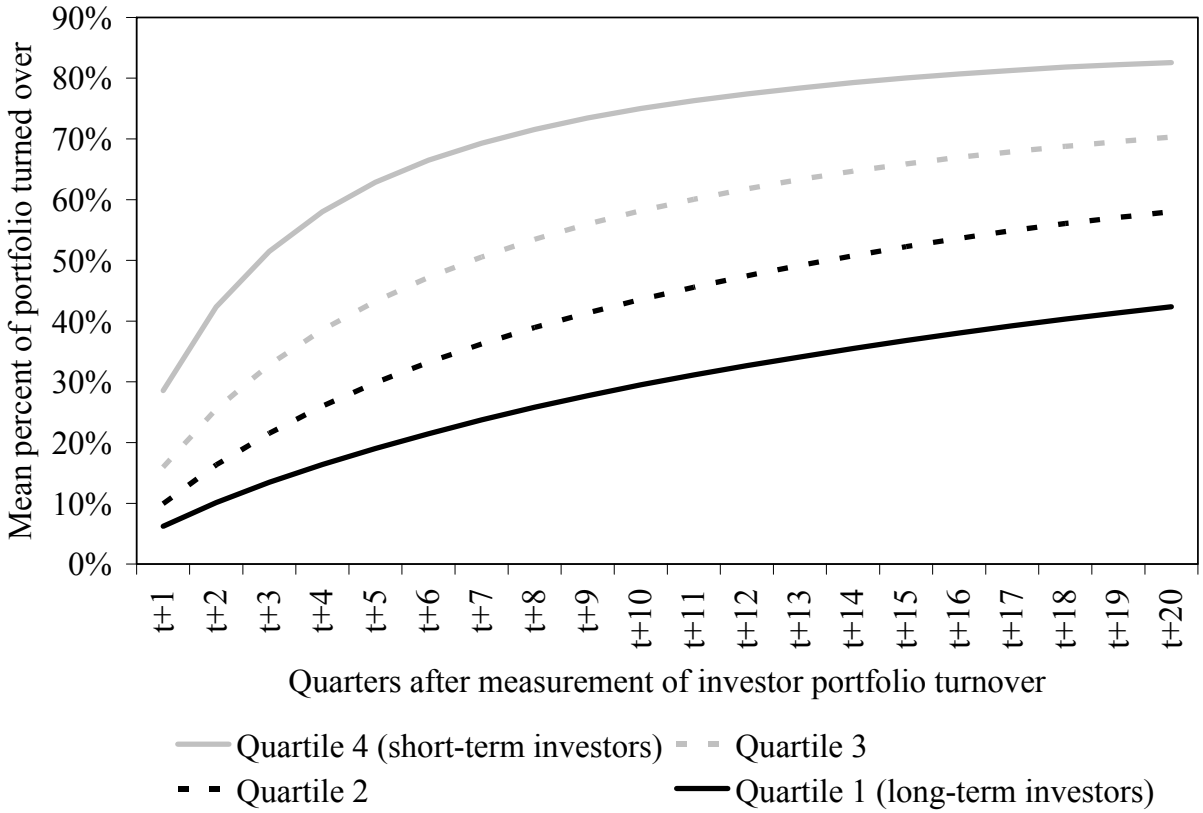

Figure 1. Future investor turnover as a function of past investor turnover. This figure presents future portfolio turnover as a function of past portfolio turnover. The sample comprises 104,306 investor-quarters consisting of 3,491 unique investors between 1984 and 2011. Each calendar quarter, investors are sorted into quartiles based on their portfolio turnover. Next, for each calendar quarter and each investor portfolio turnover quartile, the mean portfolio turnover of investors is computed for each of the next twenty event quarters. Finally, for each event quarter and each investor portfolio turnover quartile, the mean investor portfolio turnover is computed over all calendar quarters.

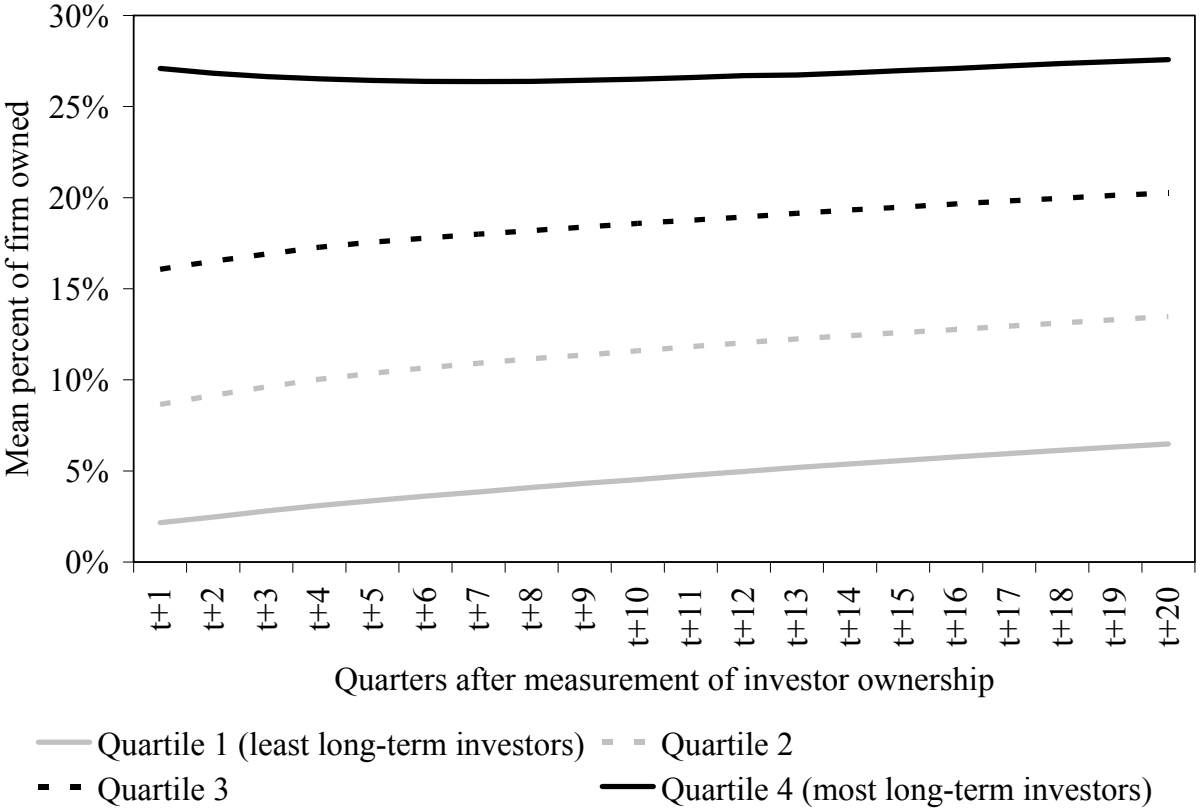

Figure 2. Future long-term investor ownership as a function of present long-term investor ownership. This figure presents future long-term investor ownership as a function of present long-term investor ownership. The sample comprises 95,463 firm-year observations corresponding to 11,206 unique firms between 1985 and 2012. The firms in the sample are publicly traded U.S. operating firms excluding financials and utilities. All variables are defined in Appendix Table 1.

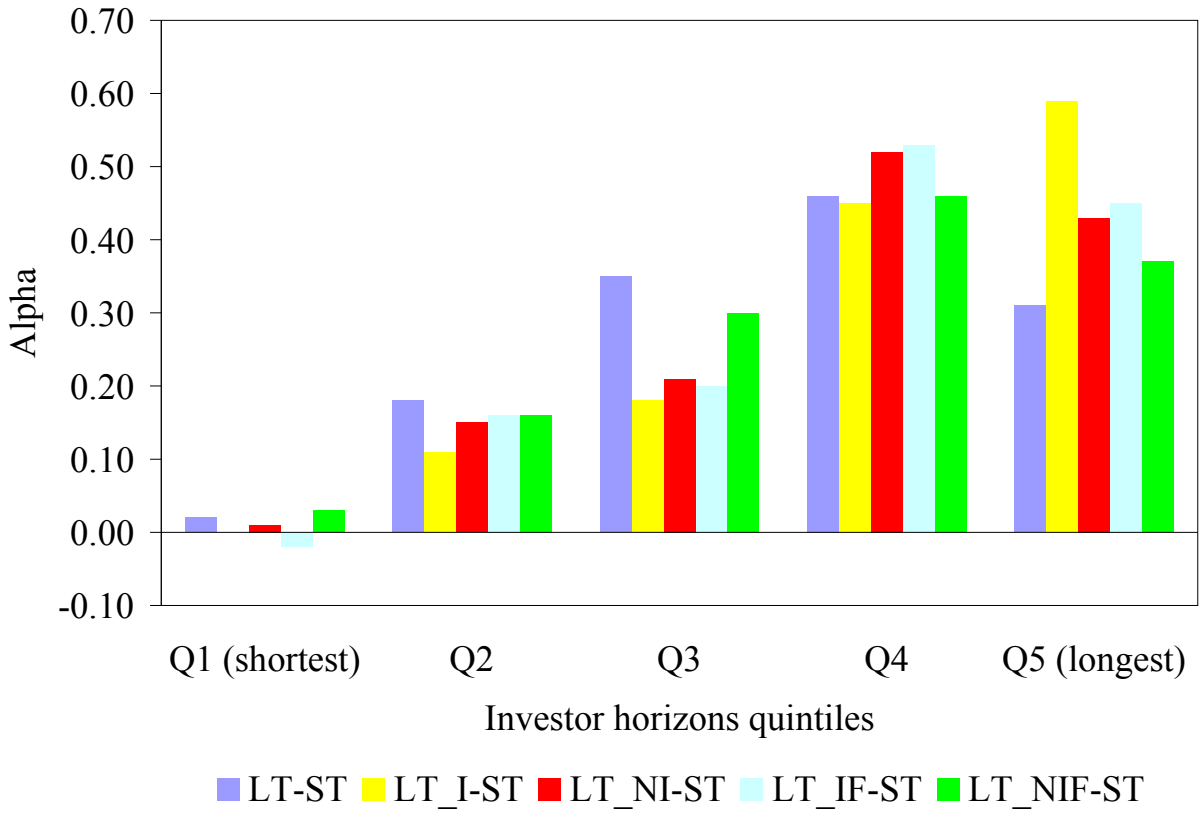

Figure 3. Investor horizons and risk-adjusted abnormal returns. This figure presents the alphas of four-factor model regressions. Monthly time-series regressions are run for portfolios formed based on investor horizons like in Table 7. In this figure, alphas for each quintile of investor horizons are presented. By comparison, in Table 7, the alphas presented are for a portfolio that is long the top quintile of investor horizons (longest investor horizons) and short the bottom quintile of investor horizons (shortest investor horizons). Investor horizons are the difference between various measures of long-term investor ownership and short-term investor ownership. The abbreviations for the investor ownership measures are as follows. "ST" and "LT" are short-term and long-term investor ownership, respectively. "LT_I" and "LT_NI" are long-term indexer and non-indexer ownership, respectively. "LT_IF" and "LT_NIF" are long-term index and non-index firm ownership, respectively.

Appendix Table 1
Variable Definitions

This table presents variable definitions. Variables are computed for each firm and each year. Industry is defined using two-digit SIC codes. * indicates that the variable is defined using Compustat data items.

Name	Definition
Investor ownership variables	
- Long-term investor ownership	Fraction of shares owned by institutional investors that are long-term investors. Investors with three-year portfolio turnover of 35% or less are classified as "long-term investors". See Gaspar, Massa, and Matos (2005) and Chen, Harford, and Li (2007) for computing investor portfolio turnover.
- Long-term indexer ownership	Fraction of shares owned by institutional investors that are both long-term investors and indexers. Investors with active share of 25% or less are classified as "indexers". See Cremers and Petajisto (2009) for computing active share.
- Long-term non-indexer ownership	Fraction of shares owned by institutional investors that are both long-term investors and non-indexers
- Long-term index firm ownership	Fraction of shares owned by institutional investors that are long-term investors for S&P 500 firms, and zero for non-S&P 500 firms
- Long-term non-index firm ownership	Fraction of shares owned by institutional investors that are long-term investors for non-S&P 500 firms, and zero for S&P 500 firms
- Institutional ownership	Fraction of shares owned by institutional investors
Corporate governance variables	
- Shareholder proposals	Total number of shareholder proposals in the current year
- Board independence	Fraction of independent directors on the board
- Board attendance	Fraction of directors that attend at least three-quarters of board meetings
- Board experience	Mean number of directorships held by directors at other publicly traded firms
- Executive turnover	Dummy variable for whether the CEO in the current year is new
Managerial misbehavior variables	
- Earnings management	Absolute value of discretionary accruals divided by total assets. See Dechow, Sloan, and Sweeney (1995) for estimating discretionary accruals.
- Accounting misconduct	Dummy variable for whether the firm's financial statements in the current year are the subject of an enforcement action by the SEC
- Financial fraud	Dummy variable for whether the firm is the subject of a securities class action lawsuit in the current year
- Option backdating	Dummy variable for whether the firm's CEO receives a backdated option grant. See Bebchuk, Grinstein, and Peyer (2010) for estimating option backdating.
Investment variables	
- Capital expenditures	CAPX/AT *
- Research and development expenditures	XRD/AT *
- Acquisitions expenditures	AQC/AT *
- Change in trade credit	Δ(ACT-LCT)/AT *
- Change in inventory	ΔINVT/AT *

Financing variables	
- Change in short-term debt	DLCCH/AT *
- Change in long-term debt	(DLTIS-DLTR)/AT *
- Debt maturity	DLTT/(DLC+DLTT) *
- Change in off balance sheet debt	Δ(XRENT+MRC1+MRC2+MRC3+MRC4+MRC5)/AT *
- Change in equity	SSTK/AT *
- Internal financing	CHECH/AT *
Payout variables	
- Dividends	DV/AT *
- Share repurchases	PRSTKC/AT *
Profitability variables	
- Earnings	NI/AT *
- Sales	SALE/AT *
- Costs	(COGS+XSGA)/AT *
- Earnings forecast errors	Mean of quarterly earnings forecast errors. Earnings forecast errors are measured as analysts' earnings estimates minus earnings reported by the firm all divided by the stock price.
- Earnings announcement returns	Mean of quarterly earnings announcement returns. Earnings announcement returns are measured as raw returns minus market returns during the three days centered on the earnings announcement date.
Volatility variables	
- Earnings	Coefficient of variation of quarterly earnings per share computed using three years of quarterly data. Quarterly earnings per share is measured as EPSPXQ/AJEXQ. *
- Sales	Coefficient of variation of quarterly sales per share computed using three years of quarterly data. Quarterly sales per share is measured as (SALEQ/CSHOQ)/AJEXQ. *
- Costs	Coefficient of variation of quarterly costs per share computed using three years of quarterly data. Quarterly costs per share is measured as ((COGSQ+XSGAQ)/CSHOQ)/AJEXQ. *
- Stock returns	Annualized standard deviation of daily stock returns
Extreme stock returns and credit event var.s	
- Negative skewness	Negative of skewness of daily excess stock returns. Excess stock returns are raw returns minus market returns.
- Extreme negative and positive returns	Weekly excess stock returns are greater or less, respectively, than 3.09 standard deviations of their mean during at least one week of the year. Excess stock returns are the residuals from the regression of raw returns on market returns. See Hutton, Marcus, and Tehranian (2009) for details.
- Covenant violations	The firm violates a debt covenants in the next year
- Default	The firm defaults on its debt in the next three years
- Bankrupt	The firm is the subject of a bankruptcy filing in the next three years
Real diversification variables	
- Business, industry, geographic, customer, and product concentration	Herfindahl-Hirschman index of the firm's segment sales relative to the firm's total sales for business, industry, geographic, customer, and product segments *
- Foreign operations	Dummy variable for whether PIFO is not equal to zero *

Control variables	
- Total assets	AT *
- Market-to-book	(PRCC_F×CSHO)/(TXDITC+CEQ) *
- Cash flow-to-total assets	(IB+DP)/AT *
- Stock returns	Annualized daily stock returns
- Volatility	Annualized standard deviation of daily stock returns