Investors' Horizons and the Amplification of Market Shocks

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Abstract

After negative shocks, investors with short trading horizons are inclined or forced to sell their holdings to a larger extent than investors with longer trading horizons. This may amplify the effects of market-wide shocks on stock prices. We test the relevance of this mechanism by exploiting the negative shock caused by Lehman Brothers' bankruptcy in September 2008. Consistent with our conjecture, we find that short-term investors sell significantly more than long-term investors around and after the Lehman Brothers' bankruptcy. Most importantly, we show that stocks held by short-term institutional investors experience more severe price drops and larger price reversals than those held by long-term investors. Since they are obtained by controlling for various firms' and investors' characteristics, including the propensity of institutional investors to follow the index or the momentum effect, our results cannot be explained by characteristics of the institutions' investment styles other than their investment horizons. Overall, the empirical evidence suggests that investors' short horizons amplify the effects of negative shocks.

JEL classifications: G11; G12; G14; G18; G22

Keywords: Market crashes; Financial crisis; Institutional investors; Investors' horizons; Fire sales; Price pressure; Liquidity

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1. Introduction

Investors' trading horizon may depend on preferences, specialization, or external constraints, such as margin constraints and the responsiveness of funds under management to an institutional investor's previous returns. When stock prices fall dramatically, investors with short trading horizons are inclined or forced to sell to a larger extent than investors with longer trading horizons (De Long, Shleifer, Summers and Waldmann, 1990). This may amplify the effects of market-wide shocks on stock prices. In this paper, we investigate to what extent the horizons of firms' shareholders affect the stock market reaction to bad news, which should, naturally, bear a direct impact on fundamental values.

Existing theories provide a variety of mechanisms that –more or less directly– lead to this relationship. In limits-to-arbitrage models (Shleifer and Vishny (1997)), institutional investors whose funds under management are highly responsive to previous returns are concerned about short-term returns and sell after stock price declines even if they are aware that prices are below their fundamental values. In coordination failure models (Bernardo and Welch (2003), Morris and Shin (2004)), a run on financial markets occurs because short-horizon traders sell in anticipation of the sales of other market participants resulting in panic selling. Since a short trading horizon implies that the investor will have to sell in the immediate future with high probability, not selling right away may involve selling behind the rest of the public at even lower prices (i.e., at prices that are even further below their fundamental values). Hence, for a short-term investor, the optimal strategy is to beat the rest by selling before others to avoid having to sell after the run. Finally, in collateral-based models (see, for instance, Brunnermeier and Pedersen (2009)), levered investors exhibit short trading horizons, because when stock prices decline considerably, they hit their margin constraints and are forced to sell.

Setting aside the specific mechanism implied by different theories, investors with longer trading horizons have the possibility of holding onto their shares and "waiting out the storm" for stock prices to slowly recover to their fundamental values. Thus, during episodes of severe market decline, the selling pressure experienced by different firms may vary depending on the length of their shareholders' investment horizons.

During these episodes, it may also be hard to find potential buyers. As Shleifer and Vishny (1992) show, when a distressed seller tries to sell an asset which is not easily re-deployable in a different industry, she will face two potential buyers: (a) from the same industry, for whom the value of the asset is high, and (b) outside the industry, for whom the value of the asset is presumably lower than that of the seller. If buyers in the same industry are distressed, the seller will obtain fire sale prices. Although stocks are fungible, fire sales have been shown to happen also in stock markets (Coval and Stafford (2007)), because other investors may not have sufficient buying capital when selling pressure is highest or because the stocks sold may have different characteristics from their preferred set. Thus, when panic selling occurs, there may be both supply and demand effects driving prices below their fundamental values. Crucially, these same forces should draw a wedge between the price reaction of shares held by short-term and long-term investors.

Our strategy to explore the empirical relevance of this argument is the following. First, we ask whether stocks held by short-term investors experience larger drops subsequently to market-wide shocks. Second, and more importantly, we identify whether the selling pressure of short-horizon investors indeed drives prices below their fundamental values ex-post, by evaluating whether the stocks held by short-term investors experience larger price reversals.

We explore the negative shock caused by Lehman Brothers' bankruptcy in September 2008 on all market participants. Following this event, there were massive and widespread price drops with the S&P 500 losing close to 30% from the day of Lehman's bankruptcy up to the end of December. This prompted withdrawals from hedge funds and mutual funds, which consequently started to sell billion of dollars of securities to meet redemptions. In the business press, these large sales have often been indicated as the determinants of an "overhang for the market".[1] Just a few months after the market low, firms such as Bank of America or Dow Chemicals, were up by over 100%.[2]

We exploit differences in ownership across firms to evaluate to what extent the length of their shareholders' horizon affects the reaction of transaction prices and the subsequent reversals as follows. We measure the horizon of a firm's investors using the average portfolio turnover of the investors holding stocks in every firm in the CRSP sample. Our main finding can be vividly summarized in Figure 1 (which we describe in detail in Section 4). Comparing the evolution of the cumulative abnormal returns of stocks held by short- and long-term investors around the Lehman shock, it emerges clearly that the stocks held to a larger extent by investors with shorter horizons experience more severe price drops and larger price reversals.

[Insert Figure 1 here]

The mean cumulative abnormal returns up to the first five (ten) weeks following Lehman Brothers' bankruptcy are -11.19% (-13.62%) for stocks held by short-term investors compared to -3.31% (-6.22%) for stocks held by long-term investors. These severe price drops are then reversed by week +25. Both price declines and price reversals are smaller for stocks held to a larger extent

[1] See the Wall Street Journal, November, 7, 2008.
[2] See, for instance, the Financial Times, March 18, 2010.

by long-term investors. These results are fully consistent with our maintained hypothesis that the trading horizon of the institutions holding the stocks acts as an amplifying mechanism.

In the empirical analysis, we ascertain that this result does not depend on the firms' different exposure to market factors, on firm characteristics, or on characteristics of the investors' trading strategies other than their horizon. A major concern is that active investors trade to generate profits based on valuation beliefs. These may generate two types of problems for our interpretation of the empirical evidence. First, active trading strategies, instead of investors' short trading horizons, may generate selling pressures. Put differently, our proxy for investor horizon may be correlated to omitted factors characterizing a firm's shareholders. Second, investors may sell because of rational beliefs on the future performance of the stocks they hold. This could lead to reverse causality.

To test the causal mechanism, we recognize that investors trade not only because of valuation beliefs but also because of unanticipated changes of the assets under management. The latter trades do not contain much information and allow a cleaner identification of the effects of investor horizons on the amplification of shocks. We measure the extent to which the market decline may have shortened the investors' horizon by using the correlation between the investor's previous performance and its trading behavior before our sample period. We surmise that institutional investors with a higher correlation between fund under management and previous performance expect to experience larger outflows during market declines. The expected outflows would significantly shorten these investors' trading horizons. Using the correlation between previous performance and assets under management as an instrument for investor turnover, we exploit only the variation in investor turnover that is less likely to be driven by inside information and other features of the active trading strategy.

Using different methodologies, we always find that stocks held to a larger extent by short-term investors experience, first, a significantly larger price drop, and, then, a larger price reversal relative to stocks held by long-term investors. Since they are obtained after controlling for various firm characteristics, including past returns, size, market-to-book, return volatility, liquidity, and industry, our results cannot be explained by short-term institutions following certain investment styles that have been shown to explain cross-sectional returns. In particular, our controls ascertain that our results are not driven by the momentum effect.

We also investigate whether the mechanism behind our interpretation of the results is supported. If our maintained hypothesis is valid, then we should find that short-term investors sell significantly more than long-term investors during our event period. We find clear evidence of such trading behavior: For example, in the last quarter of 2008, and when the largest price declines were experienced, short-term investors sell almost 21% of their portfolio holdings compared to 7% of the holdings sold by long-term investors. Importantly, short-term investors exhibit a higher propensity to sell not only the stocks held to a larger extent by short-term investors, but also the ones mostly held by long-term investors, suggesting that their behavior is not driven by the different characteristics of the stocks in their portfolios.

This paper is related to several strands of literature. First, our results contribute to the literature on asset fire sales, which has shown that transaction prices may temporarily deviate from fundamental values (Pulvino (1998), Coval and Stafford (2007), Mitchell, Pedersen and Pulvino (2007), Campbell, Giglio and Pathak (2008) and Ellul, Jotikasthira and Lundblad (2009)). We investigate a new channel that may induce fire sales, the trading horizons of institutional investors.

Second, as mentioned above, a growing literature explores whether after negative shocks, investor trading behavior may cause prices to drop below their fundamental value. Most of the papers in this literature are theoretical with a few notable exceptions. Hameed, Kang and Viswanathan (2010) show that stock liquidity decreases during stock market declines. Furthermore, in a recent paper, Manconi, Massa and Yasuda (2010) show that investors more exposed to securitized bonds, which experienced large price declines, sold more bonds and contributed to depress their prices.

Finally, our paper is related to a stream of literature exploring the effects of investor horizon on corporate policies. Bushee (1998), Gaspar, Massa, and Matos (2005), Cella (2009) and Derrien, Kecskes, and Thesmar (2009) show that investors' short horizons affect different aspects of corporate policies. Even more closely related to us, Bushee and Noe (2000) and Bushee (2001) suggest that not only that short-term investment may be valued more in firms' whose shareholders have short horizons, but also that increases in disclosure, associated to an increase in short-term investors' shareholdings, increase stock price volatility. While these papers suggest that investors' trading horizons may have asset pricing implications, none of them explores whether trading horizon amplifies negative shocks as we do.

The remainder of the paper is organized as follows. Section 2 discusses the sample construction and describes the summary statistics of the data. Section 3 describes our main empirical analysis. Section 4 presents and discusses the results. Section 5 concludes.

2. Data and Sample

2.1 The Event

To explore whether investors' short trading horizons may magnify negative shocks, we exploit the severe market decline surrounding the bankruptcy of Lehman Brothers' (henceforth, Lehman) on September 15, 2008. Financial turbulence predated the Lehman's events and started in the residential mortgage sector in August 2007. The impact of the financial crisis, however, was limited to the valuations of financial firms until the first half of 2008. Stock market valuations of non-financial firms and the S&P500 started to decline during the summer 2008.

The market decline was largely connected to the anticipation of Lehman's difficulties: Lehman's top management made repeated moves to attract potential partners during the summer. These moves were unsuccessful.[3] Moreover, the credit default swaps of Lehman Brothers started spiking well before September 15, 2008 and increased by 66% in the first two weeks of September.

To fully capture the market decline that started in anticipation of the difficulties for Lehman, and that should have produced significant impacts on institutional investors' portfolios, we start our event window from June 1, 2008, i.e., 15 weeks before Lehman's actual bankruptcy, up to the third week in April 2009, i.e., 30 weeks after the event. During the period under consideration, the S&P500 Index experienced a severe decline. The S&P500 stood at around 1,280 at the beginning of our sample period, dropped to almost 1,100 in the week of Lehman's bankruptcy, continued to fall and reached a level of around 700 after 19 weeks, and still stood at over 900 after 30 weeks. From the broad movements of the S&P500 Index, we can deduce that the shock related to Lehman's bankruptcy caused an abrupt price reaction that was protracted through time. Figure A in Appendix A illustrates the dramatic movements of the S&P500.

[Insert Figure A here]

As the ramifications from the contagion consequences evolved, massive outflows from the stock market occurred. In what follows, we explore how they affected different stocks depending on the trading horizons of the shareholders.

2.2 Sample Construction

We obtain data from a variety of sources. First, we use data on the quarterly holdings of institutional investors that have discretion over 13F securities that are worth $100 million or more from Thomson Financial.[4] We extract data on the holdings of all common stocks traded on New York Stock Exchange (NYSE), NASDAQ and the American Stock Exchange (AMEX) for the period from the first quarter of 1990 to the third quarter of 2009. We have no information on short-selling positions. From Thomson Financial we also obtain insiders' holdings.

Second, we obtain data on share prices, number of shares outstanding, turnover and liquidity from the Center for Research in Security Prices (CRSP). Finally, information on firm

[3] One important potential investor was Korea Development Bank, which put talks on hold on September 9, 2008.
[4] The SEC requires that all investment managers with discretion over 13F securities worth $100 million or more report all equity positions greater than 10,000 shares or $200,000 to the SEC at the end of each quarter.

characteristics, such as return on assets, leverage, book value of equity, cash dividend, is from COMPUSTAT.

2.3 Investor Horizon

Institutional investors with short-term horizons should buy and sell frequently, while long-term investors should have longer holding periods. We capture investor horizon using a proxy for investors' portfolio turnover. The churn ratio of institutional investor *i* holding an investment set made up of firms denoted as *Q* is calculated as follows:

$$CR_{i,t} = \frac{\sum_{j \in Q} \left| N_{j,i,t} P_{j,t} - N_{j,i,t-1} P_{j,t-1} - N_{j,i,t} \Delta P_{j,t} \right|}{\sum_{j \in Q} \frac{N_{j,i,t} P_{j,t} + N_{j,i,t-1} P_{j,t-1}}{2}},$$

where $P_{j,t}$ and $N_{j,i,t}$ are the price and number of shares of firm *j* held by institution *i* at quarter *t*. The value of churn ratio can range from 0 to 2. This measure was formalized by Gaspar et al (2005) and is similar to measures of institutional investors' trading horizons used by Carhart (1997), Bushee (1998, 2000 and 2001), and Yan and Zhang (2009).

Here, we compute institutional investors' trading horizon starting from the first quarter of 1990 until the last quarter of 2006. In untabulated results, we find that the churn ratio is very stable for institutions across time, giving us comfort that the trading horizon should be considered as a permanent characteristic, rather than a transitory characteristic, of the institutional investor.

Table 1 provides descriptive statistics for our proxy of trading horizons and other major characteristics of these institutional investors' portfolios.

[Insert Table 1 here]

The average (median) churn ratio of all institutional investors is 0.34 (0.22). Importantly for our analysis, there is large variation in institutional investors' churn ratios, which we will use to characterize institutional investors' trading horizons. For example, institutions with a churn ratio in the 5th percentile on average turn over less than 1% of their portfolio in a quarter, while institutions in the 95 percentile turn over more than 50% of their holdings. It is precisely this variation in the investors' horizon that we conjecture to matter for the impact of market-wide shocks on stock prices.

There exist other differences in institutional investors' portfolios, which have been shown to be more or less related to their trading horizon. For instance, institutions are believed to take a longer view on their investments and engage in monitoring firms if they take large stakes (see, for instance Chen Harford and Li (2007), and Giannetti and Laeven (2009)). In our sample, individual institutional investors' shareholdings represent very small stakes (the 95th percentile is only 0.45% of the firm's capital). In untabulated correlations, we find that, if anything, an investor churn ratio is positively correlated with the size of the stake, suggesting that long-term investors are unlikely to monitor more in our sample.

Nor does the individual firm account for a large percentage of investors' portfolios: The median stock accounts for 1.41% of the portfolios of institutional investors. Differences in the portfolio weight of stocks appear unrelated to the churn ratios. It should be noted, however, that institutions, independently of their churn ratio, tend to have relatively large positions in some stocks. Also portfolio sizes, both the dollar size and the number of shares held, appear to be unrelated to the institutional investors' trading horizons. The average (median) size of the portfolio of institutions with churn ratios above the median (short-term institutions) is more than $2,410 million ($326 million) and they hold on average 187 stocks, while the average (median) size of the portfolio of institutions with churn ratio below the median (long-term institutions) is more than $2,540 million ($240 million) and they hold on average 193 stocks.

Institutional investors' horizons may also be related to characteristics of the trading strategies, which may potentially affect the relation with stock prices. For instance, investors with low churn ratios are unlikely to attempt to actively manage their portfolios and may hold portfolios closer to the index. In other words, investors with long trading horizons may be more likely to be index funds or behave very similarly to them. Cremers and Petajisto (2009) show that an investor's portfolio turnover has low correlation with the proportion of their portfolio that deviates from the relevant index. Therefore, our measure of investor horizon should be unlikely to capture how actively investors manage their funds. To be able to control for this portfolio characteristic, we construct the active share measure, a proxy for how much an investor portfolio deviates from the Russell 1,000 index, similarly to Cremers and Petajisto (2009).

Finally, Chen, Jegadeesh and Wermers (2000) and Yan and Zhang (2009) suggest that investors with high portfolio turnover may have better stock picking ability. This can be a serious concern for the interpretation of our findings as stock picking ability may lead to reverse causality: Instead of amplifying negative shocks through their selling pressure, high churn ratio investors could anticipate the drop in stock prices and, for this reason, sell more. Such an explanation would be consistent with the reversals to the extent to which these are unanticipated.

Importantly, our measure of churn ratio captures not only trades whose motivation is to generate trading profits based on valuation beliefs, but also trades motivated by other reasons, such as unanticipated investor flows. Trading induced by investors' flows has been shown not to contain much information (Alexander, Cici, and Gibson (2007)). For this reason, for each investor, we construct a correlation between previous performance and assets under management over the period spanning from 1990 to 2006. Since existing literature has shown that there are non-linearities in the flow-performance relation (e.g., Chevalier and Ellison, 1997), we also compute the correlation between previous performance and assets under management using only the quarters in which the performance of the S&P 500 is classified in the bottom decile of the distribution of all quarterly S&P 500 returns over the period from 1990 to 2006. As we explain in Section 4, used as instruments, these correlations help to capture forced trades due to expected outflows and redemptions following the financial turmoil surrounding the Lehman's bankruptcy. Although in Table 1 the correlations between previous performance and assets under management are small (and even negative), they are positive and large in the right tail of their distributions: It is precisely this large variation that helps us to identify exogenous difference in trading. Since outflows are largely unrelated to the investors' stock picking ability, as we explain below, the correlations allow us to address concerns about reverse causality.

2.3 Classification of Firms' Ownership Structure

Depending on the churn ratio of the investors holding their stocks, firms have different investor turnovers. We use the average churn ratio of the institutional investors holding stocks in each firm to measure the investor turnover for each firm in our sample. This statistic measures the average investment horizon of the institutional investors with an investment position in each firm. Denote S as the set of institutional investors in our sample and $w_{j,i,t}$ as the weight that institutional investor i has in quarter t in firm j as a percentage of the total positions held by all institutional investors. Then the investor turnover of firm j is measured as follows:

$$\text{Turnover of Firm } j = \sum_{i \in S} w_{j,i,t} \left(\frac{1}{T} \sum_{r=1}^{T} CR_{t-r+1} \right)$$

where T is the total number of quarters that we consider to compute investor i (average) churn ratio. Below, for each firm we consider the average institutional investors' turnover starting from the first quarter of 1990 until the last quarter of 2006.

Overall, our sample includes 3,949 firms. Table 2 provides descriptive statistics for investor turnover (henceforth "IT") at the firm level. Firms exhibit large differences in the horizons of their investors. The average portfolio turnover of the institutional investors holding their shares is 27%, but this ranges from 16% for firms in the 5th percentile to 44% for firms in the 95th percentile of investor turnover.

It is crucial for the design of the empirical analysis and the interpretation of our findings to evaluate whether turnover is systematically associated to firm characteristics. For this reason, we proceed to classify the ownership structure depending on whether a firm's stocks are held by short-term institutions or long-term institutions. We classify firms with investor turnover in the lowest tercile as firms held by long-term investors (Low IT firms) and those with values in the highest tercile as held by short-term institutions (High IT firms).[5] Table 2 provides descriptive statistics about the main ownership, stock, and firm characteristics. We use data for 2007.

[Insert Table 2 here]

We find that the median (average) Investor Turnover of a high IT firm is 0.34 (0.37) and that of a low IT firm is 0.20 (0.19) with the difference being statistically significant. An average turnover of 0.37 (0.19) implies that institutional investors holding these stocks rotate almost 19% (9.5%) of a portfolio is rotated in each quarter, and 76% (37%) in each year. This means that on average investors in high turnover firms hold their position for less than 16 months (12 months/0.76), while investors in a low turnover firms hold their position for almost 33 months (12 months/0.37).

Table 2 describes additional variables characterizing the firms' ownership structure and their shareholders' portfolios. As mentioned before, these are important controls in our analysis, because investor turnover may be related to shareholders' characteristics other than the trading horizon. On average, low and high IT firms have the same proportion of institutional ownership. Importantly, although as noted before individual institutions hold small stakes, collectively, institutions own on average over 20% of firms' capital. This means that whereas the action of one individual institution may not have significant impact, the collective action of such investors is likely to have important consequences on pricing.

While low and high IT firms appear to have similar ownership structure, insider ownership is significantly larger in firms with long-term institutions than in firms mostly held by short-term investors. We will take this into account in the empirical analysis.

Turning to the main stock and firm characteristics, there are some differences between high and low IT firms that we need to take into account in designing our tests. While the market capitalization of firms held by short-term and long-term investors is very similar (a median value of $298 million for low IT firms and $301 million for high IT firms), high IT firms tend to be (a) more growth-oriented rather than value-oriented (a median market-to-book ratio of 1.89 versus 1.56), (b) more liquid (a median share turnover of 0.59 versus 0.38 and a quoted spread of 0.28% versus 0.30%), and (c) more volatile (a median value of return variability of 1.82% versus 1.62%). The

[5] We classify firms in high and low IT also using the median investor turnover and compute investor turnover using different periods. Results are very similar to the ones we report hereafter.

average value of the beta of high IT firms is slightly lower, suggesting that the higher return volatility of firms with high investor turnover does not derive from higher exposure to market risk.

Panel B of Table 2 describes time-series averages of the cross-sectional correlation between institutional ownership and various firm characteristics. Besides the correlation between investor turnover and ownership, stock and firm characteristics highlighted above, the correlation matrix illustrates that higher turnover is inversely correlated with the firm's exposure to the financial industry captured by the beta of the firm's returns with the index of the financial industry. Also, it appears that firms with higher investor turnover have lower leverage, which should mitigate the negative effects of market shocks on these firms. While the exposure to the financial industry and the capital structure of firms with higher turnover should bias the results against our maintained hypothesis, we also find that firms with higher investor turnover have lower return on assets (ROA), indicating that it is important to control for these and other firm characteristics, as we do in the multivariate analysis.

3. Empirical Methodology

The Lehman's bankruptcy represents a market-wide shock that clearly should be expected to affect stock prices even in the absence of any sale pressure generated by different categories of investors. To test the hypothesis that short-term investors may have amplified the shock, we compare each firm's actual return with alternative benchmarks capturing the return that the firm would have experienced, given the market-wide shock, but in the absence of selling pressure. Importantly, the identification comes not from the measurement of firms' abnormal returns relative to the different benchmarks, which we describe below, but from comparing whether firms with short horizon investors have systematically higher abnormal returns in the immediate aftermath of the market-wide shock compared to firms with long horizon investors. Put differently, we test whether these firms experience larger drops.

This could still be considered problematic because in principle systematic differences in abnormal returns could be justified by different fundamentals that are not adequately captured by our benchmarks. For this reason, similarly to Coval and Stafford (2007) and Mitchell, Pedersen and Pulvino (2007), in an attempt to identify the price pressure generated by short-term investors, we then look for evidence of larger price reversals for firms experiencing more severe price drops.

We use two alternative methodologies to obtain firms' abnormal returns. First, we use the market model to compute firms' normal returns. We estimate $R_{jt} - R_{ft} = \alpha + \beta(R_{Mt} - R_{ft}) + \varepsilon_{jt}$, where R_{jt}, R_{Mt}, R_{ft} are respectively firm j's weekly return, the weekly return of the market portfolio and the risk free interest rate, and ε_{jt} is an error term. We estimate each firm's beta with the market portfolio using weekly returns from the beginning of 2006 until the end of the first quarter of 2008. We measure the return of the market portfolio with the return of the S&P500 index and the risk free interest rate with the Discount Window Primary Credit rate. The abnormal returns of firm j during week *t* are then computed as $AR_{jt} = R_{jt} - \hat{\beta} R_{Mt}$.

Second, similarly to Ikenberry, Lakonishok and Vermaelen (1995), we use a size-and book-to-market-based benchmark. We first sort our sample firms in deciles based on their market capitalization on May 30, 2008; then we further sort each decile of firms in deciles based on their book to market ratio on the same date. This sorting results in 100 benchmark portfolios, whose returns are computed as the equally weighted returns of the firms belonging to each portfolio. Abnormal performance for each firm is then calculated by subtracting from the firm's actual return during week *t* the return of the appropriate size and book-to-market benchmark during the same week.

Finally, we compute cumulative abnormal returns for each firm as the sum of the firm's abnormal returns in the relevant event window.

4. Results

We start by exploring the mean cumulative abnormal returns of stocks held by institutions with different trading horizons in a univariate setting and then proceed to investigate the robustness of the results in a multivariate setting to control for firm, stock and ownership characteristics.

4.1. Univariate Analysis

In the first three columns of Table 3 we show the mean cumulative abnormal returns calculated from the market model (henceforth "MCAR") for high and low IT firms.

[Insert Table 3]

As shown in Figure 1 and Table 3, the patterns and magnitude of the difference in the MCARs around the Lehman's bankruptcy for stocks held by short-term and long-term investors is striking. In Table 3 and starting from the period before week 0, we find that the *MCAR*s turn, first, negative several weeks before Lehman's bankruptcy for both sets of stocks and, then, they becomes slightly positive *only* for stocks held by long-term investors. Specifically, MCARs reach about -8.07% for high IT stocks and are instead positive and equal to 1.30% for low IT stocks in week 0, with the difference being larger than 9% and carrying statistically significance at the 1% confidence level. These differences in the price declines between the two groups of stocks and before week 0 may be consistent with the model of Bernardo and Welch (2003) where investors, seeing signs of possible market declines in the near future (CDS spreads indicated this in the summer of 2008), start re-positioning their portfolios away from stock holdings and into cash positions. Importantly, our maintained hypothesis holds that such behavior should be mostly true for short-term investors and this is corroborated by the evidence.

Following week 0, the difference in the MCARs between the two sets of stocks continues to widen but with a somewhat volatile pattern, reaching 13.40% in week +2, 11% in week +4 and remaining in this range until week +12. Most importantly, the difference in the MCARs starts declining from week +13 onwards as the MCARs for both sets of stocks become less negative and especially the MCARs for stocks held by short-term investors quickly recover. The difference in MCARs decreases to 7.20% in week +15 and 5.78% in week +18. Following week +19, the difference in MCARs becomes statistically insignificant and economically small by week +23. Prices seem to stabilize and stop reversing from their drops from week +19 onwards. At this time, as Coval and Stafford (2007) and Mitchell, Pedersen and Pulvino (2007) argue in a similar context, prices may be considered to have converged to their fundamental values. This same pattern in the difference between MCARs can be visually seen in Figure 1.

To investigate the robustness of our results, we also calculate mean cumulative abnormal returns using the size-and book-to-market-based benchmark (FFCARs). The results are shown in the last three columns of Table 3 and in Figure 3. The pattern and magnitude in the difference of FFCARs of stocks held by short-term and long-term investors is robust to this alternative methodology, thus confirming the hypothesis that trading horizon acts as amplification mechanism during market shocks. Taken together, the evidence in Table 3 and Figures 1 and 2 clearly indicates that the mean cumulative abnormal returns reaches a minimum around week +8 and thus suggests that the reversals may have started around that time.

[Insert Figure 2 here]

In Table 4, we explore more directly whether the empirical evidence is consistent with larger drops and reversals. Our maintained assumption that prices drop should be larger for high IT stocks implies that in the interval surrounding the bankruptcy of Lehman, the mean cumulative abnormal returns of stocks held by short-term investors should be significantly lower. If such price declines are not due to changes in fundamentals, but rather caused by short-term investors forced selling, then we should expect investors to slowly return and buy such stocks. In such a case, during the reversal period, which the data indicate to start approximately after week +8, we expect stocks held by short-term investors to experience significantly larger (positive) abnormal returns and cumulative abnormal returns compared to stocks held by long-term investors.

[Insert Table 4 here]

Panels A and B of Table 4 present the results using MCARs and FFCARs respectively and support our conjecture. We also present results excluding financial firms which may have been more exposed to Lehman's bankruptcy and may affect our results if they attract investors with systematically shorter trading horizon. For robustness, we use alternative windows that are consistent with the drop and reversal periods. We start showing that up to 10 weeks before the Lehman's bankruptcy there were no significant differences in cumulative abnormal returns between high and low IT stocks. Both MCAR and FFCAR are not statistically different in the interval [-15,-10], although the differences become statistically significant with FFCAR if we exclude financial companies from the sample.

In the weeks surrounding Lehman's bankruptcy and up to week +8, stocks held by short-term investors clearly underperform stocks held my long-term investors. This result does not depend on the specific interval we choose.

To investigate price reversals, we use alternative intervals starting from week +3, when the price declines of high IT stocks start to bottom-out, and measure mean cumulative abnormal returns in subsequent weeks. Since following week +8 the MCARs for both sets of stocks become less negative, we also construct intervals for the reversals periods starting at +9. In all cases, it appears that in the weeks subsequent to Lehman's bankruptcy (but excluding the period of the largest drop), high IT stocks experience higher abnormal returns than low IT stocks. Importantly, the MCARs of stocks held by short-term investors improve more than those of stocks held by long-term investors. For example, from week +9 to the period that ranges from week +18 to week +25, high IT firms have 6.75% and 10.34% higher abnormal returns, when we use MCARs. Although larger for high IT stocks, the FFCAR appear to be negative even during the reversal period.[6] This is, however, due to the fact that when we use the FFCAR the reversals appear to start somewhat later (week +15); the FFCAR of high IT stocks would be positive if we used the relevant interval.

The evidence presented points clearly to the heterogeneity of price response across stocks depending on the trading horizon of the investors holding the stocks. Not only the initial declines but also the reversals are influenced by the trading horizon of the investors. While the shock caused by Lehman's bankruptcy causes significant price declines across all stocks, the price reaction (price

[6] Note that the deviation of the firms' return from the size and market-to-book portfolios we use here can all be negative, because we are censoring cumulative abnormal returns at the 5% level and the CRSP sample from which we calculate returns is larger than the sample of firms for which we can measure investor turnover.

decline) is statistically larger for stocks held by short-term investors compared to stocks held by long-term investors. This is consistent with our maintained hypothesis that the institution's trading horizon defines its *exposure* to any panic selling that occurs with severe market declines and is directly related to any forced selling that happens in such events. Hence, when a market-wide shock happens, and panic selling takes place, this leads to a larger reaction for stocks held by short-term investors since these type of investors are more likely to dump their holdings rather than waiting out the storm and sell after prices have recovered to their fundamental values.

Next we explore to what extent the heterogeneous price response of the two groups of stocks can be explained by firm and stock characteristics rather than the trading horizon of the institutions holding the stock. Recall that the statistics shown in Table 2 indicate that short-term investors tend to hold growth-oriented firms and liquid stocks compared to long-term investors. Furthermore, stocks held by short-term investors exhibit higher volatility than those held by long-term investors. It is then plausible to argue that the driving mechanism of the difference in MCARs is the set of firm and stock characteristics that attract certain type of investors because of their preferences, and not the trading horizon itself.

To start investigating this line of argument, we sort firms in quintile portfolios based on each of the characteristics that could most likely differentiate the returns of high and low IT stocks. Thus, we create quintile portfolios using, in turn, stock liquidity, measured by the share turnover; the volatility of stock returns; the stock past returns; the firm size, measured by the firm's stock market capitalization; and firm growth opportunities, measured by the book-to-market ratio. Then, for each of the above quintile portfolios, we compare the MCAR (and the FFCAR) of low and high IT firms in the intervals corresponding to drops and reversals. When we use the FFCAR we do not perform the comparison for quintiles based on size and book-to-market ratio because in this case the the benchmark are constructed on the basis of size and book-to-market portfolios.

[Insert Table 5 here]

The results in Table 5 are broadly consistent with larger drops and reversals for stocks held by short-term investors compared to stocks held by long-term investors, thus confirming that investors' horizons remain crucial even after considering firm characteristics. Even though in a few instances the differences between high and low IT stocks are not statistically significant at conventional levels, the sign of the differences is always consistent with our hypotheses.

Importantly, stock liquidity does not appear to affect the extent of the differences in drops and reversals between high and low IT stocks. Selling and buying pressures should be more easily absorbed in liquid stocks. However, short-term investors that need to liquidate their positions may be more likely to sell highly liquid stocks to reduce the negative price impact. This behavior, in turn, generates even larger selling pressure for liquid stocks and makes the effect of the shock equal for stocks with different levels of liquidity.

Furthermore, larger drops and reversals for high IT stocks emerge clearly also when we sort stocks on the basis of their past returns. This is comforting because short-term institutional investors –as opposed to the ones with long-term horizons– are known to be momentum traders (Yan and Zhang, 2009). The robustness of the results across different quintile portfolios sorted on past returns indicates that our results are not driven by the momentum effect.

Finally, our results appear to be stronger both economically and statistically for larger firms. This is encouraging for the following reason. Yan and Zhang (2009) argue that short-term institutions possess superior information about future returns. Any informational advantage should be greater for small firms. If our results were stronger for small firms, it could be possible to argue that short-term institutions' sales are prompted by their informational advantage predicting the more sever drops (albeit not the large reversals). The results in Table 5 suggest that this is not the case.

Overall, the main conclusion that we can draw from Table 5 is that our maintained hypothesis on the heterogeneity of price responses of high and low IT stocks is supported also after controlling for firm and stock characteristics.

4.2 Multivariate Analysis

So far the univariate analysis suggests striking differences between the performance of stocks held by short and long-term investors, even in subsamples of firms that are more similar on the basis of some selected observable characteristics. In this section, we investigate whether investor horizons affect firm returns after controlling for firm, stock and ownership characteristics that can potentially affect the exposure of firms to the market shock. In this way, we can also consider that investor turnover varies continuously across the sample firms.

The results for price drops are shown in Table 6. We consider as the drop period the interval [-10,+8], i.e. from the week when firms start to experience negative abnormal returns until the week when the cumulative abnormal returns of the two groups of stocks appear to bottom-out.

[Insert Table 6 here]

In columns 1 and 2 in Panel A of Table 6, we investigate the effect of the investor turnover on the price change during the drop period. Using this dependent variable, we make sure that the results we have shown so far are not an artifact of the specific benchmarks we use to measure normal returns. It clearly emerges that, consistently with the univariate analysis, stocks with higher investor turnover experience larger price declines. For instance, in column 2, a one-standard deviation increase in investor turnover is associated with over 6% lower returns.

In the remaining columns of Panel A of Table 6, we use the cumulative abnormal return over the same period as before (from week -10 to week +8), instead of price changes. In this way, we fully control for the firms' exposure to market shocks using the two different benchmarks discussed in Section 3 and controlling for firm, stock, and investor characteristics. Also in this case the estimates show a consistently negative effect of investor turnover on firms' stock market performance, which is robust to the inclusion of the control variables. Once again the effect is economically large: In column 4, increasing investor turnover by one standard deviation leads to almost 2.5% lower cumulative abnormal returns.

The effect is qualitatively invariant when we control for firm characteristics, stock characteristics and investor characteristics. In particular, the effect of the trading horizon channel is robust to the inclusion of many other variables aimed at controlling for competing hypothesis, specifically differences in shareholders' investment style (as proxied by the Active Share Measure, capturing the extent to which an institutional investor's portfolio deviates from the Russell 1000 index), and the possibility that institutional investors pursue momentum trading strategies (as captured by Past Returns).

So far we have shown that our results are robust to controlling for time-invariant firm characteristics. During periods of turmoil, however, stock characteristics such as liquidity may dramatically change. Although this channel would not be necessarily inconsistent with our maintained hypothesis, in Panel B, we revisit our tests in order to be able to control for time-varying stock characteristics. Instead of considering cross-sectional regressions of firms' CARs, we explore the effects of investors' turnover in a panel of firm abnormal returns defined for the period [-10,+8]. We cluster the errors at the firm level to account for the possible correlation of returns for the same firm and include week fixed effects to account for systematic shocks affecting all firms at a given date. In these specifications, we also include firms' previous returns over different intervals to control more carefully for the possibility that our results may be due to the momentum effect.

The estimates in Panel B of Table 6 show that even controlling for contemporaneous changes in firm liquidity and past returns over different intervals, investor turnover is still associated to lower abnormal returns. A one-standard deviation increase in investors' turnover appears to lead to almost 0.2% lower abnormal returns on average for each week during the drop period. Interestingly, while in the cross-sectional regressions of panel A, highly liquid stocks (stocks with high share turnover) experience lower abnormal returns suggesting that institutional investors sell especially liquid stocks, in these specifications, share turnover does not appear to be associated with firm abnormal returns, while the bid-ask spread is positive and marginally significant only in a few regressions. Thus, there is only weak evidence that higher liquidity leads to higher abnormal returns during the drop period suggesting that the price effects we detect are not driven by changes in liquidity.

We next perform the same steps to explore the effects of investor turnover on the price reversals, while controlling for other variables that may influence such reversals. The results are shown in Table 7.

[Insert Table 7 here]

We first use the price reversals that occur from week +9, the week when cumulative abnormal returns appear to bottom-out, to week +25, the week when prices appear to stop their reversal process. The coefficient estimates are shown in Table 7. The effect of the investors' trading horizon is robust to the inclusion of various control variables and confirms that the more short-term investors hold a stock, the larger is the price reversal. The results are confirmed when we use cumulative abnormal returns and abnormal returns. The effect of investor turnover on firms' returns during the reversals is not only statistically but also economically significant: In column 4 of Panel A of Table 7, a one-standard deviation increase in investor turnover increases firms' cumulative abnormal returns by approximately 3%.

Overall, it appears that since our results are robust after controlling for various stock characteristics, including size, book-to-market, and past returns, they cannot be explained by short-term institutions following certain investment styles that have been shown to explain cross-sectional stock returns.

Some of the control variables in Table 6 and Table 7 also provide interesting information and additional support for our maintained hypothesis. For instance, it does not appear that the extent to which institutional investors actively manage their portfolios (as opposed to following an index) is related to the firm's return during drops or reversals (only in column 2 of Panel A of Table 2, we find a marginally significant and negative coefficient of the active share variable). This suggests that the return patterns we observe are unlikely to be related to active investors' expectations on firms' future performance.

Interestingly, stocks of firms with high institutional ownership perform better, especially during the drop period, possibly because these stocks are more likely to attract the few financially unconstrained buyers during market turmoil. This interpretation is also supported by the finding that firms whose shareholders experienced smaller negative shocks to their portfolios between 2007 and 2008 (larger change in portfolio value) experience less severe price drops as well as smaller reversals (although the evidence is weaker in the latter case).

Finally, it is comforting that firm abnormal returns after the market decline are related to firms fundamentals in a plausible way. The market turmoil surrounding the Lehman's bankruptcy determines lower returns for high leverage firms, which are likely to have higher demand for commercial and investment banking services. Also, unsurprisingly, firms with high profitability perform better during the market decline.

4.3 Exogenous Variation in Investor Turnover

As discussed before, investor turnover may capture both the trades whose motivation is to generate profits (or limit losses) and the trades forced by other reasons such as capital constraints and investor flows. Forced trades, being unlikely to be related to the institution's investment style or information, directly capture that investor horizon is often shortened by external constraints and allow us to more directly test the mechanism behind our maintained hypothesis.

To capture variation in investor horizon due to forced trades, we compute the correlation between institutions' previous portfolio performance (generated solely by the price changes of the stocks held in their portfolios) and change in assets under management. We call this measure as the Trading-Performance Sensitivity 1. Since we are particularly interested in the relation between previous price performance and assets under management during severe market declines, we also compute this same correlation during periods of very poor market performance. We call this measure as the Trading-Performance Sensitivity 2. Both in good and in bad times, the correlation between previous performance and assets under management may differ depending on the institution’s reputation, nature of investment etc. Especially during bad times, investors with lower correlation between assets under management and previous performance have the possibility to take a longer horizon on their investment and are expected to have lower investor turnover.

Since we observe ownership at a quarterly frequency, we compute the correlation using the returns on the assets under management at the quarter *t-1* and the subsequent change in assets under management between *t* and *t+1*, net of any price changes of assets already in the portfolio at *t-1*.

We average Trading-Performance Sensitivity 1 and Trading-Performance Sensitivity 2, weighing each of them with the ownership shares of different shareholders, as we do for obtaining the investor turnover. We use these averages as instruments in our cross-sectional regressions (with a slight abuse of notation, we continue to refer to them using the same labels).[7] As expected, in

[7] Since previous literature explores the correlation between previous performance and assets under management considering one-year intervals, in alternative specifications that we do not report for brevity, we use as instruments also other three correlations using the contemporaneous correlation between assets under management and performance during the same quarter and the correlation between assets under management and performance at t-2 and t-3 respectively. In these specifications, we do not use the correlation between assets under management and previous performance computed during bad times. The results are qualitatively similar to the ones we report. We also use another alternative specification (not reported for brevity) where we only use, as instrument, the correlation measure obtained during severe market declines. The results are qualitatively similar to the ones we report in Table 8.

Panel B of Table 2, the correlation between Trading-Performance Sensitivity 1 and the investor turnover is positive and statistically significant at the 10% level. Trading-Performance Sensitivity 2 is even more highly related to the firm's investor turnover.

Based on the test developed by Staiger and Stock (1997), Trading-Performance Sensitivity 1 and 2 are strong instruments for investor turnover as in the first stage, after controlling for all other regressors included in the second stage, the instruments appear to be strongly significant and their joint F test of the instruments is 36.32. In addition, in all cases, but one, the test of over-identifying restrictions does not allow us to reject the null that the instruments are valid.

[Insert Table 8 here]

The results of the instrumental variables estimates presented in Table 8 confirm our previous findings that firms with high investor turnover experience more severe drops and then larger reversals in periods of large market declines. In all cases, the coefficient increases in absolute values suggesting that the measurement errors in the ordinary least squares estimates inflate the standard errors.

4.4 The Trading Activity of Institutional Investors

Our maintained hypothesis implies that during severe market declines, short-term investors are more likely to engage in panic selling than long-term investors. It is precisely this massive selling that should be the driving factor of the differences in the MCARs that we have documented so far. For this reason, we investigate the buying and selling activity of short-term and long-term institutions over our event window. To provide a better perspective of the trading activity of institutions in such a period, we start our analysis from the first quarter of 2007. This allows us to investigate trading activity during normal times and compare it to what happens during the event window.

[Insert Figure 3 here]

A number of striking results emerge from Figure 3 where we investigate institutional investors’ net share volume. If we focus on the quarters included in our event window, i.e. from the third quarter of 2008 until the second quarter of 2009, we see a dramatic increase in the selling activity of short-term investors. This large selling pressure is evident when we compare the behavior of short-term investors with (a) long-term investors during the same period, and (b) the normal trading pattern exhibited by short-term investors in most of the quarters outside of our event window. In fact, with the possible exception of the fourth quarter of 2007 (which itself could be the direct impact of the credit crunch crisis that started earlier in that same year), the net selling positions of short-term investors in the second and third quarter of 2008 and first quarter of 2009 are by far larger than the selling pressure recorded during any other quarter under investigation.[8]

Importantly, starting from the first quarter of 2009, long-term investors are net buyers. This helps us to evaluate the mechanisms leading to price reversals. Most theoretical models (e.g., Grossman and Miller, 1988; Shleifer and Vishny, 1997) imply that prices converge back to fundamentals because of the resolution of fundamental uncertainty. In this case, the price reversal would not involve large turnover. Another possibility is that fundamental uncertainty does not vary much, but new arbitrageurs arrive or long-term investors significantly expand their positions. We find evidence of capital inflows in stocks held by short-term investors, but these are modest, implying that reversals partially occur also because of the resolution of fundamental uncertainty.

An alternative interpretation of the empirical evidence, which we tend to exclude on the basis of the results of the portfolio sorting and the multivariate analysis, is that short-term investors sold more in the aftermath of the market decline not because of their trading strategy, but because they held stocks that on some unobservable dimensions – not included and not correlated with our long list of controls – may have justified their sales. One way to investigate this possibility is to examine the trading behavior of short-term institutions in stocks mostly held by their peers (high IT firms) and in stocks held mostly by long-term investors (low IT firms). Figure 4 investigates visually the selling propensity of both types of investors and, in doing so, evaluates the merits of this alternative interpretation. It clearly shows that short-term investors exhibit very similar propensities to liquidate high and low IT stocks.

[Insert Figure 4 here]

The empirical evidence indicates that massive selling did take place and it originated mostly from short-term investors' trading strategy, not from the characteristics of the stocks they weighted more in their portfolios. This selling pressure generated by short-term investors amplified the shock for the stocks they held to a larger extent in their portfolios.

[8] Note that this does not depend (only) on the fact that short-term investors manage more assets. As mentioned in the introduction, short-term investors sold on average 21% of their portfolios, while long-tern investors sold only 7%.

5. Conclusions

This paper investigates whether institutional investors' short horizons amplify the effects of market-wide shocks on stock prices. Short-term and long-term institutional investors have different incentives and constraints that should have direct impacts on their trading behavior during severe market declines and may consequently affect the prices of the stocks they hold. Since short-term returns are more important for investors with short-term horizons, we expect short-term investors to sell the stocks they hold during severe market declines to a larger extent than long-term investors who have the possibility of waiting out the storm and hold onto their shares. Thus, during these episodes, the selling pressure experienced by different firms may vary depending on the length of their shareholders' investment horizons. When panic selling occurs, transaction prices may temporarily deviate from fundamental values (Shleifer and Vishny (1992, 1997)). The speed at which prices revert to their fundamental values depends on market liquidity and on the extent to which arbitrageurs are able to take advantage of opportunities.

We test the relevance of this mechanism by exploiting the negative shock caused by Lehman Brothers' bankruptcy in September 2008. Several key results emerge. After controlling for firm characteristics, such as liquidity, volatility, size and book-to-market, we find that stocks held by short-term institutional investors experience more severe price drops and larger price reversals than those held by long-term investors. Neither are the results driven by the characteristics of the investors' trading strategies or styles, such as active management or momentum trading strategies. Furthermore, we find that short-term investors sell significantly more than long-term investors around and after the Lehman Brothers' bankruptcy. Overall, this empirical evidence suggests that investors' short horizons may amplify the effects of negative shocks during severe stock market declines.

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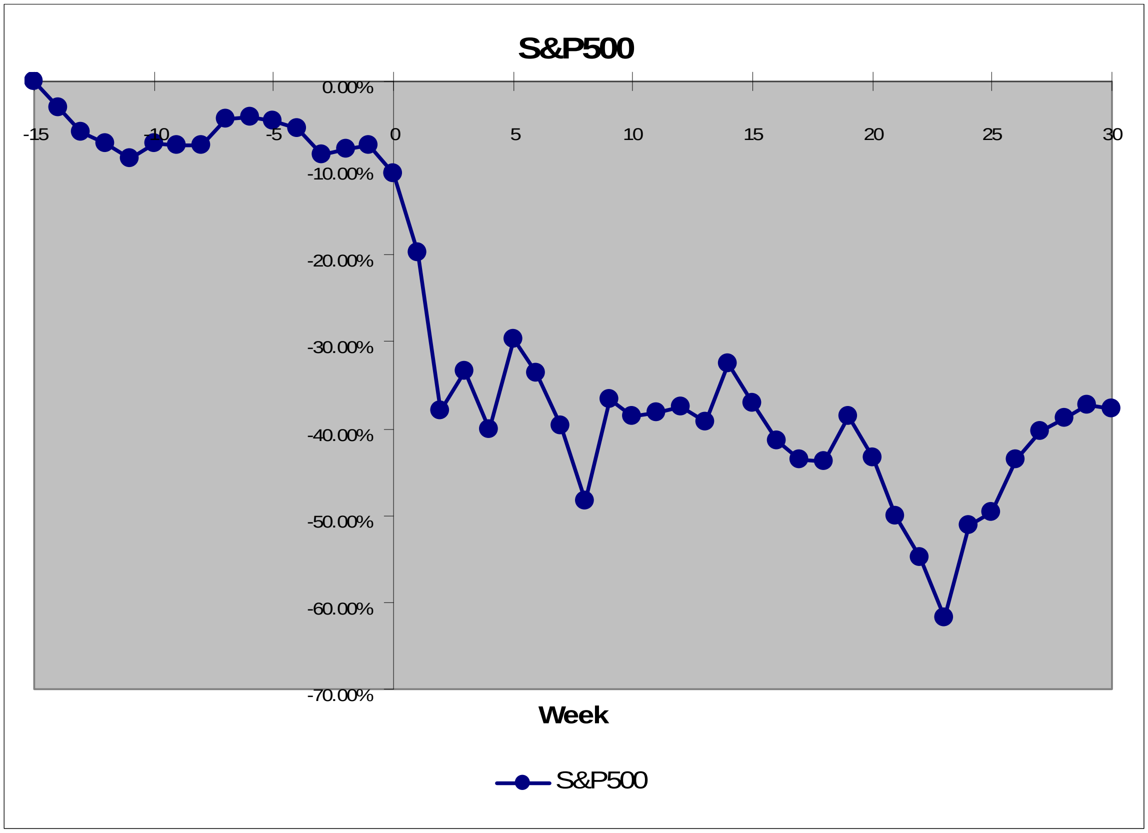
Appendix A

Figure A
The S&P 500 Movements Before and After Lehman Brothers' Bankruptcy

The graph shows the cumulative abnormal returns of the S&P 500 Index from June 1, 2008 until April 17, 2009. Week 0 is the week when Lehman Brothers' bankruptcy occurred (week beginning on Monday September 15, 2008).



Appendix B
Variable Definitions

Panel A. Investors' Portfolios Characteristics	
Churn Ratio	The churn ratio measures how frequently institutional investors rotate their positions on all the stocks of their portfolio and is constructed as in Gaspar *et al.* (2005), p. 9.
Change in Portfolio Value	For each institutional investor, we calculate the difference between the value of the investor's portfolio at the end of the year 2007 and at the end of February 2008, as follows: $$\mathrm{c_i} = \sum_{j \in Q} \mathrm{N_{j,i}} (p_{feb08} - p_{dec07}).$$ Then, we capture changes in portfolio value of the investors in each firm using the following weighted average: $$\text{Change in Portfolio Value}_i = \sum_{\mathrm{i} \in \mathrm{Q}} \mathrm{w_{i,j}} c_\mathrm{i}$$ where $w_{i,j}$ is given by the total number of shares held by investor i in firm j divided by the total number of shares held by all investors in the last quarter of the year 2007.
Active Share Measure	The active share measures the proportion of an institutional investor's portfolio that deviates from the benchmark index (see p. 3,335 of Cremers and Petajisto (2009) for the details). We use the Russell 1, 000 for the year 2006 as the benchmark index. The Russell 1000 is usually rebalanced the last Friday in June; therefore our active share measure is computed over the period from the third quarter of 2006 until the first quarter of 2007.
Trading-Performance Sensitivity 1	The correlation for each institutional investor i between the portfolio performance in quarter t and net trading (buying less selling) in quarter t+1. Portfolio performance is computed in the following way. First, we compute the change in the price for each stock j held by each institutional investor i between beginning of quarter t and end of quarter t. Second, we multiply the price change of each stock j with the dollar weight of stock j in the portfolio of investor i at the beginning of the quarter t. In this way, we obtain the portfolio performance due to price changes of the stocks held by investor i. We measure the net trading of investor i as the number of shares bought during quarter t multiplied with the price at the end of quarter t less the number of shares sold during quarter t multiplied with the price at the end of quarter t. Computed over the period from the first quarter of 1990 until the fourth quarter of 2006.
Trading-Performance Sensitivity 2	This correlation measure is calculated similarly to Trading-Performance Sensitivity 1 but it is only calculated using quarters during which the S&P 500 Index experiences the largest declines. We first calculate and then sort the quarterly performance of the S&P 500 from 1990 to 2006 and use exclusively the quarters with index performances in the bottom decile. Each of these quarters represent quarter t. Following this, we measure the correlation for each institutional investor i between the portfolio performance in quarter t and net trading (buying less selling) in quarter t+1 as explained for the Trading-Performance Sensitivity 1 above.

Panel A. Continued - Investors' Portfolios Characteristics	
Percentage Ownership	The percentage ownership of a 13-F institutional investor in a firm.
Portfolios Size	The total value, in million of dollars, of the institutional investor's portfolio at the end of each quarter.
Portfolio Weight	The weight that each stock has in the institutional investor's portfolio at the end of each quarter. This variable is constructed as: $$w_{i,j,t} = \frac{N_{j,i,t} * p_{j,t}}{\text{portfolio's size}_{i,t}}$$ where $N_{j,i,t}$ represents the number of shares of stock j held by investor i at the end of the quarter t and $p_{j,,t}$ represents the price of stock j at the end of quarter t. Portfolio's size is the size, in million of dollars, of the portfolio of investor i at the end of the quarter t.
Number of Stocks	For each quarter, the total number of stocks for which an institutional investor filed a 13F.

Panel B. Ownership Characteristics	
Investor Turnover	A firm's investors turnover is the weighted average of the total portfolios churn ratios of its investors from the first quarter of 1990 until the last quarter of 2006.
Institutional Ownership	The percentage of the shares held by all institutional investors.
Insider Ownership	The percentage of the shares held by insiders (founders, CEOs, etc).
Ownership Concentration	The Herfindal index of the institutional investors' ownership in each firm.
Number of Institutional Investors	The number of institutional investors in each firm.

Panel C. Stock Characteristics	
Market Cap	The company's shares outstanding multiplied by current market price (in million of dollars).
Market-to-Book	The market value of equity divided by the book value of common equity.
Share Turnover	The daily volume of shares transacted divided by the number of shares outstanding.
Bid-Ask Spread	The average difference between bid and ask quotes divided by the daily price.
Beta	The beta of stock j is calculated using the market model and weekly returns of the stock and the S&P 500 index starting from 2006 to the end of the first quarter of 2008.
Bank Exposure	The stock's exposure to the banking industry and is calculated similarly to beta but instead of the return of the S&P 500 we use the stock returns of the banking sector as measured by the Datastream banking sector index for the US .
Past Returns	The daily stock returns over the 180 days before June 1, 2008.
Return Variability	The standard deviation of daily stock returns over the preceding two years.
Dividend Yield	The dividends per share divided by price per share.

Panel D. Firm Characteristics	
Firm Size	The natural logarithm of total assets as of December 2007.
Return on Assets	Net income at time t divided by total assets at time $t-1$.
Leverage	The book value of debt divided by the book value of total assets as of December 2007.

Table 1
The Portfolios of Institutional Investors

This table describes the main characteristics of the institutional investors' portfolios. All variables are defined in Appendix B and are winsorized at the 5%. Active Share Measure is an average computed over the period from the third quarter of 2006 up to and including the first quarter of 2007. Trading-Performance Sensitivity 1 and 2 are measured for the entire period from 1990 to 2006. All other variables are computed as averages for each quarter of 2007.

	N	Mean	SD	P05	Median	P95
Churn Ratio	2,622	0.34	0.35	0.02	0.22	1.08
Active Share Measure	2,055	29.00%	10.11%	9.14%	29.96%	43.97%
Trading-Performance Sensitivity 1	1,812	-0.08	0.19	-0.37	-0.09	0.25
Trading-Performance Sensitivity 2	2,038	-0.05	0.23	-0.40	-0.06	0.36
Percentage Ownership	2,622	0.16%	0.15%	0.01%	0.11%	0.45%
Portfolio Size	2,622	2,190	7,340	23	315	9,420
Portfolio Weight	2,622	4.47%	12.37%	0.11%	1.41%	16.67%
Number of Stocks	2,622	211	465	6	71	922

Table 2
Firm Characteristics

This table presents descriptive statistics about the main ownership, stock, and firm characteristics of firms held by institutional investors. For the last quarter of the year 2007, we obtain ownership data from Thompson Reuters, stock's information from CRSP and accounting information from COMPUSTAT. We divide the entire sample in terciles using firms' investor turnover measured by the average investor turnover over the period 1990-2006. A firm is classified as a firm held by long-term institutional investors (Low IT Firm) if it belongs to the first tercile. A firm is classified as a firm held by short-term institutional investors (High IT Firm) if it belongs to the third tercile. Panel A reports descriptive statistics for the firms' ownership characteristics, their institutional investors' portfolio characteristics, the stocks' characteristics and the firms' characteristics of the entire sample, High IT Firm and Low IT Firms. We also report the Wilcoxon test for the difference in the medians of the various variables between low and high IT firms. Panel B provides the time-average of the cross-sectional pairwise correlation coefficients between the ownership characteristics, the stocks' characteristics and the firms' characteristics for the entire sample. We report the result of the significance level of correlation coefficients using the Bonferroni adjustment to calculate significance levels. In Panel B, * indicates significance at 10% or less. All variables shown are described in Appendix B and are winsorized at the 5%.

Panel A. Descriptive Statistics – Ownership Characteristics and Investors' Portfolio Characteristics

		Whole Sample					High IT Firms			Low IT Firms			Test
Variable	N	Mean	SD	P05	Median	P95	Mean	Median	SD	Mean	Median	SD	p-value
Ownership Characteristics													
Investor Turnover	3,949	0.27	0.09	0.16	0.26	0.44	0.37	0.34	0.09	0.19	0.20	0.03	0.000
Active Share Measure	3,941	26.04%	3.90%	19.50%	26.40%	31.20%	25.74%	26.08%	4.10%	26.22%	26.55%	4.19%	0.003
Trading-Performance Sensitivity 1	3,936	-0.09	0.07	-0.16	-0.10	0.02	-0.07	-0.08	0.08	-0.10	-0.11	0.07	0.000
Trading-Performance Sensitivity 2	3,940	-0.06	0.08	-0.15	-0.07	0.06	-0.04	-0.05	0.08	-0.07	-0.08	0.08	0.000
Institutional Ownership	3,923	21.57%	16.16%	1.82%	18.51%	50.88%	19.90%	15.43%	16.02%	19.10%	15.62%	14.99%	0.319
Insider Ownership	3,196	6.14%	5.10%	0.03%	7.08%	13.42%	3.90%	1.86%	5.02%	8.33%	7.28%	4.78%	0.000
Ownership Concentration	3,934	6.67%	11.20%	1.00%	2.81%	24.73%	7.05%	3.50%	10.53%	8.09%	3.19%	13.36%	0.2528
Number of Institutional Investors	3,946	74	74	5	51	223	57	40	54	77	46	87	0.029
Investors' Portfolio Characteristics													
Portfolios Size	3,949	31,400	12,100	16,700	29,100	54,300	30,500	28,700	10,100	35,200	32,900	15,000	0.000
Portfolio Weight	3,949	0.18%	0.21%	0.01%	0.13%	0.51%	0.21%	0.15%	0.24%	0.14%	0.09%	0.18%	0.000
Number of Stocks	3,949	1,962	587	1,172	1,888	3,050	1,957	1,884	533	2,087	2,020	667	0.000

Panel A. Continued - Descriptive Statistics – Stock Characteristics and Firm Characteristics

		Whole Sample					High IT Firms			Low IT Firms			Test
Variable	N	Mean	SD	P05	Median	P95	Mean	Median	SD	Mean	Median	SD	p-value
Stock Characteristics													
Market Cap	3,948	1,040	1,840	35	365	4,380	704	301	1,220	1,210	298	2,300	0.612
Market-to-Book	3,160	2.19	1.59	0.51	1.70	5.78	2.46	1.89	1.78	1.94	1.56	1.39	0.000
Share Turnover	3,934	0.69%	0.57%	0.06%	0.53%	1.87%	0.78%	0.59%	0.62%	0.50%	0.38%	0.46%	0.000
Bid-Ask Spread	3,937	0.52%	0.68%	0.10%	0.26%	1.80%	0.50%	0.28%	0.62%	0.66%	0.30%	0.83%	0.098
Beta	3,949	1.0004	0.0060	0.9902	1.0006	1.0098	0.9999	1.0001	0.0069	1.0003	1.0007	0.0052	0.002
Bank Exposure	3,949	-0.0011	0.0000	-0.0012	-0.0011	-0.0011	-0.0011	-0.0011	0.0000	-0.0011	-0.0011	0.0000	0.584
Price	3,949	19.76	14.02	3.55	15.41	49.04	16.48	13.53	12.00	22.22	17.79	15.03	0.000
Past Returns	3,521	-12.45%	20.10%	-49.81%	-10.20%	20.02%	-14.90%	-11.61%	20.67%	-11.49%	-9.70%	19.49%	0.000
Return Variability	3,949	1.62%	0.44%	0.71%	1.70%	2.20%	1.67%	1.82%	0.50%	1.58%	1.62%	0.37%	0.000
Dividend Yield	1,038	1.46%	3.50%	0.16%	0.67%	3.72%	1.83%	0.71%	3.81%	1.11%	0.70%	2.65%	0.413
Firm Characteristics													
Firm Size	3,418	5,262	56,689	31	639	10,401	1,256	391	2,899	9,354	840	82,873	0.000
Return on Assets	3,117	1.69%	10.08%	-19.19%	2.76%	14.16%	-0.29%	2.04%	12.52%	2.91%	2.58%	7.14%	0.000
Leverage	3,254	18.35%	17.46%	0.00%	14.42%	52.57%	16.58%	10.00%	18.43%	18.68%	15.83%	15.93%	0.000

Panel B. - Correlation Matrix

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ownership Characteristics								
(1)	Investor Turnover	1.00						
(2)	Active Share Measure	-0.09*	1.00					
(3)	Trading-Performance Sensitivity 1	0.17*	-0.20*	1.00				
(4)	Trading-Performance Sensitivity 2	0.22*	-0.18*	0.93*	1.00			
(5)	Institutional Ownership	-0.03	0.24*	-0.22*	-0.18*	1.00		
(6)	Insider Ownership	-0.29*	-0.02	-0.005	-0.03	-0.15*	1.00	
(7)	Ownership Concentration	0.01	-0.14*	0.22*	0.17*	-0.49*	0.11*	1.00
Stocks' Characteristics								
(8)	Market Cap	-0.11*	0.26*	-0.12*	-0.11*	0.49*	0.01	-0.22*
(9)	Market-to-Book	0.13*	0.02	-0.08*	-0.06*	0.22*	-0.03	-0.10*
(10)	Share Turnover	0.14*	0.11*	-0.10*	-0.06*	0.57*	-0.23*	-0.30*
(11)	Bid-Ask Spread	-0.04	-0.17*	0.21*	0.16*	-0.50*	0.19*	0.57*
(12)	Beta	-0.04	0.03	-0.01	-0.01	-0.01	0.01	-0.01
(13)	Bank Exposure	-0.07*	0.01	-0.02	-0.02	0.04	0.01	0.02
(14)	Price	-0.16*	0.24*	-0.14*	-0.12*	0.51*	0.03	-0.27*
(15)	Past Returns	-0.05	0.01	0.00	-0.02	0.05	0.04	-0.03
(16)	Return Variability	0.09*	-0.05	-0.02	0.02	0.21*	0.03	-0.06
(17)	Dividend Yield	0.08	-0.03	0.05	0.04	-0.04	-0.08	-0.04
Firms' Characteristics								
(18)	Firm Size	-0.04	-0.01	-0.01	-0.02	0.02	0.03	-0.03
(19)	Return on Assets	-0.14*	0.06	-0.04	-0.04	0.27*	0.03	-0.11*
(20)	Leverage	-0.06*	0.14*	-0.03	-0.02	0.13*	0.01	-0.08*

Panel B. Continued - Correlation Matrix

	Variable	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Stocks' Characteristics														
(8)	Market Cap	1.00												
(9)	Market-to-Book	0.17*	1.00											
(10)	Share Turnover	0.18*	0.13*	1.00										
(11)	Bid-Ask Spread	-0.29*	-0.14*	-0.39*	1.00									
(12)	Beta	0.00	-0.09*	0.00	-0.01	1.00								
(13)	Bank Exposure	0.04	0.09*	0.02	0.04	-0.41*	1.00							
(14)	Price	0.57*	0.20*	0.21*	-0.41*	-0.06*	0.07*	1.00						
(15)	Past Returns	0.13*	0.09*	-0.13*	-0.12*	0.39*	-0.18*	0.22*	1.00					
(16)	Return Variability	-0.09*	0.18*	0.32*	0.12*	0.00	0.10*	-0.12*	-0.20*	1.00				
(17)	Dividend Yield	-0.03	0.04	0.10	-0.02	-0.12*	0.07	0.04	-0.16*	0.15*	1.00			
Firms' Characteristics														
(18)	Firm Size	0.11*	-0.07*	0.02	-0.05	0.02	-0.02	0.07*	0.02	-0.06*	0.00	1.00		
(19)	Return on Assets	0.21*	0.05	0.01	-0.17*	-0.05	0.06*	0.36*	0.19*	-0.22*	0.01	0.00	1.00	
(20)	Leverage	0.15*	-0.08*	0.09*	-0.11*	0.02	-0.05	0.14*	0.00	-0.18*	0.15	0.03	0.00	1.00

Table 3
Mean Comparison test of Weekly Cumulative Abnormal Returns

This table reports mean cumulative abnormal returns of high and low IT stocks. We divide the entire sample in terciles using firms' investment horizons measured by the average investors' turnover over the period 1990-2006. A firm is classified as a firm held by long-term institutional investors (Low IT Firm) if it belongs to the first tercile. A firm is classified as a firm held by short-term institutional investors (High IT Firm) if it belongs to the third tercile. The first three columns show the weekly cumulative abnormal returns calculated using the market model (MCAR) while the last three columns present the weekly cumulative abnormal returns calculated using the Fama and French's methodology (FFCAR). We report a mean comparison test for the difference of mean between the two groups. The average number of observation per week is 3,636 in the test that uses MCAR and 2,648 observations per week in the test that uses FFCAR. * indicates significance at 1% (***), 5% (**), 10% (*). Cumulative abnormal returns are winsorized at the 5%.

	MCAR			FFCAR		
Week	(1) High IT Firms	(2) Low IT Firms	(3) (1)-(2)	(4) High IT Firms	(5) Low IT Firms	(6) (4)-(5)
-15	-1.79%	-1.54%	-0.26%	-0.22%	0.09%	-0.31%
-14	-0.70%	-0.98%	0.27%	-0.21%	-0.21%	-0.01%
-13	-1.76%	-2.03%	0.27%	-0.26%	-0.42%	0.16%
-12	-4.12%	-4.70%	0.59%	0.04%	-0.49%	0.53%
-11	-3.85%	-3.99%	0.14%	-0.64%	-0.17%	-0.47%
-10	-4.00%	-2.99%	-1.00%	-0.85%	0.49%	**-1.34%****
-9	-2.70%	-0.82%	**-1.88%****	-1.92%	1.34%	**-3.26%*****
-8	-2.70%	-0.35%	**-2.35%*****	-1.64%	1.59%	**-3.23%*****
-7	-4.91%	-1.63%	**-3.28%*****	-1.97%	1.67%	**-3.64%*****
-6	-3.96%	-0.18%	**-3.78%*****	-2.11%	1.93%	**-4.04%*****
-5	-4.23%	-1.68%	**-2.55%****	-1.49%	1.50%	**-2.99%*****
-4	-2.86%	-0.40%	**-2.46%****	-1.40%	1.37%	**-2.77%*****
-3	-2.65%	0.96%	**-3.61%*****	-2.24%	2.29%	**-4.53%*****
-2	-5.60%	0.50%	**-6.11%*****	-2.79%	3.35%	**-6.13%*****
-1	-6.37%	2.55%	**-8.92%*****	-4.23%	5.18%	**-9.41%*****
0	-8.07%	1.30%	**-9.37%*****	-4.36%	5.29%	**-9.65%*****
1	-8.98%	1.28%	**-10.26%*****	-4.51%	6.87%	**-11.38%*****
2	-11.38%	2.02%	**-13.40%*****	-4.58%	8.11%	**-12.69%*****
3	-9.58%	2.11%	**-11.69%*****	-3.97%	8.25%	**-12.23%*****
4	-9.65%	1.45%	**-11.10%*****	-3.12%	8.37%	**-11.49%*****
5	-10.01%	0.61%	**-10.62%*****	-3.67%	8.47%	**-12.14%*****
6	-8.51%	0.75%	**-9.27%*****	-3.05%	8.35%	**-11.40%*****
7	-10.40%	-1.41%	**-8.99%*****	-3.43%	9.21%	**-12.64%*****
8	-14.05%	-3.47%	**-10.58%*****	-3.86%	8.67%	**-12.54%*****
9	-11.80%	-1.96%	**-9.85%*****	-3.35%	8.62%	**-11.97%*****
10	-12.35%	-1.97%	**-10.39%*****	-1.67%	9.93%	**-11.59%*****
11	-11.50%	-1.49%	**-10.01%*****	-2.50%	8.77%	**-11.28%*****
12	-9.82%	0.50%	**-10.32%*****	-2.34%	8.89%	**-11.22%*****
13	-9.33%	0.26%	**-9.59%*****	-2.76%	8.65%	**-11.41%*****
14	-9.54%	-0.10%	**-9.44%*****	-4.06%	4.65%	**-8.72%*****
15	-4.58%	2.61%	**-7.20%*****	-5.30%	2.57%	**-7.87%*****
16	-4.85%	2.73%	**-7.58%*****	-4.85%	3.19%	**-8.04%*****
17	-6.13%	0.37%	**-6.50%*****	-4.21%	3.12%	**-7.33%*****
18	-5.61%	0.18%	**-5.78%****	-3.48%	2.43%	**-5.91%*****
19	-5.24%	-1.67%	-3.56%	-2.51%	2.27%	**-4.78%*****
20	-4.68%	-1.63%	-3.05%	-2.49%	2.04%	**-4.53%*****
21	-6.54%	-4.02%	-2.52%	-1.73%	2.04%	**-3.77%****
22	-3.69%	-1.45%	-2.24%	-0.55%	1.80%	-2.35%
23	-4.17%	-4.76%	0.59%	-0.55%	2.00%	-2.55%
24	-4.67%	-4.24%	-0.43%	-0.14%	2.58%	**-2.72%***
25	-2.78%	-2.96%	0.18%	-0.68%	1.81%	-2.48%
26	-3.69%	-3.49%	-0.21%	-2.84%	0.86%	**-3.71%****
27	-3.09%	-2.25%	-0.84%	-2.70%	-0.02%	**-2.68%***
28	-1.47%	-1.41%	-0.06%	-2.39%	-0.42%	-1.97%
29	-0.40%	-0.14%	-0.26%	-2.59%	-1.60%	-0.99%
30	0.02%	-0.93%	0.95%	-2.41%	-2.45%	0.03%

Table 4
Drops and Reversals

This table compares the cumulative abnormal returns of stocks held by short term investors and stocks held by long term investors over different intervals (windows). We divide the entire sample in terciles using the average investors' turnover over the period 1990-2006. A firm is classified as a firm held by long-term institutional investors (Low IT Firm) if it belongs to the first tercile. A firm is classified as a firm held by short-term institutional investors (High IT Firm) if it belongs to the third tercile. Panel A shows the cumulative abnormal returns calculated from the market model (MCAR), while Panel B shows the cumulative abnormal returns calculated using the Fama and French's methodology (FFCAR). The last column of both Panel A and Panel B reports cumulated average sample abnormal returns over the event window for the entire sample. In each panel, we report the result of a mean comparison test for the difference of the mean between the two groups. * indicates significance at 1% (***), 5% (**), 10% (*). Abnormal returns are winsorized at the 5%.

Panel A: Cumulated Abnormal Returns calculated using the Market Model (MCAR)

	Whole Sample			NON- Financial Firms Only			Entire Market
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Windows	High IT Firms	Low IT Firms	(1)-(2)	High IT Firms	Low IT Firms	(4)-(5)	$\overline{CAR}(\tau_1,\tau_2)=\sum_{\tau=\tau_1}^{\tau_2}\overline{AR}_\tau$
Drop							
[-15,-10]	-3.19%	-3.17%	-0.02%	-2.99%	-2.04%	-0.95%	-3.34%
[-10,2]	-6.50%	2.51%	**-9.01%*** **	-6.72%	-0.18%	**-6.54%*** **	-4.08%
[-10,8]	-10.69%	-0.90%	**-9.79%*** **	-12.08%	-3.88%	**-8.20%*** **	-9.40%
[0,8]	-7.05%	-3.30%	**-3.75%*** **	-8.59%	-4.54%	**-4.05%*** **	-7.38%
Reversal							
[3, 18]	-0.69%	-6.60%	**5.91%*** **	-3.51%	-5.25%	1.73%	-4.85%
[9, 18]	3.51%	-3.25%	**6.75%*** **	1.76%	-1.60%	**3.36%*** **	0.47%
[9, 25]	3.02%	-7.33%	**10.34%*** **	1.72%	-5.56%	**7.28%*** **	-2.16%
[19,25]	-0.43%	-4.15%	**3.72%*** **	0.07%	-4.06%	**4.13%*** **	-2.63%

Panel B: Cumulated Abnormal Returns calculated using the Fama and French Methodology (FFCAR)

	Whole Sample			NON- Financial Firms Only			Entire Market
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Windows	High IT Firms	Low IT Firms	(1)-(2)	High IT Firms	Low IT Firms	(4)-(5)	$\overline{CAR}(\tau_1,\tau_2)=\sum_{\tau=\tau_1}^{\tau_2}\overline{AR}_\tau$
Drop							
[-15,-10]	-0.34%	-0.14%	-0.19%	-0.14%	0.57%	**-0.70%** **	-0.38%
[-10,2]	-1.96%	3.58%	**-5.54%*** **	-3.09%	1.18%	**-4.26%*** **	-0.19%
[-10,8]	-2.23%	5.68%	**-7.91%*** **	-3.61%	2.88%	**-6.49%*** **	1.16%
[0,8]	-0.27%	3.87%	**-4.14%*** **	-0.91%	2.72%	**-3.62%*** **	2.66%
Reversal							
[3, 18]	-2.45%	-3.63%	**1.17%***	-2.62%	-1.81%	-0.81%	-6.07%
[9, 18]	-2.16%	-5.78%	**3.62%*** **	-2.09%	-3.59%	**1.50%*** **	-7.42%
[9, 25]	-2.19%	-7.87%	**5.67%*** **	-1.93%	-5.47%	**3.54%*** **	-9.24%
[19,25]	0.02%	-2.01%	**2.03%*** **	0.23%	-1.81%	**2.04%*** **	-7.97%

Table 5
Drops and Reversals across Firms with Different Characteristics

This table reports and compares the cumulative abnormal returns of low and high IT stocks over different windows. We divide the entire sample in terciles using firms' investment horizons measured by the average investors' turnover over the period 1990-2006. A firm is classified as a firm held by long-term institutional investors (Low IT Firm) if it belongs to the first tercile. A firm is classified as a firm held by short-term institutional investors (High IT Firm) if it belongs to the third tercile. Stocks are sorted in quintiles based on their characteristics measured at the end of the year 2007 (1 indicates the lowest quintile; 5 indicates the highest quintile). Panel A shows results using cumulative abnormal returns calculated from the market model (MCAR), while Panel B shows results using the cumulative abnormal returns calculated using the Fama and French's methodology (FFCAR). Panel A reports results for firms sorted on their share turnover, volatility, past returns, size (market capitalization) and book-to-market. Panel B reports results for firms sorted on their share turnover, volatility and past returns. Stocks' characteristics are described in Appendix B. In each panel, we report the result of a mean comparison test for the difference of mean between the two groups. * indicates significance at 1% (***), 5% (**), 10% (*).When the statistical significance of the mean comparison test differs from that of the Wilcoxon rank-sum test this latter is reported in parentheses. Abnormal returns are winsorized at the 5%

Panel A: Cumulated Abnormal Returns calculated using the Market Model (MCAR)

		Share Turnover			Return Volatility			Past Returns		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		High IT Firms	Low IT Firms	(1)-(2)	High IT Firms	Low IT Firms	(4)-(5)	High IT Firms	Low IT Firms	(7)-(8)
Drop										
	1	-3.42%	6.92%	**-10.34%*** **	-11.77%	4.54%	**-16.31%*** **	9.50%	13.97%	**-4.47%** **
	2	-6.65%	1.29%	**-7.94%*** **	-1.32%	8.65%	**-9.98%*** **	2.50%	13.19%	**-10.69%*** **
[-10, 2]	3	-8.60%	3.41%	**-12.01%*** **	0.05%	7.24%	**-7.19%*** **	-5.48%	4.16%	**-9.64%*** **
	4	-1.23%	4.69%	**-5.92%** **	-0.86%	1.53%	-2.39%	-9.15%	-0.05%	**-9.09%*** **
	5	-3.97%	5.10%	**-9.07%*** **	-7.75%	-6.66%	-1.09%	-22.91%	-7.07%	**-15.84%*** **
	1	-4.00%	6.85%	**-10.85%*** **	-10.95%	7.93%	**-18.88%*** **	7.13%	10.94%	-3.81%
	2	-7.24%	-0.67%	**-6.57%** **	-4.24%	4.45%	**-8.70%*** **	-1.68%	9.67%	**-11.35%*** **
[-10, 8]	3	-12.36%	-1.62%	**-10.75%*** **	-3.05%	1.27%	**-4.32%* **	-10.26%	1.62%	**-11.88%*** **
	4	-7.04%	-1.76%	**-5.28%* **	-7.18%	-3.06%	-4.12%	-9.31%	-1.39%	**-7.92%*** **
	5	-11.19%	-2.53%	**-8.66%*** **	-14.26%	-11.91%	-2.35%	-30.83%	-11.63%	**-19.20%*** **
	1	1.53%	5.34%	**-3.81%** **	-2.21%	6.10%	**-8.31%*** **	-2.67%	-2.39%	-0.28%
	2	-2.10%	-2.03%	-0.07%	-4.39%	-1.60%	-2.79%	-7.25%	-1.89%	**-5.37%*** **
[0,8]	3	-7.62%	-7.26%	-0.36%	-5.15%	-5.40%	0.25%	-6.83%	-1.51%	**-5.33%*** **
	4	-10.37%	-8.78%	-1.60%	-8.38%	-7.52%	-0.86%	-2.48%	-0.43%	-2.04%
	5	-12.07%	-12.00%	-0.07%	-11.30%	-9.01%	-2.29%	-13.95%	-5.37%	**-8.58%*** **
Reversal										
	1	-1.60%	-2.89%	1.29%	12.28%	4.52%	**7.76%*** **	8.15%	2.20%	**5.95%** **
	2	7.92%	-7.49%	**15.41%*** **	0.00%	-8.62%	**8.62%*** **	0.99%	-4.43%	**5.42%** **
[3, 18]	3	2.38%	-10.14%	**12.51%*** **	0.80%	-11.41%	**12.21%*** **	0.99%	-4.78%	**5.77%*** **
	4	-0.37%	-6.84%	**6.47%** **	-1.72%	-9.38%	**7.65%** **	3.53%	-5.82%	**9.34%*** **
	5	-2.83%	-9.69%	**6.86%** **	-4.76%	-7.03%	2.27%	-10.17%	-15.11%	**4.94%** **
	1	-0.48%	-2.81%	2.33%	11.48%	0.95%	**10.53%*** **	10.62%	5.19%	**5.43%*** **
	2	8.08%	-5.33%	**13.41%*** **	3.77%	-4.52%	**8.29%*** **	6.09%	-0.86%	**6.95%*** **
[9, 18]	3	6.49%	-5.34%	**11.83%*** **	4.31%	-5.59%	**9.91%*** **	5.91%	-2.74%	**8.65%*** **
	4	5.72%	-0.59%	**6.31%*** **	4.47%	-4.63%	**9.10%*** **	3.97%	-4.43%	**8.40%*** **
	5	4.57%	-2.46%	**7.04%*** **	1.80%	-1.58%	**3.39%* **	-2.76%	-10.51%	**7.75%*** **
	1	-0.87%	-4.21%	3.34%	5.49%	-2.82%	**8.30%*** **	15.70%	5.50%	**10.20%*** **
	2	6.05%	-10.59%	**16.63%*** **	0.86%	-8.93%	**9.79%*** **	4.75%	-2.74%	**7.50%*** **
[9, 25]	3	0.45%	-10.50%	**10.94%*** **	4.12%	-10.12%	**14.24%*** **	3.26%	-6.27%	**9.53%*** **
	4	4.24%	-9.10%	**13.34%*** **	5.15%	-9.02%	**14.17%*** **	1.37%	-7.67%	**9.05%*** **
	5	5.14%	-6.37%	**11.51%*** **	0.11%	-6.66%	**6.78%* **	-10.19%	-21.19%	**10.99%*** **

Panel A: Continued - Cumulated Abnormal Returns calculated using the Market Model (MCAR)

		Market Capitalization			Book-to-Market		
		(10)	(11)	(12)	(13)	(14)	(15)
		High IT Firms	Low IT Firms	(10)-(11)	High IT Firms	Low IT Firms	(13)-(14)
Drop							
	1	-3.72%	2.01%	**-5.73%*****	-0.86%	0.70%	-1.56%
	2	-8.01%	5.98%	**-13.98%*****	-0.62%	9.48%	**-10.10%*****
[-10, 2]	3	-4.23%	8.40%	**-12.63%*****	-4.10%	7.54%	**-11.65%*****
	4	-4.51%	6.01%	**-10.52%*****	-0.77%	9.04%	**-9.80%*****
	5	-3.93%	2.71%	**-6.64%****	-5.14%	3.30%	**-8.44%*****
	1	-3.72%	2.16%	**-5.87%****	-3.80%	-3.37%	-0.42%
	2	-11.74%	3.85%	**-15.59%*****	-7.06%	5.47%	**-12.54%*****
[-10, 8]	3	-8.53%	2.21%	**-10.74%*****	-12.50%	4.59%	**-17.10%*****
	4	-10.60%	1.12%	**-11.71%*****	-7.10%	5.59%	**-12.69%*****
	5	-9.77%	-2.56%	**-7.21%****	-8.89%	-1.67%	**-7.22%****
	1	1.73%	4.97%	**-3.23%****	-5.84%	-5.10%	-0.74%
	2	-6.32%	0.09%	**-6.41%*****	-9.13%	-3.17%	**-5.96%*****
[0,8]	3	-8.45%	-8.63%	0.17%	-10.60%	-1.32%	**-9.28%*****
	4	-11.02%	-6.68%	**-4.34%****	-7.57%	-1.27%	**-6.30%*****
	5	-10.95%	-7.71%	**-3.24%***	-5.54%	-4.95%	-0.59%
Reversal							
	1	-0.05%	-0.62%	0.56%	2.65%	-4.87%	**7.53%****
	2	-3.68%	-4.60%	0.92%	-0.33%	-6.34%	**6.01%****
[3, 18]	3	4.07%	-15.30%	**19.38%*****	-6.83%	-10.30%	3.46%
	4	1.44%	-11.71%	**13.15%*****	-6.85%	-9.18%	2.33%
	5	4.86%	-5.47%	**10.32%*****	-5.87%	-8.81%	2.94%
	1	0.22%	-0.78%	1.00%	5.76%	-0.62%	**6.38%*****
	2	0.51%	-2.02%	2.52%	5.82%	-2.39%	**8.20%*****
[9, 18]	3	8.14%	-9.11%	**17.25%*****	0.99%	-7.63%	**8.62%*****
	4	7.38%	-6.86%	**14.25%*****	-0.06%	-5.86%	**5.81%*****
	5	11.10%	-0.88%	**11.98%*****	-1.59%	-3.95%	2.35%
	1	-1.67%	-1.10%	-0.57%	9.35%	-5.02%	**14.38%*****
	2	-4.36%	-5.46%	1.09%	6.23%	-6.82%	**13.06%*****
[9, 25]	3	6.18%	-14.73%	**20.90%*****	-3.92%	-12.71%	**8.79%****
	4	5.95%	-12.87%	**18.82%*****	-4.51%	-9.27%	4.76%
	5	12.81%	-8.81%	**21.62%*****	-5.01%	-8.43%	3.42%

Panel B: Cumulated Abnormal Returns calculated using the Fama and French's Methodology (FFCAR)

		Share Turnover			Return Volatility			Past Returns		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		High IT Firms	Low IT Firms	(1)-(2)	High IT Firms	Low IT Firms	(4)-(5)	High IT Firms	Low IT Firms	(7)-(8)
Drop										
	1	-2.50%	3.34%	**-5.84%*** **	-0.05%	6.56%	**-6.61%*** **	-2.84%	-0.55%	-2.29%
	2	-1.58%	4.94%	**-6.51%*** **	-0.62%	8.40%	**-9.02%*** **	-1.41%	5.67%	**-7.08%*** **
[-10, 2]	3	-3.83%	6.27%	**-10.09%*** **	-0.75%	4.90%	**-5.65%*** **	0.31%	6.46%	**-6.15%*** **
	4	-2.06%	4.79%	**-6.85%*** **	-3.14%	2.50%	**-5.64%*** **	0.91%	4.60%	**-3.69%*** **
	5	-2.72%	5.01%	**-7.73%*** **	-6.17%	-5.47%	-0.70%	-5.06%	5.08%	**-10.15%*** **
	1	-0.33%	7.33%	**-7.66%*** **	0.58%	13.87%	**-13.29%*** **	-5.69%	-3.31%	-2.38%
	2	-1.48%	8.68%	**-10.17%*** **	0.95%	10.69%	**-9.74%*** **	-2.13%	6.85%	**-8.98%*** **
[-10, 8]	3	-4.46%	10.63%	**-15.09%*** **	0.64%	7.46%	**-6.81%*** **	0.29%	9.81%	**-9.53%*** **
	4	-1.83%	5.71%	**-7.54%*** **	-4.24%	3.11%	**-7.35%*** **	2.24%	9.41%	**-7.17%*** **
	5	-4.99%	1.01%	**-6.00%** **	-8.59%	-7.37%	-1.22%	-4.81%	10.80%	**-15.61%*** **
	1	3.31%	7.22%	**-3.91%** **	1.31%	11.96%	**-10.64%*** **	-3.72%	-3.96%	0.24%
	2	0.48%	6.70%	**-6.22%*** **	3.47%	6.57%	**-3.10%* **	-1.25%	2.98%	**-4.23%*** **
[0,8]	3	-0.67%	6.66%	**-7.34%*** **	2.68%	4.51%	-1.83%	1.49%	6.51%	**-5.02%*** **
	4	0.39%	2.49%	-2.10%	-0.83%	0.41%	-1.23%	2.52%	7.95%	**-5.42%*** **
	5	-3.08%	-5.08%	2.00%	-4.71%	-4.74%	0.03%	0.77%	9.75%	**-8.98%*** **
Reversal										
	1	-1.92%	-4.07%	2.15%	-1.21%	1.52%	**-2.74%*** **	-6.05%	-10.46%	**4.41%** **
	2	-3.87%	-5.16%	1.29%	-1.22%	-6.26%	**5.04%*** **	-5.09%	-6.70%	1.61%
[3, 18]	3	-1.69%	-3.60%	1.91%	-2.45%	-6.98%	**4.53%** **	-2.88%	-2.15%	-0.73%
	4	-2.77%	-4.79%	2.01%	-4.24%	-5.62%	1.38%	-0.15%	-0.76%	0.60%
	5	-5.37%	-7.67%	2.30%	-5.66%	-5.78%	0.12%	-0.85%	-0.83%	-0.01%
	1	-4.09%	-8.11%	**4.02%*** **	-1.90%	-5.81%	**3.90%**	-3.24%	-7.69%	**4.45%*** **
	2	-4.08%	-8.90%	**4.82%*** **	-2.85%	-8.69%	**5.84%**	-4.34%	-7.82%	**3.49%*** **
[9, 18]	3	-1.04%	-7.93%	**6.89%*** **	-3.82%	-9.54%	**5.72%**	-2.84%	-5.65%	**2.82%*** **
	4	-3.00%	-5.72%	**2.72%** **	-3.00%	-6.24%	**3.24%**	-1.31%	-5.58%	**4.28%*** **
	5	-2.91%	-4.00%	1.09%	-3.19%	-3.86%	0.67%	-1.23%	-6.59%	**5.36%*** **
	1	-3.62%	-8.81%	**5.19%*** **	-2.23%	-5.10%	**2.88%** **	-4.81%	-11.62%	**6.81%*** **
	2	-5.17%	-9.79%	**4.62%*** **	-4.60%	-9.49%	**4.90%*** **	-6.59%	-9.33%	**2.73%* **
[9, 25]	3	-2.55%	-8.99%	**6.44%*** **	-3.55%	-11.47%	**7.93%*** **	-1.48%	-4.62%	**3.14%** **
	4	-2.33%	-7.67%	**5.35%*** **	-1.54%	-7.72%	**6.18%*** **	-0.17%	-4.45%	**4.28%*** **
	5	-1.33%	-6.18%	**4.85%** **	-3.60%	-7.31%	**3.71%** **	-6.40%	-0.20%	**6.20%*** **

Table 6
Multivariate Analysis of Price Drops

This table presents OLS regressions for the entire sample. The variables are described in Appendix B. We obtain ownership data from Thompson Reuters, stock's information from CRSP and accounting information from COMPUSTAT. Panel A reports the results of OLS cross-sectional regressions. The dependent variable is the price change between week -10 and week +8 in column 1 and 2, the MCARs between -10 and +8 in columns 3 to 6, and the FFCARs between -10 and +8 in columns 7 to 10. Panel B reports the results of OLS panel regressions using as the dependent variable the abnormal return between week -10 and week +8. In these specifications, we are able to control for time-varying stocks characteristics. * indicates significance at 1% (***), 5% (**), 10% (*). P-values are in parenthesis.

Panel A: Cross-Sectional Regressions – Window [-10,+8]

	Price Change		MMCAR				FFCAR			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Investor Turnover	**-0.598*** **	**-0.601*** **	**-0.254*** **	**-0.250*** **	**-0.189** **	**-0.215* **	**-0.380*** **	**-0.378*** **	**-0.350*** **	**-0.377*** **
	(0.000)	(0.000)	(0.002)	(0.003)	(0.048)	(0.054)	(0.000)	(0.000)	(0.000)	(0.000)
Change in Portfolio Value	**0.369*** **	**0.354*** **	**0.255*** **	**0.249** **	**0.262*** **	**0.189* **	**0.280*** **	**0.271*** **	**0.288*** **	**0.160** **
	(0.005)	(0.008)	(0.009)	(0.011)	(0.010)	(0.061)	(0.000)	(0.000)	(0.000)	(0.039)
Active Share Measure		**-0.416* **		-0.142	-0.182	0.195		-0.219	-0.227	0.052
		(0.097)		(0.477)	(0.419)	(0.451)		(0.149)	(0.180)	(0.776)
Institutional Ownership	**0.189** **	**0.195** **	**0.227*** **	**0.227*** **	**0.204** **	**0.294*** **	**0.111* **	**0.113* **	0.068	**0.253*** **
	(0.049)	(0.041)	(0.002)	(0.002)	(0.012)	(0.000)	(0.055)	(0.052)	(0.286)	(0.000)
Insider Ownership					0.128				-0.011	
					(0.405)				(0.930)	
Stock Characteristics										
Market-to-Book	0.004	0.005	**0.035*** **	**0.035*** **	**0.032*** **	**0.032*** **	**0.042*** **	**0.043*** **	**0.042*** **	**0.034*** **
	(0.578)	(0.530)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Past Returns	**0.087* **	**0.086* **	**-0.642*** **	**-0.643*** **	**-0.651*** **	**-0.729*** **	**0.091*** **	**0.090*** **	**0.099*** **	0.003
	(0.074)	(0.077)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.926)
Return Variability	**-15.596*** **	**-16.295*** **	**-18.729*** **	**-19.086*** **	**-17.175*** **	**-30.052*** **	**-15.591*** **	**-15.964*** **	**-14.135*** **	**-24.748*** **
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Share Turnover	**-10.507*** **	**-10.504*** **	**-4.976*** **	**-5.000*** **	**-5.910*** **	**-5.270*** **	-2.067	-2.085	**-2.861** **	-1.477
	(0.000)	(0.000)	(0.006)	(0.006)	(0.002)	(0.007)	(0.110)	(0.107)	(0.044)	(0.291)
Bid Ask Spread	**-4.339** **	**-4.515** **	0.557	0.249	-0.356	-1.943	-0.710	-0.987	-1.051	-2.244
	(0.031)	(0.025)	(0.724)	(0.874)	(0.836)	(0.367)	(0.583)	(0.442)	(0.472)	(0.163)
Firm Characteristics										
Firm Size	**-0.025*** **	**-0.023** **	-0.006	-0.005	0.0004	**-0.031*** **	**0.020*** **	**0.021*** **	**0.027*** **	-0.010
	(0.014)	(0.024)	(0.428)	(0.472)	(0.954)	(0.001)	(0.002)	(0.001)	(0.000)	(0.173)
Leverage			**-0.232*** **	**-0.235*** **	**-0.252*** **	**-0.121** **	**-0.326*** **	**-0.327*** **	**-0.340*** **	**-0.207*** **
			(0.000)	(0.000)	(0.000)	(0.024)	(0.000)	(0.000)	(0.000)	(0.000)
Return on Assets	**0.377*** **	**0.368*** **	**0.395*** **	**0.389*** **	**0.409*** **	**0.314*** **	0.081	0.076	**0.121* **	0.041
	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.001)	(0.198)	(0.228)	(0.067)	(0.520)
Ownership Concentration	0.017	0.009	0.070	0.065	0.063	0.037	0.059	0.056	0.021	0.050
	(0.843)	(0.919)	(0.263)	(0.300)	(0.349)	(0.735)	(0.292)	(0.328)	(0.717)	(0.635)
Constant	0.100	0.207	**0.194** **	**0.236** **	0.190	**0.496*** **	**0.264*** **	**0.323*** **	**0.279*** **	**0.504*** **
	(0.406)	(0.131)	(0.033)	(0.024)	(0.109)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)
Industry Dummies	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**	**YES**	**YES**	**YES**	**NO**
Errors Clustered at Firm Level	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**	**YES**
Non-Financial Firms Only	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**	**YES**
N	2,342	2,339	2,350	2,347	2,108	1,735	2,350	2,347	2,108	1,735
Adjusted R^2	0.1677	0.1685	0.2551	0.2555	0.2474	0.2259	0.2112	0.2125	0.2060	0.1481

Panel B: Abnormal Returns – Window [-10,+8]

	Market Model			Fama and French's Methodology		
	(1)	(2)	(3)	(4)	(5)	(6)
Investor Turnover	**-0.018*** **	**-0.018*** **	**-0.018*** **	**-0.027*** **	**-0.026*** **	**-0.030*** **
	(0.001)	(0.001)	(0.007)	(0.000)	(0.000)	(0.000)
Change in Portfolio Value	0.006	0.006	0.002	**0.017*** **	**0.017*** **	**0.011** **
	(0.283)	(0.275)	(0.781)	(0.000)	(0.001)	(0.032)
Active Share Measure		0.001	0.014		-0.006	0.004
		(0.921)	(0.353)		(0.549)	(0.733)
Institutional Ownership	**0.010** **	**0.010** **	**0.012*** **	0.0004	0.001	0.004
	(0.017)	(0.016)	(0.009)	(0.891)	(0.873)	(0.344)
Stock Characteristics						
Market-to-Book Weekly	**0.00005***	**0.00005***	0.00004	**0.003*** **	**0.003*** **	**0.003*** **
	(0.099)	(0.099)	(0.154)	(0.000)	(0.000)	(0.000)
Past Returns	**-0.035*** **	**-0.035*** **	**-0.039*** **	**0.005** **	**0.005** **	0.001
	(0.000)	(0.000)	(0.000)	(0.014)	(0.015)	(0.696)
Past Returns over 1 Day	**-0.142*** **	**-0.142*** **	-0.028	**-0.119*** **	**-0.119*** **	-0.022
	(0.000)	(0.000)	(0.388)	(0.000)	(0.000)	(0.530)
Past Returns over 5 Days	0.007	0.007	-0.007	0.005	0.005	-0.008
	(0.389)	(0.371)	(0.476)	(0.581)	(0.560)	(0.417)
Past Returns over 15 Days	-0.006	-0.006	-0.00001	**-0.009***	**-0.009***	-0.001
	(0.199)	(0.185)	(0.997)	(0.062)	(0.060)	(0.879)
Past Returns over 30 Days	**0.007** **	**0.007** **	0.003	**0.008** **	**0.007** **	0.002
	(0.049)	(0.050)	(0.466)	(0.019)	(0.020)	(0.531)
Return Variability Weekly	**-0.211*** **	**-0.210*** **	**-0.199*** **	**-0.126*** **	**-0.127*** **	**-0.127*** **
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Share Turnover Weekly	0.009	0.007	0.068	0.014	0.014	0.081
	(0.908)	(0.929)	(0.403)	(0.824)	(0.824)	(0.246)
Bid-Ask Spread Weekly	0.056*	**0.056***	0.015	-0.039	-0.039	**-0.136*** **
	(0.079)	(0.080)	(0.765)	(0.176)	(0.180)	(0.003)
Firm Characteristics						
Firm Size	-0.0004	-0.0004	**-0.002*** **	**0.001*** **	**0.001*** **	0.00005
	(0.252)	(0.284)	(0.000)	(0.000)	(0.000)	(0.911)
Leverage	**-0.012*** **	**-0.012*** **	**-0.006***	**-0.018*** **	**-0.018*** **	**-0.011*** **
	(0.000)	(0.000)	(0.058)	(0.000)	(0.000)	(0.000)
Return on Assets	**0.031*** **	**0.031*** **	**0.035*** **	**0.019*** **	**0.019*** **	**0.021*** **
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ownership Concentration	0.002	0.002	-0.003	0.006	0.006	0.007
	(0.613)	(0.700)	(0.683)	(0.172)	(0.192)	(0.363)
Constant	**-0.021*** **	**-0.022*** **	-0.005	**-0.014*** **	**-0.013*** **	**0.020*** **
	(0.000)	(0.000)	(0.380)	(0.001)	(0.009)	(0.001)
Time Dummies	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Industry Dummies	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Errors Clustered at Firm Level	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Non-Financial Firms Only	**NO**	**NO**	**YES**	**NO**	**NO**	**YES**
N	38,575	38,528	28,698	35,716	35,686	26,035
Adjusted R^2	0.0630	0.0631	0.0635	0.0307	0.0307	0.0280

Table 7
Multivariate Analysis of Price Reversal

This table presents OLS regressions for the entire sample. The variables are described in Appendix B. We obtain ownership data from Thompson Reuters, stock's information from CRSP and accounting information from COMPUSTAT. Panel A reports the results of OLS cross-sectional regressions. The dependent variable is the price change between week +9 and week +25 in column 1 and 2, the MCARs between +9 and +25 in columns 3 to 6, and the FFCARs between +9 and +25 in columns 7 to 10. Panel B reports the results of OLS panel regressions using as the dependent variable the abnormal return between week +9 and week +25. In these specifications, we are able to control for time-varying stocks characteristics. * indicates significance at 1% (***), 5% (**), 10% (*). P-values are in parenthesis.

Panel A: Cross-Sectional Regressions – Window [+9,+25]

	Price Change		MMCAR				FFCAR			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Investor Turnover	**0.195****	**0.190****	**0.314*****	**0.317*****	**0.350*****	**0.511*****	**0.169*****	**0.171*****	**0.167****	**0.244*****
	(0.044)	(0.049)	(0.001)	(0.001)	(0.001)	(0.000)	(0.010)	(0.009)	(0.029)	(0.001)
Change in Portfolio Value	**-0.296****	**-0.295****	-0.127	-0.120	-0.174	0.027	-0.086	-0.081	-0.114	-0.006
	(0.028)	(0.029)	(0.242)	(0.271)	(0.126)	(0.826)	(0.239)	(0.267)	(0.136)	(0.936)
Active Share Measure		0.054		0.223	0.229	0.090		0.139	0.152	-0.100
		(0.810)		(0.275)	(0.316)	(0.741)		(0.323)	(0.330)	(0.559)
Institutional Ownership	0.138	0.141	**0.190*****	**0.190*****	**0.284*****	0.082	0.037	0.037	0.065	-0.035
	(0.111)	(0.104)	(0.010)	(0.010)	(0.000)	(0.316)	(0.461)	(0.467)	(0.254)	(0.509)
Insider Ownership					0.280				0.124	
					(0.118)				(0.302)	
Stock Characteristics										
Market-to-Book	0.010	0.009	**0.035*****	**0.034*****	**0.030*****	**0.046*****	0.003	0.003	0.0002	**0.009****
	(0.142)	(0.167)	(0.000)	(0.000)	(0.000)	(0.000)	(0.414)	(0.489)	(0.946)	(0.038)
Past Returns	**0.103****	**0.105****	**-0.632*****	**-0.630*****	**-0.651*****	**-0.700*****	0.025	0.026	0.018	-0.006
	(0.015)	(0.014)	(0.000)	(0.000)	(0.000)	(0.000)	(0.316)	(0.305)	(0.497)	(0.817)
Return Variability	4.007	3.756	**-7.709*****	**-7.800*****	**-10.323*****	**-8.716*****	0.990	1.000	-0.117	1.185
	(0.199)	(0.228)	(0.006)	(0.006)	(0.001)	(0.010)	(0.605)	(0.600)	(0.955)	(0.573)
Share Turnover	0.020	0.042	**-4.107****	**-4.123****	**-3.992***	**-5.144****	0.004	-0.006	0.530	0.255
	(0.994)	(0.986)	(0.030)	(0.029)	(0.053)	(0.012)	(0.997)	(0.996)	(0.704)	(0.850)
Bid-Ask Spread	1.419	1.285	2.270	2.065	1.765	3.409	-0.289	-0.393	-0.676	-0.277
	(0.460)	(0.509)	(0.207)	(0.255)	(0.370)	(0.179)	(0.812)	(0.747)	(0.614)	(0.877)
Firm Characteristics										
Firm Size	-0.012	-0.013	-0.005	-0.007	**-0.017***	**0.019***	0.005	0.005	0.00005	**0.021*****
	(0.164)	(0.142)	(0.528)	(0.416)	(0.067)	(0.086)	(0.337)	(0.428)	(0.994)	(0.002)
Leverage			-0.055	-0.058	-0.066	-0.082	-0.020	-0.021	-0.013	-0.054
			(0.228)	(0.204)	(0.169)	(0.150)	(0.532)	(0.500)	(0.687)	(0.145)
Return on Assets	**0.213****	**0.207***	**0.472*****	**0.464*****	**0.431*****	**0.395*****	**0.140****	**0.137****	0.111	**0.141****
	(0.049)	(0.058)	(0.000)	(0.000)	(0.000)	(0.000)	(0.030)	(0.034)	(0.117)	(0.028)
Ownership Concentration	-0.070	-0.063	0.071	0.072	0.107	-0.032	0.067	0.068	0.089	0.043
	(0.505)	(0.552)	(0.282)	(0.277)	(0.119)	(0.784)	(0.188)	(0.183)	(0.110)	(0.609)
Constant	**-0.396*****	**-0.399*****	**-0.259*****	**-0.303*****	**-0.267****	**-0.310****	**-0.289*****	**-0.319*****	**-0.292*****	**-0.256*****
	(0.000)	(0.001)	(0.005)	(0.005)	(0.027)	(0.013)	(0.000)	(0.000)	(0.000)	(0.001)
Industry Dummies	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**	**YES**	**YES**	**YES**	**NO**
Errors Clustered at Firm Level	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**	**YES**
Non-Financial Firms Only	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**	**YES**
N	2,211	2,008	2,300	2,297	2,068	1,695	2,300	2,297	2,068	1,695
Adjusted R^2	0.1049	0.1047	0.1900	0.1898	0.2026	0.1836	0.0511	0.0512	0.0517	0.0164

Panel B: Abnormal Returns - Window [+9,+25]

	Market Model			Fama and French's Methodology		
	(1)	(2)	(3)	(4)	(5)	(6)
Investor Turnover	**0.024*****	**0.024*****	**0.024*****	**0.010***	**0.010***	**0.012****
	(0.000)	(0.000)	(0.001)	(0.071)	(0.073)	(0.041)
Change in Portfolio Value	**-0.021*****	**-0.020*****	**-0.015****	**-0.009***	**-0.008***	-0.003
	(0.003)	(0.005)	(0.046)	(0.070)	(0.094)	(0.540)
Active Share Measure		0.019	0.010		0.013	-0.011
		(0.191)	(0.606)		(0.254)	(0.435)
Institutional Ownership	0.006	0.006	0.002	-0.001	-0.001	-0.005
	(0.221)	(0.218)	(0.726)	(0.795)	(0.803)	(0.259)
Stock Characteristics						
Market-to-Book Weekly	0.000	0.000	0.000	**-0.001*****	**-0.002*****	**-0.001****
	(0.632)	(0.663)	(0.569)	(0.001)	(0.001)	(0.039)
Past Returns	**-0.044*****	**-0.044*****	**-0.049*****	**0.004***	**0.004***	0.0003
	(0.000)	(0.000)	(0.000)	(0.064)	(0.058)	(0.853)
Past Returns over 1 Day	**-0.251*****	**-0.250*****	**-0.225*****	**-0.241*****	**-0.241*****	**-0.214*****
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Past Returns over 5 Days	**0.026*****	**0.026*****	**0.019****	**0.028*****	**0.028*****	**0.019****
	(0.001)	(0.001)	(0.038)	(0.000)	(0.000)	(0.036)
Past Returns over 15 Days	**-0.017*****	**-0.017*****	**-0.015*****	**-0.015*****	**-0.015*****	**-0.011*****
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.022)
Past Returns over 30 Days	**-0.005***	**-0.005***	**-0.007****	**-0.007****	**-0.007****	**-0.009*****
	(0.070)	(0.063)	(0.033)	(0.014)	(0.013)	(0.002)
Return Variability Weekly	**-0.110*****	**-0.110*****	**-0.132*****	**-0.193*****	**-0.193*****	**-0.210*****
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Share Turnover Weekly	0.137	0.132	0.155	**0.224******	**0.221*****	**0.240*****
	(0.126)	(0.140)	(0.140)	(0.002)	(0.003)	(0.004)
Bid-Ask Spread Weekly	0.010	0.012	0.004	-0.026	-0.027	-0.012
	(0.759)	(0.719)	(0.932)	(0.338)	(0.327)	(0.766)
Firm Characteristics						
Firm Size	**-0.001****	**-0.001****	0.000	0.000	0.000	0.001
	(0.024)	(0.020)	(0.700)	(0.584)	(0.481)	(0.118)
Leverage	-0.002	-0.002	-0.001	-0.003	-0.003	-0.002
	(0.515)	(0.464)	(0.816)	(0.213)	(0.196)	(0.448)
Return on Assets	**0.035*****	**0.035*****	**0.032*****	**0.013****	**0.013****	**0.010***
	(0.000)	(0.000)	(0.000)	(0.022)	(0.026)	(0.075)
Ownership Concentration	0.007	0.007	0.0004	0.004	0.005	-0.005
	(0.120)	(0.140)	(0.953)	(0.343)	(0.329)	(0.512)
Constant	**-0.026*****	**-0.030*****	**-0.023*****	**-0.024*****	**-0.027**	**-0.034*****
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)
Time Dummies	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Industry Dummies	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Errors Clustered at Firm Level	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Non-Financial Firms Only	**NO**	**NO**	**YES**	**NO**	**NO**	**YES**
N	33,427	33,379	24,868	31,392	31,360	22,930
Adjusted R^2	0.0456	0.0456	0.0487	0.0390	0.0391	0.0378

Table 8
Exploiting the Exogenous Variation in Investor Turnover

This table presents IV regressions for the entire sample. The variables are described in Appendix B. We use Trading-Performance Sensitivity 1 and Trading-Performance Sensitivity 2 as instruments for investor turnover. The first three columns in the table show results for the price drop period (between week -10 and week +8), while the last three columns show results for the price reversal period (between week +9 and week +25). The dependent variable is the price change in columns 1 and 4, the MCARs in column 2 and 5, and the FFCARs in columns 3 and 6. * indicates significance at 1% (***), 5% (**), 10% (*). P-values are in parenthesis. The Table also reports the results of the over-identifying restrictions test.

	Drop - Window [-10,+8]			Reversal - Window [+9+25]		
	Price Change	MMCAR	FFCAR	Price Change	MMCAR	FFCAR
	(1)	(2)	(3)	(4)	(5)	(6)
Investor Turnover	-1.662***	-0.816**	-1.343***	0.619*	1.113***	0.534***
	(0.000)	(0.012)	(0.000)	(0.070)	(0.001)	(0.020)
Change in Portfolio Value	0.313**	0.350***	0.302***	-0.278**	-0.179	-0.145**
	(0.019)	(0.000)	(0.000)	(0.040)	(0.103)	(0.048)
Active Share Measure	-0.466*	-0.066	-0.194	0.067	0.263	0.161
	(0.077)	(0.749)	(0.232)	(0.769)	(0.217)	(0.254)
Institutional Ownership	0.212**	0.226***	0.139**	0.130	0.197***	0.037
	(0.031)	(0.003)	(0.020)	(0.142)	(0.006)	(0.439)
Stock Characteristics						
Market-to-Book	0.005	0.038***	0.044***	0.009	0.037***	0.003
	(0.544)	(0.000)	(0.000)	(0.162)	(0.000)	(0.526)
Past Returns	0.055	-0.686***	0.030	0.117***	-0.600***	0.040
	(0.284)	(0.000)	(0.328)	(0.007)	(0.000)	(0.103)
Return Variability	-14.474***	-25.782***	-19.697***	2.851	-8.109***	1.686
	(0.000)	(0.000)	(0.000)	(0.382)	(0.005)	(0.378)
Share Turnover	-7.932***	-5.565***	-0.593	-0.948	-6.495***	-0.005
	(0.003)	(0.006)	(0.720)	(0.710)	(0.002)	(0.997)
Bid-Ask Spread	-5.170**	0.822	-0.792	1.789	0.730	-1.201
	(0.016)	(0.619)	(0.580)	(0.376)	(0.686)	(0.311)
Firm Characteristics						
Firm Size	-0.034***	0.003	0.017**	-0.009	-0.012	-0.001
	(0.002)	(0.725)	(0.022)	(0.354)	(0.185)	(0.840)
Leverage		-0.244***	-0.342***		-0.027	-0.011
		(0.000)	(0.000)		(0.542)	(0.723)
Return on Assets	0.291**	0.212**	-0.088	0.236**	0.495***	0.203***
	(0.019)	(0.027)	(0.234)	(0.038)	(0.000)	(0.002)
Ownership Concentration	-0.017	0.103	0.084	-0.075	0.056	0.073
	(0.840)	(0.113)	(0.220)	(0.488)	(0.424)	(0.152)
Constant	0.488***	0.485***	0.611***	-0.505***	-0.358***	-0.295***
	(0.005)	(0.000)	(0.000)	(0.000)	(0.012)	(0.002)
Over-identifying Restrictions Test (p-value)	4.55 (0.03)	0.17 (0.68)	0.24 (0.62)	0.10 (0.75)	0.029 (0.86)	0.53 (0.47)
Industry Dummies	YES	NO	NO	YES	NO	NO
Errors Clustered at Firm Level	YES	YES	YES	YES	YES	YES
Non-Financial Firms Only	NO	NO	NO	NO	NO	NO
N	2,338	2,345	2,345	2,208	2,295	2,295
R^2	0.1586	0.1990	0.1136	0.1143	0.1532	0.0241

Figure 1

Mean Cumulative Abnormal Returns of Stocks Held by Long-term and Short-term Investors

This figure compares the mean cumulative abnormal returns calculated by using the market model (MCARs) of (i) stocks mostly held by institutional investors with a long trading horizon, and (ii) stocks mostly held by institutional investors with short trading horizons. We also show the MCARs for the all the stocks not included in the financial industry and held by the two different groups of institutional investors. Week 0 is the week when Lehman Brothers' bankruptcy occurred (week beginning on Monday September 15, 2008).

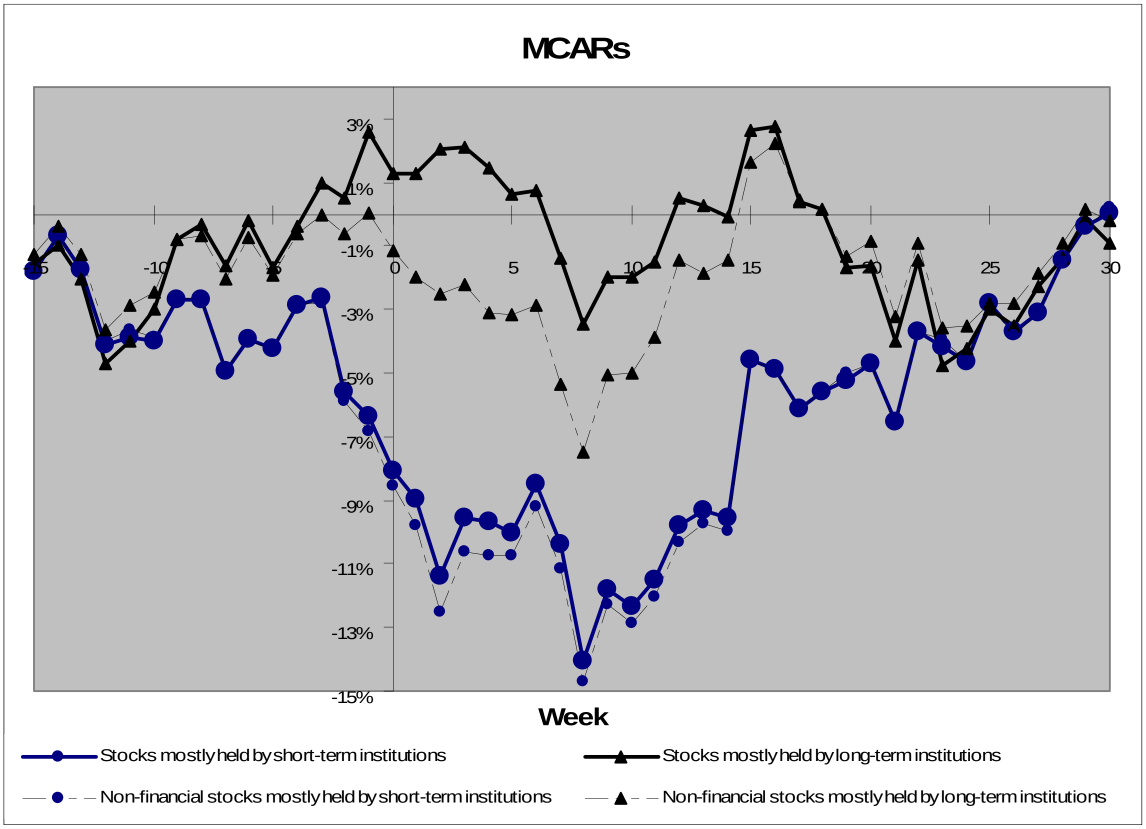


Figure 2
Fama and French Cumulative Abnormal Returns for Stocks Held by Long-term and Short-term Investors

This figure compares the mean cumulative abnormal returns calculated by using the Fama and French's Methodology (FFCARs) of (i) stocks mostly held by institutional investors with a long trading horizon, and (ii) stocks mostly held by institutional investors with short trading horizons. We also show the MCARs for the all the stocks not included in the financial industry and held by the two different groups of institutional investors. Week 0 is the week when Lehman Brothers' bankruptcy occurred (week beginning on Monday September 15, 2008).

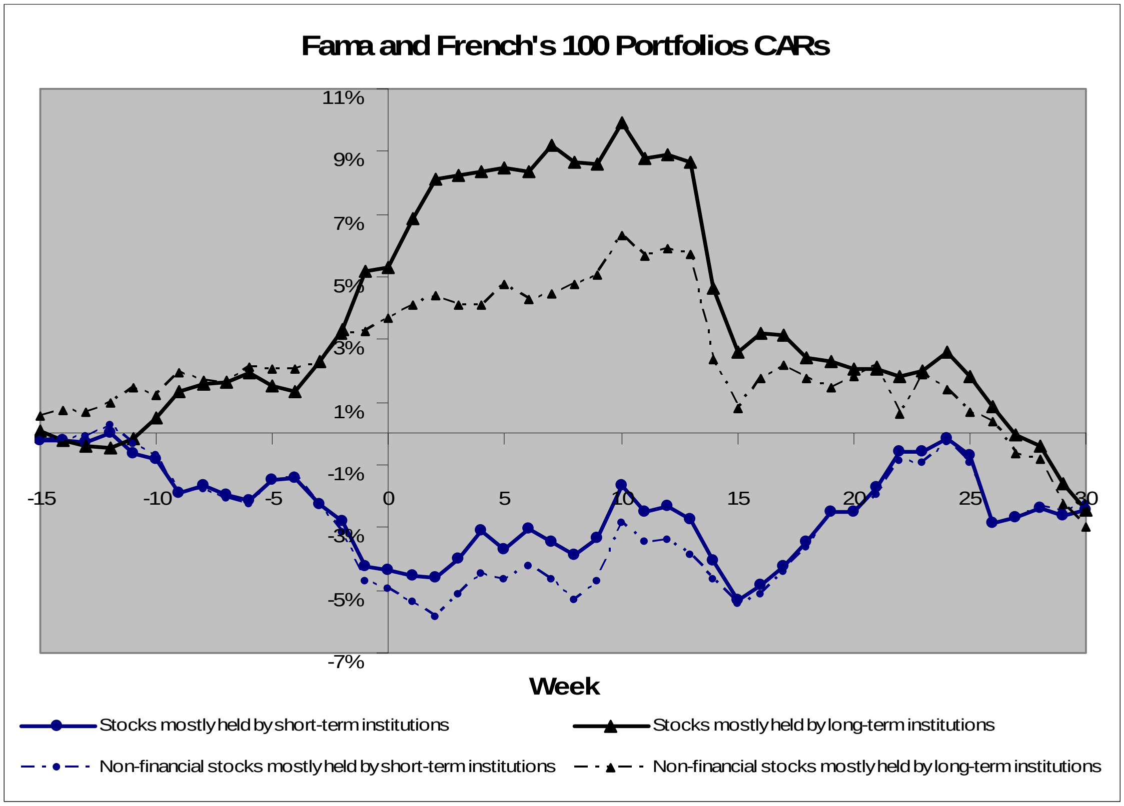


Figure 3
Institutional Investors' Net Share Volume Transacted

The figure shows the net share volume transacted (total number of shares purchased minus total number of shares sold) by (i) long-term institutional investors and (ii) short-term institutional investors over the period from the first quarter of 2007 until the second quarter of 2009.

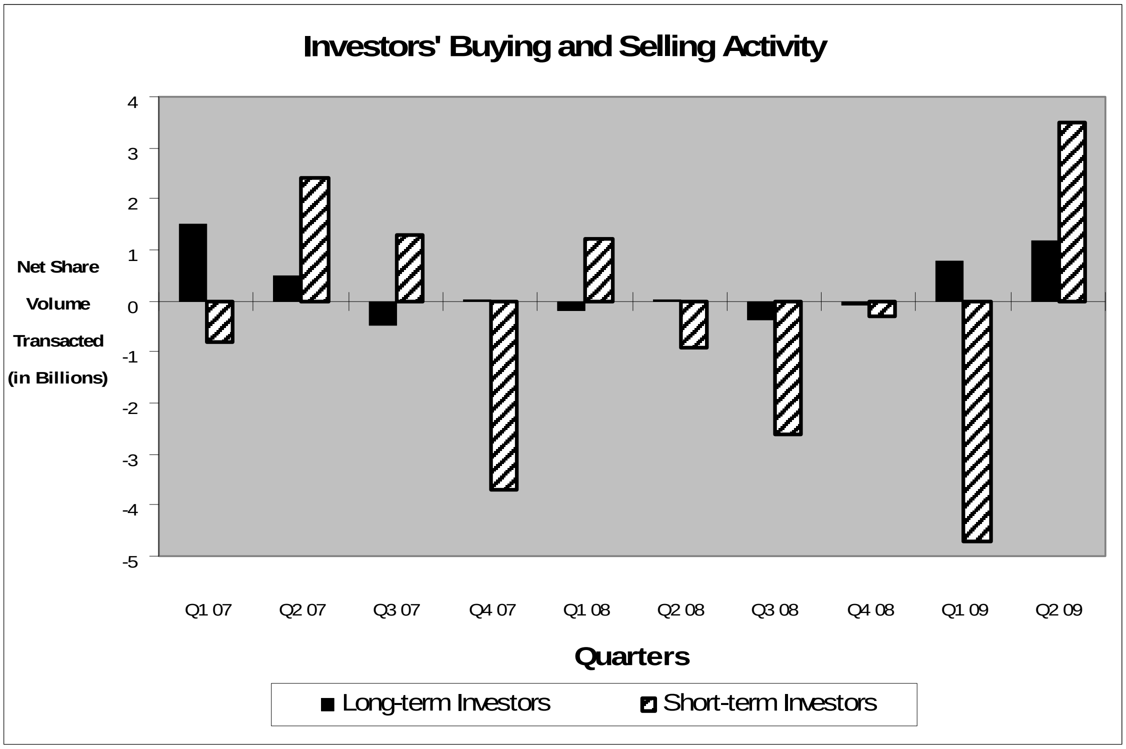


Figure 4
Sales in Firms with High and Low Investor Turnover

This figure shows the trading behavior of long-term institutional investors and short term institutional investors in (a) stocks held mostly by short-term investors and (b) stocks held mostly by long-term investors. To do so, we first sort stocks on the basis of their investor turnover and, second, investors on the basis of the churn ratio of their portfolios. For each type of investor, we report the value of the total number of shares purchased (number of shares purchased multiplied end-of-the-quarter price) minus the value of shares sold (number of shares sold multiplied by end-of-quarter price) divided by the (dollar) value of their investment in each of the two types of stocks.