Institutional Investors and Equity Returns: Are Short-term Institutions Better Informed?

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We show that the positive relation between institutional ownership and future stock returns documented in Gompers and Metrick (2001) is driven by short-term institutions. Furthermore, short-term institutions' trading forecasts future stock returns. This predictability does not reverse in the long run and is stronger for small and growth stocks. Short-term institutions' trading is also positively related to future earnings surprises. By contrast, long-term institutions' trading does not forecast future returns, nor is it related to future earnings news. Our results are consistent with the view that short-term institutions are better informed and they trade actively to exploit their informational advantage. (*JEL* G12, G14, G20)

This article examines the relation between institutions' investment horizons and their informational roles in the stock market. Although a large body of literature has studied the behavior of institutional trading and its impact on asset prices and returns,[1] the informational role of institutional investors remains an open question. Gompers and Metrick (2001) document a positive relation between institutional ownership and future stock returns. However, they attribute this relation to temporal demand shocks rather than institutions' informational advantage. Nofsinger and Sias (1999) find that changes in institutional ownership forecast next year's returns, suggesting that institutional trading contains information about future returns. In contrast, Cai and Zheng (2004) find that institutional trading

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[1] For institutional preferences, see, for example, Del Guercio (1996), Falkenstein (1996), Gompers and Metrick (2001), and Bennett, Sias, and Starks (2003). For institutional trading patterns such as herding and momentum trading and its impact on stock returns, see, for example, Lakonishok, Shliefer, and Vishny (1992), Grinblatt, Titman, and Wermers (1995), Nofsinger and Sias (1999), Wermers (1999), Badrinath and Wahal (2001), Bennett, Sias, and Starks (2003), Griffin, Harris, and Topaloglu (2003), Sias (2003), Cai and Zheng (2004), Sias (2004), Sias (2005), and Sias, Starks, and Titman (2005).

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has *negative* predictive ability for next quarter's returns. Bennett, Sias, and Starks (2003) show that the evidence of institutions' ability to forecast returns is sensitive to how institutional trading is measured.

One potential reason for the mixed results regarding institutional investors' informational role is that most studies in this literature focus on all institutional investors as a group. While institutional investors share some important commonalities, they are far from homogeneous. An important dimension of heterogeneity is the investment horizon. Institutions may have different investment horizons because of differences in investment objectives and styles, legal restrictions, and competitive pressures; in addition, their investment horizons may differ because of their different informational roles.

There are several reasons why one might expect institutions with different investment horizons to be differentially informed. First, if some institutional investors possess superior information and can regularly identify undervalued or overvalued stocks, we would expect these institutions to trade frequently to exploit their informational advantage or skill [e.g., Grinblatt and Titman (1989) and Wermers (2000)]. On the other hand, institutional investors possessing limited information would trade more cautiously. Therefore, institutions that trade more actively (short-term institutions) would be better informed than those that trade less actively (long-term institutions).[2] Second, one might argue that long-term institutions trade infrequently because they trade only on the basis of information. On the other hand, short-term institutions might also trade on the basis of noise, perhaps owing to overconfidence [e.g., Odean (1998) and Barber and Odean (2000)]. In this case, it would appear on average that long-term institutions are better informed than short-term institutions. Third, it is also possible that both short- and long-term institutions are informed. However, short-term institutions are better at collecting and processing short-term information, while long-term institutions are better at collecting and processing long-term information. As a result, short-term institutions would be better informed in the short run while long-term institutions would be better informed in the long run.

The purpose of this article is to empirically examine the informational roles of short- and long-term institutions. Specifically, using quarterly institutional holdings for the period from 1980 to 2003, we construct an investment horizon measure based on institutions' portfolio turnover, which is similar to that of Gaspar, Massa, and Matos (2005). We then classify institutions into short- and long-term based on this measure. In our empirical analyses, we first examine whether short- and long-term

[2] Recent accounting literature [Ke and Petroni (2004)] provides evidence that transient institutional investors can predict a break in a string of consecutive quarterly earnings increases, suggesting that short-term institutions are informed.

institutions have different preferences for stock characteristics. We then examine the extent to which the investment horizon affects the relation between institutional ownership and future stock returns. More importantly, we investigate whether short- and long-term institutional trading contains information about future stock returns and future earnings.

We find that both short- and long-term institutions prefer larger stocks and stocks with higher book-to-market ratios, share price, and volatility. Compared to long-term institutions, short-term institutions prefer younger firms, and firms with higher turnover and lower dividend yield. In addition, we find that only short-term institutions are momentum traders.

Consistent with Gompers and Metrick (2001), we find a significant and positive relation between total institutional ownership and one-quarter-ahead and one-year-ahead stock returns. Moreover, we show that this positive relation is almost entirely driven by short-term institutions: The predictive power of total institutional ownership is completely subsumed by short-term institutional ownership. In contrast, long-term institutional ownership does not have incremental predictive power for future returns.

To test whether the predictive ability of institutional ownership is due to temporal demand shocks or institutions' informational advantage, we decompose the current institutional ownership into lagged institutional ownership and institutional trading.[3] Our results show that lagged institutional ownership by short-term institutions forecasts future returns, suggesting that demand shocks have an impact on returns. More importantly, short-term institutions' trading also strongly predicts future returns. Since our results are obtained 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. In particular, our results are not driven by the momentum effect. The predictive power of short-term institutional trading is thus consistent with the hypothesis that short-term institutions are informed.

In contrast to the results for short-term institutions, we find no evidence that either the level or the change in long-term institutional ownership is significantly related to future stock returns. This result is not driven by institutions that follow index investment strategies. Long-term institutions do not predict future returns after we exclude those fund families that specialize in index funds, or during the first half of our sample period (1980–1991) when index products are relatively undeveloped.

To the extent that short-term institutions have an informational advantage, we would expect their advantage to be greater for small

[3] Gompers and Metrick (2001) argue that since the institutional holdings are fairly stable over time, the lagged institutional holdings should be almost as good a proxy for temporal demand shocks as current institutional ownership. At the same time, changes in the institutional holdings are a more precise measure of informational advantage. See Gompers and Metrick (2001) for a detailed discussion.

and growth stocks, which tend to have greater information uncertainty and are more difficult to value. Consistent with this prediction, we find that short-term institutional trading has stronger predictive power for small and growth stocks than for large and value stocks.

Our main results also hold with a portfolio approach. A zero-investment strategy that is long in the portfolio of stocks with the largest increase in short-term institutional holdings and short in the portfolio of stocks with the largest decrease in short-term institutional holdings generates 2.16% [1.62% after adjusting for Daniel, Grinblatt, Titman, and Wermers (1997) benchmark returns] over the first year after portfolio formation. By contrast, there is no significant return difference among portfolios sorted by changes in long-term institutional ownership.

We also examine whether institutional trading is related to future earnings news. We find that stocks that experience the largest increase in short-term institutional holdings have significantly higher earnings surprises and earnings announcement abnormal returns over the subsequent four quarters than stocks that experience the largest decrease in short-term institutional holdings. In contrast, we find little evidence that trading by long-term institutions is related to either future earnings surprises or earnings announcement abnormal returns. These results provide evidence that short-term institutions possess superior information about future earnings.

An alternative explanation for our results is that short-term institutional investors pressure managers to maximize short-run profits at the expense of long-run firm value [the ‘‘short-term pressure’’ hypothesis; see for example, Porter (1992), Bushee (1998, 2001)]. In particular, Bushee (1998) finds evidence that firms with higher transient institutional ownership are more likely to underinvest in long-term, intangible projects such as R&D to reverse an earnings decline. The short-term pressure hypothesis might help explain the short-run predictive ability of short-term institutional ownership and trading, but it also predicts long-run price reversal for stocks held or traded by short-term institutions. To test this prediction, we examine the relation between institutional ownership and trading and future stock returns up to three years. We find no evidence of long-run price reversal for stocks held or recently traded by short-term institutional investors, suggesting that our results cannot be explained by the short-term pressure hypothesis. We also find no evidence that either the holdings or trading by long-term institutional investors predicts long-run stock returns. This result is inconsistent with the hypothesis that long-term institutions are better informed about long-run returns.[4]

[4] Consistent with our finding, Ke and Ramalingegowda (2005) provide evidence that long-term institutional investors do not possess private information about long-run earnings growth.

To our knowledge, this is the first article in the finance literature that focuses on the informational roles of short- and long-term institutions.[5] In particular, our results suggest that short-term institutions are better informed, and that they trade actively to exploit their informational advantage. Our results do not imply market inefficiency: rather, they are consistent with the idea that the stock market is informationally efficient (Grossman and Stiglitz (1980)) because short-term institutions must expend resources in collecting, processing, and trading on information.

The rest of the article is organized as follows. Section 1 describes the data and presents descriptive statistics. Section 2 examines institutional preferences. Section 3 investigates the impact of institutional holdings and trading on future stock returns for both short- and long-term institutional investors. Section 4 concludes.

1. Data, Variables, and Descriptive Statistics

1.1 Data and sample

The data for this study come from four sources. We obtain quarterly institutional holdings for all common stocks traded on NYSE, AMEX, and NASDAQ for the period from the fourth quarter of 1979 to the fourth quarter of 2003 from Thomson Financial. The Securities and Exchanges Commission (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. Institutional ownership (hereafter IO) for each stock is defined as the number of shares held by institutional investors divided by the total number of shares outstanding. We exclude those observations with total institutional ownership greater than 100%.

We obtain stock return, share price, number of shares outstanding, and turnover from the Center for Research in Security Prices (CRSP) monthly tapes for all NYSE/AMEX/NASDAQ stocks. We obtain book value of equity, cash dividend, and quarterly earnings announcement dates from COMPUSTAT. Finally, analysts' earnings forecasts are from I/B/E/S.

1.2 Classification of short- and long-term institutions

We classify institutional investors into short- and long- term investors on the basis of their portfolio turnover over the past four quarters. Specifically, each quarter, we first calculate the aggregate purchase and sale for each

[5] Several articles examine the relation between portfolio turnover and mutual fund performance. Grinblatt and Titman (1989) find a positive relation between turnover and pre-expense portfolio performance, while Carhart (1997) finds that fund turnover is negatively related to net fund returns. Chen, Jegadeesh, and Wermers (2000) show that, unlike in our study, *both* high- and low-turnover mutual funds have stock picking skills—the stocks they buy outperform those they sell. Moreover, they find little difference in skills between high and low turnover funds based on their trading.

institution:

$$CR\_buy_{k,t} = \sum_{\substack{i=1 \\ S_{k,i,t} > S_{k,i,t-1}}}^{N_k} |S_{k,i,t}P_{i,t} - S_{k,i,t-1}P_{i,t-1} - S_{k,i,t-1}\Delta P_{i,t}| \quad (1)$$

$$CR\_sell_{k,t} = \sum_{\substack{i=1 \\ S_{k,i,t} \leqslant S_{k,i,t-1}}}^{N_k} |S_{k,i,t}P_{i,t} - S_{k,i,t-1}P_{i,t-1} - S_{k,i,t-1}\Delta P_{i,t}| \quad (2)$$

where $P_{i,t-1}$ and $P_{i,t}$ are the share prices for stock i at the end of quarter $t-1$ and t, and $S_{k,i,t-1}$ and $S_{k,i,t}$ are the number of shares of stock i held by investor k at the end of quarter $t-1$ and t, respectively. We adjust stock splits and stock dividends by using the CRSP price adjustment factor. $CR\_buy_{k,t}$ and $CR\_sell_{k,t}$ are institution k's aggregate purchase and sale for quarter t, respectively. Institution k's churn rate for quarter t is then defined as:

$$CR_{k,t} \equiv \frac{\min\left(CR\_buy_{k,t}, CR\_sell_{k,t}\right)}{\sum_{i=1}^{N_k} \frac{S_{k,i,t}P_{i,t} + S_{k,i,t-1}P_{i,t-1}}{2}} \quad (3)$$

The above definition is similar in spirit to Gaspar, Massa, and Matos (2005). The main difference is that we use the *minimum* of aggregate purchase and sale, whereas Gaspar, Massa, and Matos (2005) use the *sum* of aggregate purchase and sale. The advantage of our measure is that it minimizes the impact of investor cash flows on portfolio turnover.[6] CRSP uses a very similar approach to calculate mutual fund turnover. Next, we calculate each institution's average churn rate over the past four quarters as:

$$AVG\_CR_{k,t} = \frac{1}{4}\sum_{j=0}^{3} CR_{k,t-j} \quad (4)$$

Given the average churn rate measure, each quarter we sort all institutional investors into three tertile portfolios based on $AVG\_CR_{k,t}$. Those ranked in the top tertile (with the highest $AVG\_CR_{k,t}$) are classified as short-term institutional investors and those ranked in the bottom tertile are classified as long-term institutional investors. Finally, for each stock, we define the short-term (long-term) institutional ownership (hereafter SIO and LIO) as the ratio between the number of shares held by short-term (long-term) institutional investors and the total number of shares outstanding.

[6] Alexander, Cici, and Gibson (2006) show that investor flow-induced trading contains little information.

1.3 Firm characteristics

Like Gompers and Metrick (2001), we focus our analysis on the following ten firm characteristics:

- MKTCAP—market capitalization calculated as share price times total shares outstanding using data from CRSP.
- AGE—firm age calculated as the number of months since first return appears in CRSP.
- DP—dividend yield calculated as cash dividend divided by share price.
- BM—book-to-market ratio, book value for the fiscal year ended before the most recent June 30, divided by market capitalization of December 31 during that fiscal year.
- PRC—share price from CRSP.
- TURN—average monthly turnover over the past 3 months.
- VOL—volatility estimated as the standard deviation of monthly returns over the previous two years.
- SP500—dummy variable for S&P 500 index membership.
- $\text{RET}_{t-3,t}$ —cumulative gross return over the past three months.
- $\text{RET}_{t-12,t-3}$ —cumulative gross return over the nine months preceding the beginning of filing quarter.

Following Gompers and Metrick, we use natural log for all the above variables except for the S&P500, $\text{RET}_{t-3,t}$, and $\text{RET}_{t-12,t-3}$.

1.4 Descriptive statistics

We compute, for each quarter, mean cross-sectional institutional ownership and firm characteristics for the period from the third quarter of 1980 to the fourth quarter of 2003. Panel A of Table 1 reports the time-series mean, median, maximum, minimum, and standard deviation of these 94 cross-sectional averages. The average institutional ownership is 25.1% over our sample period. This result is similar to Bennett, Sias, and Starks (2003), who report a 23% average institutional ownership for the period from 1983 to 1997. On average, short-term institutions hold 7.91% of total shares outstanding, while long-term institutions hold 6.56% of all shares.

The average firm has a market capitalization of $961.44 million, a dividend yield of 2.21%, a book-to-market ratio of 0.74, and approximately 12 years of CRSP return data. The monthly volatility and turnover for the average firm are 13.59% and 7.8% respectively. The average number of stocks in our sample is 5911. In comparison, Bennett, Sias, and Starks (2003) report an average of 5425 stocks in their sample for 1983–1997.

Panel B of Table 1 reports the time-series average of the cross-sectional correlations between institutional ownership and various firm characteristics. Total IO is positively correlated with size, age, price, turnover, and S&P 500 dummy, while negatively correlated with volatility.

Table 1
Descriptive statistics

Panel A: time-series statistics of cross-sectional averages

	Mean	Median	Maximum	Minimum	Standard deviation
Total institutional Ownership—IO (%)	25.10	24.85	38.73	15.71	6.13
Short-term institutional Ownership—SIO (%)	7.91	8.12	11.46	5.47	1.58
Long-term institutional Ownership—LIO (%)	6.56	6.78	9.85	2.95	1.71
Market capitalization—MKTCAP ($million)	961.44	682.59	2468.60	312.88	659.54
Age (months)	147.09	145.04	171.08	131.14	11.34
Dividend yield—DP (%)	2.21	2.10	3.48	1.65	0.46
Book-to-market—BM	0.74	0.69	1.35	0.43	0.20
Price—PRC ($)	21.33	19.26	35.90	13.20	5.21
Turnover—TURN (%)	7.80	7.27	18.14	3.01	3.11
Volatility—VOL (%)	13.59	12.88	18.78	11.18	2.01
Lagged three-month return—$RET_{t-3,t}$ (%)	4.19	3.55	32.22	−29.17	11.38
Lagged nine-month return—$RET_{t-12,t-3}$ (%)	13.58	12.96	93.90	−25.68	20.96
Number of stocks	5911	5,941	7759	3453	1,212

Panel B: time-series mean of cross-sectional correlations between institutional ownership and stock characteristics

	MKTCAP	AGE	DP	BM	PRC	TURN	VOL	SP500	$RET_{t-3,t}$	$RET_{t-12,t-3}$
IO	0.20	0.30	0.12	0.09	0.13	0.19	−0.24	0.39	0.02	0.06
SIO	0.09	0.10	0.01	0.00	0.09	0.31	−0.08	0.20	0.04	0.12
LIO	0.22	0.38	0.15	0.12	0.10	0.01	−0.23	0.40	0.00	0.00

Panel C: time-series mean of cross-sectional correlations between stock characteristics

	MKTCAP	AGE	DP	BM	PRC	TURN	VOL	SP500	$\text{RET}_{t-3,0}$	$\text{RET}_{t-12,t-3}$
MKTCAP	1.00									
AGE	0.31	1.00								
DP	0.03	0.10	1.00							
BM	−0.02	0.05	0.68	1.00						
PRC	0.14	0.09	0.03	0.00	1.00					
TURN	−0.01	−0.09	0.00	0.04	0.01	1.00				
VOL	−0.12	−0.24	−0.20	−0.02	−0.10	0.24	1.00			
SP500	0.44	0.50	0.04	−0.02	0.10	0.03	−0.17	1.00		
$\text{RET}_{t-3,t}$	0.02	0.01	−0.02	−0.06	0.04	0.10	0.07	0.00	1.00	
$\text{RET}_{t-12,t-3}$	0.03	0.01	−0.03	−0.09	0.05	0.14	0.08	0.00	0.02	1.00

This table reports the descriptive statistics. The sample period is from 1980:Q3 to 2003:Q4. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. IO is total institutional ownership. SIO is short-term institutional ownership. LIO is long-term institutional ownership. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. MKTCAP is market capitalization. Age is firm age measured as number of months since first return appears in the CRSP database. DP is dividend yield. DP is winsorized at the 99th percentile. BM is book-to-market ratio. BM is winsorized at the 1st percentile and 99th percentile. PRC is share price. TURN is the average monthly turnover over the previous quarter. VOL is the monthly volatility over the past two years. SP500 is a dummy variable for S&P 500 index membership. $\text{RET}_{t-3,t}$ is the lagged three-month return. $\text{RET}_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. Panel A presents the time-series mean, median, maximum, minimum, and standard deviation of the quarterly cross-sectional averages. Panel B presents the time-series average of the cross-sectional correlations between institutional ownership and stock characteristics. Panel C presents the time-series average of the cross-sectional correlations between stock characteristics.

Both SIO and LIO are positively correlated with size, firm age, and S&P 500 dummy, and are negatively correlated with volatility. However, LIO has stronger correlations with these variables than SIO. Further, SIO is significantly positively correlated with turnover, whereas LIO is uncorrelated with turnover. This result suggests that short-term institutions care more about liquidity than long-term institutions. SIO has weak positive correlations with past returns, while the correlations between LIO and past returns are virtually zero. In addition, LIO is positively correlated with book-to-market ratio and dividend yield, while SIO is not correlated with these variables. Overall, the above results suggest that there exist systematic differences between long- and short-term institutional preferences. We note that these bivariate correlations should be interpreted with caution because of the strong correlations between firm characteristics (reported in Panel C of Table 1). In the next section, we use a multivariate regression analysis to study the preferences of both short- and long-term institutions.

2. Preferences of Short- and Long-Term Institutional Investors

Prior literature [e.g., Falkenstein (1996), Del Guercio (1996), Gompers and Metrick (2001), and Bennett, Sias, and Starks (2003)] has examined the relation between institutional holdings and firm characteristics. They document that institutional investors prefer certain firm characteristics such as size, share price, and turnover. In this section, we explore whether short- and long-term institutional investors exhibit different preferences for firm characteristics.

Following Gompers and Metrick (2001), we include three sets of firm characteristics in our analysis. Firm size, age, dividend yield, S&P 500 index membership, and stock volatility are used to proxy for prudence [e.g., Del Guercio (1996)]. Firm size, share price, and stock turnover are related to liquidity and transactions costs. Past returns, book-to-market ratios, and firm size have been shown to predict future returns [e.g., Fama and French (1992) and Jegadeesh and Titman (1993)]. For each quarter from the third quarter of 1980 to the fourth quarter of 2003, we run the following cross-sectional regression of institutional ownership on the above firm characteristics:

$$\begin{aligned} INSTOWN_{i,t} = \alpha_0 &+ \alpha_1 MKTCAP_{i,t} + \alpha_2 AGE_{i,t} + \alpha_3 DP_{i,t} + \alpha_4 BM_{i,t} \\ &+ \alpha_5 PRC_{i,t} + \alpha_6 TURN_{i,t} + \alpha_7 VOL_{i,t} + \alpha_8 SP500_{i,t} \\ &+ \alpha_9 RET_{i,t-3,t} + \alpha_{10} RET_{i,t-12,t-3} + e_{i,t} \end{aligned} \tag{5}$$

where *INSTOWN* is either total institutional ownership, short-term institutional ownership, or long-term institutional ownership.

Panel A of Table 2 reports the time-series average of the coefficient estimates. Since institutional ownership is extremely persistent, we do not report any statistical significance based on the time-series of coefficient estimates (e.g., Fama–MacBeth standard errors). We follow Gompers and Metrick (2001) in reporting the number of significant positive and

Table 2
Determinants of institutional ownership and trading

Panel A: determinants of institutional ownership

	Total institutional ownership		Short-term institutional ownership		Long-term institutional ownership	
	Average coefficient	[+significant, −significant]	Average coefficient	[+significant, −significant]	Average coefficient	[+significant, −significant]
Market capitalization	0.045	[94, 0]	0.017	[93, 1]	0.009	[89, 0]
Age	0.009	[61, 9]	−0.006	[1, 63]	0.014	[81, 3]
Dividend yield	−0.316	[0, 92]	−0.208	[0, 92]	−0.005	[27, 30]
Book-to-market	0.087	[94, 0]	0.023	[94, 0]	0.024	[93, 0]
Price	0.072	[94, 0]	0.022	[94, 0]	0.021	[92, 0]
Turnover	0.579	[93, 0]	0.419	[94, 0]	−0.003	[34, 16]
Volatility	0.020	[31, 14]	0.041	[56, 10]	0.017	[32, 8]
S&P 500	0.035	[58, 16]	−0.014	[30, 44]	0.040	[90, 0]
$\text{RET}_{t-3,t}$	−0.055	[2, 84]	−0.014	[5, 61]	−0.014	[0, 70]
$\text{RET}_{t-12,t-3}$	−0.030	[2, 78]	0.001	[25, 21]	−0.012	[1, 86]

Panel B: determinants of institutional trading

	Total institutional trading		Short-term institutional trading		Long-term institutional trading	
	Average coefficient	[+significant, −significant]	Average coefficient	[+significant, −significant]	Average coefficient	[+significant, −significant]
Market capitalization × 100	0.067	[30, 12]	0.001	[17, 19]	0.041	[32, 13]
Age × 100	−0.066	[7, 26]	−0.008	[15, 11]	−0.054	[21, 29]
Dividend yield × 100	−0.252	[23, 25]	−0.358	[19, 18]	−0.630	[26, 28]
Book-to-market × 100	0.010	[22, 17]	0.017	[17, 17]	0.055	[34, 19]
Price × 100	0.054	[17, 13]	−0.027	[7, 18]	0.066	[31, 17]
Turnover	−0.018	[11, 45]	0.011	[11, 47]	−0.002	[16, 16]
Volatility	0.011	[17, 3]	0.001	[17, 7]	−0.002	[12, 6]
S&P 500	−0.003	[12, 31]	0.000	[11, 16]	−0.001	[24, 28]
$\text{RET}_{t-3,t}$	0.016	[83, 0]	0.013	[87, 0]	0.001	[12, 3]
$\text{RET}_{t-12,t-3}$	0.004	[40, 1]	0.001	[25, 5]	0.000	[12, 3]

This table summarizes the results of cross-sectional regressions of institutional ownership and institutional trading on stock characteristics. The sample period is from 1980:Q3 to 2003:Q4. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. Age is firm age measured as number of months since first return appears in the CRSP database. Dividend yield is winsorized at the 99th percentile. Book-to-market ratio is winsorized at the 1st percentile and 99th percentile. Turnover is the average monthly turnover over the previous quarter. Volatility is the monthly volatility over the past two years. S&P 500 is a dummy variable for S&P 500 index membership. $\text{RET}_{t-3,t}$ is the lagged three-month return. $\text{RET}_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. All variables except institutional ownership, S&P 500 index membership, and lagged returns are expressed in natural logarithms. We estimate a cross-sectional regression each quarter. We report the average regression coefficient. In brackets, we report the number of coefficients that are positive (and negative) and statistically significant at the 5% level. All returns are in percent.

significant negative coefficients for 94 OLS regressions of Equation (5). The first two columns report the results for total institutional ownership, while the last four columns report the results on short- and long-term institutional ownership.

Institutional investors as a whole show strong preference for larger stocks and stocks with higher book-to-market value, higher price, higher turnover, and lower dividend yield. For example, in each of the 94 quarterly cross-sectional regressions, the coefficient on market capitalization is positive and statistically significant at the 5% level. Further, institutional investors show some preference for older stocks, more volatile stocks, and stocks that are members of the S&P 500 index. These results are broadly consistent with prior studies on institutional preference. Consistent with Gompers and Metrick (2001), we find that the coefficients on past returns are significantly negative. Gompers and Metrick conclude from this result that institutional investors are not momentum investors. Bennett, Sias, and Starks (2003) and Sias (2005), on the other hand, show that even though institutional holdings are negatively related to past returns, institutional trading is positively related to past returns. Thus, they argue that institutional investors are momentum investors. We will examine this issue later when we present our results on institutional trading.

We find both similarities and significant differences between short- and long-term institutions' preferences for stock characteristics. Both short- and long-term institutions prefer larger stocks, and stocks with higher book-to-market ratios and share prices. However, short-term institutions prefer younger firms, while long-term institutions prefer older firms. Specifically, 63 out of 94 coefficients on age are significantly negative in regressions of short-term institutional ownership, while 81 out of 94 coefficients on age are significantly positive in regressions of long-term institutional ownership. Further, long-term institutions prefer S&P 500 firms, while short-term institutions are indifferent. In addition, short-term institutions show strong preference for firms with lower dividend yield, while long-term institutional ownership is not consistently related to dividend yield. These results suggest that short-term institutions are less concerned about prudence than long-term institutions.

Although both short- and long-term institutions prefer stocks with higher turnover, short-term institutions have a much stronger preference for turnover. This suggests that short-term institutions care more about liquidity, presumably because they trade more actively. Finally, both short- and long-term investors' holdings are negatively related to past three-month returns. However, their relations to past one-year returns are substantially different. Long-term institutional holdings are significantly negatively related to past one-year returns, while short-term institutional ownership is not significantly related to past one-year returns.

To explore whether institutional investors are momentum investors along the lines of Bennett, Sias, and Starks (2003), we re-estimate the regression Equation (5) by replacing institutional ownership with changes in institutional ownership as the dependent variable. Panel B of Table 2 reports the regression results. We focus on the relation between institutional trading and past returns. Results in Panel B indicate that institutional investors as a whole are momentum investors: institutional trading is significantly positively related to past three-month or one-year returns. Further analysis show that this result is primarily driven by short-term institutions. We find strong evidence that short-term investors are momentum traders. For example, the regression coefficient on past one-quarter returns is significantly positive for 87 quarters, while none is significantly negative. In contrast, we find little evidence that long-term institutional investors are momentum traders. The average point estimates on past returns are virtually zero, and for most quarters they are not statistically significant.

3. The Impact of Institutional Ownership and Trading On Stock Returns

3.1 The impact of institutional ownership on stock returns: short-term versus long-term institutions

Gompers and Metrick (2001) document a positive relation between institutional ownership and next quarter's stock returns. In this section we examine the extent to which the predictive ability of institutional ownership is attributable to short- and long-term institutions. Specifically, for each quarter, we run the following cross-sectional regression of one-quarter-ahead (or one-year-ahead) stock returns on institutional ownership and various firm characteristics:

$$\begin{aligned} RET_{i,t,t+3}(RET_{i,t,t+12}) = {} & \beta_0 + \beta_1 IO_{i,t} + \beta_2 SIO_{i,t}(or\ LIO_{i,t}) \\ & + \beta_3 MKTCAP_{i,t} + \beta_4 AGE_{i,t} + \beta_5 DP_{i,t} + \beta_6 BM_{i,t} \\ & + \beta_7 PRC_{i,t} + \beta_8 TURN_{i,t} + \beta_9 VOL_{i,t} + \beta_{10} SP500_{i,t} \\ & + \beta_{11} RET_{i,t-3,t} + \beta_{12} RET_{i,t-12,t-3} + e_{i,t} \end{aligned} \tag{6}$$

where $RET_{i,t,t+3}$, and $RET_{i,t,t+12}$ are one-quarter-ahead and one-year-ahead stock returns, respectively. To make sure the predictive ability of institutional ownership is not driven by its relation with other firm characteristics, we control for the same set of firm characteristics that we use in our analysis of institutional preference. Following Gompers and Metrick, we estimate regression Equation (6) using weighted-least-squares, with each firm weighted by its log market capitalization. We estimate Equation (6) quarter by quarter and use the Fama and MacBeth (1973) method to calculate standard errors for the time-series average of coefficients.

Table 3 reports the time-series average of coefficient estimates and the associated p-values. The dependent variable is the one-quarter-ahead return for the first set of three regressions, while the dependent

Table 3
Institutional ownership and future stock returns

	Dependent variable—$RET_{t,t+3}$			Dependent variable—$RET_{t,t+12}$		
Intercept	0.114 (0.01)	0.114 (0.01)	0.114 (0.01)	0.477 (0.01)	0.476 (0.01)	0.477 (0.01)
IO	**0.019** (0.01)	0.004 (0.61)	**0.023** (0.01)	**0.058** (0.02)	0.013 (0.60)	**0.071** (0.01)
SIO		**0.054** (0.01)			**0.142** (0.01)	
LIO			−**0.021** (0.05)			−0.055 (0.07)
BM	0.007 (0.01)	0.007 (0.01)	0.007 (0.01)	0.034 (0.01)	0.035 (0.01)	0.035 (0.01)
MKTCAP	−0.006 (0.01)	−0.006 (0.01)	−0.006 (0.01)	−0.023 (0.01)	−0.023 (0.01)	−0.023 (0.01)
VOL	−0.023 (0.70)	−0.025 (0.68)	−0.024 (0.69)	−0.161 (0.50)	−0.166 (0.49)	−0.162 (0.50)
TURN	−0.104 (0.01)	−0.117 (0.01)	−0.108 (0.01)	−0.396 (0.01)	−0.442 (0.01)	−0.409 (0.01)
PRC	−0.008 (0.04)	−0.008 (0.04)	−0.008 (0.04)	−0.020 (0.24)	−0.020 (0.24)	−0.020 (0.24)
SP500	0.016 (0.01)	0.017 (0.01)	0.017 (0.01)	0.058 (0.01)	0.061 (0.01)	0.059 (0.01)
$RET_{t-3,t}$	0.004 (0.69)	0.004 (0.70)	0.004 (0.69)	0.109 (0.01)	0.109 (0.01)	0.109 (0.01)
$RET_{t-12,t-3}$	0.022 (0.01)	0.022 (0.01)	0.022 (0.01)	0.034 (0.01)	0.033 (0.01)	0.034 (0.01)
AGE	0.002 (0.07)	0.003 (0.03)	0.002 (0.06)	0.003 (0.47)	0.004 (0.31)	0.003 (0.41)
DP	−0.026 (0.35)	−0.022 (0.42)	−0.024 (0.37)	−0.128 (0.25)	−0.116 (0.30)	−0.126 (0.26)
Avg. R^2	0.080	0.081	0.080	0.078	0.079	0.078

This table summarizes the results of cross-sectional regressions of one-quarter-ahead or one-year-ahead returns on institutional ownership and other stock characteristics. The sample period is from 1980:Q3 to 2003:Q4. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. $RET_{t,t+3}$ is one-quarter-ahead stock return. $RET_{t,t+12}$ is one-year-ahead stock return. IO is total institutional ownership. SIO is short-term institutional ownership. LIO is long-term institutional ownership. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. MKTCAP is market capitalization. Age is firm age measured as number of months since first return appears in the CRSP database. DP is dividend yield. DP is winsorized at the 99th percentile. BM is book-to-market ratio. BM is winsorized at the 1st percentile and 99th percentile. PRC is share price. TURN is the average monthly turnover over the previous quarter. VOL is the monthly volatility over the past two years. SP500 is dummy variable for S&P 500 index membership. $RET_{t-3,t}$ is the lagged three-month return. $RET_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. All variables except institutional ownership, S&P 500 index membership, and stock returns are expressed in natural logarithms. We use the Fama and MacBeth (1973) methodology and report the time-series average regression coefficients. Numbers in parentheses are p-values based on Newey–West standard errors. Regression coefficients on institutional ownership that are statistically significant at the 5% levels are in bold. All returns are in percent.

variable is the one-year-ahead return for the second set of regressions. In the regression of one-year-ahead returns, the residuals will be serially correlated because the dependent variable is overlapped. We report p-values on the basis of the Newey–West (1987) standard errors to account for this autocorrelation. Within each set of regressions, we first include only total institutional ownership, and then add short-term or long-term institutional ownership to the regressions.

We find strong evidence that institutional ownership forecasts one-quarter-ahead returns. The average coefficient on IO is 0.019 and is statistically significant at the 1% level. When we include both total IO and SIO in the regression, the predictive power of IO is completely subsumed by SIO. The average coefficient for SIO is 0.054 and statistically significant at the 1% level. This result is also economically significant. A two-standard deviation increase in SIO is associated with an increase in next quarter's stock return by about 1.1%. After controlling for SIO, the point estimate for IO drops from 0.019 to 0.004, with a p-value of 0.61. By contrast, when we include both IO and LIO in the regression, the average coefficient on IO remains positive and significant, while the average coefficient on LIO is actually *negative* and significant at the 5% level.[7]

The results for one-year-ahead returns are similar. When used alone, current quarter IO has significant predictive power for the next year's stock returns. However, after controlling for SIO, the predictive ability of IO disappears, while the average coefficient on SIO is positive and highly significant. Like the results on one-quarter-ahead returns, the marginal effect of long-term institutional ownership on one-year-ahead returns is significantly negative after controlling for total institutional ownership.

Overall, the results in this section indicate that institutional ownership has strong predictive ability for both next quarter's and next year's returns. This result is consistent with Gompers and Metrick (2001). More importantly, we show that this predictive ability is almost entirely driven by short-term institutions. By contrast, long-term institutional ownership does not have incremental predictive power for future stock returns.

3.2 Demand shock versus informational advantage

Gompers and Metrick (2001) argue that two forces may be driving the positive relation between institutional ownership and future returns: institutions either provide persistent demand shocks or they have an informational advantage. To disentangle these two effects, they decompose the current quarter institutional ownership (IO_t) into lagged institutional ownership (IO_{t-1}) and the change in institutional ownership (ΔIO_t). If the predictive ability of institutional ownership is due to demand shock, given that institutional holdings are quite stable, one would expect that IO_{t-1} has a stronger predictive power. If institutional investors have an informational advantage, then ΔIO_t should be a better predictor.

To examine the sources of predictive ability of short-term institutional ownership, we decompose the current institutional holdings into lagged holdings and changes in holdings for both short- and long-term investors: SIO_{t-1}, ΔSIO_t, LIO_{t-1}, and ΔLIO_t. Next, for each quarter we run the

[7] One should not interpret this result as evidence that long-term institutional ownership has negative predictive ability for future returns. We note that the coefficient on LIO captures only the marginal effect of long-term institutional ownership. In particular, the total institutional ownership, which also contains long-term institutional ownership, has a positive relation with future stock returns, Therefore, the total effect of long-term institutional ownership is likely indistinguishable from zero.

following cross-sectional regression:

$$\begin{aligned} RET_{i,t,t+3}(RET_{i,t,t+12}) = \beta_0 &+ \beta_1 SIO_{i,t-1} + \beta_2 LIO_{i,t-1} + \beta_3 \Delta SIO_{i,t} \\ &+ \beta_4 \Delta LIO_{i,t} + \beta_5 MKTCAP_{i,t} + \beta_6 AGE_{i,t} + \beta_7 DP_{i,t} \\ &+ \beta_8 BM_{i,t} + \beta_9 PRC_{i,t} + \beta_{10} TURN_{i,t} + \beta_{11} VOL_{i,t} \\ &+ \beta_{12} SP500_{i,t} + \beta_{13} RET_{i,t-3,t} + \beta_{14} RET_{i,t-12,t-3} + e_{i,t} \end{aligned} \tag{7}$$

Table 4 reports the time-series average of coefficients and associated p-values calculated on the basis of the Newey–West standard errors. When we include only ownership variables in the regression, SIO_t strongly predicts future returns, while the average coefficient on LIO_t is statistically

Table 4
Short-term institutional investors, long-term institutional investors, and future stock returns

	Dependent variable—$RET_{t,t+3}$		Dependent variable—$RET_{t,t+12}$	
Intercept	0.115 (0.01)	0.119 (0.01)	0.479 (0.01)	0.472 (0.01)
SIO_t	**0.058** (0.01)		**0.157** (0.01)	
LIO_t	0.004 (0.68)		0.024 (0.45)	
SIO_{t-1}		**0.043** (0.01)		**0.135** (0.01)
LIO_{t-1}		0.016 (0.10)		0.032 (0.32)
ΔSIO_t		**0.062** (0.01)		**0.192** (0.01)
ΔLIO_t		−0.021 (0.12)		−0.006 (0.87)
BM	0.007 (0.01)	0.007 (0.01)	0.035 (0.01)	0.036 (0.01)
MKTCAP	−0.006 (0.01)	−0.006 (0.01)	−0.023 (0.01)	−0.023 (0.01)
VOL	−0.026 (0.67)	−0.036 (0.56)	−0.168 (0.48)	−0.150 (0.53)
TURN	−0.117 (0.01)	−0.114 (0.01)	−0.441 (0.01)	−0.436 (0.01)
PRC	−0.008 (0.04)	−0.008 (0.03)	−0.020 (0.24)	−0.020 (0.25)
SP500	0.017 (0.01)	0.017 (0.01)	0.060 (0.01)	0.059 (0.01)
$RET_{t-3,t}$	0.004 (0.70)	0.002 (0.84)	0.110 (0.01)	0.108 (0.01)
$RET_{t-12,t-3}$	0.022 (0.01)	0.021 (0.01)	0.033 (0.01)	0.033 (0.01)
AGE	0.002 (0.04)	0.002 (0.05)	0.004 (0.33)	0.004 (0.40)
DP	−0.022 (0.42)	−0.022 (0.42)	−0.119 (0.29)	−0.120 (0.30)
Avg. R^2	0.081	0.083	0.078	0.080

This table summarizes the results of cross-sectional regressions of one-quarter-ahead or one-year-ahead returns on short-term and long-term institutional ownership, and other stock characteristics. The sample period is from 1980:Q3 to 2003:Q4. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. $RET_{t,t+3}$ is one-quarter-ahead stock return. $RET_{t,t+12}$ is one-year-ahead stock return. IO is total institutional ownership. SIO is short-term institutional ownership. LIO is long-term institutional ownership. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. MKTCAP is market capitalization. Age is firm age measured as number of months since first return appears in the CRSP database. DP is dividend yield. DP is winsorized at the 99th percentile. BM is book-to-market ratio. BM is winsorized at the 1st percentile and 99th percentile. PRC is share price. TURN is the average monthly turnover over the previous quarter. VOL is the monthly volatility over the past two years. SP500 is dummy variable for S&P 500 index membership. $RET_{t-3,t}$ is the lagged three-month return. $RET_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. All variables except institutional ownership, S&P 500 index membership, and stock returns are expressed in natural logarithms. We estimate cross-sectional regressions for each quarter. We use the Fama and MacBeth (1973) methodology and report the time-series average regression coefficients. Numbers in parentheses are p-values based on Newey–West standard errors. Regression coefficients on institutional ownership and trading that are statistically significant at the 5% levels are in bold. All returns are in percent.

insignificant. This result is consistent with those reported in Table 4 that the predictive ability of total institutional ownership is driven by short-term institutions.

When we include both lagged institutional holdings and changes in institutional holdings, the average coefficient on SIO_{t-1} is still statistically significant. This result suggests that demand shocks impact stock returns. More importantly, the average coefficient on ΔSIO_t is positive and statistically significant at the 1% level, suggesting that short-term institutions are informed. Since our results are obtained 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. In particular, our results are not driven by the momentum effect. In contrast, neither LIO_{t-1} nor ΔLIO_t is significantly related to future stock returns. The results for one-year-ahead returns are qualitatively similar. Short-term institutions' holdings and trading both forecast one-year-ahead returns, while neither holdings nor trading by long-term institutions has any predictive power for next year's returns.

Our results on short-term institutions are economically significant. A two-standard-deviation change in short-term institutional trading is associated with a change in next quarter's return by 0.53%, and is associated with a change in next year's return by 1.63%. Overall, these results suggest that short-term institutions are informed. Moreover, they are better informed than long-term institutions.

3.3 The information content of short-term institutional trading: small/big, value/growth

If short-term institutions possess superior information about future returns, their informational advantage should be greater for smaller firms and firms with more growth opportunities. In general, these firms face more uncertainty and their values are more difficult to evaluate [e.g., Wermers (1999) and Sias (2004)]. To test this implication, we divide all sample stocks into small/large and value/growth categories. Specifically, each quarter, a firm is classified as a small firm if its market capitalization is lower than the NYSE median. Otherwise, it is considered a big firm. Similarly, a firm is classified as a growth firm if its book-to-market ratio is less than the cross-sectional median; otherwise, it is a value firm.

We then re-estimate regression Equation (7) for small/large and value/growth firms separately. If the predictive ability of short-term institutional trading reflects superior information, we would expect ΔSIO_t to have a stronger predictive power for small and growth stocks than for large and value stocks.

Panel A of Table 5 reports the regression results for small/large stocks. Again we examine both one-quarter-ahead and one-year-ahead returns.

We focus our discussion on the coefficients on institutional trading because it captures the informational advantage better. For one-quarter-ahead returns, the average coefficient on ΔSIO_t for small stocks is 0.087, about twice as large as that for large stocks (0.047). Since the standard deviations of ΔSIO_t for small and large stocks are very similar (the average cross-sectional standard deviation for ΔSIO_t is 4.1% for small stocks and 3.9% for large stocks), the above estimates for regression coefficients imply that the marginal effect of ΔSIO_t is about twice as big for small stocks as that for large stocks. In addition, although the coefficient estimates on ΔSIO_t are statistically significant for both small and large stocks, the p-value is smaller for small stocks (p-value = 0.01) than for large stocks (p-value = 0.03). Similar results hold for one-year-ahead returns. Both small and large firms have statistically significant coefficients on ΔSIO_t, but the point estimate is again bigger for small stocks than for large stocks (0.27 versus 0.19). Overall, we find evidence that the predictive power of short-term institutional trading is stronger for small stocks than for large stocks.

Consistent with our earlier results, we find no evidence that long-term institutional trading predicts future returns for either small or large stocks. For one-quarter-ahead returns, the average coefficients for LIO_{t-1} and ΔLIO_t are insignificant for both small and large firms. The point estimates for ΔLIO_t are actually negative. For one-year-ahead returns, although the coefficient on LIO_{t-1} is positive and statistically significant for small stocks, the average coefficient on ΔLIO_t is statistically insignificant for both small and large stocks.

Table 5
Short-term institutional investors, long-term institutional investors, and future stock returns: small/large and value/growth

Panel A: small/large stocks

	Dependent variable—$RET_{t,t+3}$		Dependent variable—$RET_{t,t+12}$	
	Small	Large	Small	Large
Intercept	0.142 (0.01)	0.052 (0.05)	0.589 (0.01)	0.180 (0.02)
SIO_{t-1}	**0.057** (0.01)	**0.031** (0.03)	**0.200** (0.01)	0.046 (0.42)
LIO_{t-1}	0.024 (0.06)	0.017 (0.09)	**0.113** (0.01)	0.039 (0.24)
ΔSIO_t	**0.087** (0.01)	**0.047** (0.03)	**0.266** (0.01)	**0.191** (0.01)
ΔLIO_t	−0.029 (0.07)	−0.008 (0.64)	0.030 (0.54)	−0.009 (0.86)
BM	0.011 (0.01)	0.011 (0.06)	0.051 (0.01)	0.055 (0.01)
MKTCAP	−0.009 (0.01)	−0.001 (0.35)	−0.34 (0.01)	−0.005 (0.55)
VOL	−0.011 (0.85)	−0.119 (0.19)	−0.031 (0.88)	−0.211 (0.52)
TURN	−0.115 (0.01)	−0.057 (0.06)	−0.510 (0.01)	−0.120 (0.35)
PRC	−0.01 (0.07)	−0.002 (0.47)	−0.021 (0.36)	0.002 (0.85)
SP500	0.011 (0.06)	0.003 (0.28)	0.047 (0.02)	0.013 (0.17)
$RET_{t-3,t}$	0.005 (0.55)	−0.002 (0.88)	0.119 (0.01)	0.120 (0.01)
$RET_{t-12,t-3}$	0.022 (0.01)	0.032 (0.01)	0.033 (0.02)	0.061 (0.01)
AGE	0.002 (0.13)	0.001 (0.79)	0.000 (0.98)	0.001 (0.95)
DP	−0.013 (0.11)	0.005 (0.82)	−0.072 (0.06)	−0.046 (0.60)
Avg. R^2	0.075	0.141	0.071	0.135

Table 5
(Continued)

Panel B: value/growth stocks

	Dependent variable—$RET_{t,t+3}$		Dependent variable—$RET_{t,t+12}$	
	Value	Growth	Value	Growth
Intercept	0.084 (0.01)	0.118 (0.01)	0.436 (0.01)	0.416 (0.01)
SIO_{t-1}	0.016 (0.27)	**0.077** (0.01)	0.045 (0.40)	**0.223** (0.01)
LIO_{t-1}	0.013 (0.19)	**0.044** (0.01)	0.014 (0.67)	**0.180** (0.01)
ΔSIO_t	**0.040** (0.03)	**0.103** (0.01)	0.119 (0.07)	**0.352** (0.01)
ΔLIO_t	−0.029 (0.07)	−0.029 (0.28)	−0.041 (0.44)	0.087 (0.11)
BM	0.015 (0.01)	0.002 (0.84)	0.034 (0.09)	0.020 (0.63)
MKTCAP	−0.004 (0.01)	−0.007 (0.01)	−0.019 (0.01)	−0.023 (0.01)
VOL	0.036 (0.56)	−0.047 (0.46)	0.162 (0.49)	−0.122 (0.59)
TURN	−0.104 (0.01)	−0.116 (0.01)	−0.406 (0.01)	−0.445 (0.01)
PRC	−0.010 (0.01)	−0.006 (0.15)	−0.027 (0.14)	−0.007 (0.65)
SP500	0.015 (0.01)	0.015 (0.01)	0.057 (0.01)	0.045 (0.01)
$RET_{t-3,t}$	−0.009 (0.37)	0.014 (0.16)	0.117 (0.01)	0.120 (0.01)
$RET_{t-12,t-3}$	0.029 (0.01)	0.022 (0.01)	0.043 (0.02)	0.041 (0.01)
AGE	0.003 (0.03)	0.002 (0.33)	0.002 (0.57)	0.002 (0.75)
DP	−0.012 (0.12)	0.057 (0.15)	−0.034 (0.28)	0.245 (0.12)
Avg. R^2	0.092	0.077	0.094	0.067

This table summarizes the results of cross-sectional regressions of one-quarter-ahead or one-year-ahead returns on short-term and long-term institutional ownership, and other stock characteristics for small/large, and value/growth stocks separately. The sample period is from 1980:Q3 to 2003:Q4. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. Large stocks have market capitalization greater than that of the median NYSE stock. Small stocks have market capitalization less than that of the median NYSE stock. $RET_{t,t+3}$ is one-quarter-ahead stock return. $RET_{t,t+12}$ is one-year-ahead stock return. IO is total institutional ownership. SIO is short-term institutional ownership. LIO is long-term institutional ownership. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. MKTCAP is market capitalization. Age is firm age measured as number of months since first return appears in the CRSP database. DP is dividend yield. DP is winsorized at the 99th percentile. BM is book-to-market ratio. BM is winsorized at the 1st percentile and 99th percentile. PRC is share price. TURN is the average monthly turnover over the previous quarter. VOL is the monthly volatility over the past two years. SP500 is dummy variable for S&P 500 index membership. $RET_{t-3,t}$ is the lagged three-month return. $RET_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. All variables except institutional ownership, S&P 500 index membership, and stock returns are expressed in natural logarithms. We estimate cross-sectional regressions for each quarter. We use the Fama and MacBeth (1973) methodology and report the time-series average regression coefficients. Numbers in parentheses are p-values based on Newey–West standard errors. Regression coefficients on institutional ownership and trading that are statistically significant at the 5% levels are in bold. All returns are in percent.

Panel B of Table 5 report the results for value/growth stocks. Since the standard deviations of ΔSIO_t are nearly identical between value and growth stocks (4% for value stocks and 4.1% for growth stocks), we can directly compare the magnitude of the coefficients on ΔSIO_t across value and growth stocks. Results in Panel B indicate that for one quarter-ahead-returns, the coefficient on ΔSIO_t is more than twice as large for growth stocks as that for value stocks (0.103 versus 0.04). Further, the coefficient on ΔSIO_t is statistically significant at the 1% level for growth stocks, and only at the 5% level for value stocks.

The results for one-year-ahead returns reveal even greater differences between growth and value stocks. The coefficient on SIO_{t-1} is statistically significant for growth stocks but insignificant for value stocks. More importantly, the coefficient on ΔSIO_t is statistically significant at the 1% level for growth stocks, but is insignificant at the 5% level (p-value $= 0.07$) for value stocks. In addition, the coefficient on ΔSIO_t is 0.352 for growth stocks, about three times as high as that for value stocks (0.119).

In summary, results in Table 5 indicate that short-term institutional trading has stronger predictive power for small and growth stocks than for large and value stocks. These results are consistent with the hypothesis that short-term institutional trading predicts future returns because they have an informational advantage.

3.4 Portfolio approach

Thus far we have focused on a cross-sectional regression approach to examine the effect of institutional ownership and trading on future returns. This approach allows us to compare with prior studies [e.g., Gompers and Metrick (2001)], and to readily control for known predictors of future returns such as size, book-to-market, and past returns. To gauge the robustness of our results, in this section we use a portfolio approach.

Specifically, we construct investment portfolios based on short- and long-term institutional trading. At the end of each quarter, we rank all sample stocks on the basis of their current-quarter changes in short-/long-term institutional ownership, and sort them into five portfolios. We hold these portfolios for one year and report the cumulative value-weighted holding period returns on the portfolio of stocks with the largest increase in short-/long-term institutional holding (Q5) and returns on the portfolio of stocks with the largest decrease in short-/long-term institutional holding (Q1). We also report the return on a zero-investment strategy that is long in portfolio Q5 and short in portfolio Q1, where Q5 and Q1 are formed every quarter as above, and held for one year. In addition to raw returns, we also report the Daniel et al. (1997) (DGTW) benchmark-adjusted returns. DGTW benchmark-adjusted returns allow us to control for the size, book-to-market, and momentum effect.

Table 6 reports the results on portfolios sorted by short- and long-term institutional trading. The portfolio of stocks with the largest increase in short-term institutional holdings earns higher returns than the portfolio of stocks with the largest decrease in short-term institutional trading. For the raw return, the average quarterly return on the zero-investment strategy Q5 − Q1 is 0.53% (t-statistics $= 3.16$) over the four quarters after portfolio formation. This average return difference

Table 6
Returns on portfolios sorted by changes in short- and long-term institutional ownership

	Quarterly Average	Quarters $t+1$	$t+1$ through $t+2$	$t+1$ through $t+3$	$t+1$ through $t+4$
Short-term institutional trading portfolios					
Q5	3.62	3.61	6.91	10.61	14.88
Q1	3.09	2.97	5.86	8.74	12.72
Q5 − Q1	**0.53**	**0.64**	**1.05**	**1.87**	**2.16**
	(3.16)	(2.02)	(2.42)	(3.16)	(2.77)
Q5 − Q1 (DGTW	**0.41**	**0.42**	**0.62**	**1.24**	**1.62**
adjusted)	(3.34)	(1.73)	(1.86)	(2.74)	(2.82)
Long-term institutional trading portfolios					
Q5	3.21	2.91	5.90	9.08	13.27
Q1	3.40	3.08	6.55	10.18	14.02
Q5 − Q1	−0.19	−0.17	−0.64	**−1.09**	−0.75
	(−1.20)	(−0.49)	(−1.52)	(−2.25)	(−1.41)
Q5 − Q1 (DGTW	−0.03	−0.04	−0.35	−0.55	−0.16
adjusted)	(−0.29)	(−0.16)	(−1.12)	(−1.52)	(−0.41)

This table reports the returns on portfolios sorted by the quarterly change in short- and long-term institutional ownership. The sample period is from 1980:Q3 to 2003:Q4. Institutional holdings are obtained from CDA/Spectrum. Stock returns are from the CRSP. An institutional investor is classified as a short-term investor if its past 4-quarter portfolio turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. Each quarter, we group all stocks available in CDA/Spectrum into 5 portfolios based on their rankings on change in short- and long-term institutional ownership, respectively. Portfolio Q5 contains stocks that experience the largest increase in institutional ownership. Portfolio Q1 contains stocks that experience the largest decrease in institutional ownership. For each of portfolios Q5 and Q1, we report their value-weighted cumulative quarterly returns up to 4 quarters after the portfolio formation. We also report the average quarterly returns on an investment strategy that is long in Q5 and short in Q1. We report the time-series means of both raw returns as well as the Daniel et al. (1997) (DGTW) benchmark adjusted returns. The returns are in percent. Numbers in parentheses are t-statistics. Return differences that are statistically significant at 10% are in bold. All returns are in percent.

decreases to 0.41% using DGTW-adjusted returns, but is still statistically significant (t-statistics = 3.34). Over the one year after portfolio formation, the cumulative return difference between Q5 and Q1 is 2.16% (t-statistics = 2.77) using raw returns, and is 1.62% using DGTW-adjusted returns (t-statistics = 2.82).

Consistent with our earlier results, we find no evidence that long-term institutional investors have stock-picking ability. Whether measured by raw returns or DGTW-adjusted returns, there's no significant spread between Q5 and Q1 portfolios. Indeed, the return differences between Q5 and Q1 are actually negative for long-term institutional investors.

In summary, results in Table 6 show a significant difference between long-term and short-term investors. Short-term institutions' trading strongly predicts future returns while long-term institutions' trading does not. These results are consistent with those reported in Table 4 and suggest that short-term institutional investors are better informed than long-term institutional investors.

3.5 Institutional trading and future earnings news

We have shown that short-term institutional trading contains information about future stock returns. To provide more direct evidence that short-term institutions possess private information that is useful in predicting future returns, we examine in this section the relation between institutional trading and future earnings news. We examine both earnings announcement abnormal returns and earnings surprises.

We obtain analysts' consensus quarterly earnings forecast and actual earnings from I/B/E/S. We obtain quarterly earnings announcement dates from COMPUSTAT. The earnings announcement abnormal return is defined as the cumulative market-adjusted return over a 3-day window $[-1, +1]$ around the earnings announcement date. The earnings surprise is defined as the difference between reported earnings and consensus analysts' earnings forecast divided by the stock price of the previous quarter. Each quarter, we group stocks into five portfolios based on short-term/long-term institutional trading. Specifically, portfolio Q5 (Q1) contains stocks for which the quarterly institutional ownership has increased (decreased) the most. For each portfolio at each quarter, we then calculate the median earnings announcement abnormal returns and earnings surprises over each of the next four quarterly earnings announcements.

Panel A of Table 7 reports the time-series average of the median earnings announcement abnormal returns for portfolios Q5 and Q1, as well as the earnings announcement return difference between these two portfolios. Results in Table 7 indicate that short-term institutional trading is positively related to future earnings abnormal returns. Portfolio Q5 has an earnings announcement abnormal return 94 basis points higher than portfolio Q1 in the first quarter, and this difference is statistically significant at the 1% level (t-statistics = 17.38). The same pattern holds for the next three quarters. Although the magnitude of the difference is smaller for the next three quarters, it is still statistically significant.

To the extent that institutions might trade on the basis of past earnings news, the above results may be influenced by the well-documented phenomenon of earnings momentum. To control for earnings momentum, each quarter we divide all stocks into tertile portfolios based on the *current* quarter's earnings announcement abnormal return. Next, we calculate the median abnormal return difference between the buy and sell portfolios around subsequent quarterly earnings announcements *within* each current earnings announcement abnormal return tertile. We then report the time-series average of these return differences across the current earnings announcement abnormal return tertiles to stratify the earnings momentum effect. After adjusting for earnings momentum, we find that the earnings announcement return difference between Q5 and Q1 remains significant and positive for the first three quarters. The adjusted return difference is about 53 basis points annualized, comparable in magnitude to Baker

Table 7
Institutional trading and future earnings news

Panel A: cumulative market-adjusted return over [−1, +1] around earnings announcement (%)

	Quarters			
	$t+1$	$t+2$	$t+3$	$t+4$
Short-term institutional trading portfolios				
Q5	0.586	0.123	0.131	0.067
Q1	−0.351	−0.006	0.018	0.000
Q5 − Q1	**0.938**	**0.128**	**0.113**	**0.066**
	(17.38)	(3.66)	(3.23)	(1.83)
Q5 − Q1 (earnings mom. adj.)	**0.133**	**0.121**	**0.071**	−0.006
	(4.15)	(3.63)	(2.04)	(−0.20)
Long-term institutional trading portfolios				
Q5	0.074	0.075	0.076	0.055
Q1	0.096	0.089	0.062	0.060
Q5 − Q1	−0.022	−0.015	0.014	−0.005
	(−0.67)	(−0.45)	(0.47)	(−0.15)
Q5 − Q1 (earnings mom. adj.)	−0.014	0.008	−0.003	−0.005
	(−0.53)	(0.30)	(−0.11)	(−0.15)

Panel B: earnings surprises (%)

	$t+1$	$t+2$	$t+3$	$t+4$
Short-term institutional trading portfolios				
Q5	0.047	0.003	−0.003	−0.004
Q1	−0.029	−0.024	−0.019	−0.017
Q5 − Q1	**0.076**	**0.027**	**0.016**	**0.013**
	(2.03)	(7.02)	(5.36)	(5.42)
Long-term institutional trading portfolios				
Q5	−0.006	−0.011	−0.011	−0.009
Q1	−0.014	−0.013	−0.009	−0.008
Q5 − Q1	0.008	0.001	−0.002	−0.000
	(1.31)	(0.44)	(−0.80)	(−0.15)

This table reports the earnings announcement abnormal returns and earnings surprises by institutional trading portfolios. The sample period is from 1980:Q3 to 2003:Q4 for Panel A, and is 1984:Q1 to 2003:Q4 for Panel B. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. The earnings announcement abnormal return is calculated for the three days around the earnings announcement date. The earnings surprise is calculated as the difference between actual earnings and consensus analyst forecast divided by the stock price. Earnings data are from I/B/E/S. Earnings announcement dates are obtained from COMPUSTAT. We divide stocks into quintile portfolios based on the changes of quarterly institutional ownership. Portfolio Q5 contains stocks that experience the largest increase in institutional ownership. Portfolio Q1 contains stocks that experience the largest decrease in institutional ownership. We report the time-series mean of cross-sectional median values for these portfolios. Panel A reports the results for earnings announcement abnormal returns, and Panel B reports those for earnings surprises. Numbers in parentheses are t-statistics. Differences in returns or earnings surprises that are statistically significant at the 10% level are in bold.

et al. (2004) who examine the relation between mutual fund trading and subsequent earnings announcement returns.

In contrast to findings on short-term institutions, we find no evidence that long-term institutional trading is related to future earnings announcement abnormal returns. The difference in earnings announcement abnormal returns between Q5 and Q1 is indistinguishable from zero across all four quarters whether we control for earnings momentum or not. This result is consistent with our earlier finding that long-term institutional trading does not forecast future stock returns.

Next, we examine if institutional trading is related to future earnings surprises. Panel B reports the time-series average of median earnings surprises for portfolios Q5 and Q1, as well as the difference between Q5 and Q1. Similar to the results for earnings announcement returns, stocks for which short-term institutional ownership increases the most experience significantly higher earnings surprises (more positive or less negative) than those stocks for which short-term institutional ownership decreases the most. This difference is statistically significant for all four quarters after portfolio formation. By contrast, we find no evidence that stocks that long-term institutions buy or sell exhibit significantly different earnings surprises in any of the subsequent four quarters.[8]

In summary, we show in this section that short-term institutional trading is positively associated with both future earnings surprises and abnormal returns around subsequent earnings announcements. These results provide more direct evidence that short-term institutions possess private information about future firm value. Consistent with our results on returns, we find little evidence that long-term institutional trading is related to either future earnings surprises or earnings announcement abnormal returns.

3.6 Evidence on long-run returns

We have shown that short-term institutional trading forecasts future returns and contains information about future earnings news, which suggests that short-term institutions are informed. An alternative explanation for our results is that short-term institutional investors pressure corporate managers to maximize short-run profits at the expense of long-run firm value. Porter (1992) argues that the short-term focus by institutional investors forces managers to be overly concerned with measures of short-term performance such as quarterly earnings. Bushee (2001) shows that transient institutions exhibit strong preferences for corporations with more value in expected near-term earnings and less in long-run value. Further, Bushee (1998) finds that firms with higher transient institutional ownership are more likely to underinvest in long-term, intangible projects such as R&D to reverse an earnings decline.

While the short-term pressure hypothesis might explain the short-run predictive ability of short-term institutional ownership and trading, it

8 Ke and Ramalingegowda (2005) also examine the relation between changes in institutional ownership and future earnings news. They focus on the revision of long-term earnings forecasts. They find no evidence that dedicated institutions have private information about long-term earnings, and transient institutions seem to possess information about long-term earnings that will be reflected in short-term stock prices.

also predicts long-run price reversal for stocks held or traded by short-term institutions. Our results for one-year-ahead returns (reported in Tables 4 and 5) are inconsistent with that hypothesis: changes in short-term institutional holdings strongly predict next year's return. However, it is possible that one year is not long enough for prices to revert to their fundamental values. Therefore, in Table 8 we examine the relation between institutional trading and future stock returns up to three years. Specifically, we re-estimate regression Equation (7) replacing the dependent variable by the two-year holding period return starting from one-year from the current

Table 8
Short-term institutional investors, long-term institutional investors, and long-run stock returns

	Dependent variable—$\mathrm{RET}_{t+12,t+36}$	
Intercept	0.569 (0.01)	0.545 (0.01)
SIO_t	0.076 (0.18)	
LIO_t	0.012 (0.82)	
SIO_{t-1}		0.055 (0.34)
LIO_{t-1}		0.037 (0.42)
ΔSIO_t		0.018 (0.74)
ΔLIO_t		0.007 (0.84)
BM	0.072 (0.01)	0.068 (0.01)
MKTCAP	−0.028 (0.01)	−0.027 (0.01)
VOL	−0.405 (0.26)	−0.392 (0.28)
TURN	−0.359 (0.08)	−0.347 (0.10)
PRC	0.030 (0.16)	0.032 (0.15)
SP500	0.048 (0.12)	0.046 (0.02)
$\mathrm{RET}_{t-3,t}$	−0.036 (0.29)	−0.040 (0.27)
$\mathrm{RET}_{t-12,t-3}$	−0.023 (0.39)	−0.022 (0.42)
AGE	0.003 (0.74)	0.003 (0.81)
DP	−0.172 (0.45)	−0.134 (0.56)
Avg. R^2	0.050	0.050

This table summarizes the results of cross-sectional regressions of long-run stock returns on short-term and long-term institutional ownership, and other stock characteristics. The sample period is from 1980:Q3 to 2002:Q4. The institutional holdings are obtained from Thomson Financial. The stock characteristics are from the CRSP and COMPUSTAT database. $\mathrm{RET}_{t+12,t+36}$ is the 2-year cumulative return beginning one year from the report date. IO is total institutional ownership. SIO is short-term institutional ownership. LIO is long-term institutional ownership. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. MKTCAP is market capitalization. Age is firm age measured as number of months since first return appears in the CRSP database. DP is dividend yield. DP is winsorized at the 99th percentile. BM is book-to-market ratio. BM is winsorized at the 1st percentile and 99th percentile. PRC is share price. TURN is the average monthly turnover over the previous quarter. VOL is the monthly volatility over the past two years. SP500 is dummy variable for S&P 500 index membership. $\mathrm{RET}_{t-3,t}$ is the lagged three-month return. $\mathrm{RET}_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. All variables except institutional ownership, S&P 500 index membership, and stock returns are expressed in natural logarithms. We estimate cross-sectional regressions for each quarter. We use the Fama and MacBeth (1973) methodology and report the time-series average regression coefficients. Numbers in parentheses are p-values based on Newey–West standard errors. Regression coefficients on institutional ownership and trading that are statistically significant at the 5% levels are in bold. All returns are in percent.

quarter. In this analysis, since the dependent variable is overlapped, we use Newey–West standard errors to account for serial correlation of residuals.

Table 8 presents the regression results. If there is long-run price reversal, we would expect the coefficients on SIO_t and ΔSIO_t to be significantly negative. We find no evidence of long-run price reversal. Indeed, the coefficients on SIO_t and ΔSIO_t are all positive and insignificant. This suggests that the stocks held or bought by short-term institutions do not under-perform in the long run. These results confirm that short-term institutional trading predicts future stock returns not because of the short-term pressure they create for corporate managers, but because they have an informational advantage. Thus, this article's main findings cannot be explained by the short-term pressure hypothesis.

Although long-term institutions have no ability to predict short-term returns, it is possible that they have superior long-term information (as we discussed in the introduction). Results in Table 8 are not consistent with this hypothesis. Neither holdings nor trading by long-term institutions forecast long-run returns. Specifically, the coefficients on LIO_{t-1} and ΔLIO_t are not statistically significant at any conventional levels.

In summary, we show in this section that our results are not explained by the short-term pressure hypothesis. While we might have overlooked other alternative explanations, the fact that we do not find long-run price reversal likely rules out other non-information-based explanations as well: if price movements result from something other than information, we would expect to observe subsequent return reversals.

Table 9
Short-term institutional investors, long-term institutional investors, and future stock returns: subperiods

Panel A: 1980–1991

	Dependent variable—$RET_{t,t+3}$		Dependent variable—$RET_{t,t+12}$	
Intercept	0.100 (0.01)	0.107 (0.01)	0.400 (0.01)	0.386 (0.01)
SIO_t	**0.077** (0.01)		**0.189** (0.01)	
LIO_t	−0.007 (0.63)		0.001 (0.99)	
SIO_{t-1}		**0.049** (0.01)		**0.157** (0.02)
LIO_{t-1}		0.005 (0.67)		−0.005 (0.91)
ΔSIO_t		**0.062** (0.02)		**0.223** (0.01)
ΔLIO_t		0.006 (0.72)		0.037 (0.32)
BM	0.005 (0.09)	0.005 (0.07)	0.021 (0.01)	0.021 (0.03)
MKTCAP	−0.007 (0.01)	−0.008 (0.01)	−0.029 (0.01)	−0.028 (0.01)
VOL	−0.062 (0.47)	−0.081 (0.37)	−0.306 (0.35)	−0.269 (0.41)
TURN	−0.185 (0.01)	−0.186 (0.01)	−0.689 (0.01)	−0.694 (0.01)
PRC	0.002 (0.61)	0.001 (0.77)	0.022 (0.23)	0.023 (0.22)
SP500	0.017 (0.01)	0.017 (0.01)	0.059 (0.01)	0.058 (0.01)
$RET_{-3,0}$	0.003 (0.84)	−0.001 (0.97)	0.121 (0.01)	0.120 (0.01)
$RET_{-12,-3}$	0.028 (0.01)	0.028 (0.01)	0.060 (0.01)	0.060 (0.01)
AGE	0.003 (0.06)	0.003 (0.05)	0.008 (0.17)	0.008 (0.18)
DP	0.018 (0.70)	0.025 (0.61)	0.123 (0.49)	0.142 (0.45)
Avg. R^2	0.082	0.084	0.089	0.090

Table 9
(Continued)

Panel B: 1992–2003

	Dependent variable—$RET_{t,t+3}$		Dependent variable—$RET_{t,t+12}$	
Intercept	0.129 (0.01)	0.130 (0.01)	0.555 (0.01)	0.553 (0.01)
SIO_t	**0.040** (0.02)		**0.126** (0.05)	
LIO_t	0.016 (0.29)		0.046 (0.37)	
SIO_{t-1}		**0.036** (0.03)		0.114 (0.10)
LIO_{t-1}		0.027 (0.09)		0.067 (0.15)
ΔSIO_t		**0.062** (0.01)		0.162 (0.08)
ΔLIO_t		**−0.047** (0.03)		−0.047 (0.46)
BM	0.009 (0.01)	0.010 (0.01)	0.048 (0.01)	0.049 (0.01)
MKTCAP	−0.005 (0.01)	−0.005 (0.01)	−0.019 (0.01)	−0.018 (0.01)
VOL	0.009 (0.92)	0.006 (0.95)	−0.035 (0.92)	−0.037 (0.91)
TURN	−0.051 (0.15)	−0.046 (0.20)	−0.204 (0.03)	−0.193 (0.05)
PRC	−0.018 (0.01)	−0.018 (0.01)	−0.060 (0.01)	−0.060 (0..01)
SP500	0.018 (0.01)	0.017 (0.01)	0.062 (0.01)	0.060 (0.01)
$RET_{-3,0}$	0.004 (0.73)	0.004 (0.73)	0.099 (0.01)	0.097 (0.01)
$RET_{-12,-3}$	0.015 (0.01)	0.015 (0.01)	0.007 (0.60)	0.007 (0.59)
AGE	0.002 (0.36)	0.001 (0.41)	−0.000 (0.99)	−0.001 (0.91)
DP	−0.060 (0.03)	−0.067 (0.02)	−0.350 (0.01)	−0.365 (0.01)
Avg. R^2	0.080	0.081	0.068	0.070

This table summarizes the results of cross-sectional regressions of one-quarter-ahead or one-year-ahead returns on short-term and long-term institutional ownership, and other stock characteristics. The sample period is from 1980 to 1991 in Panel A and is from 1992 to 2003 in Panel B. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. $RET_{t,t+3}$ is one-quarter-ahead stock return. $RET_{t,t+12}$ is one-year-ahead stock return. IO is total institutional ownership. SIO is short-term institutional ownership. LIO is long-term institutional ownership. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. MKTCAP is market capitalization. Age is firm age measured as number of months since first return appears in the CRSP database. DP is dividend yield. DP is winsorized at the 99th percentile. BM is book-to-market ratio. BM is winsorized at the 1st percentile and 99th percentile. PRC is share price. TURN is the average monthly turnover over the previous quarter. VOL is the monthly volatility over the past two years. SP500 is dummy variable for S&P 500 index membership. $RET_{t-3,t}$ is the lagged three-month return. $RET_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. All variables except institutional ownership, S&P 500 index membership, and stock returns are expressed in natural logarithms. We estimate cross-sectional regressions for each quarter. We use the Fama and MacBeth (1973) methodology and report the time-series average regression coefficients. Numbers in parentheses are p-values based on Newey–West standard errors. We use the Fama and MacBeth (1973) methodology. Regression coefficients on institutional ownership and trading that are statistically significant at the 5% levels are in bold. All returns are in percent.

3.7 Are our results on long-term institutions driven by index funds?

Our results indicate that long-term institutional holdings or trading have no explanatory power for future stock returns. One possibility is that some long-term institutions in our sample are institutions specializing in index funds. Since the primary objective of index funds is to track the performance of their respective indexes, they have little incentive to collect information about future returns. To examine if index funds drive our results regarding long-term institutions, we conduct two tests.

In the first test, we split the sample period into two halves. During the first half of our sample period, index funds are relatively undeveloped. The average share of index funds among all equity funds is only about 1% from 1980 to 1991.[9] If long-term institutions can predict future stock returns but their predictability is diluted by index funds, we would expect long-term institutions to have stronger predictive power during the first half of our sample period. Panel A of Table 9 reports the results for the period from 1980 to 1991, and Panel B reports the results for the period from 1992 to 2003. Our sub-period results are largely similar to those for the entire sample period. Even for the first half of our sample period, neither the holdings nor trading by long-term institutions predict future stock returns. This is true for both one-quarter-ahead returns and one-year-ahead returns. These results suggest that index funds do not drive our results regarding long-term institutions. We also note that short-term institutional holdings and trading strongly predict future returns in both sub-periods. This shows that our main results regarding short-term institutions are robust to alternative sample periods.

In the second test, we exclude from our sample those fund families that either have more than $1 billion in equity index funds or more than 50% of their total net assets in equity index funds on average from 1992 to 2002.[10] We then re-estimate regression (7). The results are reported in Table 10. After excluding families specializing in index funds, we still find no evidence that the holdings or trading by long-term institutions predict future stock returns. In summary, these additional tests suggest that our results on long-term institutions do not seem to be driven by index funds.

4. Conclusions

This article finds a significant relation between institutions' investment horizons and their informational roles. We show that the positive relation between institutional ownership and future stock returns documented in Gompers and Metrick (2001) is driven by short-term institutional investors. More importantly, we find strong evidence that changes in short-term institutional ownership also predict future returns. By contrast, we find no evidence that long-term institutions' holdings or trading predict future returns. These results are consistent with the hypothesis that short-term institutions are better informed.

If short-term institutions have an informational advantage, their advantage should be greater for firms with smaller size and more growth

[9] We calculate the share of index funds using data from the CRSP survivor-bias free mutual fund database. We identify index funds by searching the word "index" in fund names.

[10] We identify these fund families using data from the CRSP survivor-bias free mutual fund database. Since the CRSP database does not report information on fund management companies prior to 1992, our calculation starts from 1992.

Table 10
Short-term institutional investors, long-term institutional investors, and future stock returns: excluding fund families that specialize in index funds

	Dependent variable—$RET_{t,t+3}$		Dependent variable—$RET_{t,t+12}$	
Intercept	0.113 (0.01)	0.117 (0.01)	0.475 (0.01)	0.467 (0.01)
SIO_t	**0.060** (0.01)		**0.164** (0.01)	
LIO_t	0.002 (0.68)		0.016 (0.56)	
SIO_{t-1}		**0.045** (0.01)		**0.142** (0.01)
LIO_{t-1}		0.012 (0.15)		0.022 (0.43)
ΔSIO_t		**0.064** (0.01)		**0.192** (0.01)
ΔLIO_t		−0.018 (0.19)		−0.005 (0.89)
BM	0.007 (0.01)	0.008 (0.01)	0.035 (0.01)	0.035 (0.01)
MKTCAP	−0.006 (0.01)	−0.006 (0.01)	−0.023 (0.01)	−0.022 (0.01)
VOL	−0.026 (0.67)	−0.037 (0.55)	−0.165 (0.49)	−0.149 (0.54)
TURN	−0.116 (0.01)	−0.113 (0.01)	−0.439 (0.01)	−0.434 (0.01)
PRC	−0.008 (0.04)	−0.008 (0.03)	−0.020 (0.25)	−0.019 (0.25)
SP500	0.017 (0.01)	0.017 (0.01)	0.061 (0.01)	0.059 (0.01)
$RET_{t-3,t}$	0.004 (0.69)	0.002 (0.83)	0.110 (0.01)	0.109 (0.01)
$RET_{t-12,t-3}$	0.022 (0.01)	0.021 (0.01)	0.033 (0.01)	0.033 (0.01)
AGE	0.003 (0.03)	0.003 (0.03)	0.004 (0.32)	0.004 (0.38)
DP	−0.021 (0.45)	−0.023 (0.42)	−0.116 (0.30)	−0.119 (0.30)
Avg. R^2	0.081	0.083	0.078	0.080

This table summarizes the results of cross-sectional regressions of one-quarter-ahead or one-year-ahead returns on short-term and long-term institutional ownership, and other stock characteristics. The sample period is from 1980:Q3 to 2003:Q4. Institutional holdings are obtained from Thomson Financial. Stock characteristics are from the CRSP and COMPUSTAT database. We exclude from our sample those fund families that either have more than $1 billion in equity index funds or more than 50% of their total net assets in equity index funds on average from 1992–2002. $RET_{t,t+3}$ is one-quarter-ahead stock return. $RET_{t,t+12}$ is one-year-ahead stock return. IO is total institutional ownership. SIO is short-term institutional ownership. LIO is long-term institutional ownership. An institutional investor is classified as a short-term investor if its past 4-quarter turnover rate ranks in the top tertile. An institutional investor is classified as a long-term investor if its past 4-quarter turnover rate ranks in the bottom tertile. MKTCAP is market capitalization. Age is firm age measured as number of months since first return appears in the CRSP database. DP is dividend yield. DP is winsorized at the 99th percentile. BM is book-to-market ratio. BM is winsorized at the 1st percentile and 99th percentile. PRC is share price. TURN is the average monthly turnover over the previous quarter. VOL is the monthly volatility over the past two years. SP500 is dummy variable for S&P 500 index membership. $RET_{t-3,t}$ is the lagged three-month return. $RET_{t-12,t-3}$ is the lagged nine-month return preceding the beginning of the quarter. All variables except institutional ownership, S&P 500 index membership, and stock returns are expressed in natural logarithms. We estimate cross-sectional regressions for each quarter. We use the Fama and MacBeth (1973) methodology and report the time-series average regression coefficients. Numbers in parentheses are p-values based on Newey–West standard errors. Regression coefficients on institutional ownership and trading that are statistically significant at the 5% levels are in bold. All returns are in percent.

opportunities—these firms face more uncertainty and their fair value is more difficult to evaluate. Consistent with this intuition, we find that the short-term institutions' predictive power is stronger for small and growth stocks than for large and value stocks. We also find that short-term institutions' trading is significantly positively related to future earnings surprises and earnings announcement abnormal returns. These results suggest that short-term institutions possess private information about future earnings.

An alternative explanation for our results is that short-term institutions pressure corporate managers to maximize short-run earnings at the expense of long-run firm value. In this case, we would expect to find long-run price reversal for stocks held or traded by short-term institutions. We do not find support for this explanation: Our analysis of future returns shows no evidence of price reversal for up to three years. We also show that long-term institutional trading does not predict stock returns in the long run, inconsistent with the idea that long-term institutions have superior long-term information. Overall, our results are most consistent with the view that short-term institutions are better informed and that they trade actively to exploit their informational advantage.

This article's results have implications for the issue of identifying and attracting the "right" investors. Recent studies [e.g., Gaspar, Massa, and Matos (2005)] suggest that short-term institutional investors are weak monitors. Moreover, short-term institutions pressure managers into a short-term focus, thereby hurting long-run firm value [e.g., Bushee (1998)]. Collectively, these results suggest that it might be beneficial for firms to target and attract long-term institutional investors [Porter (1992), Brancato (1997), and Bushee (2004)]. We argue that firms should also consider the informational aspect of institutional ownership. Our results indicate that short-term institutions play a significant informational role in the stock market. Since more informative prices facilitate better financing and investment decisions and may reduce cost of capital, our results cast doubt on the benefit of a strategy that attempts to attract only long-term investors.

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