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Can Mutual Fund Managers Pick Stocks? Evidence from Their Trades Prior to Earnings Announcements

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Abstract

Recent research finds that the stocks that mutual fund managers buy outperform the stocks that they sell (e.g., Chen, Jegadeesh, and Wermers (2000)). We study the nature of this stock-picking ability. We construct measures of trading skill based on how the stocks held and traded by fund managers perform at subsequent corporate earnings announcements. This approach increases the power to detect skilled trading and sheds light on its source. We find that the average fund's recent buys significantly outperform its recent sells around the next earnings announcement, and that this accounts for a disproportionate fraction of the total abnormal returns to fund trades estimated in prior work. We find that mutual fund trades also forecast earnings surprises. We conclude that mutual fund managers are able to trade profitably in part because they are able to forecast earnings-related fundamentals.

I. Introduction

Can mutual fund managers pick stocks? This question has long interested financial economists due to its practical implications for investors and for the light it sheds on market efficiency. Two broad conclusions from the literature stand out. Many studies since Jensen (1968) find that the average returns of mutual fund portfolios tend to underperform passive benchmarks, especially net of fees.

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At the same time, in recent results that are far more encouraging for active fund managers, Chen, Jegadeesh, and Wermers (2000) find that the individual trades made by mutual fund managers illustrate some stock-picking skill. In particular, the stocks that funds buy have higher returns than those that they sell over the next few quarters.[1]

Some of the gap between these 2 results simply reflects transaction costs and management fees. Nonetheless, given the evidence of skilled trading by mutual fund managers, it is natural to turn to the question of *how* they manage to distinguish winners from losers in their trades. We address this question. We build on the findings of Chen et al. (2000) and other studies of the performance of mutual fund trades, such as Grinblatt and Titman (1989) and Wermers (1999), by constructing an alternative method of identifying trading skill. We associate trading skill with the ability to buy stocks that are about to enjoy high returns upon their upcoming quarterly earnings announcement and to sell stocks that are about to suffer low returns upon that announcement.

This approach is complementary to traditional tests using long-horizon returns, but it has some advantages. First, it may have more power to detect trading skill, as it exploits segments of the returns data—returns at earnings announcements—that contain the most concentrated information about a firm's earnings prospects. Second, taking as a given the results of Chen et al. (2000) and others about the abnormal performance of trades over long horizons, the approach helps identify the source of such abnormal returns—whether they are due to an ability to forecast fundamental news released around earnings announcements or, say, proprietary technical signals. Of course, by definition, these benefits come at the cost of not trying to measure the total returns to trading skill, so the approach is best seen as a complement to traditional tests.

The main data set merges a comprehensive sample of mutual fund portfolio holdings with the respective returns that each holding realized at its next quarterly earnings announcement. The holdings are drawn from mandatory, periodic SEC filings tabulated by Thomson Financial. For each fund-date-stock holding observation in these data, we merge in the stock return over the 3-day window around the next earnings announcement. The sample of several million fund-report date-holding observations covers 1980 through 2005.

We begin the analysis by tabulating the earnings announcement returns realized by fund holdings, but as mentioned above, our main results involve fund trades. Studying trades allows us to difference away unobserved risk premiums by comparing the subsequent performance of stocks that funds buy with those they sell, thus reducing Fama's (1970) joint hypothesis problem. Further, trading

[1]Obviously, the literature on mutual fund performance is vast and cannot be summarized here. An abbreviated set of other important studies includes: Ippolito (1989) and Carhart (1997), who conclude that mutual fund managers have little or no stock-picking skill; Grinblatt and Titman (1993), Daniel, Grinblatt, Titman, and Wermers (1997), and Wermers (2000), who conclude that a significant degree of skill exists; and Lehman and Modest (1987) and Ferson and Schadt (1996), who emphasize the sensitivity of results to methodological choices. More recently, Cohen, Coval, and Pastor (2005), Kacperczyk and Seru (2007), and Kacperczyk, Sialm, and Zheng (2008) have developed other measures of skill based on holdings, returns that are not observable from Securities and Exchange Commission (SEC) filings, and the correlation between trades and changes in analyst recommendations.

incurs costs and perhaps the realization of capital gains, so it is likelier to be driven by new information than an ongoing holding is. One of our main findings is that the average mutual fund displays stock-picking skill in that the subsequent earnings announcement returns on its weight-increasing stocks are significantly higher than those on its weight-decreasing stocks. The difference is about 10 basis points (bp) over the 3-day window around the quarterly announcement, or, multiplying by 4, about 38 annualized bp. We also benchmark a stock's announcement returns against those earned by stocks with similar characteristics in that calendar quarter. The results are not much diminished, with the advantage of buys relative to sells falling to 9 bp and 34 bp, respectively. This gap reflects skill in both buying and selling: Stocks bought by the average fund earn significantly higher subsequent announcement returns than matching stocks, while stocks sold earn lower returns than matching stocks.

There are interesting differences in performance across funds and across time. Fund performance measured using earnings announcement returns tends to persist over time, and funds that do well are more likely to have a growth-oriented style. These patterns tend to match those from long-horizon studies of fund performance, supporting the view that they reflect information-based trading. We also consider the impact of SEC Regulation Fair Disclosure, which since October 2000 has banned the selective disclosure of corporate information to a preferred set of investors. After the issuance of this regulation, funds have been less successful in terms of the earnings announcement returns of their trades, although the performance of their holdings shows no clear trend.

These results support and extend the evidence of Chen et al. (2000) and others that fund trades are made with an element of skill. In addition, they strongly suggest that trading skill derives in part from skill at forecasting earnings fundamentals. To confirm this link, we test whether trades by mutual funds forecast quarterly earnings per share (EPS) surprises of the underlying stocks. They do. In 22 of the 22 years in our sample of EPS surprise data, the EPS surprise of stocks that funds are buying exceeds the EPS surprise of stocks that funds are selling. When put beside the results from returns, it seems very clear that some portion of the abnormal returns from fund trades identified in prior work can be attributed to skill at forecasting fundamentals.

The last question we address is one of economic significance. We ask whether the abnormal returns to trading around earnings announcements represent a disproportionate share of the estimated total abnormal returns earned by stocks that funds trade. Our analysis suggests that it does. The point estimates are that earnings announcement returns constitute between 18% and 51% of the total abnormal returns earned by stocks that funds trade. Or, expressed differently, earnings announcement days are roughly 4–10 times more important than typical days in terms of their contribution to the abnormal performance of stocks traded by mutual funds.

In summary, we present a new methodology that further confirms that the average mutual fund manager has some ability to pick winners and losers, which supports and extends prior results; more importantly, we find that a substantial fraction of the abnormal returns earned by fund trades derives from skill at forecasting the economic fundamentals of firms (i.e., earnings). The paper proceeds

as follows. Section II reviews some related literature. Section III presents data. Section IV presents empirical results. Section V concludes.

II. Related Literature on Trading around Earnings Announcements

We are not the first to recognize that earnings announcement returns may be useful for detecting informed trading. Our contribution is to apply this approach to evaluate the trading skill of mutual funds.

Ali, Durtschi, Lev, and Trombley (2004) examine how changes in institutional ownership, broadly defined, forecasts earnings announcement returns. As this is the study most closely related to ours, it is worth noting some key differences. First, our N-30D data allow us to study performance of individual mutual funds; Ali et al. use SEC 13F data, which are aggregated at the institutional investor level (e.g., fund family). Second, the 13F data do not permit a reliable breakdown even among aggregates such as mutual fund families and other institutions of perhaps less interest to retail investors: Many giant fund families, such as Fidelity, Schwab, and Eaton Vance, are classified in an "other" category, along with college endowments, pension funds, private foundations, hedge funds, etc. Third, Ali et al. benchmark announcement returns against size only, while we use a larger set of adjustments such as book-to-market (BM), an important difference given that La Porta, Lakonishok, Shleifer, and Vishny (1997) find that such characteristics are associated with higher earnings announcement returns. These and other differences mean that our approach is more revealing about the stock-picking abilities of individual mutual fund managers, while Ali et al.'s approach is more useful for an investor who wishes to predict future returns based on recent changes in total institutional ownership.

The skill of other types of investors has also been assessed from the perspective of earnings announcement returns. Seasholes (2004) examines this dimension of performance for foreign investors who trade in emerging markets. Ke, Huddart, and Petroni (2003) track the earnings announcement returns that follow trading by corporate insiders. Christophe, Ferri, and Angel (2004) perform a similar analysis for short sellers.

III. Data

A. Data Set Construction

The backbone of our data set is the mutual fund holdings data from Thomson Financial (also known as CDA/Spectrum S12). Thomson's main source is the portfolio snapshot contained in the N-30D form each fund periodically files with the SEC. Prior to 1985, the SEC required each fund to report its portfolio quarterly, but starting in 1985 it required only semiannual reports.[2] The exact report dates are set by the fund as suits its fiscal year. At a minimum, the Thomson

[2]In February 2004, the SEC decided to return to a quarterly reporting requirement. See Elton, Gruber, and Blake (2010) for a study of the performance of fund holdings using a subset of mutual

data give us semiannual snapshots of all equity holdings for essentially all mutual funds. A sample fund-report date-holding observation is as follows: Fidelity Magellan, as of March 31, 1992, held 190,000 shares of Apple Computer. Wermers (1999) describes this data set in detail. We extract all portfolio holdings reported between the 2nd quarter of 1980 and the 3rd quarter of 2005. Again, to be clear, we are focused on the fund-level report dates found in the Thomson data; the particular cut of the Thomson data, the "file date," is not relevant for us.[3]

To these holdings data we merge in earnings announcement dates from the CRSP/Compustat merged industrial quarterly database. Specifically, for each fund-report date-holding observation, we merge in the first earnings announcement date that follows that holding's report date.[4] We drop observations for which we can find no earnings announcement date within 90 days after the report date.

Next we add stock returns around each earnings announcement. From CRSP, we merge in the raw returns over the [–1,+1] trading day interval around each announcement. We define a market-adjusted event return (MAR) as the raw announcement return minus the contemporaneous return on the CRSP value-weighted market index. We also define a benchmark-adjusted event return (BAR) as the raw return minus the average [–1, +1] earnings announcement return on stocks of similar BM, size, and momentum that also announced earnings in the same calendar quarter as the holding in question. Our approach is similar to that in Daniel et al. (1997).[5] We exclude fund-report dates that do not have at least 1 benchmark-adjusted earnings announcement return; our results are unchanged if we restrict attention to fund-report dates containing at least 10 or 20 such returns.

For a subset of the remaining observations, we can obtain fund characteristics data. Russell Wermers and Wharton Research Data Services (WRDS) provided links between the Thomson holdings data and the CRSP mutual fund database, as described in Wermers (2000). From the CRSP mutual fund data we

funds for which Morningstar requested and obtained monthly holdings data. Elton, Gruber, Blake, Krasny, and Ozelge (2010) find that defining trades based on changes in quarterly holdings misses 20% of the trades revealed by changes in the Morningstar monthly data. The benefit of the quarterly holdings data is that it covers a far broader set of funds than does Morningstar.

[3]The only reason to care about the file date is that Thomson's practice is to report the number of shares including the effect of any splits that occur between the fund's report date and the file date. To recover the correct number of shares as of the report date, we undo the effect of such splits using the Center for Research in Security Prices (CRSP) share adjustment factors.

[4]Prior to this merge, we create place holder observations for "liquidating" observations in the holdings data set (i.e., situations in which no holdings of a given stock are reported for the current report date but positive holdings were reported at the prior report date). This allows us to examine whether closing a position entirely portends especially poor earnings announcement returns.

[5]Specifically, we form the value-weighted average earnings announcement return for each of 125 benchmark portfolios ($5 \times 5 \times 5$ sorts on BM, size, and momentum) in each calendar quarter. BM is defined following Fama and French (1995). Market value of equity is computed using the CRSP monthly file as the close times shares outstanding as of December of the calendar year preceding the fiscal year data. The BM ratio is then matched from fiscal years ending in year $(t - 1)$ to earnings announcement returns starting in July of year (t) and from fiscal years ending in $(t - 2)$ to earnings announcement returns in January through June of year (t). Size is matched from June of calendar year (t) to returns starting in July of year (t) through June of year $(t + 1)$. Momentum is the return from month $t - 12$ through month $t - 2$. The breakpoints to determine the quintiles on BM, size, and momentum are based on the New York Stock Exchange (NYSE). The benchmark portfolios include only stocks with positive book equity that are ordinary common stocks (CRSP share codes 10 or 11).

take investment objective codes as well as total net assets, turnover, and expense ratios.[6] Christopher Blake shared the data on incentive fees, originally from the Lipper TASS database, as studied in Elton, Gruber, and Blake (2003). Fee structures are similar across the funds that use them, so we simply study whether the fund has an incentive fee in place.

Finally, we apply a set of screens to obtain an appropriate sample. Based on key words in the name of the fund and on reported investment objectives, we exclude funds that cannot be predominantly characterized as actively managed U.S. equity funds, such as index, bond, international, and precious metals funds. We exclude funds with less than $10 million in net asset value. We also exclude each fund's first report date, as some of our analysis requires lagged portfolio weights.

B. Summary Statistics

Our final sample consists of several million fund-report date-holding observations with associated earnings announcement returns, spread across 110,236 fund-report dates. Table 1 presents summary statistics. In the first column, the number of funds has increased dramatically over the sample period. Almost half of the usable fund-report dates occur in the last 5 years. The next 3 columns indicate the distribution of investment objectives. The subsequent 5 columns give fund holdings and trading activity. For the average fund-report date, we are able to identify and benchmark 90.0 holdings. Portfolio breadth has increased steadily over time. On average, 54.0 holdings receive an increase in weight in the portfolio over that in the prior report, of which 18.7 are first buys. We see that 53.1 holdings receive a decrease in weight, on average, and 17.0 of these decrease to 0. We also distinguish the performance of first buys and last sells, since it is particularly clear that these reflect a deliberate trading decision.

The last columns summarize fund characteristics. Fund size is the total market value of the fund's reported equity holdings for which we also have earnings announcement return data. Average size peaks at $85.5 million in 1999. Turnover is available for 71% of the sample, averages 96.6% per year for the subsample for which it is available, increases through 2000, and then falls somewhat. The expense ratio is available for about 76% of the sample, averages 1.27% per year for the subsample for which it is available, and increases by 42 bp over the period. The last column indicates the percentage of funds using incentive fees. In the average year, 1.9% of funds use fees. Elton et al. (2003) report that these funds account for around 10% of all mutual fund assets. Some of these characteristics display trends, so we sort funds into quintiles within each reporting period in some analyses.

[6]Turnover data for 1991 are missing from the CRSP database. Also, CRSP sometimes reports several classes of shares for a given fund, corresponding to different fee structures for the same portfolio of stocks (e.g., A, B, C, institutional, and no-load). In these cases, we take the highest reported value for turnover across all classes to use as the value for turnover, and the value-weighted average of expenses across all classes as the value for the expense ratio.

TABLE 1

Summary Statistics (1980Q2–2005Q3)

The sample is the intersection of the Spectrum Mutual Fund holdings database, Compustat, and the Center for Research in Security Prices (CRSP). To be included in the sample, a mutual fund holding must have matched earnings announcement date and book value from CRSP, and a valid return, market value of equity (price times shares outstanding), past momentum (return from months $t-12$ through $t-2$), and 3-day return in the earnings announcement window from CRSP. We compute terminal holdings for stocks that exit the portfolio. Where possible, we include the investment objective from the CRSP mutual fund database as determined by CDA Weisenberger or Standard & Poor's (S&P). The investment objective growth includes codes G, MCG, and LTG from CDA and codes LG and AG from S&P. The investment objective growth and income includes G-I and GCI from CDA and GI and IN from S&P. The investment objective income includes I, IEQ, and IFL from CDA and IN from S&P. We classify each holding as a weight increase or weight decrease. We also record those weight increases that are first buys (from 0 to positive weight), and those weight decreases that are last sells (from positive weight to 0). We measure fund size as the total market value (price × shares outstanding) of its reported equity holdings; fund turnover and fund expense ratio from the CRSP mutual fund database; and incentive fees (whether or not the fund has such a structure) from Elton et al. (2003) and the Lipper TASS database. Turnover is missing in CRSP in 1991.

	Fund-Report Date Observations				Average Fund Activity					Fund Characteristics			
Year	All	Growth	Growth and Income	Income	Holdings	Weight Increases	Weight Decreases	First Buys	Last Sells	Size ($M)	Turnover (%)	Expenses (%)	Inc. Fees (% Yes)
1980	828	385	116	22	49.9	27.5	28.7	7.0	6.4	14.2	72.9	0.89	0.6
1981	1,107	480	148	23	50.0	29.8	27.2	6.7	7.0	13.7	68.4	0.84	1.3
1982	908	421	132	26	51.0	30.1	29.6	9.1	8.6	14.3	72.6	0.88	1.7
1983	1,082	507	153	47	57.2	32.1	34.4	10.5	9.3	20.1	75.0	0.88	1.8
1984	1,233	568	185	58	57.8	33.8	33.8	9.9	9.9	18.3	71.2	0.91	1.6
1985	1,375	647	211	81	58.7	34.6	34.2	11.1	10.1	21.2	80.5	0.92	1.8
1986	1,556	727	247	139	60.1	35.0	36.0	11.8	10.9	25.6	78.6	0.94	1.9
1987	1,753	843	285	155	62.2	36.2	37.7	12.7	11.7	31.3	94.5	1.00	2.3
1988	1,853	915	308	147	63.8	38.1	35.7	10.9	9.9	26.3	82.2	1.14	2.3
1989	1,892	954	284	140	64.2	37.9	37.1	11.9	10.7	28.9	77.5	1.14	1.7
1990	2,028	896	371	121	64.2	36.9	38.4	11.1	11.2	27.7	88.2	1.16	1.8
1991	2,253	1,025	400	118	67.1	37.9	40.8	12.9	11.6	32.4	—	1.06	1.7
1992	2,492	1,038	502	178	72.0	41.0	43.6	13.1	12.6	39.3	79.5	1.22	2.4
1993	2,688	1,144	454	148	79.9	45.1	49.3	16.2	14.5	45.6	79.4	1.22	2.4
1994	3,237	1,252	489	151	81.0	47.6	50.3	18.4	16.9	39.6	81.6	1.21	2.0
1995	3,428	1,371	519	143	85.4	51.1	53.7	21.5	19.4	49.8	88.5	1.24	2.0
1996	3,938	1,628	579	158	84.8	51.4	53.8	22.1	20.4	56.4	91.6	1.28	2.1
1997	4,819	2,087	659	182	87.0	54.4	53.1	23.1	20.5	66.6	91.2	1.27	1.7
1998	5,068	2,326	738	216	88.0	53.3	54.6	21.4	19.9	81.2	89.0	1.28	1.8
1999	6,168	2,619	756	222	85.9	50.2	53.5	20.6	17.8	85.5	87.1	1.30	1.6
2000	8,414	2,929	826	193	91.3	56.0	52.9	19.9	17.6	82.4	118.9	1.29	1.5
2001	8,608	2,819	796	150	96.3	60.1	55.1	21.8	18.8	60.8	117.0	1.32	1.6
2002	9,755	3,295	876	185	101.3	62.8	58.1	21.3	19.6	52.6	114.2	1.38	1.9
2003	10,913	3,912	995	464	103.6	61.3	61.0	20.3	18.7	51.1	112.5	1.39	2.0
2004	12,775	4,178	1,031	493	106.5	64.6	60.2	19.3	18.3	65.1	110.1	1.38	2.4
2005	10,065	3,130	792	350	108.0	62.6	63.0	18.9	17.5	67.6	86.8	1.31	1.5
All	110,236	42,096	12,852	4,310	90.0	54.0	53.1	18.7	17.0	56.6	96.6	1.27	1.9

IV. Results

A. Earnings Announcement Returns of Holdings

We start by summarizing the average performance of mutual fund holdings around earnings announcements. For reasons discussed in the Introduction, we are most interested in subsequent earnings announcement performance of stocks that funds trade and do not just continue to hold, but starting with holdings allows us to develop the methodology step by step.

Column 1 of Table 2 reports the average raw return over the 3-day window around earnings announcement dates. Specifically, we take the equal-weighted average earnings announcement return for each fund-report date, annualize it

TABLE 2

Annualized Announcement Effects

For each periodic mutual fund holdings report, we compute the average subsequent quarterly earnings announcement return: raw, market-adjusted return (MAR), and benchmark-adjusted return (BAR); and equal weighted (EW) and value weighted (VW) across all holdings by fund. The characteristics benchmark return is the corresponding 5 × 5 × 5 size, book-to-market, and momentum average earnings announcement return in the matched quarter. We annualize these returns (multiplying by 4) and average across all funds within a year. *t*-statistics in brackets are based on quarterly means and standard deviations thereof. Returns are Winsorized at the top and bottom 1%.

	EW Earnings Announcement Alpha			VW Earnings Announcement Alpha		
Year	Return	MAR	BAR	Return	MAR	BAR
1980	1.00	–0.27	0.00	0.91	–0.35	0.23
1981	0.53	0.49	–0.26	0.84	0.78	–0.01
1982	1.29	0.23	0.49	1.22	0.29	0.50
1983	–0.37	0.21	0.25	–0.45	0.13	0.28
1984	1.37	–0.16	0.41	1.44	–0.03	0.52
1985	1.04	–0.41	–0.15	1.28	–0.11	0.11
1986	1.88	0.38	0.27	2.03	0.63	0.40
1987	–2.25	0.34	–0.76	–2.20	0.45	–0.80
1988	0.06	–0.13	–0.73	0.21	0.04	–0.54
1989	0.04	–0.50	0.15	0.19	–0.35	0.26
1990	1.55	0.51	0.01	1.66	0.59	0.16
1991	1.32	0.74	–0.31	1.15	0.53	–0.35
1992	1.83	0.68	–0.22	1.66	0.56	–0.21
1993	0.69	0.74	0.05	0.61	0.65	0.04
1994	0.92	0.38	–0.42	0.97	0.47	–0.34
1995	2.24	0.76	–0.31	2.16	0.78	–0.29
1996	2.63	1.65	–0.09	2.61	1.71	–0.02
1997	3.02	1.14	0.18	2.90	1.18	0.18
1998	1.63	0.41	0.38	1.59	0.36	0.37
1999	3.10	2.46	0.84	3.03	2.47	0.83
2000	–0.76	0.42	1.58	–0.75	0.50	1.48
2001	2.49	0.86	–0.62	2.14	0.64	–0.46
2002	0.34	0.91	–0.28	0.55	1.11	0.05
2003	2.23	1.38	0.17	1.94	1.05	–0.04
2004	0.62	0.45	0.35	0.38	0.31	0.12
2005	1.89	1.07	–0.02	1.67	0.97	–0.19
Avg.	1.16	0.56	0.04	1.14	0.59	0.09
[*t*]	[3.6]	[4.7]	[0.5]	[3.8]	[5.6]	[1.3]

(multiplying by 4), average these across all fund-report dates within each calendar quarter from 1980Q1 through 2005Q3, and, finally, average the quarterly averages. That is, the average raw return of 1.16 is

$$\text{Return} = 4 \cdot \frac{1}{103} \sum_{1980Q1}^{2005Q3} \frac{1}{N} \sum_i \frac{1}{K_i} \sum_j \sum_{-1}^{1} r_{ij,t}, \tag{1}$$

where i indexes mutual funds from 1 to N, j indexes the holdings of mutual fund i from 1 to K_i, and t measures days around the earnings announcement of stock ij.[7]

We treat each quarterly average as a single data point in computing an overall average. We compute the standard deviation (SD) of the quarterly averages to give a *t*-statistic of 3.6. This is in the spirit of Fama and MacBeth (1973). Taking simple averages across the pooled data, which gives more weight to the last 5 years of the sample, leads to similar conclusions.

[7]Because the sample starts in the 2nd quarter of 1980 and ends in the 3rd quarter of 2005, the average return for 1980 is for the last 3 quarters, while the average return for 2005 is for the first 3 quarters.

Columns 2 and 3 adjust the raw returns. Column 2 reports market-adjusted returns (MARs), where we subtract the CRSP value-weighted market return over the earnings announcement window. The average MAR of 0.56 is

$$\text{MAR} = 4 \cdot \frac{1}{103} \sum_{1980Q1}^{2005Q3} \frac{1}{N} \sum_i \frac{1}{K_i} \sum_j \sum_{-1}^{1} (r_{ij,t} - r_{m,t}). \tag{2}$$

Based on the SD of the quarterly averages, the t-statistic here is 4.7.

Column 3 gives a BAR, where each holding is matched to 1 of 125 benchmark portfolios by quintiles of size, BM, and momentum. That is, the benchmark portfolios contain the value-weighted, matched-firm average earnings announcement return in that calendar quarter. The average BAR of 0.04 is then

$$\text{BAR} = 4 \cdot \frac{1}{103} \sum_{1980Q1}^{2005Q3} \frac{1}{N} \sum_i \frac{1}{K_i} \sum_j \left(\sum_{t=-1}^{1} r_{ij,t} - \sum_l w_l \sum_{s_l=-1}^{1} r_{l,s_l} \right), \tag{3}$$

where l indexes the matched firms within the quarter where t equals 0, w_l is the market value weight of stock l in the characteristics-matched portfolio, and s_l measures days around the earnings announcement of stock l within the matched quarter. Note that in equation (3) the earnings announcement return and the benchmark do not overlap exactly.

BAR controls for the high average return in earnings announcement periods documented by Beaver (1968) and studied recently by Frazzini and Lamont (2007). Also, this procedure removes some known associations between earnings announcement returns and firm characteristics. Chari, Jagannathan, and Ofer (1988) and La Porta et al. (1997) find that small, high-BM firms tend to have higher announcement returns. BAR controls for these effects. In allowing the benchmark return to vary from quarter to quarter, it also controls for a "good earnings quarter for small value stocks," for example, and thus may more precisely pick up stock-selection skill. Obviously, it would also be valuable to be able to predict abnormal returns at the "style" level, or to recognize and exploit the positive autocorrelation in abnormal announcement returns. BAR does not pick up these dimensions of skill, so it is conservative. But a conservative measure of stock-picking ability seems appropriate given that one of our goals is to confirm the *existence* of such skill.

Table 2 indicates that mutual funds earn, on an equal-weighted average basis, 1.16% per year from the 12 trading days surrounding their holdings' earnings announcements. This exceeds the corresponding market return by 56 bp, and so is an outsize average return compared to nonannouncement days. The raw annualized announcement return earned by the average fund manager is not significantly larger than that earned on a portfolio of firms with matching characteristics: The average BAR is an insignificant 4 bp. Similar conclusions obtain when holdings are value-weighted in each fund-report date.

To the extent that the BAR accurately measures the unexpected release of information, the average mutual fund, as measured by all of its holdings, does not appear to possess stock-picking ability. This would be consistent with the message of Jensen (1968) and many other studies on portfolio-level returns. But the

conclusion that mutual fund managers do not have any skill is clearly premature. A subset may have skill, even if the average does not. Or, funds may hold many stocks for which they once had good information but now retain because of transaction costs or a capital gains tax overhang, an effect that would reduce the power of the tests. We turn to these possibilities.

B. Cross-Sectional and Time-Series Patterns in Earnings Announcement Returns of Holdings

We next look for patterns in the cross-sectional distribution and time-series distribution of holdings-based performance measures. Under the null hypothesis of no skill, no patterns should be apparent. The 1st dimension we sort funds on is past performance. The persistence of longer-horizon return performance has been studied by Hendricks, Patel, and Zeckhauser (1993), Brown and Goetzmann (1995), Elton, Gruber, and Blake (1996), and others. Do funds that had high earnings announcement alphas in the past continue to have them in the future?

Panel A of Table 3 presents the results of tests for persistence. We sort funds each year from 1983 to 2005 into quintiles based on the average announcement return, or the average BAR alpha, that they earned over their previous 8 announcements. We then compare the subsequent annualized announcement returns and BAR alphas of funds in the top quintile of prior performance to those in the bottom quintile. The 1st columns show the mean equal-weighted return and BAR alpha, as well as *t*-statistics.

The earnings announcement alphas show some persistence both in raw returns and BARs. When sorted by prior equal-weighted BAR, the subsequent equal-weighted BAR rises monotonically. The difference between the top and bottom quintiles is a statistically significant 43 bp per year. The fact that persistence is present in BAR (i.e., even after adjustments are made for size, BM, and momentum) indicates that performance persistence cannot be explained by persistence in characteristics-adjusted announcement returns alone.[8] Value-weighted results display a similar but weaker pattern, suggesting, quite sensibly, that it is easier to pick future earnings winners among smaller stocks.

The remaining panels of Table 3 look at how performance is correlated with fund characteristics or the regulatory environment. Panel B considers investment objective, including growth, growth and income, and income styles. A clear pattern emerges. Growth funds earn higher earnings announcement returns than growth and income funds, which in turn earn higher returns than income funds. The same pattern is as strong, or stronger, in BAR alphas. Indeed, the BAR on the portfolio of growth funds is positive, while the BAR on income funds is negative. Wald tests (unreported) reject both that the average return for each category is equal to 0 and that the average return is equal across categories. Comparing each style to the equal-weighted average of the other two reveals that income funds

[8]In an earlier draft, we formed benchmark portfolios where the "momentum" measure was earnings announcement return momentum, not total momentum as in Chen et al. (2000). This approach controls for the Bernard and Thomas (1989) finding of persistence in earnings announcement returns. In magnitude and statistical significance, the results from that approach are virtually identical to those reported here.

TABLE 3

Annualized Announcement Effects: Fund Characteristics

For each periodic mutual fund holdings report, we compute the average subsequent quarterly earnings announcement return: raw and benchmark-adjusted return (BAR); and equal weighted (EW) and value weighted (VW) across all holdings by fund. The characteristics benchmark return is the corresponding 5 × 5 × 5 size, book-to-market, and momentum average earnings announcement return in the matched quarter. We annualize these returns (multiplying by 4) and average across all funds by past performance quintile (past returns), investment objective (style), total market value of reported holdings (fund size), turnover, incentive fee structure, and before and after Reg FD for each report date. For past returns, size, and turnover, quintiles go from lowest to highest. Past performance is defined based on the previous 8 holdings reports for the corresponding definition of performance. *t*-statistics are in brackets. Returns are Winsorized at the top and bottom 1%.

	EW Earnings Announcement Alpha				VW Earnings Announcement Alpha			
	Return	[*t*]	BAR	[*t*]	Return	[*t*]	BAR	[*t*]
Panel A. Past Returns								
1	1.02	[2.9]	–0.15	[–1.7]	1.07	[3.3]	–0.04	[–0.5]
2	1.22	[3.7]	–0.01	[–0.1]	1.14	[3.6]	–0.05	[–0.7]
3	1.27	[3.6]	0.11	[1.3]	1.22	[3.7]	0.12	[1.5]
4	1.35	[3.8]	0.14	[1.4]	1.30	[3.9]	0.15	[1.7]
5	1.41	[3.7]	0.28	[2.2]	1.30	[3.6]	0.24	[1.8]
5 – 1	0.39	[3.9]	0.43	[4.2]	0.23	[1.8]	0.28	[2.4]
Panel B. Style								
G	1.26	[3.6]	0.16	[1.4]	1.23	[3.8]	0.20	[2.0]
G&I	1.19	[3.9]	0.00	[–0.0]	1.14	[3.8]	–0.01	[–0.1]
I	0.89	[3.0]	–0.31	[–2.9]	0.89	[3.1]	–0.26	[–2.5]
G,<G&I,I>	0.22	[1.5]	0.32	[2.7]	0.22	[1.6]	0.33	[2.8]
G&I,<G,I>	0.11	[1.7]	0.07	[1.2]	0.08	[1.2]	0.02	[0.4]
I,<G,G&I>	–0.34	[–2.6]	–0.39	[–3.5]	–0.30	[–2.4]	–0.35	[–3.3]
Panel C. Size								
1	1.07	[3.2]	–0.07	[–1.0]	1.04	[3.4]	–0.01	[–0.2]
2	1.16	[3.6]	0.03	[0.3]	1.12	[3.8]	0.06	[0.9]
3	1.16	[3.4]	0.05	[0.5]	1.16	[3.7]	0.12	[1.3]
4	1.20	[3.6]	0.09	[0.9]	1.18	[3.8]	0.12	[1.3]
5	1.24	[3.8]	0.10	[1.2]	1.24	[4.0]	0.14	[1.8]
5 – 1	0.17	[3.0]	0.17	[3.0]	0.20	[3.0]	0.15	[2.4]
Panel D. Turnover								
1	1.17	[3.7]	0.02	[0.3]	1.20	[4.0]	0.09	[1.3]
2	1.17	[3.6]	0.06	[0.8]	1.16	[3.7]	0.09	[1.3]
3	1.13	[3.2]	0.04	[0.4]	1.11	[3.4]	0.08	[0.9]
4	1.23	[3.4]	0.14	[1.2]	1.20	[3.6]	0.16	[1.5]
5	1.33	[3.5]	0.24	[1.7]	1.26	[3.6]	0.22	[1.7]
5 – 1	0.16	[1.1]	0.22	[1.7]	0.07	[0.5]	0.14	[1.1]
Panel E. Incentive Fees								
Yes	1.26	[3.6]	0.19	[1.6]	1.33	[3.9]	0.25	[2.0]
No	1.16	[3.5]	0.04	[0.4]	1.15	[3.8]	0.08	[1.1]
Yes – No	0.10	[1.0]	0.15	[1.8]	0.18	[1.5]	0.17	[1.6]
Panel F. Regulation FD								
Pre	1.08	[3.2]	0.06	[0.7]	1.10	[3.4]	0.13	[1.6]
Post	1.49	[1.7]	–0.08	[–0.5]	1.32	[1.7]	–0.10	[–1.0]
Pre – Post	–0.41	[–0.5]	0.15	[0.7]	–0.22	[–0.3]	0.23	[1.3]

perform significantly worse than other categories. Similarly, growth funds perform better. These results are consistent with Grinblatt and Titman (1989), (1993) and Daniel et al. (1997), who also find the strongest evidence of stock-selection ability among growth funds, and thus indicate that these earlier patterns from long-horizon studies can be attributed to information-based trading with some confidence.

Panel C of Table 3 examines returns by fund size quintiles. There is a hint that performance around earnings announcements increases with fund size: The

smallest quintile does the worst. The finding that small funds make superior trades is opposite to the arguments of Chen, Hong, Huang, and Kubik (2004), who study the long-horizon returns of large and small funds.

So far, we have seen that funds with high earnings announcement alphas can be identified from past performance (in this respect), style, and size. One possibility is that differential performance is associated with, or perhaps facilitated by, higher expenses. This is not the case. Expense ratios bear little relation to performance. We omit a tabular presentation for brevity, but our results are consistent with, for example, Chevalier and Ellison (1999), who also find no positive relationship between raw performance and expenses. However, Panel D of Table 3 shows modest evidence that high earnings announcement alphas are associated with high turnover, consistent with the superior performance of short-term institutions found in Yan and Zhang (2009).

Panel E of Table 3 considers the effect of incentive fees. By all measures of the earnings announcement alpha, funds with incentive fees perform better. The statistical significance of the difference is marginal, but the results generally reinforce the earlier long-horizon results of Elton et al. (2003), tying them more closely to information-based trading.

In Panel F of Table 3 we examine fund managers' performance before and after the introduction of "Reg FD." In October 2000, SEC Regulation Fair Disclosure banned selective disclosure (i.e., the practice of disclosing material information to preferred analysts and other institutional investors before the general public).[9] A motivation for Reg FD was the claim that ". . . those who were privy to the information beforehand were able to make a profit or avoid a loss at the expense of those kept in the dark" (U.S. Securities and Exchange Commission (2000), p. 2). If selective disclosure contributed to fund managers' ability to pick stocks, then we may expect that the returns earned around subsequent earnings announcements will drop in the post-Reg FD era. The results based on all holdings in Table 3, however, show no clear evidence of such an effect.

C. Earnings Announcement Returns Following Trades

Our central analysis involves the earnings announcement returns of stocks that funds trade. Trading involves transaction costs and perhaps the realization of capital gains, so it is a stronger signal than merely continuing to hold. Chen et al. (2000) study the longer-horizon returns of traded stocks. We are interested in whether the abnormal returns that they document for stocks that funds trade are disproportionately concentrated around earnings announcements. This would shed important light on the origins of fund managers' trading skill.[10]

Table 4 repeats the analysis from Table 2 but computes announcement returns only for holdings whose portfolio weight changed between the current and

[9] See Gomes, Gorton, and Madureira (2007) for a fuller discussion of the debates surrounding Reg FD, as well as empirical evidence that Reg FD increased analysts' earnings forecast errors and the volatility of stock returns around earnings announcements.

[10] Also note that if an earnings announcement event "risk premium" exists, it is differenced away in the comparison of buys versus sells.

TABLE 4

Annualized Announcement Effects: Mutual Fund Trades

For each periodic mutual fund holdings report, we compute the average subsequent quarterly earnings announcement returns: raw and benchmark-adjusted return (BAR); and equal weighted across weight increases, weight decreases, long weight increases and short weight decreases, first buys, last sells, and long first buys and short last sells by fund. The characteristics benchmark return is the corresponding 5 × 5 × 5 size, book-to-market, and momentum average earnings announcement return in the matched quarter. We annualize these returns (multiplying by 4) and average across all funds within a year. *t*-statistics in brackets are based on quarterly means and standard deviations thereof. Returns are Winsorized at the top and bottom 1%.

	Weight Increases		Weight Decreases		Increases – Decreases		First Buys		Last Sells		First Buys – Last Sells	
Year	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR
1980	1.48	0.67	–0.28	–1.00	1.76	1.67	0.45	0.41	–0.98	–0.90	1.44	1.31
1981	0.77	0.12	0.28	–0.70	0.50	0.82	0.21	–0.34	–0.50	–1.25	0.71	0.92
1982	1.87	0.98	0.33	–0.30	1.54	1.28	3.01	2.12	0.40	–0.27	2.60	2.39
1983	–0.20	0.38	–0.56	0.00	0.36	0.38	0.04	0.48	–1.06	–0.74	1.10	1.23
1984	1.35	0.37	1.20	0.26	0.15	0.11	1.20	0.24	0.51	–0.40	0.69	0.65
1985	1.21	0.03	0.84	–0.40	0.37	0.43	1.01	–0.18	0.87	–0.41	0.14	0.23
1986	2.32	0.67	1.32	–0.18	1.00	0.86	2.21	0.67	1.46	0.10	0.75	0.57
1987	–2.21	–0.59	–2.17	–0.85	–0.03	0.26	–2.82	–1.12	–1.69	–0.17	–1.13	–0.95
1988	0.38	–0.40	–0.41	–1.23	0.79	0.83	1.23	0.34	–0.24	–1.11	1.47	1.45
1989	0.50	0.55	–0.78	–0.55	1.28	1.10	0.33	0.52	–0.94	–0.63	1.28	1.15
1990	1.86	0.24	0.93	–0.39	0.93	0.63	1.66	0.22	0.59	–0.58	1.07	0.81
1991	1.56	–0.09	1.20	–0.38	0.36	0.28	1.27	–0.31	1.50	–0.21	–0.22	–0.10
1992	1.79	–0.35	1.82	–0.10	–0.03	–0.25	2.39	0.22	1.63	–0.32	0.76	0.54
1993	0.59	–0.01	0.82	0.11	–0.23	–0.12	0.75	0.09	0.99	0.25	–0.24	–0.17
1994	0.97	–0.42	0.71	–0.56	0.26	0.14	0.80	–0.54	0.46	–0.78	0.34	0.24
1995	2.23	–0.30	2.18	–0.35	0.06	0.06	2.65	0.20	2.24	–0.19	0.41	0.40
1996	2.58	–0.19	2.61	0.05	–0.03	–0.24	2.12	–0.55	2.47	0.05	–0.35	–0.60
1997	3.06	0.18	2.81	0.05	0.25	0.13	2.82	0.01	2.66	–0.06	0.15	0.07
1998	1.64	0.41	1.62	0.39	0.02	0.02	2.03	0.82	1.67	0.55	0.36	0.27
1999	3.15	0.98	2.66	0.28	0.48	0.69	3.10	1.01	2.02	–0.38	1.07	1.39
2000	–0.18	1.87	–2.02	0.76	1.84	1.11	–0.52	2.10	–2.52	–0.26	2.00	2.35
2001	2.23	–0.64	2.82	–0.69	–0.58	0.05	2.79	–0.55	2.86	–0.54	–0.07	–0.01
2002	0.41	–0.20	0.06	–0.56	0.34	0.36	–0.40	–0.73	0.28	–0.36	–0.67	–0.37
2003	1.94	–0.08	2.69	0.61	–0.75	–0.69	2.08	0.22	2.81	0.88	–0.73	–0.66
2004	0.39	0.16	1.09	0.77	–0.69	–0.61	0.63	0.39	1.20	0.89	–0.57	–0.49
2005	1.71	–0.19	2.00	0.12	–0.29	–0.31	1.50	–0.37	1.92	0.14	–0.43	–0.52
Avg.	1.28	0.16	0.90	–0.19	0.38	0.34	1.25	0.21	0.78	–0.26	0.47	0.44
[*t*]	[4.0]	[1.7]	[2.7]	[–1.9]	[2.8]	[2.6]	[3.6]	[1.6]	[2.3]	[–2.2]	[3.3]	[3.1]

the previous report dates. The first 3 pairs of columns give equal-weighted raw returns and BARs for holdings whose weight increased or decreased. The second 3 pairs of columns focus only on first buys (i.e., when a fund moves from 0 to a positive holding of the stock) and last sells (i.e., when a fund closes out the position).

Table 4 contains the main results of the paper. Stocks in which funds have been increasing weight earn 16 annualized bp more around their next earnings announcement than matched stocks. In addition, stocks in which mutual funds have *decreased* their weight earn 19 annual bp *less* than matched stocks. Neither effect is large in economic terms, reflecting both the strict matching adjustment and the focus of the approach on a small event window. Nonetheless, the effects are present even in the full sample, thus even the *average* mutual fund is at least somewhat successful both in buying subsequent outperformers and in selling subsequent underperformers. Reflecting the combined influence of the 2 effects, the BAR of weight increases minus decreases is positive in most years and statistically significant.

As expected, trades that are "first buys" and "last sells" give an even clearer indication of skilled trading. The average mutual fund's first buys subsequently earn 21 bp more than matching stocks, while its last sells subsequently earn 26 bp less. The former effect is marginally significant, while the latter effect, and the difference between the two, is more robust. An interesting note is that the table indicates that the difference in *raw* announcement returns between buys and sells is quite close to the difference in BARs, 0.38 versus 0.34. This is not just a coincidence of the averages; the link is tight year after year. What this means is that the bulk of the total difference between buys and sells is due to picking winners and losers *within* characteristic groupings, not to rebalancing toward the characteristics that are associated with better subsequent announcement returns.

D. Cross-Sectional and Time-Series Patterns in Earnings Announcement Returns of Trades

Table 5 looks for patterns in the performance of trades, following our earlier analyses of holdings. Once again we start with persistence in Panel A. For each of the 6 trade-based BAR alpha measures and the 6 raw return measures, we sort funds into quintiles based on their previous performance over the past 2 years and then tabulate their subsequent performance. The results in Panel A show evidence of persistence, in particular for measures based on weight increases, weight decreases, or the difference. The gap between the BAR of the highest and lowest weight increase quintiles is a significant 24 bp, and the gap for weight decreases is an even larger 41 bp. (Recall that sorting across quintiles has the opposite interpretation for weight increases and decreases. For weight increases, a high BAR indicates forecasting skill. For decreases, a low BAR indicates skill. Because the sorting variables differ, the difference between the weight increase and weight decrease columns will not equal the column with weight increases minus decreases.) However, there is little evidence of persistence in relative performance of first buys, last sells, and first buys minus last sells, likely because both classifications and outcomes based on first buys or last sells are much noisier, there being far fewer such trades than generic buys or sells.

The next several panels sort on other fund characteristics. The effects are typically in the same direction as the results from holdings. In cases where there is a performance difference, growth funds outperform income funds. Wald tests (unreported) usually reject the hypothesis of equality. Larger funds are better at buying at the right time, while smaller funds have an edge in terms of pruning their portfolios of soon-to-be weak performers. Again, the patterns are harder to discern in the first buys and last sells, most likely due to greater noise. High turnover funds may have a slight advantage, but as in the holding analysis, the pattern is quite weak. We have also confirmed that expense ratios do not matter (unreported). Last, the point estimates are in the direction of incentive fees motivating managers, but none is statistically significant.

We also look again at Reg FD. The trades-based performance is a sharper test of the hypothesis that mutual fund managers tend to benefit from selective disclosure, and that Reg FD crimped this advantage. Funds generally hold dozens

TABLE 5

Annualized Announcement Effects: Mutual Fund Trades and Fund Characteristics

For each periodic mutual fund holdings report, we compute the average subsequent quarterly earnings announcement returns: raw and benchmark-adjusted return (BAR); and equal weighted across weight increases, weight decreases, long weight increases and short weight decreases, first buys, last sells, and long first buys and short last sells by fund. The benchmark return is the corresponding 5 × 5 × 5 size, book-to-market, and momentum average earnings announcement return in the matched quarter. We annualize these returns (multiplying by 4) and average across all funds by past performance quintile (past returns), investment objective (style), total market value of reported holdings (fund size), turnover, incentive fee structure, and before and after Reg FD for each report date. For past returns, size, and turnover, quintiles go from lowest to highest. Past performance is defined based on the previous 8 holdings reports for the corresponding definition of performance. *t*-statistics are in brackets. Returns are Winsorized at the top and bottom 1%.

	Weight Increases		Weight Decreases		Increases – Decreases		First Buys		Last Sells		First Buys – Last Sells	
	Ret	BAR	Ret	BAR	Ret	BAR	Ret	BAR	Ret	BAR	Ret	BAR
Panel A. Past Return												
1	1.17	0.00	0.82	–0.25	0.22	0.11	1.13	0.07	1.08	0.06	0.83	0.77
2	1.25	0.01	1.17	–0.09	0.12	0.13	1.39	0.30	0.99	–0.19	0.24	0.43
3	1.32	0.13	1.14	0.06	0.16	0.09	1.23	0.01	0.98	–0.24	0.34	0.07
4	1.40	0.23	1.28	0.06	0.02	0.00	1.23	0.04	0.91	–0.16	–0.03	0.10
5	1.39	0.24	1.29	0.16	0.28	0.32	1.27	0.19	0.70	–0.35	0.17	0.14
5 – 1	[2.2]	[2.3]	[3.7]	[3.8]	[0.5]	[1.6]	[0.6]	[0.5]	[–1.6]	[–1.9]	[–1.9]	[–1.8]
Panel B. Style												
G	1.36	0.27	1.02	–0.06	0.35	0.33	1.30	0.25	0.86	–0.17	0.44	0.42
G&I	1.25	0.05	1.06	–0.11	0.19	0.17	1.44	0.33	0.82	–0.32	0.62	0.65
I	0.96	–0.29	0.83	–0.30	0.14	0.01	1.10	–0.13	0.91	–0.27	0.19	0.14
G,<G&I,I>	[1.8]	[3.2]	[0.4]	[1.1]	[1.7]	[2.4]	[0.1]	[0.8]	[–0.0]	[0.6]	[0.1]	[0.1]
G&I,<G,I>	[1.0]	[0.8]	[1.6]	[0.9]	[–0.5]	[–0.1]	[1.2]	[1.3]	[–0.4]	[–0.6]	[1.1]	[1.3]
I,<G,G&I>	[–2.3]	[–3.3]	[–1.3]	[–1.5]	[–0.8]	[–1.5]	[–0.9]	[–1.4]	[0.3]	[–0.1]	[–0.8]	[–1.0]
Panel C. Size												
1	1.17	0.02	0.87	–0.25	0.30	0.27	1.03	–0.07	0.77	–0.32	0.26	0.25
2	1.28	0.15	0.89	–0.22	0.38	0.37	1.22	0.16	0.85	–0.25	0.37	0.41
3	1.28	0.17	0.94	–0.16	0.34	0.33	1.39	0.33	0.96	–0.10	0.42	0.43
4	1.31	0.19	1.00	–0.09	0.30	0.28	1.42	0.38	0.89	–0.21	0.53	0.59
5	1.33	0.18	1.05	–0.06	0.28	0.25	1.35	0.22	0.79	–0.31	0.56	0.53
5 – 1	[2.1]	[2.2]	[2.7]	[2.7]	[–0.2]	[–0.3]	[1.8]	[1.7]	[0.1]	[0.0]	[1.4]	[1.3]
Panel D. Turnover												
1	1.28	0.13	1.08	–0.07	0.20	0.21	1.28	0.21	1.02	–0.09	0.26	0.29
2	1.25	0.14	0.98	–0.11	0.27	0.25	1.24	0.26	0.53	–0.48	0.70	0.74
3	1.25	0.16	1.01	–0.08	0.24	0.24	1.16	0.14	1.04	–0.03	0.12	0.17
4	1.34	0.23	0.90	–0.15	0.43	0.37	1.42	0.33	0.63	–0.39	0.79	0.72
5	1.39	0.30	0.99	–0.07	0.40	0.37	1.41	0.32	0.86	–0.18	0.55	0.50
5 – 1	[0.8]	[1.2]	[–0.6]	[0.0]	[1.9]	[1.5]	[0.5]	[0.5]	[–0.7]	[–0.4]	[0.9]	[0.7]
Panel E. Incentive Fees												
Yes	1.38	0.32	0.89	–0.18	0.49	0.50	1.20	0.23	0.67	–0.39	0.53	0.62
No	1.27	0.14	0.95	–0.16	0.32	0.30	1.28	0.20	0.86	–0.24	0.43	0.44
Yes – No	[0.8]	[1.4]	[–0.5]	[–0.2]	[0.9]	[1.1]	[–0.3]	[0.1]	[–0.7]	[–0.5]	[0.3]	[0.5]
Panel F. Regulation FD												
Pre	1.27	0.24	0.72	–0.24	0.55	0.49	1.24	0.31	0.55	–0.37	0.69	0.67
Post	1.32	–0.19	1.72	0.05	–0.40	–0.24	1.31	–0.20	1.81	0.20	–0.50	–0.41
Pre – Post	[–0.1]	[1.8]	[–1.1]	[–1.1]	[2.8]	[2.7]	[–0.1]	[1.4]	[–1.4]	[–1.9]	[3.5]	[3.2]

of positions, and in any given quarter only a subset would be the subject of selectively disclosed information that might inspire trades. And, interestingly, the results here suggest that Reg FD may indeed have had teeth.[11] Since the introduction of this regulation, mutual funds have been less successful in terms of both

[11] Barras, Scaillet, and Wermers (2010) also find evidence of decreasing active management skills over the previous decade.

buys and sells. Where the average BAR difference between weight increases and decreases was 49 bp prior to 2001, the point estimate has actually turned negative, at –24 bp, since Reg FD, a statistically significant drop. Additional years of data will determine whether the decline in performance is permanent or just sampling error, but at this point the evidence is consistent with Reg FD having reduced fund managers' ability to make profitable trades.

E. EPS Surprises Following Trades

Here we ask whether trades by mutual funds forecast quarterly EPS surprises of the underlying stocks. This would provide further evidence that the nature of fund managers' apparent informational advantage derives, at least in part, from an ability to forecast earnings fundamentals. We define the earnings announcement surprise as the difference between the actual and consensus EPS, scaled by the share price prevailing at the beginning of the forecast period. Consensus and actual EPS are taken from the Institutional Brokers' Estimate System (IBES) summary file. The first year for which we have sufficient data is 1984.

Note that in the setting of EPS surprises there is no benchmark or BAR-type adjustment that is natural or necessary. However, EPS surprise data involve complications of their own. The most important one to address is the optimism bias in consensus forecasts documented by, for example, Abarbanell and Lehavy (2003). We correct for this bias by differencing it away, comparing the EPS surprise performance of buys versus sells. This is analogous to our earlier approach of comparing the return performance of buys and sells and thereby differencing away any rational risk premium during earnings announcement periods that may otherwise contaminate estimates. A smaller issue with the EPS data is the presence of outliers. We handle this by Winsorizing at the top and bottom percentile, following Abarbanell and Lehavy.

We repeat the analysis of Table 4 but use the EPS surprise as the dependent variable. Table 6 presents the results by trade type and year. Consistent with prior results on optimism in consensus EPS forecasts, the average stock held by fund managers experiences a negative EPS surprise: Both weight increases and decreases, which together encompass all holdings, portend a negative EPS surprise on average. The meaningful comparison is the difference between buys and sells, and here the results are clear. In every year in our sample, the EPS surprise of stocks experiencing weight increases exceeds that of stocks experiencing decreases. The results are similarly strong in comparing first buys minus last sells.

The EPS-based results provide a different perspective on trading skill, but they are not orthogonal from the results based on returns. This is apparent from the strong positive correlation between these measures. The average EPS surprise of weight increases relative to decreases (column 3 of Table 6) has a correlation of 0.37 ($p = 0.09$, $n = 22$) with the returns of weight increases minus decreases (column 5 of Table 4) and a correlation of 0.52 ($p = 0.01$, $n = 22$) with the relative BAR returns of weight increases minus decreases (column 6 of Table 4). The analogous correlations involving first buys and last sells also exceed 0.35 ($p = 0.10$, $n = 22$). These correlations provide further evidence that the returns-based

TABLE 6

Earnings Surprises (EPS)

For each periodic mutual fund holdings report, we compute the average subsequent earnings announcement surprise equal weighted across weight increases, weight decreases, first buys, last sells, and the difference between weight increases and decreases and between first buys and last sells. We define the earnings announcement surprise as the difference of the actual and consensus earnings per share (EPS), scaled by the share price at the beginning of the forecast period. Consensus and actual EPS comes from the IBES summary file. We annualize these surprises (multiplying by 4) and average across all funds within a year. *t*-statistics in brackets are based on quarterly means and standard deviations (SD) thereof. Earnings surprises are Winsorized at the top and bottom 1%.

Year	Weight Increases	Weight Decreases	Increases – Decreases	First Buys	Last Sells	First Buys – Last Sells
1984	–0.35	–1.26	0.91	–1.28	–1.87	0.59
1985	–1.19	–2.32	1.13	–1.24	–2.46	1.21
1986	–1.19	–2.06	0.87	–1.14	–2.55	1.41
1987	–0.66	–2.01	1.34	–0.74	–2.62	1.88
1988	0.44	–0.44	0.88	0.06	–1.65	1.71
1989	–0.09	–0.68	0.60	–0.04	–1.73	1.69
1990	0.13	–1.39	1.52	–0.33	–2.49	2.16
1991	–0.43	–1.22	0.79	–0.41	–1.80	1.40
1992	–0.31	–0.68	0.37	–0.25	–1.02	0.77
1993	–0.18	–0.61	0.43	–0.31	–1.23	0.92
1994	–0.10	–0.40	0.30	–0.26	–0.61	0.35
1995	–0.13	–0.44	0.31	–0.27	–0.77	0.49
1996	–0.25	–0.43	0.18	–0.31	–0.72	0.42
1997	–0.17	–0.51	0.33	–0.27	–0.60	0.33
1998	–0.39	–0.77	0.38	–0.47	–1.00	0.53
1999	–0.25	–0.80	0.55	–0.27	–1.09	0.82
2000	–0.05	–0.60	0.55	–0.08	–1.32	1.23
2001	–0.21	–1.00	0.79	–0.35	–1.50	1.16
2002	0.08	–0.43	0.51	–0.01	–0.80	0.79
2003	0.30	–0.03	0.34	0.27	–0.37	0.63
2004	0.11	–0.03	0.13	0.01	0.02	–0.01
2005	0.11	–0.01	0.12	0.08	–0.01	0.09
Avg.	–0.22	–0.83	0.61	–0.35	–1.30	0.94
SD	0.50	0.85	0.60	0.62	1.09	0.96
[*t*]	[–4.1]	[–9.2]	[9.5]	[–5.3]	[–11.1]	[9.2]

results reflect skilled trading by mutual fund managers that is due to an ability to forecast earnings-related fundamentals.

F. Other Interpretations

Presumably mutual fund managers get the information that predicts earnings announcement returns from many disparate sources. One interesting and nefarious possibility, suggested in Irvine, Lipson, and Puckett (2007), is that they are "tipped off" about forthcoming recommendation changes by analysts at the brokerage firms that benefit from fund managers' trades. In unreported results, we find that mutual fund trades indeed predict consensus recommendation changes in the same direction, although the economic magnitude is modest.[12] However, we also find that fund trades predict earnings announcement returns even in a sample where there are no recommendation changes in the meantime and thus no "tips." If anything, our results are stronger in this subsample.

[12] While consistent with tipping, this result is also consistent with a simpler explanation that both analysts and fund managers are reacting to the same external source of value-relevant information, with some fund managers executing trades before analysts are able to revise their forecasts.

Another related possibility is that fund managers are responding to (not just predicting) some analysts' forecasts. Brown, Wei, and Wermers (2007) show that analyst forecast revisions indeed generate mutual fund trades. If the stock market underreacts to forecast revisions, this would give rise to the appearance of fund manager trading skill and potentially our results. (We would be inclined to classify such a story as skilled trading by fund managers in response to new information: New information has arisen, managers have recognized a market underreaction, and they have traded accordingly.) Analyst forecast revisions may indeed be one source of fund managers' information. But the fact that fund managers' trades predict earnings surprises relative to the prevailing-at-announcement consensus forecasts, as seen in Table 6, suggests that their trades embody incremental information that goes beyond anything analysts have produced.

G. Economic Significance: Earnings Announcement Window versus Full-Quarter Returns

We close with some remarks on economic significance. We ask whether the abnormal returns to skilled trading around earnings announcements represents a disproportionate fraction of the estimated total abnormal returns to those earned by the stocks that funds trade. To measure the latter quantity, we adapt the methodology of Chen et al. (2000). We repeat our prior tests but replace the average earnings announcement return with the average total return. As in our earlier tests, and as in Chen et al. (2000), we use the Daniel et al. (1997) size, BM, and momentum portfolios as benchmarks. Table 7 presents the earnings announcement return performance of trades, repeated for convenience from Table 4, beside their total returns.

We find moderate evidence of outperformance of fund trades in terms of total returns. Chen et al. (2000) find stronger effects. The difference may be due to our sample period (the Chen et al. (2000) sample begins in 1975 and ends in 1995) and, relatedly, the fact that our sample includes the apparently deleterious effect of Reg FD. Also, Chen et al. (2000) divide stocks more finely into deciles of changes in mutual fund ownership and study the extreme deciles, while we define trades more coarsely. However, even in our sample and using our definitions, the total return performance of first buys and last sells is noteworthy. In any event, for our purpose the main requirement is simply to assemble an apples-to-apples comparison between performance in total returns and returns around earnings announcements.

The bottom rows of Table 7 make this comparison more formally. With 250 total trading days per year and four 3-day earnings announcement windows, the null hypothesis is that the annualized average earnings announcement abnormal returns equals 12/250 or 5% of the annualized total abnormal return. The results indicate that the abnormal returns following fund trades are indeed disproportionately concentrated around earnings announcements. Depending on methodology, the earnings announcement return of fund trades constitutes between 18% and 51% of the total return. Or, put differently, dividing these percentages by 5%, the estimates imply that earnings announcement days are roughly 4–10 times more

TABLE 7

Economic Significance

For each periodic mutual fund holdings report, we compute the average total subsequent period return: raw and benchmark-adjusted return (BAR); and equal weighted across weight increases, weight decreases, long weight increases and short weight decreases, first buys, last sells, and long first buys and short last sells by fund. The characteristics benchmark return is the corresponding 5 × 5 × 5 size, book-to-market, and momentum return in the matched quarter. We annualize these returns (multiplying by 4) and average across all funds within a year. Returns are Winsorized at the top and bottom 1%. *t*-statistics in brackets are based on quarterly means and standard deviations thereof, except for the last row, where the *t*-statistics test the hypothesis that the difference between the annual average earnings announcement returns and 0.05 times the annual average total returns is equal to 0.

	Earnings Announcement Returns (Annualized)				Total Returns (Annualized)			
	Increases – Decreases		First Buys – Last Sells		Increases – Decreases		First Buys – Last Sells	
Year	Return	BAR	Return	BAR	Return	BAR	Return	BAR
1980	1.76	1.67	1.44	1.31	–6.52	–6.19	6.62	6.26
1981	0.50	0.82	0.71	0.92	4.99	3.57	5.86	5.65
1982	1.54	1.28	2.60	2.39	11.04	9.40	13.83	12.55
1983	0.36	0.38	1.10	1.23	0.78	–0.98	3.69	4.02
1984	0.15	0.11	0.69	0.65	2.02	1.59	2.51	1.38
1985	0.37	0.43	0.14	0.23	2.42	2.50	1.33	1.27
1986	1.00	0.86	0.75	0.57	0.11	–0.19	–0.04	–0.79
1987	–0.03	0.26	–1.13	–0.95	–1.78	–1.25	1.00	1.62
1988	0.79	0.83	1.47	1.45	–1.05	–1.03	1.07	0.80
1989	1.28	1.10	1.28	1.15	5.18	4.27	7.19	6.13
1990	0.93	0.63	1.07	0.81	0.39	–0.90	1.59	0.09
1991	0.36	0.28	–0.22	–0.10	2.12	1.17	5.20	3.54
1992	–0.03	–0.25	0.76	0.54	–0.63	–1.34	3.55	3.46
1993	–0.23	–0.12	–0.24	–0.17	1.06	–0.04	1.27	0.39
1994	0.26	0.14	0.34	0.24	–0.51	–0.65	–0.46	–0.79
1995	0.06	0.06	0.41	0.40	1.46	0.99	2.31	1.63
1996	–0.03	–0.24	–0.35	–0.60	1.69	1.06	1.11	1.00
1997	0.25	0.13	0.15	0.07	–0.17	–0.04	2.82	2.32
1998	0.02	0.02	0.36	0.27	5.52	3.15	6.73	3.17
1999	0.48	0.69	1.07	1.39	13.66	12.90	14.93	13.17
2000	1.84	1.11	2.00	2.35	3.11	–0.61	–6.41	–1.29
2001	–0.58	0.05	–0.07	–0.01	–12.04	–9.75	–6.10	–6.91
2002	0.34	0.36	–0.67	–0.37	2.34	0.73	–0.34	–0.57
2003	–0.75	–0.69	–0.73	–0.66	–1.62	–2.41	–6.17	–4.76
2004	–0.69	–0.61	–0.57	–0.49	–0.33	–0.33	–0.06	0.10
2005	–0.29	–0.31	–0.43	–0.52	2.20	1.79	2.79	2.22
Avg.	0.38	0.34	0.47	0.44	1.35	0.66	2.53	2.14
[*t*]	[2.8]	[2.6]	[3.3]	[3.1]	[1.5]	[0.9]	[2.6]	[2.7]
% of total return	27.88	50.96	18.47	20.61				
[*t*]	[2.3]	[2.8]	[2.1]	[2.3]				

important than typical days in terms of their contribution to total outperformance of stocks that funds trade.

V. Summary

We use the subsequent earnings announcement returns of stocks that funds hold and trade to measure mutual fund manager trading skill. We find that the stocks that U.S. equity funds buy perform better at future earnings announcements than control stocks, while the stocks that funds sell perform worse. Fund trades predict not just earnings announcement returns but also EPS surprises. The point estimates indicate that a meaningful fraction of the total abnormal return performance of fund trades documented by Chen et al. (2000), Grinblatt and Titman (1989), and Wermers (1999), among others, is concentrated around earnings announcement periods. Overall, the results provide additional evidence of

the trading ability of mutual funds and shed new light on its source, namely, an ability to forecast earnings fundamentals.

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