

# *Short-term Trading in Long-term Funds: Implications for Financial Managers*

By Pamela C. Moulton

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## EXECUTIVE SUMMARY

**F**or large hospitality firms, selecting professional investment managers for their retirement plans is a critical financial decision. Whether the plans are defined benefit or defined contribution, the financial manager's goal is the same: to select a portfolio manager or managers who provide good returns relative to the degree of risk they take on. Retirement funds are typically considered long-term, yet this study shows that pension fund managers and other money managers do a lot of short-term trading. In fact, pension fund managers hold some 18 percent of their round-trip trades for less than three months—and this research shows that most of these short-term trades lose money. The evidence is consistent with the idea that the fund managers are trading just to appear active. This suggests that financial managers must look beyond basic fund turnover statistics for a true picture of a portfolio manager's investing style and skill.

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## ABOUT THE AUTHOR



**Pamela C. Moulton is an associate professor of finance at Cornell University's School of Hotel Administration. Her teaching and research interests include financial markets and market microstructure, with a special interest in the role of investors. Her current research focuses on institutional trade holding periods, the impact of institutional investment and high-frequency trading on stock performance, and how investors trade on sell-side analyst recommendations. Moulton's research has been published in several of the leading finance and accounting journals, including the Journal of Finance, the Journal of Financial Economics, the Journal of Accounting and Economics, and the Journal of Financial and Quantitative Analysis. Note: This report is adapted from a larger study conducted by Bidisha Chakrabarty, Pamela C. Moulton, and Charles Trzcinka, *The Performance of Short-term Institutional Trades*, forthcoming in *The Journal of Financial and Quantitative Analysis*.**

# *Short-term Trading in Long-term Funds: Implications for Hospitality Financial Managers*

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**M**ost hospitality firms do not consider managing stock portfolios to be a main part of their operations. They are in the service business, using their real assets and the services provided by employees to create valuable experiences for guests. However, the need to focus on stock investments arises through those employees. Employees consistently rank benefits, including retirement benefits, among the top five contributors to job satisfaction and as a key consideration in accepting a job.<sup>1</sup> It is not surprising, then, that more than 90 percent of companies with 500 or more employees offer retirement plans. The five largest hotel companies in the U.S. have over \$10 billion in assets under management in their retirement plans, making these plans a key component in retirement investment decisions.

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<sup>1</sup> See: Employee Job Satisfaction and Engagement 2014, Society for Human Resource Management, May 2014, and Bank of America Merrill Lynch Workplace Benefit Report, June 11, 2012.

## Round-trip trade dataset

	Full Sample	Funds Present 5 or More Years
<b>Number of funds</b>	4,053	1,186
Pension funds	3,811	1,102
Money managers	242	84
<b>Total share volume of round-trip trades (billion)</b>	328.41	291.13
Pension funds	30.07	18.83
Money managers	298.34	272.30
<b>Total dollar volume of round-trip trades (\$ trillion)</b>	10.8	8.94
Pension funds	0.91	0.55
Money managers	9.17	8.39
<b>Total number of round-trip trades (million)</b>	121.03	105.59
Pension funds	9.51	6.25
Money managers	111.52	99.33
<b>Total number of stocks traded</b>	9,737	9,407

Retirement plans fall into two categories: traditional defined benefit plans (in which the company bears the investment risk) and the now more common defined contribution plans (in which employees bear the investment risk). Companies may choose investment managers directly or, in the case of defined contribution plans, create a list of investment managers from which employees can select where to invest their money and the company's contributions. This report examines the investment performance of more than 1,000 professional investment managers and provides insight into the behavior of institutional investors, using a detailed transaction-level dataset to evaluate the performance of short-term trades in what are typically long-term portfolios.

### Sample and Methodology

We obtained the dataset that provides a detailed look into the activity of a large number of institutional traders from Ancerno Ltd., a consulting firm that monitors trading costs for institutional clients. Ancerno collects detailed transaction information for all equity transactions executed by its clients, which include pension funds (such as CALPERS, the Commonwealth of Virginia, and the YMCA retirement fund) and money managers (such as Massachusetts Financial Services, Putnam Investments, and Fidelity). Ancerno does not reveal the names of the clients whose trades are captured in this dataset, but their clients include many large and well-known money managers and pension funds. This dataset covers about 10 percent of all institutional trading activity.

The database includes the following information for each transaction: the stock ticker symbol; the transaction date; an identifier for the institution (such as Fidelity or Putnam); an

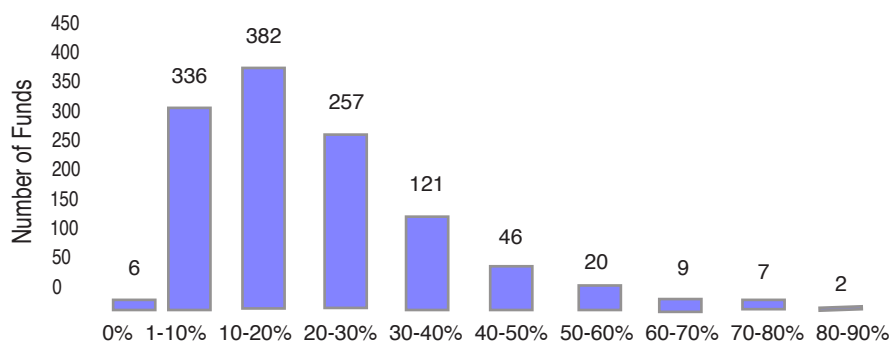
identifier for the fund within an institution (such as Fidelity Magellan or Fidelity Equity Income fund); the transaction direction (buy or sell); the volume of shares transacted; and the transaction price. All institution and fund identifiers are expressed as numbers, so we can identify all the transactions executed by the same institution or the same fund, but we cannot determine the identity of the institution or fund. Moreover, we see only transactions, not the fund's entire holdings.

A round-trip trade for a stock is defined as a purchase and a sale of the same number of shares of the same stock in the same fund. These trades are identified using a first-in, first-out (FIFO) method.<sup>2</sup> We assembled a chronological queue of the transaction information for each combination of symbol, institution, and fund. When a transaction in the opposite direction enters the queue, we match it with the earliest transaction in the queue. The number of trading days between the buy and sell transactions is the holding period of the round-trip trade. The size of the round-trip trade is determined as the number of shares bought and sold. For example, if a manager buys 500 shares on January 10, then sells 300 shares on February 10 and the remaining 200 shares on July 10 (all in the same stock), that is considered a one-month round-trip trade of 300 shares and a six-month round-trip trade of 200 shares. The sample period is from January 1, 1999, through December 31, 2009. Exhibit 1 provides a first look at the dataset.

<sup>2</sup> Using a last-in/first-out (LIFO) methodology yields qualitatively similar results except that a greater percentage of trades are classified as short-term. See: Bidisha Chakrabarty, Pamela C. Moulton, and Charles Trzcinka, "The Performance of Short-term Institutional Trades," forthcoming in the *Journal of Financial and Quantitative Analysis*.

## EXHIBIT 2

### Percentage of share volume in trades held less than 3 months



One concern when analyzing trade holding periods is whether the proportion of short-duration trades is unduly influenced by the presence of funds that remain active for only a short period. For example, we cannot observe round-trip trades longer than one year for a fund that is in the dataset for only one year. Of the 4,053 unique funds appearing between 1999 and 2009, 1,059 are present for one year or less, and 1,186 are present for five or more years. Exhibit 1 provides statistics for both the full sample and the subsample of 1,186 funds that are present for at least five years. This report presents results only for the funds present for at least five years.

The full sample includes more than 328 billion shares and some \$10 trillion in round-trip trades. Only 29 percent of the funds in Ancerno are present for five or more years, but they account for 88 percent of the share volume and dollar volume in the full sample. These long-lived funds also trade over 96 percent of the stocks traded in the full sample. In both the full sample and the subsample of funds held five or more years, the majority of the funds are pension funds, but most trading is done by money managers. Among the funds present five or more years, money managers represent only 7 percent of the funds but account for over 93 percent of the share volume traded.

### Findings

Institutional investors do a lot of short-term trading, as more than 23 percent of the round-trip trades conducted by the average money manager in our sample were held for less than three months. Pension funds, which typically have a longer investment horizon, on average hold more than 18 percent of their round-trip trades for less than three months.<sup>3</sup> Many of these trades are held for even shorter periods. More than 7 percent of the average money manager's trades, and more than 5 percent of the average pension fund's trades, are held for less than one month.

Exhibit 2 shows that the number of short-term trades is not driven by only a few active funds, providing further insight into the prevalence of short-duration trades. Of the 1,186 funds that are present for five or more years, only six have no round-trip trades lasting less than three months. For the remaining 1,180 funds, trades lasting less than three months account for 10 percent or less of the trading volume in 336 funds and more than 10 percent of trading in the other 844 funds. The prevalence of short-duration trades is noteworthy considering the low annual turnover rates reported for mutual funds and pension funds. But a turnover rate of 100 percent, for example, could result from a fund trading all of its positions once a year, or trading half of its positions twice a year and not trading the other half of its positions, or from an array of other short- and long-duration trade combinations. The greater the dispersion of trade durations underlying a turnover rate, the less informative is the turnover rate about trade durations. Our dataset of round-trip trades at the fund level provides an inside look at the trade durations behind fund turnover numbers.

One possible explanation for so many short-term trades is that they are profitable. Even in a long-term portfolio, fund managers with investment ideas that play out over a short period of time may want to engage in a short-term trades. However, Exhibit 3 shows that these short-term trades are generally unprofitable—so this does not explain the trading frequency.

The returns in Exhibit 3 are the percentage price changes in the stock over the fund's round-trip holding period (non-annualized in the columns to the left, annualized in the columns to the right).<sup>4</sup> These returns represent the upper limit on a trade's true profit, as they are based on transaction prices, which include the cost of the bid-ask spread but exclude transaction costs such as commissions. We calculate the returns for the trades of each fund in each holding period category and present

<sup>3</sup> Most defined contribution plan investments would fall under the "money manager" rather than "pension fund" category in the Ancerno dataset.

<sup>4</sup> Returns adjusted for stock characteristics display the same patterns. See: Bidisha Chakrabarty, Pamela C. Moulton, and Charles Trzcinka, "The Performance of Short-term Institutional Trades," forthcoming in the *Journal of Financial and Quantitative Analysis*.

**EXHIBIT 3**
**Fund-level average trade returns**

Holding period		Un-annualized (%)				Annualized (%)			
		Money Managers		Pension Funds		Money Managers		Pension Funds	
At least	Less than	Mean	Median	Mean	Median	Mean	Median	Mean	Median
1 day	1 week	-0.82	-0.54	-1.52	-0.54	-65.49	-43.14	-121.67	-43.11
1 week	1 month	-2.06	-1.56	-3.14	-2.48	-39.54	-29.99	-60.26	-47.56
1 month	2 month	-0.80	-2.36	-3.07	-2.59	-6.39	-18.85	-24.54	-20.70
2 month	3 month	-2.64	-2.94	-3.37	-3.41	-12.68	-14.13	-16.19	-16.36
3 month	4 month	-3.24	-3.37	-3.12	-2.82	-11.11	-11.56	-10.69	-9.68
4 month	5 month	-2.85	-3.75	-2.93	-2.85	-7.61	-10.01	-7.82	-7.59
5 month	6 month	-2.87	-3.30	-2.35	-2.37	-6.26	-7.21	-5.13	-5.18
6 month	9 month	-1.89	-1.94	-2.11	-1.48	-3.02	-3.10	-3.38	-2.37
9 month	1 year	-2.10	-1.07	-0.97	-0.56	-2.40	-1.23	-1.10	-0.64
1 year	2 years	0.14	0.41	1.27	1.79	0.10	0.28	0.85	1.19
2 years	3 years	3.66	5.36	3.19	4.73	1.47	2.14	1.27	1.89
3 years	4 years	5.93	10.31	4.06	6.87	1.70	2.94	1.16	1.96
4 years		3.18	4.59	6.76	10.03	0.67	0.97	1.42	2.11

the mean and median fund returns for trades in each duration category, separately for money managers and pension funds.

The first question is whether the prevalence of short-duration institutional trades indicates that fund managers are exploiting stock information advantages. Exhibit 3 shows that the average return is significantly negative for trades held less than one year and significantly positive for trades held longer. This pattern suggests that short-term trades are not exploiting short-term information advantages. Exhibit 4 examines the incidence of short-term trades and Exhibit 5 examines their market-adjusted returns year by year. The proportion of short-term trades remains above 15 percent in every year, and short-term trade returns (after adjusting for market performance) are not significantly lower during the financial crisis of 2008-2009.

### Potential Explanations

We examine three possible explanations for why fund managers engage in so much unprofitable short-term trading: the desire to cut losses, recency bias, and the desire to appear active in managing a fund.

**Loss-cutting.** Fund managers may engage in unprofitable short-term trading because they want to cut their losses—reversing loss-making trades early after receiving new information suggesting that the trades will be even more unprofitable if held for longer. To examine this possibility, in Exhibit 6 we perform the following simulation. For each trade that is held for less than three months, we calculate what its return would have been if it had been held for a full year (where average returns turn positive in Exhibit 3). For example, if a trade was initiated on March

15, 2006, and closed out on April 1, 2006, we calculate its hypothetical “what-if” return if it had been held from April 1, 2006, to March 15, 2007.

The results in Exhibit 6 show that the mean and median trades that funds held less than three months would have produced a positive return had they been held for the remainder of a year. This suggests that the negative returns on short-duration trades are not the result of fund managers cutting their losses based on new information received shortly after they initiate trades.

**Recency bias.** The combination of negative short-term returns followed by higher returns if the trades had been held longer is consistent with managers demonstrating recency bias—the situation in which a person evaluates the probability of events based on the ease with which relevant instances come to mind. Recency bias creates a tendency to overemphasize recent events, such as a recent large loss, and has been found to affect stock selection for retail investors.<sup>5</sup> Under recency bias, when an investment manager observes a sharp fall in stock price shortly after buying a stock, he tends to overreact and close out the position, leading to a short-duration trade at a loss (as in Exhibit 3), although the position would have produced a positive return if it had been held longer (as shown in Exhibit 6). Ideally, a test for recency bias would examine a fund’s entire holdings to determine whether funds are more likely to close out trades after observing adverse price

<sup>5</sup> See: Hersh Shefrin, “Behavioral Finance: Biases, Mean-variance Returns, and Risk Premiums,” CFA Institute Conference Proceedings Quarterly, Vol. 31 (2007), pp. 4-12.

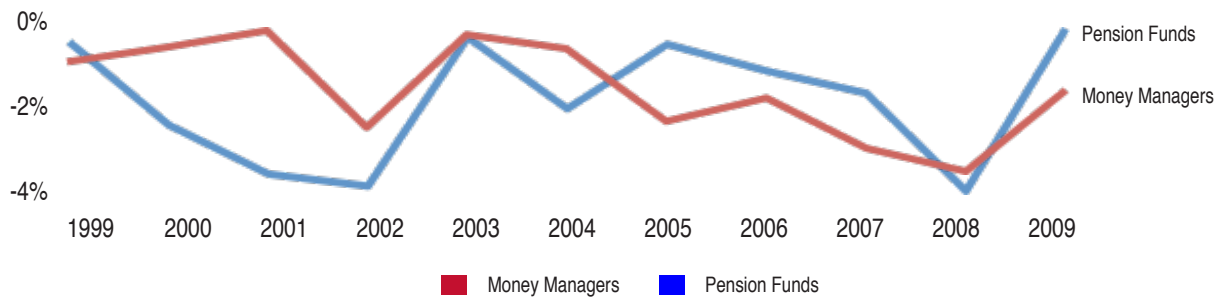
**EXHIBIT 4**

**Percentage of short-term trades**



**EXHIBIT 5**

**Average market-adjusted return of short-term trades**



moves, but the Ancerno dataset contains only funds’ transactions, not their entire holdings, so such an analysis is not possible in our sample. The pattern of returns we observe, however, is consistent with recency bias.

**Trading to look active.** Trading simply to show that a portfolio manager is active should lead to more short-duration trades with low returns, as trades are made to justify management fees rather than to maximize returns.<sup>6</sup> Such trades should lose the bid-ask spread, but they may lose much more, especially if managers trade against better-informed investors. Our findings of widespread losses in short-term trades are consistent with fund managers trading simply to look active. That pension funds have lower mean and median fund returns on short-duration trades than money managers suggests that trading to

look active may be a larger problem for pension funds, perhaps because the nature of their contracts encourages investment managers to trade more actively.<sup>7</sup>

In summary, the losses on short-term trades are most consistent with managers trading to look active or suffering from recency bias, which causes them to give more weight to recent adverse price moves in their trading decisions. There is no evidence of managers cutting their losses, nor do we find that investment managers are selling winners and holding onto losing trades (the well-known disposition effect) or exhibiting attribution-bias-related overconfidence (making more short-term trades after profitable short-term trades). Some funds do have profitable short-term trades, but the most profitable short-term traders in one period do not have profitable short-term trades

<sup>6</sup> See: James Dow and Gary Gorton, “Noise Trading, Delegated Portfolio Management, and Economic Welfare,” *Journal of Political Economy*, Vol. 105 (1997), pp. 1024-1050

<sup>7</sup> See: Josef Lakonishok, Andrei Shleifer, and Robert Vishny, “The Structure and Performance of the Money Management Industry,” *Brookings Papers: Microeconomics*, (1992), 339-391

## Actual fund-level 1-year “what-if” trade returns (%)

Holding Period		Money Managers		Pension Funds	
At least	Less Than	Mean	Median	Mean	Median
1 day	1 week	16.18	12.94	8.81	3.89
1 week	1 month	33.29	11.55	16.34	6.65
1 month	2 months	39.64	21.56	16.56	4.69
2 months	3 months	19.13	8.96	22.51	4.06

Note: The results show the mean and median trades that funds held.

on average in subsequent periods, suggesting a lack of persistent skill in short-term trading.

### Implications for Hospitality Executives

There are several ways that financial managers at hospitality firms can use these findings to improve their investment decisions. Whether the immediate beneficiary is the firm itself (in a defined benefit plan) or the firm’s employees (in a defined contribution plan), the financial manager’s goal is the same: to select a portfolio manager or set of portfolio managers (or funds) who will provide attractive returns relative to the degree of risk they take on. While this study examines portfolios managed by external managers, it may well be that internal managers suffer from similar poor performance in their short-term trades. The good news is that it is easy to get transaction-level data for a firm’s internally managed funds. Whether funds are internally or externally managed, this study offers several useful implications.

First, this research highlights the importance of asking prospective (and current) portfolio managers for detailed information about their trading activities. Managers with the same annual turnover rates may engage in dramatically different proportions of short-term trades and, coupled with the general long-term focus of retirement funds, the poor returns on short-term trades make them particularly unattractive for such portfolios.

Second, financial managers who monitor institutional portfolio managers must consider whether their actions may inadvertently encourage excessive short-term trading. Do “active managers” feel pressure to conduct short-term trades just to show that they are indeed active? One way to counteract this tendency is to ask portfolio managers to report their returns by

trade-duration category (using a standard methodology, such as FIFO or LIFO, to discourage creative accounting) as well as in the aggregate portfolio. Such transparency may help portfolio managers demonstrate the value of their investment ideas and trading skill and highlight over what trading horizons they tend to add the most value.

Third, financial managers at hospitality firms should examine the evidence on active portfolio management more broadly. Studies of professional managers’ investment returns often fail to find evidence that active portfolio management reliably outperforms passive index strategies,<sup>8</sup> while active managers charge much higher management fees than index funds. By construction, index funds tend to hold investments for long periods, as it is rare for a stock to be added to and then removed from the same index within a three-month period. Index funds thus naturally avoid the trap of “trading too much.”

The findings in this study, based on historical data, are subject to the caveat that the future may not replicate the past. It is possible that some institutional portfolio managers are skilled at short-term trading, but they are either rare in the Ancerno dataset or they had a long run of bad luck during the 11-year period of data available to us. We note that while the sample period included the financial crisis of 2008-09, the finding of negative returns on short-term trades is present in every year. ■

<sup>8</sup> See, for example: Robert Kosowski, Allan Timmerman, Russ Wermers, and Hal White, “Can Mutual Fund “Stars” Really Pick Stocks? New Evidence from a Bootstrap Analysis,” *Journal of Finance*, Vol. 61 (2006), pp. 2551-2595, who find that there is statistically significant evidence that only a very small group of mutual funds outperform passive index strategies. See also: Eugene Fama and Kenneth French, 2010, “Luck versus Skill in the Cross Section of Mutual Fund a Estimates,” *Journal of Finance*, Vol. 65 (2010), pp. 1915-1947, who conclude that there is no such evidence.





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