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On

"Mutual Funds: Who's Looking Out For Investors"

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Chairman Baker, Ranking Member Kanjorski, members of the Subcommittee, thank you for the opportunity to discuss the issues of late trading and stale-price arbitrage (also known as market timing) in mutual funds.[1]

My name is Eric Zitzewitz. I am an Assistant Professor of Economics at Stanford's Graduate School of Business. I am the author of three studies related to the issues being examined by the Subcommittee. I have also worked with the industry on the issues of fair value pricing and estimating the extent and cost of stale-price arbitrage trading. I will draw on my research and experience, as well as the work of other academics, in the course of my testimony.[2]

Let me begin by summarizing some of the main conclusions of my research:

- My analysis of daily flows for a sample of funds[3] reveals flows consistent with stale-price arbitrage in the international funds of over 90 percent of fund companies and consistent with late trading in 30 percent.[4]
- In 2001, a shareholder in the average international fund in my sample lost 1.1 percent of assets to stale-price arbitrage trading and 0.05 percent of assets to late trading. Losses are smaller, but still economically

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[1] Market timing is misnomer in this context, since it is commonly thought to mean guessing the future direction of the market. Most of the "market timing" occurring in mutual funds is actually arbitrage activity based on the use of stale prices to calculate NAVs.

[2] My work includes "Who Cares About Shareholders? Arbitrage-proofing mutual funds," *Journal of Law Economics and Organization*, October 2003, 245-280 and two unpublished papers, "How Widespread is Late Trading in Mutual Funds", and "Another Kind of 'Weekend Effect' in Financial Markets." All of these are available on my webpage, http://faculty-gsb.stanford.edu/zitzewitz. Other academic studies are cited therein.

[3] My data comes primarily from TrimTabs, which collects a daily asset and NAV data from approximately 12 percent of fund firms. I am grateful to Charles Biderman of TrimTabs for sharing this data with me. The TrimTabs sample is not necessarily representative of the rest of the fund industry: dilution rates may be higher or lower outside the sample.

[4] For all equity funds, I found flow consistent with late trading in 16 percent of fund families. By that I mean a strong, statistically-significant correlation between a fund's inflows and whether market timing or late trading would be profitable on a particular day. The fact that late trading was occurring in a fund does not necessary imply that the fund company facilitated the trading, since the trading could have occurred through a broker. My finding of late trading in 16 percent of families roughly anticipated the results of the SEC survey reported by Stephen Cutler in his Senate testimony on November 3, 2003. Mr. Cutler reported that over 10 percent of surveyed fund groups were aware of late trading in their funds (although it was phrased as "almost 90 percent were not aware").

significant, in funds holding small-cap equities or illiquid bonds (e.g., municipals, convertibles, and high-yield bonds).

- The source of these losses is arbitrageurs buying funds for less than their current value and selling funds for more than their current value. In an open-ended mutual fund, the long-term shareholders are on the other side of these disadvantageous trades.
- Dilution rates have declined since the beginning of 2003, but not to zero. Even for September 2003, after the announcement of the investigation by the state and federal regulators, international-fund shareholders were still diluted at an annual rate of about 0.3 percent.
- In April 2001, the SEC sent a letter to the fund industry reminding it of its obligation to use fair value pricing to eliminate stale prices, especially in their international funds.[5] Despite this, a statistical analysis of fund net asset values reveals that in 2003 over 50 percent of fund families removed less than 10 percent of the staleness in their net asset values. This implies that they are fair valuing extremely rarely, if at all. The average fund is a removing just over 20 percent of the staleness in their net asset values.
- Short-term trading fees and monitoring by the fund family are imperfect solutions to the problem. I find that dilution due to stale-price arbitrage is only 50 percent lower in funds with fees. This is because arbitrageurs can wait out the fees, because the fees cannot be applied in all channels (e.g., 401(k) plans, variable annuities), and because the collection of fees is not always enforced. The SEC survey reports that almost all fund families monitor for stale-price arbitrage, and yet dilution is still substantial in at least some of these funds.
- Industry averages mask substantial heterogeneity across families. Just under 10 percent of fund families are fair value pricing their international funds frequently enough to remove over 70 percent of staleness. Another 10-15 percent are removing about 50 percent of staleness. Although

[5] Letter from Douglas Scheidt to Craig S. Tyle regarding valuation issues, April 30, 2001. Available at http://www.sec.gov/divisions/investment/guidance/tyle043001.htm.

almost every international fund has been diluted by stale-price arbitrage, about 75 percent of dilution is concentrated in the 25 percent most affected international funds.

- I have found that fund families with more independent directors and lower expense ratios experienced less dilution and were more likely to use fair value pricing and short-term trading fees to limit arbitrage activity.

Policy makers and regulators face two challenges: 1) ensuring that affected investors are fairly compensated, and 2) ensuring these and similar problems cease and do not reoccur. The first is a non-trivial issue; simply relying on the reimbursement calculations of the affected firms may be insufficient, since the affected firms will certainly be tempted to apply a narrow definition of damages, which could lead to an under-compensation of investors. Policy makers obviously may choose to provide some guidance here.

But I will devote my attention for now to the second issue. I believe that a complete solution to the market timing and late trading issues needs to involve three components:

1. **A pricing solution**. The most direct method of eliminating stale-price arbitrage is to eliminate the staleness in NAVs via fair value pricing. It is already standard practice to use fair value pricing for corporate and treasury bonds, except we do not call it fair value pricing, we call it evaluated or matrix pricing. Fair value needs to be extended to international and perhaps small-cap equities, and evaluated bond pricing should be extended to currently excluded asset classes such as convertibles and high-yield.

   The SEC allows for fair value pricing, but as I noted, it has been underutilized by the industry. A cynical view might be that funds have dragged their feet on fair value to preserve the ability to allow favored customers to arbitrage their funds. This may be true in some cases, but adoption of fair value has also

been limited by the vagueness of the SEC's April 2001 letter. In particular, the SEC reminds funds of their obligation to fair value after a "significant event," but does not define the term. Some funds have used such a narrow definition of a significant event (e.g., an earthquake, or a 3 percent move in the value of international securities) that they end up fair valuing extremely rarely. In some cases, this may be due to perceived legal risk of fair valuing more frequency; in some cases, the perceived legal risk may being used as an excuse.

In his testimony on October 9, 2003, SEC Chairman Donaldson, listed as one response to these issues emphasizing the obligation of funds to fair value "under certain circumstances." It is vital that the SEC define, perhaps not exhaustively, what these circumstances are. In order for fair value to be effective, this definition will need to be broader than it is currently.[6]

Allowing fair value pricing to be done using an *ad hoc* process is dangerous, since it invites manipulation. A better approach is to use a model that updates the most recent market price for recent changes in market indicators (e.g., for Sony, these might be the ADR price, the Nikkei future, the S&P 500, a sector index, and the Yen) on a security-by-security basis. The model could be calibrated using historical correlations, and should be subjected to rigorous testing, both before implementation and on an on-going basis.[7]

I should emphasize that short-term trading fees or restrictions are not substitutes for fair value pricing. The greatest danger I see in the current debate is that this will not be recognized. Fees have not been fully effective historically, for the reasons I mentioned. Even if the Investment Company

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[6] For example, assuming the levels of market volatility from 1998-2003 persist, using a threshold for fair valuing of a 75 basis point change in the S&P 500 (or comparable movement in other market indicators) would be necessary to remove 90 percent of the staleness from NAVs. This is the threshold that I recommend to funds that ask my opinion.

[7] In the interests of full disclosure, I should mention that I helped develop the model used by one of the third-party fair value pricing services, Financial Times Interactive Data. My views on fair value pre-date this work.

Institute's proposed 2 percent fee for trades within 5 days is perfectly enforced in every channel, which is far from certain, arbitrageurs could simply wait until day 6 to sell. A quick simulation I ran revealed that a mandatory 5-day hold reduced arbitrage excess returns only from 48 percent to 24 percent per year, hardly enough to be a serious deterrent.[8] Even a complete ban on selling within 90 days would only reduce arbitrage excess returns to 5 percent per year: these excess returns are still going to be attractive to hedge funds. And my guess is that average investors would not appreciate such a ban. Fees may be a good idea, but they are not a substitute for eliminating stale prices.

A related danger I see in the current debate is that the SEC might allow funds to use solutions that allow them to deny arbitrage opportunities to some investors, but allow them to others. Fair value pricing removes arbitrage opportunities equally to all investors. Other solutions, such as short-term trading fees, monitoring by the fund company, and allowing funds the *option* to either delay exchanges or retain gains from short-term trades, can be applied or not applied as funds see fit. This limitation of many of the currently popular "solutions" has clearly contributed to the recent scandal.

2. **A third-party monitoring solution**. Fair value pricing addresses stale price arbitrage, but there is no pricing solution for late trading. Furthermore, no fair value pricing formula will be perfect. Therefore, we need to provide tools for boards, regulators, and even shareholders to monitor trading activity in funds. One possibility would be to require funds to publicly disclose daily inflows and outflows, perhaps with a two-month lag to alleviate any front running concerns. This would allow anyone, including data and advisory firms, to use the formula from my and other academic studies to estimate dilution. An alternative would be to require the disclosure of this information to regulators, boards, and a limited number of third-party firms, who would disclose only

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[8] Note that a mandatory 5 day hold is even stricter than a 2 percent fee or a requirement that any gains from short-term trading be retained by the fund.

the most egregious cases. My guess is that, either way, this idea will meet significant resistance from some in the industry, but you should ask yourself: is there any good reason why these disclosures should not be made?

3. **A governance solution**. My research suggests that boards with more independent directors perform better in limiting arbitrage; earlier research has shown that these boards negotiate lower expense ratios on behalf of their investors. I agree with the proposals that have been made to increase the percent of independent directors to 75 percent or higher, and to tighten the definition of independent. Of course, there is a tradeoff between knowledge and independence; the worst possible board may be a board of non-financially trained members who are forced to trust management. But in my experience, there is no shortage of independent-minded people who know about finance; funds simply need to be given the incentives to fill their boards with these people, and not management cronies. While it is difficult to legislate true independence, we tend to know it when we see it. Your ongoing oversight of the industry will be just as important as any legislation you pass in ensuring that fund boards become more independent and effective.

   The issue of independence also arises with respect to regulatory bodies. Staffing a regulatory body with personnel who spend a few years with the body and then return to jobs in industry is a textbook recipe for regulatory capture, especially if an industry is aggressive about working only with ex-regulators who have taken friendly positions while in office.[9] At the same time, staffing the regulatory body in such a manner may be the only way to attract expertise at a reasonable cost. The solutions may be to: 1) recognize and reward independence when we see it, and 2) ensure that sufficient power is held by those whose subsequent income does not depend too heavily on the favor of the industries they regulate.

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[9] These statements should not be taken to mean that everyone who faces incentives for capture responds to them; only that, on average, economists expect people to respond to incentives. Furthermore, I do not mean to imply that economists do not face similar incentives.

Chairman Baker, in your invitation letter, you asked for feedback on HR 2420. Although my research is less directly relevant to the issues addressed in that bill, I am somewhat familiar with them.

- Mutual funds are a product for unsophisticated investors, and based on some of the investment choices we observe in the data, in some cases that lack of sophistication appears to extend to an inability to multiply an expense ratio by the total dollars invested. I thought the provision that required each investor to be furnished with the extra dollar figure that they paid in expenses was a good idea, and was disappointed to see it deleted during the committee process.
- Providing investors, not just boards, with information on brokerage commissions paid by the fund and soft dollar benefits received by the management company is also a good idea. The differences in brokerage fees paid by funds for a given trading volume can be dramatic, and soft dollar benefits are a significant explanatory factor. These costs are difficult for most investors to observe.