Author Digest

Protecting Fund Shareholders from Fund Share Trading

Eliot Spitzer, New York State's Attorney General, recently extracted a $40 million settlement from a hedge fund management company that allegedly bought and sold mutual fund shares in "late trades" at the funds' net asset value. These trades were effected several hours after the prices used in the fund's net asset value calculations were determined. In addition, the hedge fund manager entered orders shortly before 4:00 p.m. for funds that stated in their prospectuses that they discourage "market timing." The announcement of this settlement led to revelations that many mutual fund practices are not what they should be. The Spitzer investigation and subsequent events have stimulated the Securities and Exchange Commission to propose a number of regulatory changes. We examine the SEC's proposed changes only as they affect order timing and fund share pricing. On these issues, the Commission's proposals fall short of the changes that are needed to protect investors.

Trades that arrive at a fund's offices late in the afternoon cost ordinary fund shareholders at least $20 billion per year in lost performance and perhaps as much as $40 billion per year. Requiring an earlier cutoff time than 4:00 p.m. is the only practical way to protect fund shareholders from these performance losses.

The fundamental problem is not one of market timing, but of a flawed fund share purchase and sale mechanism that invites abuse of ongoing shareholders. All funds should use either something like the process Vanguard uses to cut off orders for its equity index funds well before 4:00 p.m. or else permit entry and exit exclusively through an exchange-traded fund (ETF) share class to protect ongoing fund shareholders. All open-end domestic equity funds should cut off orders at, say, 2:30 p.m. The solution for funds holding foreign securities is slightly more complex, with a longer lag between receipts of an order and its execution.

Protecting Fund Shareholders from Fund Share Trading

Introduction

Early in September 2003, Eliot Spitzer, Attorney General of New York State, announced a $40 million settlement with a hedge fund group that had allegedly engaged in "late trading" and "market timing" with the cooperation of several mutual fund groups. In what Spitzer and the media defined as "late trading," the hedge fund apparently had been permitted to buy and sell shares in funds at the funds' 4:00 p.m. net asset value for several hours *after* the prices used in the net asset value calculation were determined, an apparent violation of Securities and Exchange Commission Regulation 22c-1. Distinct from the alleged transactions at "backward" prices were a larger number of "market timing" trades initiated at or only slightly before 4:00 p.m. In some cases, these market-timing trades may have taken advantage of "stale" prices in foreign or illiquid markets. In many cases, these last–minute trades created a need for the fund to trade during the following day's trading session. The cost of those next-day trades was borne by all the fund's shareholders.

We expect further investigation to confirm that illegal *backward pricing of fund share transactions* described as "late trading" is rare.[1] Unfortunately, there is strong evidence – apart from the recent publicity – that *fund share trades* coming into the fund late in the day are common and come from investors with motives far more diverse than simply "market timing" a trade in the fund over a few days. The emphasis of most analysis by regulators and pundits alike has been on dealing with clearly improper trades based on stale prices or executed in violation of prospectus language offered to market timing trades. These inappropriate activities offer an opportunity to make a change in procedure that will have a more beneficial effect on the fortunes of mutual fund shareholders than most observers realize. The simple fact is that most fund share trades that arrive late in the day are costly to existing fund shareholders, *whether they were initiated by short-term traders or by ordinary investors*.

This perspective does not focus on the specific transactions and allegations which gave rise to Attorney General Spitzer's $40 million settlement and which promise to create serious ongoing legal and regulatory problems for participants in these transactions. Our purpose is to help investors and regulators understand why *all* late-afternoon transactions are inappropriate and how costly such transactions are for ordinary shareholders in mutual funds. Published estimates of the dilution effect of fund orders entered at or just before the market close range from trivial levels to $5 billion per year.[2] These estimates are based on estimates of the profits earned by market timing traders. We estimate that the cost of late-afternoon trading to fund shareholders exceeds $20 billion per year and may approach $40 billion per year. This estimate recognizes that orders entered shortly before 4:00 p.m. cost fund shareholders much more than just the profits that some traders take away.[3]

The Investment Company Institute, the Securities and Exchange Commission and numerous industry participants have united (more or less) on proposing a firm 4:00 p.m. order cut-off, 2% redemption fees for short-term trades and fair value pricing whenever necessary.[4] We suggest a simpler approach that will better serve long-term fund investors much better. There may be a role for redemption fees. There is a role for fair value pricing. A 4:00 p.m. order cut-off is too late in the day to protect shareholders.

Fund Advisor Trading Policies

Last-minute purchases of mutual fund shares – up until just before the 4:00 p.m. calculation of net asset value – are permitted because a fund has to accept orders until 4:00 p.m. under SEC rule 22-c(1) unless it has prospectus language that permits an earlier cut-off. While many fund prospectuses permit the fund to reject last-minute orders if they will have an adverse effect on the fund, it is difficult and relatively uncommon for even the most conscientious fund advisors to reject such orders, at least until a clear "market timing" trading pattern is established. Zitzewitz (2003a) illustrates the value of reduced dilution and consequent improved performance to a manager in terms of the value of increased advisory fees. Timers will clearly have an adverse effect on <u>long-term</u> fund growth. The reason more funds do not oppose timing aggressively may be that it is hard to prevent unless the fund refuses all orders that arrive late in the day. Market timing orders are often hard to identify and most funds consider accepting orders until just before the close to be part of their commitment to investor service. If an order turns out to be from a market timer, the fund may refuse future orders. Funds rarely reject the first order anyone enters at 3:59 p.m.

Of course, temporarily collecting management fees on additional assets provides a strong incentive to accept last-minute purchase orders and many fund families simply do not discourage them, notwithstanding contrary statements in the prospectus. SEC proposals for an "independent" compliance function address the advisor's conflict between accepting "hot" money and the fees that go with it versus turning the "hot" money away and attracting investors with performance that might be a percent or so better each year. Some managers have chosen to embrace the "hot" money – that is the story behind the recent outrage. If the incentive is contrary to investors' best interests, a structure that removes the perverse incentive will be more effective than a compliance overlay. Expecting a new compliance staff to achieve what even the best-intentioned managers have not been fully able to achieve in discouraging traders asks too much and ignores the fact than an order that arrives at 4:00 p.m. today will cost the fund's ongoing shareholders the same amount regardless of the motive behind the order.

Improved compliance is a good idea, but a mandatory earlier order cutoff time is of more fundamental economic importance to fund investors – and to well-intentioned advisors.

Non-Timer Trades May be Equally Costly

Most last-minute buy orders frequently arrive on days when the market is strong near the close. It is impossible for a market timer to duplicate the stock positions held by a typical equity fund at 4:00 p.m. prices by entering stock orders after 3:59 p.m. The timer can, however, buy shares in many funds with orders that arrive at the fund's (or its distributor's) offices no more than a few seconds before 4:00 p.m. A firm's mandatory 4:00 p.m. cutoff will not change this. Just as it is impossible for a timer to execute stock trades right before the net asset value calculation, it is impossible for the fund to trade before the close to invest the new cash. Whether they intend to get in and out quickly or not, many fund share buyers make last-minute purchases on days with a strong market at the close. If they are correct in detecting market momentum, their trades are particularly costly to their fellow fund shareholders, because the fund buys at even higher prices on the next trading day to invest the cash inflow. If a shareholder sells fund shares with an order entered near 4:00 p.m., the effect on fellow shareholders can be equally adverse if negative momentum on that day carries into the next day's trading session.

Redemption Fees

Some funds impose redemption fees to discourage short-term fund share traders. Advocates as diverse as John Bogle and the Investment Company Institute have endorsed redemption fees. These fees go into the fund in an attempt to compensate ongoing shareholders for the fund's costs of providing liquidity to traders. However, these fees are, at best, a crude approximation of the cost traders impose on a fund's ongoing shareholders. Furthermore, they usually apply only to round-trip trades completed within a period as short as a week or as long as 90 days. If the fund share trader avoids the redemption fee by staying past the redemption fee cutoff date, the cost to the fund of providing liquidity to the trader is still a cost. In fact, the cost of the trade is a permanent cost to every shareholder who held shares in the fund at the time of the trade. Zitzewitz (2003b) provides some examples where some market timing trades are attractive even after the fee.

The Cost and Capture of Momentum

Although much has been written about after-hours trading, after-hours markets are notoriously illiquid and unstable. They cannot accommodate institutional-size trades. With few exceptions, the last-minute purchase or sale of its shares by a market timer means that a fund's manager will need to trade near the next day's opening. Since momentum present at the close frequently carries over into the following trading day, the fund's cost to invest cash from the market timer – or to sell portfolio securities to redeem the timer's shares for cash – can be substantial. Such trades to capture momentum at the market close appear to be the only way momentum traders can profit from their strategies because they can transfer the high trading cost of momentum strategies to others.[5]

The Cost of Providing Liquidity to Mutual Fund Share Traders

The time has come to substantiate a $20 to $40 billion estimate of the annual cost of the 4:00 trade cut-off to ongoing fund investors. Studies of the impact of fund trading costs associated with investment by new shareholders or cash redemptions by existing shareholders in conventional mutual funds offer compelling evidence that the cost of this trading activity to ongoing (non-trading) shareholders is substantial. In the most appropriately designed study that measures the cost to ongoing shareholders of providing liquidity to entering and leaving mutual fund shareholders, Roger M. Edelen (1999), then a Wharton School (University of Pennsylvania) professor, attempted to quantify the adverse effect of shareholder entry and exit costs on fund performance. Edelen was looking at the effect of these purchases and sales on the performance of funds that sell and redeem their shares for cash.

Using a sample of 166 conventional (no load) funds ranging in type from "small cap" to "income," Edelen investigated the cost to the fund of providing liquidity to investors who enter and leave the fund.[6] The design of his study focused on the cost of providing this liquidity by examining all the purchases and sales of securities by the funds over a series of six-month periods. The reason for the six-month intervals was the traditional portfolio reporting frequency for mutual funds.[7] With data on semi-annual portfolio holdings and turnover, Edelen was able to break down each fund's trading into flow and non-flow components with a reasonable degree of precision and to estimate how much of the flow-related trading was incremental trading from having to purchase and sell portfolio securities in response to the entry and exit of shareholders. Edelen's methodology examined the cost of the trading that occurred, not the motives of buying and selling fund shareholders.

Edelen did not attribute a fund performance cost to the trading flow if the manager was able to use the flow to make desired portfolio changes. He concluded that for the average fund in his sample, 30% of the flow in and out of the fund did not result in incremental trading, and that about half of the fund's total trading was flow-related. If 70% of flow results in incremental trading, then about 35% of *total* fund trading would be incremental trading from providing liquidity for entering and leaving shareholders. It is important to note that the average fund Edelen studied was clearly not used aggressively by fund traders. Aggressive trade timing could cause a rate of annual portfolio turnover of several hundred percent.[8] The modest fund share turnover Edelen found in his fund sample notwithstanding, the trading costs which Edelen attributes to providing liquidity to shareholders entering and exiting the fund accounted for an average *net* reduction in *annual investor return* of about 1.43%, not materially less than the average fund's expense ratio.[9] [10] The 1.43% cost of providing liquidity is the source of our $40 billion estimated cost of a late cut-off time to ongoing shareholders. If this cost is applied to all equity and balanced funds, the latest figures show assets in U.S. stock and hybrid funds at slightly less than $3.9 trillion. Applying a cost of just over 1% gets us easily to the $40 billion estimate without stretching the policies and procedures of these funds in any way, relying fully on the level of Edelen's estimates. It may be hazardous to extrapolate Edelen's results for an "average" fund with average in-and-out trading activity to funds that attract active traders, but there are certainly a number of funds where the costs of providing liquidity to entering and exiting shareholders run substantially higher than 1.43%. Furthermore, the costs are greatest on orders that arrive too late in the day *to permit the fund manager to trade at or near the market close* to adjust the portfolio and the fund's cash position. Some funds might not be able to avoid all transaction costs associated with entry and exit of shareholders, but just cutting the 1.43% figure in half would save equity and balanced fund ongoing shareholders more than $20 billion per year. As we will see, the most shareholder-protective funds eliminate all or nearly all the impact of these costs on their ongoing shareholders. They do this simply by requiring early notice of fund share buy and sell orders and by trading for the fund before the market close so that *the cost of share trading is reflected in the net asset value calculation that prices the shares for entering and leaving shareholders*.

While the ongoing shareholders of conventional open-end funds bear the full cost of entry or exit by any shareholder whose order arrives near the market close, the most egregious effect is from the short-term fund share traders that are at the center of the recent market timing maelstrom. Our calls to a number of mutual fund companies' 800 numbers (before the scandal broke) found most of them eager to accept trades in their funds until 3:59 p.m. each trading day. [11] Trades near the market close are also facilitated by some fund supermarkets. Funds offering their shares through supermarkets may not know the identity of the beneficial shareholder or the shareholder's trading advisor.

Our interest in the adverse performance impact of nearly all late-afternoon cash purchases and sales of fund shares prompts us to look at two groups of funds not directly affected by this issue for clues to a universal solution for the ongoing shareholder dilution problem:

(1) exchange-traded funds (ETFs) that create new fund shares and redeem fund shares by the in-kind exchange of portfolio securities for fund shares and

(2) some conventional funds that cut off cash purchases and sales earlier in the day.

Exchange-Traded Funds (ETFs)

Each ETF shareholder pays his or her own fund entry and exit costs either as part of the in-kind fund share creation and redemption process or simply by paying the market price to buy or sell ETF shares in a trade with another shareholder. The creation and redemption baskets the fund accepts or delivers in exchange for fund shares are usually identical in composition to the fund and they are priced using the same prices used to calculate the fund's net asset value. This process eliminates the fair value pricing issue even for funds holding non-U.S. stocks because shareholders entering or leaving a fund have their contribution or redemption proceeds priced using the same securities prices used to calculate the fund's net asset value. Once an ETF shareholder enters the fund, there *are no meaningful further entry or exit costs penalizing the ETF shareholder's performance* until that shareholder sells his own shares. The secondary market (exchange trading) costs of shareholder trading in ETF shares are generally lower than a conventional fund's cost of providing liquidity directly to shareholders who enter their orders late in the afternoon. More importantly, with ETFs, trading costs fall where they should fall – on the trader rather than on the ongoing fund shareholders.

With an ETF, a short-term trader does not affect the portfolio of the fund at all unless his trades stimulate creation or redemption of ETF shares in-kind. When creation or redemption does occur, the Authorized Participant (or the trader) pays all the costs of buying or selling portfolio stocks and the creation or redemption fee which covers the administrative and processing costs of the transaction. The bid-asked spread quoted for fund shares on the secondary (retail) market reflects the Authorized Participant's expected costs to create and redeem in-kind. This cost is partly offset (and the fund share quote spread is often reduced) by the fact that market makers may trade five to ten times as many shares in the secondary market as they create or redeem. This in-kind creation and redemption structure is in marked contrast to the cash purchase and sale of shares in a conventional fund that leaves the fund (more precisely its ongoing shareholders in most cases) with *all* the costs of buying or selling portfolio securities. In a broad sense, the stock market provides liquidity to the ETF share trader and the trader pays for that liquidity. The significance of this difference between ETFs and conventional funds is that other things equal, *an ETF should outperform a comparable conventional fund that accepts orders until 4:00 p.m. by the conventional fund's net cost of providing liquidity to entering and leaving shareholders.*

With in-kind creations and redemptions, an ETF does not have to worry about a timing mismatch with orders received at or near the market close. ETFs do, however, face a special problem of their own with late in-kind purchases and sales if the ETF is making changes in its portfolio composition without revealing the portfolio changes in advance by changing the creation and redemption baskets before trading begins.

The current requirement for all ETF creation and redemption activity is that an Authorized Participant notify the distributor of the fund by 4:00 p.m. on any trading day of the AP's intention to create or redeem.[12] 4:00 p.m. Eastern Time is the nominal closing time of most equity markets in the United States and the time most funds collect prices for their daily net asset value calculation. Authorized Participants may commit to create or redeem earlier in the day, but they are under no obligation to do so, and the fund is obligated by the SEC to accept creation or redemption orders until 4:00 p.m. for pricing at 4:00 p.m.[13] This up-to-the-close notification means that a net creation or redemption transaction can upset part of any unannounced portfolio change that the ETF makes during the trading day.

When creations or redemptions are made using creation and redemption baskets that match the "old" portfolio, they will change the end-of-day composition of the portfolio partly back in the direction of the old portfolio in the case of a creation or exaggerate the composition change in the case of a redemption. If the creation and redemption baskets for the next day are changed to reflect the new portfolio composition objective, the portfolio manager usually can counter any unwanted effects and get to the desired portfolio composition with a relatively small trade on that day. The fund may have to buy additional amounts or resell some of the securities added the first day or sell more or repurchase some of the securities sold to get to the desired portfolio mix. In contrast to the net 1.43% estimated cost of providing liquidity from Edelen's work, we estimate that the cost to an ETF of these adjustment trades will range from a few basis points for a large-cap index fund to perhaps 10 basis points for an actively-managed ETF with daily portfolio disclosure.[14] Unfortunately, this feature of ETFs also appears to inhibit appropriate unannounced portfolio modification behavior by index ETF portfolio managers, costing their shareholders some performance.[15]

There is a simple solution to the apparent conflict between trading to change the portfolio and a creation/redemption policy that gives the fund the confidentiality in trading that its shareholders deserve. *The solution is simply to require earlier commitment to creations and redemptions from the Authorized Participants.* The portfolio manager should know if she will be faced with creations and/or redemptions by 2:30 p.m. on the day the portfolio is being changed. Enough of the portfolio change transactions can be held until late afternoon to assure that the final trades will get the portfolio to the composition the portfolio manager is seeking.

Conventional Funds that Restrict Late Arriving Orders

Some conventional mutual funds avoid late-day cash purchases and sales of fund shares almost entirely – by simply refusing to accept them. A number of fund groups use this approach, but the most prominent, vocal and transparent example is probably Vanguard. Vanguard protects its *index fund* shareholders from fund share trading costs by a process that, in effect, gives Vanguard's portfolio managers early notice of cash purchases and sales of fund shares that lets them enter orders to buy or sell portfolio securities well before the market close to accommodate fund share purchases and sales at little – or even *negative* – cost to the fund's ongoing shareholders.

Vanguard's shareholder protection system is intriguing. To appreciate it, the reader needs to understand that institutional investors can enter an order to buy or sell a stock at the market close *or better* for no net commission, as long as the broker has some time to try to execute the trade at a better price than the close. An institution using these market-on-close or better orders will trade at no apparent cost or, if the broker does a very good job and does better than the closing price used in the NAV calculation, the fund may even earn a small profit on the trade.[16] To get its orders in early enough to give brokers time to work them before the close, Vanguard relies on a number of policies to thwart last-minute transactions in its equity index funds. Vanguard will not accept an inter-fund transfer instruction after 2:30 p.m. on any trading day. For example, an investor cannot initiate the transfer of assets from a Vanguard money market fund to a Vanguard equity index fund (or vice versa) after 2:30 p.m. Vanguard theoretically accepts wire purchase instructions until 4:00 p.m., but they reserve "the right to reject any purchase request that may disrupt a fund's operation or performance."[17] Vanguard does not accept wired redemption orders. Vanguard nominally accepts mail orders until the market close, but mail orders go to post office boxes and there is obviously a time when they stop collecting and opening mail for the day. Vanguard apparently follows the industry practice of giving 401(k) plan investors the closing price on the day the order is entered even if Vanguard does not get the order until the following day. The aggregate daily value of these orders is reasonably predictable, but Vanguard retains the right to restrict any short-term trading efforts or large trades that would have an adverse effect on the fund.

Vanguard's approach to ongoing shareholder protection by eliminating most or all of the transaction costs of last-minute trades is in marked contrast to the typical open-end fund. Functionally, it is probably slightly better than the ETF shareholder protection process, even after the early notice requirement we suggest for ETFs, because the conventional fund is more likely to "profit" very modestly from the relatively larger number of orders entered by the conventional fund manager than by an ETF fund manager.[18]

An implication of this discussion is that all funds should use either something like the "Vanguard process" or else permit entry and exit exclusively through an ETF share class to protect ongoing shareholders. Alternatively, the Commission could simply require all open-end domestic equity funds to cut-off orders at, say, 2:30 p.m.[19] The ETF and Vanguard examples suggest a "universal solution" to fund shareholder dilution.

Comprehensive Investor Protection

Zitzewitz (2003a) clearly describes and admirably evaluates most of the proposals and combinations of proposals that have been made to protect shareholders from late arriving orders. We argue that the only way to achieve fairness is mandatory industry standard order cutoff times well before 4:00 p.m., a solution Zitzewitz did not consider because in some ways he viewed the problem more narrowly than now seems appropriate.

Zitzewitz (2003) asserts that, "So long as inflows and outflows are roughly balanced and not opportunistically timed, mutual funds can match buy and sell orders internally and provide zero-transaction-cost liquidity without significantly altering their holdings or trading themselves." Of course, as Zitzewitz recognizes, these conditions are often not met.

Our solution has not been on most of the widely publicized lists of proposed solutions. Early cut-off times are, not surprisingly, on the list of John Bogle, the founder of Vanguard. We see the problem not as one of market timing, but of a flawed fund share purchase and sale policy that invites abuse of ongoing shareholders. The entire NAV pricing and share purchase and sale is the problem. We stress the impracticality of receiving orders to buy or sell fund shares, pricing the shares and trading to balance the portfolio instantaneously and simultaneously at 4:00 p.m. A 4:00 p.m. cut-off gives liquidity to any investor who demands it. This liquidity is free to the fund share trader but often very costly to the ongoing fund shareholder who provides it.

We offer some simple rules for conventional mutual funds that will provide fair treatment for all shareholders, distinguishing between domestic and international portfolios.

- For domestic equity or balanced funds, any open[20] mutual fund would accept purchase orders and all redeemable funds would accept redemption orders until 2:30 p.m. on any normal[21] business day for pricing at that day's net asset value.

- For funds holding more than 3% of their assets in stocks traded on one or more primary markets outside the United States, such orders would be accepted until 4:00 p.m. on any U.S. market business day for pricing at the net asset value next determined for the fund after a full trading day in the primary markets for stocks accounting for 97% of the fund's equity portfolio.

These rules give the manager an opportunity to adjust the portfolio to reflect cash entering or leaving the fund at prices that are either not predictable at the order cutoff time or partly determined by the fund's purchase or sale orders to balance its portfolio.[22]

Securities and Exchange Commission Rule 22c-1

To understand fully why fund share trading problems occur and the underlying complexity of making an effective rule change, we need to examine Securities and Exchange Commission Rule 22c-1. This rule, which requires forward pricing of fund share purchase and sale transactions, is also the principal obstacle to implementation of an early trade cut-off requirement. The key provision of Rule 22c-1 is in its paragraph (a): "No registered investment company issuing any redeemable security, no person designated in such issuer's prospectus as authorized to consummate transactions in any such security, and no principal underwriter of, or dealer in, any such security shall sell, redeem, or repurchase any such security except at a price based on the current net asset value of such security which is next computed *after receipt of a tender of such security for redemption or of an order to purchase or sell such security" (italics added)*.[23] All ETFs have exemptions from this rule to permit their shares to trade at market prices in the secondary market – but that is the extent of their exemption. Some conventional funds (e.g., Vanguard) have received permission to adopt prospectus language and policies for shareholder protection that let them reject or delay pricing on some last-minute orders. Most recently, the Investment Company Institute obtained a no-action letter (Securities and Exchange Commission (2002b)) that permits deferred pricing of exchanges among funds in a "family".

The SEC's published statements at the time Rule 22c-1 was implemented and subsequent statements by SEC Commissioners and Staff make clear that the most important purpose of Rule 22c-1 was to reduce dilution of the holdings of ongoing shareholders when a fund sells shares to or redeems shares from entering and exiting fund shareholders. [24] The dilution the Commission sought to prevent came about principally because, prior to the implementation of Rule 22c-1, some investors were permitted to purchase shares of a fund during a rising market at a stale price that was lower than the fund's current value or than the net asset value would be when next calculated. An investor might also have been able to redeem shares during a falling market at a previously set price that was higher than the fund's net asset value would be when next calculated. In either case, the interests of the ongoing shareholders of the fund were being diluted by this opportunity for entering or departing shareholders to obtain better prices than they would be entitled to if forward pricing, the principal requirement of

Rule 22c-1, was in place. *Until the implementation of Rule 22c-1 in 1968, the backward pricing ("late trading") – the most serious offense alleged in the recent Spitzer settlement – was legal*.

There is no question that the forward pricing principle of Rule 22c-1 is critical to fairness and to the perception of fairness in mutual fund pricing. The fairness of forward pricing has clearly been an essential element in the increased popularity mutual funds have enjoyed since Rule 22c-1 was adopted by the Commission.

The problem with Rule 22c-1 is that both conventional funds and ETFs are largely bound by the provision that they cannot, "sell, redeem or repurchase [their shares] except at a price based on the current net asset value of [their shares] *next computed after receipt of a tender of [their shares] for redemption or of an order to purchase or sell [their shares]… "* This provision of Rule 22c-1 which ensures forward pricing also requires use of the *next* forward price (net asset value) computed – no matter how soon the NAV computation is made after the order comes in. This requirement for pricing immediacy is complicated by Rule 22e-2 which states that meeting the fund share sales, redemption and pricing requirements of Rule 22c-1 is the way to avoid being deemed to have suspended redemption of the fund's shares.

The impracticality of performing certain basic fund functions instantaneously makes entry and exit of shareholders costly to the fund's ongoing shareholders if the forward price used is calculated at essentially the same time that a shareholder enters or leaves the fund. *At least three things: (1) investing cash purchase receipts, (2) selling securities to raise cash for redemptions and (3) unannounced changes in the composition of a portfolio that is subject to in-kind creation and redemption of its shares with previously posted baskets, simply do not work very well if the fund's transaction requirements and liquidity demands cannot be anticipated and certain steps taken before the NAV calculation is made.* This anomalous effect of Rule 22c-1 has led to a number of shareholder protective policies at various funds and has required interpretations by the Investment Management Division of the Securities and Exchange Commission designed, candidly, *to circumvent <u>either</u> the requirement that the forward price used be the next net asset value posted by the fund <u>or</u> the requirement that orders be accepted, literally, until the moment of the next net asset value calculation*.[25] The combination of Rule 22c-1 and the even more venerable requirement that a fund accept purchase and redemption orders each day until the market close has *contributed to continuation of the very dilution of ongoing shareholders' investments* that the move to forward pricing under Rule 22c-1 was designed to prevent.

The evidence is strong that many funds have been unable or unwilling to implement appropriate shareholder protection policies dealing with late-afternoon orders. SEC action is clearly necessary.

A Fair Accommodation

If every mutual fund received all fund orders by 2:30 p.m. and sent a wire or e-mail to the appropriate division of the Securities and Exchange Commission stating its net cash purchases and sales for that day, the necessary regulatory audit would be extraordinarily simple and the scope for the abuses that have filled the headlines would be negligible. Furthermore, the mutual fund industry – or better yet – independent market makers could accommodate investors who want to purchase or sell fund shares as late as a few seconds before 4:00 p.m. Just as market makers trade shares of exchange-traded funds or individual securities, market makers unaffiliated with mutual fund management companies could make markets in fund shares at an agreed spread to the fund's net asset value based on 4:00 p.m. prices. The market makers might maintain an inventory or they might simply count on balancing purchases and sales at the following day's net asset value calculation. In either case, these trading spreads would cover the risk they are taking. The price which fund traders using this service pay or receive would still be based on net asset value. The premium or discount to net asset value on their purchases or sales would almost certainly be less than the cost imposed on ongoing shareholders by having the fund accept orders until 4:00 p.m. Traders who wanted to enter last-minute orders would be accommodated and they would pay the cost of the liquidity that such trading demands. Whether or not this simple accommodation for such traders is implemented, ongoing shareholders should not continue to provide liquidity to anyone who enters orders after 2:30 p.m. for execution at that day's net asset value.

Summary

Rule 22c-1 was a necessary and highly desirable reform at the time it was implemented. Recent developments have made it increasingly clear that Rule 22c-1's requirement that pricing be done almost instantaneously on a late arriving order is not in the interest of mutual fund shareholders. The softening of the late notice feature of the rule in the Investment Company Institute letter on fund exchanges[26] is clearly a step in the right direction and seems to reflect growing recognition at the Commission that the instantaneous pricing feature of Rule 22c-1 is inappropriate and costly from the viewpoint of the ongoing fund shareholder. As we have suggested, an independent market maker can accommodate investors who want to be able to enter orders until just before 4:00 p.m. – but, these investors, rather than all the fund's investors, will pay the cost of this liquidity.

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14. ____________, Investment Company Act Release No. 14244 (Nov. 21, 1984) (proposal to adopt amendment to Rule 22c-1 concerning time of day of pricing).

15. ____________, (July 24, 2000) (Order Exempting American Express Travel Related Services Company, Inc. from Broker Dealer Registration, File No. 4-436.)

16. ____________, ReFlow Fund, LLC, No Action letter under: Investment Company Act of 1940 – Section 18(f), 22(d); Rule 12b-1, 22c-1, July 15, 2002(a), U.S. Securities and Exchange Commission.

17. ____________, November 13, 2002(b) Letter to Investment Company Institute, Re: Delayed Exchange of Fund Shares, Investment Company Act of 1940 – Section 11(a) and Rule 22c-1, U.S. Securities and Exchange Commission.

18. Zitzewitz, Eric, "Who Cares About Shareholders? Arbitrage-Proofing Mutual Funds," 19 *Journal of Law, Economics, and Organization,* October 2003a, pp. 245 – 280.

19. __________, "How Widespread is Late Trading in Mutual Funds," Working Paper, September 2003b.

20. Zweig, Jason, "The Great Fund Rip-Off," *Money*, October 2003, pp. 51 – 60.

ENDNOTES:

[1] Zitzewitz (2003b) estimates the dilutive effect of such trading at about $400 million in 2001, less than 10% of his estimate of the dilution cost of market timing trades.

[2] See Zweig (2003) and Zitzewitz (2003a).

[3] Zitzewitz (2003a) notes that Greene and Hodges (2002) "regress buy-and-hold fund returns on market performance and the dilution for a particular and find a coefficient on dilution of 2.8. Giving this a causal interpretation would imply that the direct effect of dilution is less than half of the total negative effect on [shareholder] returns." Since most of the dilution Zitzewitz documents is in funds investing in foreign equities, dilution in funds holding domestic equity requires a different approach. Edelen (1999) provides that approach, as we document in a later section.

[4] The Commission has also proposed a set of compliance rules and disclosure requirements related to some of the issues we discussed. We will refer to some of these, briefly, when appropriate.

[5] See Hulbert (2003) for a summary discussion of Keim (2003) and an explanation of why fund timing is the only refuge for momentum traders.

[6] The no load classification is not necessarily important. Loads are often waived on large purchases of some share classes in load funds and Edelen was looking at fund performance for ongoing shareholders between two points, not the return *realized* by a shareholder from purchase to sale.

[7] The Securities and Exchange Commission is in the process of implementing requirements for quarterly portfolio reporting.

[8] The incremental cost of providing liquidity is *probably* a slightly declining percentage of total flow trading costs because higher share turnover will mean that purchases and sales are more likely to offset one another. However, the manager of a $100 million specialty sector fund told the author that he came to work one morning some years ago to find that the clients of a timer had purchased enough shares late on the prior day to increase the size of his fund by more than 50% overnight. In this case there was no material flow on the other side of these trades and more than a third of the portfolio was, consequently, in cash the morning after the timing trades came in.

[9] The magnitude of the cost is partly due to the fact that this liquidity is most commonly demanded when the market is moving at the close and the movement continues into the following day. Edelen's published figure was an abnormal negative fund return of 1.63% net of expenses vs. a negative return of .20% without the cost of providing liquidity. We use the net figure, 1.43%, here. One industry executive observed, when hearing the results of Edelen's analysis for the first time, that the performance penalty from in-and-out trading is "a lot bigger than that." Most similar studies have focused on opportunities for fund share traders to make a profit from this type of trading activity, e.g., Greene and Hodges (2002) and Zitzewitz (2003a), and many of them focus on funds holding non-U.S. stocks, e.g., Goetzmann, et al. (2001) and Zitzewitz (2003a). The effect of mispricing of foreign stocks in NAV calculations can be overcome by a provision of Rule 22c-1, which encourages fair value pricing in net asset value calculations. See Barbash (1997) and Chalmers, et al. (2001). Shareholders in some funds would benefit from making fair value pricing mandatory, but the argument that it is too costly for small funds may have some merit. The studies which try to determine whether a fund share trader can make money trading shares in a conventional fund that holds domestic stocks ignore certain trading costs that affect ongoing shareholders more than fund share traders. Edelen's paper is the only one we have found that looks directly at the ongoing investor performance effect. See footnote 3 Supra.

[10] Estimates of the average fund's expense ratio vary widely. We found a recent estimate in Der Hovanesian, et al. (2003) of 1.44%, conveniently close to Edelen's net liquidity cost of 1.43%, but we could as easily have cited expense ratio figures from reputable sources ranging from under 1% to over 2%. The reason for the wide range is that calculating what the average fund investor pays requires weighting reported fees by fund assets and deciding what kinds of funds you want to include. It would be useful if a consensus on methodology developed.

[11] Since we considered such trades clearly illegal under SEC rule 22-c-1, we did not even ask about late trading. Inquiries about market timing of fund share purchases and sales today would surely get a more guarded response.

[12] This is a slight oversimplification, but any readers interested in the minutiae of the notification process are encouraged to read a few fund Participation Agreements. They are not uniform, but their provisions are similar.

[13] We expect a pending exemptive order for a family of leveraged and inverse ETFs that use futures contracts to permit a creation and redemption cutoff before 4:00 p.m. This cutoff, perhaps at 3:30 p.m. or 3:45 p.m,, will be adequate for these funds, but the cutoff is not enough before 4:00 p.m. to solve the portfolio change problem for other ETFs.

[14] The calculations behind these estimates are available from the author.

[15] See Gastineau (2004) for an explanation and examples.

[16] I do not use the example of a market on close or better order because every fund should or will use this type of order to achieve a fully-invested position by the market close if the portfolio manager knows the fund's cash flows early in the day. The market on close or better order is easy for most readers to understand and it illustrates probable transaction cost savings relative to adjusting the portfolio on the following day.

[17] Vanguard U.S. Stock Index Funds Prospectus. Similar language discusses their policy on redemptions. The prospectus further states, "Please call us *before* attempting to invest [redeem] a large dollar amount" (emphasis in the original).

[18] We are probably talking about a difference of a basis point or two per year.

[19] 2:30 p.m. would be the time the fund actually receives the order. If a fund's distribution system consolidates and offsets fund share purchases and sales before forwarding orders to the fund, protection of ongoing shareholders requires that process to be completed by 2:30 p.m. Funds holding foreign equities should be required to adopt fair value pricing or delay fund share orders long enough (several calendar days in a few cases) to protect ongoing shareholders.

[20] A fund accepting new investments.

[21] Different times would be used on days with early market closings.

[22] These rules would apply to all conventional funds except leveraged and inverse funds that use futures contracts to implement their equity positions.

[23] Apparently, the defense in some late-trading litigation will turn on the words "next computed" and the fact that many 4:00 p.m. NAVs are not "computed" until several hours later.

[24] For more details on the Commission's position, consult Barbash (1997), Securities and Exchange Commission Investment Company Releases No. 5413 (1968), No. 5519 (1968), No. 13183 (1983) and No.

14244 (1984), American Express Travel Related Services Order (2000) and Securities and Exchange Commission (2002a) and (2002b).

[25] For example, Securities and Exchange Commission (2002b) which permits funds that receive afternoon orders to exchange shares from one fund for shares in another fund in the same “family” to defer pricing the exchange to the next NAV calculation *plus one*.

[26] Securities and Exchange Commission (2002b).