




FEDERAL RETIREMENT THRIFT INVESTMENT BOARD
1250 H Street, NW Washington, DC 20005

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TO: Greg Long
Executive Director

FROM: Tracey Ray 
Chief Investment Officer

SUBJECT: Frequent Trading

In managing a large daily-valued defined contribution plan, investment transaction costs are unavoidable. In 2006, the TSP incurred transaction expenses of over \$15 million, compared to transaction expenses of \$6.7 million in 2005 and \$2.2 million in 2004. The largest expenses in 2006 were in the I Fund, where \$13.8 million was incurred from trading \$12 billion of securities.

The Office of Investments designed a study that would examine the trading behavior of TSP participants to see if trading costs could be reduced. We noted that Vanguard, the largest index mutual fund provider in the country, prohibits investors from repurchasing shares for 60 days after a sale has been made. We wondered what impact such a restriction would have on our trade flows; and in April, we worked with our software vendor to develop a report that would list participants who were selling the I Fund after having purchased it within the last 60 days or who were buying it after having sold it in the last 60 days, i.e., completed a "round trip". We chose to monitor the I Fund because it had the highest costs. The daily report became available in late July and it was immediately obvious that between 70% and 80% of the dollar volume of the daily trade was coming from participants who had traded in the opposite direction within the past 60 days. The report also showed every I Fund trade made by those participants within the past 60 days, so we were able to differentiate between participants who had made just one round trip trade in the past 60 days versus participants who had made numerous trades.

In September and October, the average I Fund daily trade amount was \$224 million. This compares to average daily I Fund trade amounts of \$49 million in 2006 and \$27 million in 2005. Our research showed that of the \$224 million traded daily over recent months, \$142 million, or 63%, was attributable to participants who had traded the I Fund eight or more times in the prior 60 days; \$108 million, or 48%, was attributable to participants who had traded 12 or more times in the past 60 days. By comparison, the amount of the average trade attributable to L Fund rebalancing was \$16 million, or 7%. Trade volume is up significantly, and the majority of this increased volume is attributable to less than 3,000 TSP participants engaged in frequent trading.

Frequent trading is impacting other funds as well. The table below compares the dollar amount traded in all of 2006 to the dollar amount traded in 2007 through October.

Fund	Total Dollar Amt Traded 2006	Total Dollar Amt Traded 2007 YTD	% of Fund 2006	% of Fund 2007 YTD
F Fund	\$ 2,389,469,901	\$ 8,006,268,543	23%	69%
C Fund	7,954,559,207	9,214,817,528	11%	11%
S Fund	6,086,286,346	11,257,570,924	39%	60%
I Fund	12,306,580,227	23,467,413,406	72%	88%

A record \$4.2 billion was traded in the S fund in October 2007. The next highest trading month was in March 2007 when the total was \$1.4 billion. A record \$2.7 billion of the F Fund was traded in September 2007, surpassing the total of \$2.4 billion for the entire year in 2006. The previous high was \$991 million in July 2007.

Consequences of Frequent Trading and Higher Trade Volume

Increased Transaction Costs

Transaction costs are comprised of commissions paid to brokers, transfer taxes, and market impact (the difference between where the stock trades versus the price used to value the Fund). These costs are not fees paid to the investment manager. Market impact is by far the largest component of the trading cost. The staff provides the investment manager (BGI) with a dollar amount to trade in each fund every day by 2:00 EST. BGI then prepares to execute the order in the most efficient way possible in order to minimize the transaction costs charged to the Funds. The least expensive way to trade an order is to "cross" it. For example, BGI may have a buyer for an index, which the TSP is selling. Crossing an order results in zero market impact, and no commissions are paid to brokers. However, the larger the trade, the lower the percent that can be crossed. Therefore, an increase in the size of daily trades leads to a disproportional increase in transaction costs.

Regarding market impact, while the TSP trades are very large in size, C Fund stocks and F Fund bonds are very liquid. BGI uses an optimization program for the S Fund and therefore does not own the most illiquid stocks, which are harder to trade. BGI prices all of the Funds at 4 pm EST. The C, F, and S Fund trades are executed before the markets close or on the close, so BGI is generally able to buy or sell those stocks and bonds for the closing price. Trades in the I Fund, however, pose a unique challenge as the foreign markets are closed when BGI receives our order. BGI must execute those trades when the foreign markets re-open, sometimes at very different prices from the close. Any difference in price is charged to the I Fund, not to the participants who bought and sold. In 2006, trading cost the I Fund 8 basis points (\$13.8 million/ \$17.5 billion average market value = .08%) of return. In fact, the 8 basis point impact on performance from trading costs for the I Fund was more than double the impact from the total expense ratio of the TSP funds, which was 3 basis points in 2006. We never know whether trading costs will be positive or negative. Further, we cannot control these costs other than to seek to lessen our exposure by minimizing the size of daily trades.

Futures/Cash Position Increased

Stock and bond trades (except US Treasury and mortgage-backed securities) settle 3 days after the trade date. That is when the money actually changes hands. Because TSP participants receive proceeds the next day, the investment manager must develop a way to meet those obligations. Managers use a combination of cash and futures (which settle next day) to provide the necessary liquidity. But a fund manager cannot hold a large amount of cash because it will cause the performance of the fund to diverge from that of the index. That is, if the stock market is up 20% for the year, and you had invested part of your portfolio in cash at a 5% interest rate, your portfolio return would be less than that of the market. In order to prevent that drag on performance, BGI keeps the cash invested in futures contracts. There is no EAFE contract that can mirror the performance of the index (an EAFE futures contract does trade, but it is relatively new and does not have the volume nor the liquidity that BGI needs for the I Fund), so BGI purchases a basket of futures from many different countries. This basket does not replicate the performance of the EAFE index as closely as the S&P 500 futures track the S&P 500 index, therefore “tracking error” in the I Fund becomes more likely. Tracking error is the amount that performance of the fund differs from the performance of the index. BGI estimates that performance of the futures basket can deviate from EAFE performance by 1.5%. Maintaining this large cash/futures pool to meet participant redemption requests increases the likelihood that I Fund performance will differ from the EAFE Index performance.

Foregone Interest

Because money is not exchanged on stock trades for 3 business days, BGI keeps part of the Fund invested in futures in order to meet our requirement for next day payment on trades. In order to minimize deviation from the performance of the EAFE index, BGI keeps this liquidity position as low as possible. BGI recently raised this target from \$750 million to \$950 million to accommodate our increased trading volume. Per our contract with BGI, they are required to provide next day settlement on I Fund sales of up to \$40 million. While BGI often settles larger trades on a next-day basis, they sometimes exercise their option to delay partial payment on large sales which may deplete the liquidity pool. In those instances, participant accounts are credited with proceeds the next day, but the cash is not received from BGI for up to 3 business days. Delayed settlements have occurred 8 times this year (versus 6 times in all of 2006), and have cost participants \$1.2 million in foregone interest.

Mutual Funds and the SEC on Curbing Frequent Trading

While the TSP is not invested in mutual funds, these institutions have faced similar challenges with frequent trading, and we considered their actions as part of a best-practices review.

As a result of the market timing scandal in 2002, most large mutual fund families adopted some type of trading restrictions, particularly on international funds. Those policies have evolved and now look to curb frequent trading in all funds. Defined contribution plan restrictions vary per fund family and include the following:

Mutual Fund Group	Trade Limit	Time Frame
AIM Funds	4 exchanges	1 calendar year
Ariel Capital Management	4 round trip exchanges	1 year
Federated	2 trades	30 days
Harbor	3 round trips (in/out within 30 days)	12 months
Hotchkiss and Wiley	1 round trip	12 month period
ING	4 trades	360 days
Janus	4 round trips	12 months (may reject even before this limit is reached.)
Neuberger and Berman	1 trade	60 days
Northern	2 trades	90 days
PBHG	4 trades	360 days
Royce	1 trade	30 days
Van Eck	6 trades	360 days
Vanguard	After sale cannot repurchase	60 days

Some fund companies have elected to curb frequent trading by creating financial penalties for such behavior. Many funds charge redemption fees for shares held less than 30, 60, or 90 days. For example, T. Rowe Price charges fees of from 0.5% to 2% on redemptions of shares held 90 days or less.

Securities and Exchange Commission

While the Securities and Exchange Commission (SEC) has no direct oversight authority with respect to the TSP, its views on frequent trading and specifically its directive to mutual fund board members is instructive.

The Securities and Exchange Commission's rule 22c-2(a)(1) under the Investment Company Act of 1940, which authorizes mutual funds to impose redemption fees when it is determined that such fees are in a fund's best interests, took effect in October 2006. In the release adopting this rule (Inv. Co. Act Rel. No. IC-26782, March 11, 2005), the SEC noted, "Excessive trading in mutual funds occurs at the expense of long-term investors, diluting the value of their shares. It may disrupt the management of a fund's portfolio and raise the fund's transaction costs because the fund manager must either hold extra cash or sell investments at inopportune times to meet redemptions."

From the SEC:

"Under the rule [22c-2], **the board of directors must either (i) approve a fee of up to 2% of the value of shares redeemed, or (ii) determine that the imposition of a fee is not necessary or appropriate.** *Id.* A board, on behalf of the fund, may determine that the imposition of a redemption fee is unnecessary or inappropriate because, for example, the fund is not vulnerable to

frequent trading or the nature of the fund makes it unlikely that the fund would be harmed by frequent trading. Indeed, a redemption fee is not the only method available to a fund to address frequent trading in its shares. As we have stated in previous releases, funds have adopted different methods to address frequent trading, including: (i) restricting exchange privileges; (ii) limiting the number of trades within a specified period; (iii) delaying the payment of proceeds from redemptions for up to seven days (the maximum delay permitted under section 22(e) of the Act); (iv) satisfying redemption requests in-kind; and (v) identifying market timers and restricting their trading or barring them from the fund.”

Recommendation

After consideration of the consequences of frequent trading along with our review of market practices, my recommendation is to impose a restriction on TSP trading activity. Specifically I recommend allowing participants 2 interfund transfers per calendar month. Thereafter, additional transfers would be allowed only into the G Fund, ensuring that participants would always be able to move to the safety of the G Fund. Two interfund transfers allow participants to rebalance their portfolios every other week, which studies have shown is more than sufficient. (L Funds rebalance every day solely to avoid causing large trading volumes.) This restriction would allow participants to make up to 24 trades per year. I believe that, relative to other trading restrictions in the marketplace, our suggestion is extremely flexible and liberal. I also believe this action will curb frequent trading activity but suggest that we revisit this policy periodically.

FERSA sec. 8475 directs the Board to...“develop investment policies... which provide for... low administrative costs”. The trading restriction would be a provision, which would help keep costs low. It would also clearly help control tracking error, thus improving our ability to track the indexes which the Board has selected under the provisions of 5 USC 8438 “Investment of Thrift Savings Fund”.

Estimated implementation costs are below \$100,000. If you concur, we will announce the restrictions in a letter that accompanies the Annual Statement, scheduled to be mailed to all participants early in February 2008, with implementation occurring in March or April.

In the meantime, we have an immediate need to deal with the large trading activity occurring in the I, S, and F Funds. We propose mailing a letter to those 2,000 to 3,000 individuals who are frequent traders requiring them to stop this activity or face being restricted to requesting inter-fund transfers via mail until the new automated curbs take effect. We are prepared to publish an interim regulation which will provide the Executive Director with this authority.