

ICI VIEWPOINTS

MAY 19, 2014

“Market Tantrums” and Mutual Funds: A Second Look

By Sean Collins and Chris Plantier

Over the past year, policymakers who are focused on financial stability have pursued a theory that mutual fund investors can destabilize financial markets by redeeming from funds when markets decline. According to this theory, redemptions by fund investors lead fund managers to sell securities; those sales drive asset prices down further and, in turn, spur more investor flight, redemptions, and price declines.

This theory is an [old one](#), dating back to the late 1920s. The idea resurfaced in the 1990s, leading to a number of papers that reexamined the hypothesis, including one by [economists](#) at the Federal Reserve Bank of New York who concluded that “the short-term effect of market returns on mutual fund flows typically has been too weak to sustain” a “downward spiral in asset prices.”

Nonetheless, recent reports have speculated that rising long-term Treasury yields could trigger just such a self-reinforcing loop of redemptions, portfolio sales, and further rate hikes (and, thus, falling bond prices). Some have speculated that, if large enough, such a “feedback effect” could even dampen U.S. or global economic growth (see, for example, [Chapter 1](#) of the IMF’s October 2013 *World Economic Outlook*.)

In a recent paper, [Market Tantrums and Monetary Policy](#), economists Michael Feroli, Anil Kashyap, Kermit Schoenholtz, and Hyun Song Shin argue that they have found new evidence of exactly this kind of feedback from bond fund flows to bond market returns. The authors note that their paper “highlight(s) unlevered investors as the locus of potential financial stability.” Further, they state that “market tantrums can arise without any leverage or actions taken by leveraged intermediaries.”

Drawing Attention

If correct, their findings could have significant policy implications—particularly for mutual funds, which [employ little or no leverage](#). Indeed, outgoing Federal Reserve Governor Jeremy C. Stein [called the paper](#) “extremely insightful” and said that it warned of “the financial stability risks that might arise from the behavior of unlevered asset managers, such as those running various types of bond funds.” Stein’s endorsement of the paper spurred coverage in the business press and economic blogs.

We don’t take any exception to the paper by Feroli et al. as a thought piece, intended to foster discussions about how securities markets, mutual funds, and monetary policy interact. But to support the broad claims that drew policymakers’ interest—notably, the implication that mutual funds or their advisers threaten financial stability despite their lack of leverage—any research would need to meet the very highest standard for statistical quality. For a number of reasons, we do not believe the paper by Feroli et al. passes this standard.

In several ways, the paper’s reported findings appear to be considerably weaker than the broad assertions drawn from them.

Strong Assertions, Weak Results

First, the authors themselves found no evidence of any “feedback” effects to market returns arising from flows to equity funds, hybrid funds^[1], or U.S. Treasury funds—funds that account for 74 percent of long-term mutual fund assets. Given that their paper offers as its prime example the “[taper tantrum](#)” during the summer of 2013—driven largely by activity in the long-term Treasury market—it’s surprising that their statistical results provide no support that mutual fund flows were directly affecting Treasury yields.

The authors do claim to have found statistically significant feedbacks to bond market prices from flows to four categories of bond

funds (investing in mortgage-backed, investment-grade, emerging-market, and high-yield bonds). Fund assets in these four categories total \$1.8 trillion—about 15 percent of the assets of all long-term mutual funds. So, even if these results hold up to closer scrutiny, they do not appear to support any general statement about mutual funds or other “unlevered investors.”

Second, even where the authors claim to find feedback effects, their statistical results are quite weak. The authors themselves admit that their evidence supporting feedback effects in high-yield bond funds is questionable. Also, their results show that they can explain very little of the weekly variation in bond fund returns (as measured by “R-squared”), and in one case—investment grade bond funds—no more than 0.4 percent of the variation in returns. Of the 20 coefficient estimates that the authors use to measure whether bond fund flows have feedback effects on bond market returns or price, only one produces results that are statistically significant—about what one would expect by random chance alone.^[2]

Third, by far the strongest statistical results in the paper are those that indicate that fund flows respond to fund returns with a lag. That’s consistent with much previous academic work—but it doesn’t support a “feedback” theory that bond fund flows drive bond market returns.

Are the Results Robust?

So far, we’ve been talking about the results that the authors report themselves. There are also significant questions about statistical tests on their data that they do not report in detail.

The authors’ theory is that bond fund flows cause declines in bond returns. To prove causation, the paper uses a statistical technique—vector autoregression (VAR)—that requires users to make an initial assumption about which way the causation runs contemporaneously. In other words, an assumption must be made on whether flows drive returns, or returns drive flows, during the current week.

It has long been well-known in economics that VAR results are highly sensitive to that initial assumption^[3] In this case, the author’s initial assumption was that bond fund flows in a given week influence bond fund returns in the same week.^[4] The authors report that they tested the opposite initial assumption (returns influence flows contemporaneously) and indicate that their results—which they do not report in the paper—are “qualitatively” robust to the different assumption.

In a paper about quantitative results, that qualifier—“qualitatively”—caught our eye. So we sought to replicate the paper’s results, using the same data set and the same VAR approach.

Consistent with the author’s reported results, we found that funds flows appear to create statistically significant feedback effects to market prices—using their initial assumption.

But in contrast to what the authors report, we found that the results were in fact highly sensitive to that initial assumption, both “qualitatively” and quantitatively. For example, when we reversed the assumption—in other words, when we assumed instead that market returns cause fund flows in the current week—the authors’ reported feedback effects were much smaller, and were either statistically insignificant (for emerging-market, investment-grade, and high-yield bond funds) or borderline significant (for mortgage-backed bond funds).

And with the alternative assumption, we found that returns to emerging-market and high-yield bond funds respond negatively to fund flows. The effect that the authors claim is reversed—indicating that, if anything, flows to these two types of funds dampen changes in market returns.

We have posted [charts showing the results](#) of our VAR runs for each of the four bond fund categories, using both initial assumptions.

While our analysis is not the final word, it suggests that the results in Feroli et al. are likely quite sensitive to underlying assumptions. Given that their results are statistically weak, policymakers should view the paper’s sweeping conclusions with caution.

Conclusion: Investors Respond to Returns

Over the years, numerous studies have found that mutual fund investors respond to market returns with a lag. Claims that outflows from bond mutual funds cause significant bond price declines are much more speculative. Based on our examination of weekly data on bond fund flows and returns, we believe there is little empirical evidence to support the view that bond fund flows create “destabilizing feedbacks” to bond returns.

[1] The paper did not examine world equity or hybrid funds.

[2] It is a common practice in economics to measure statistical significance at 5 percent “confidence level”—i.e., one chance in 20 that the results are purely random. The paper’s finding that one coefficient in 20 is statistically significant is consistent with a conclusion that the results could be purely random, rather than evidence of an underlying relationship.

[3] The specific statistical approach the authors use is called a "vector autoregression." Using a vector autoregression estimated by relying on weekly bond fund flows and bond fund returns, the authors then seek to measure the response of market returns to fund flows by calculating so-called "impulse response functions." This requires that they make an assumption about whether fund flows cause changes in fund returns contemporaneously or the reverse (see Thomas F. Cooley and Stephen F. Leroy, "Atheoretical Macroeconomics: A Critique," *Journal of Monetary Economics*, 16 (1985), 283-308). Economists have repeatedly expressed concerns that researchers continue to employ these kinds of ad hoc assumptions (James H. Stock and Mark W. Watson, "Vector Autoregressions," *Journal of Economic Perspectives*, 15(4), 2001, 101-115), and statistical software often warns users that plausible alternate assumptions can lead to dramatic changes in statistical results (IHS Global Inc., *Eviews 8 User's Guide II*, 2013, 553-602).

[4] The authors used weekly data for both flows and returns, and thus could not answer the causation question simply by asking "Which came first?" If anything, daily data might show whether a shock to returns on Tuesday preceded flows on Thursday, or vice versa, and would allow a better assessment of which initial assumption was most appropriate for weekly data.

Sean Collins is Chief Economist at ICI.

Chris Plantier is a senior economist in ICI's Research Department.

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