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Comments on  
“Market Tantrums and Monetary Policy,” a paper by  
Michael Feroli, Anil K. Kashyap, Kermit Schoenholtz, and Hyun Song Shin

Remarks by

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I am delighted to have the opportunity to discuss the paper “Market Tantrums and Monetary Policy.” It is timely, provocative, and extremely insightful. Let me start by summarizing what I take to be the paper’s main messages.<sup>1</sup> First, the authors argue that policymakers should pay careful attention not just to measures of leverage in the banking and shadow banking sectors, but also to the financial stability risks that might arise from the behavior of unlevered asset managers, such as those running various types of bond funds. Notably, assets under management in fixed-income funds have grown dramatically in the years since the onset of the financial crisis, even while various measures of financial-sector leverage have either continued to decline or remained subdued.

Second, the authors develop a model of agency problems in delegated asset management, according to which an environment of low short-term rates can encourage asset managers concerned with their relative performance rankings to “reach for yield,” which in turn acts to compress risk premiums. Moreover, the model has the feature that this reach for yield can end badly, with a sudden and sharp correction in risk premiums that arises endogenously in response to a small tightening of monetary policy. The events of the spring and summer of 2013, when there was a rapid rise in bond market term premiums, are cited as a leading example of what the model sets out to capture.

Third, the authors assert that the conventional regulatory toolkit, which is largely designed to contain intermediary leverage, is not well suited to dealing with the asset-management sector. Given this limitation of regulation, and because monetary policy has a direct influence on the behavior of asset managers, the financial stability risks that these

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<sup>1</sup> The views expressed here are my own and are not necessarily shared by other members of the Federal Reserve Board and the Federal Open Market Committee. I am grateful to Nellie Liang for helpful conversations.

managers create should be factored into the design and conduct of monetary policy. Presumably, this consideration would imply that monetary policy should be somewhat less easy in a weak economy, all else being equal, to reduce the probability of an undesirable upward spike in rates and credit spreads down the road. The authors are careful to note that “our analysis neither invalidates nor validates the course the Federal Reserve has actually taken.”<sup>2</sup> Rather, they are highlighting a set of considerations that they believe should ultimately be incorporated into the design of a monetary policy framework. This is the spirit in which I will discuss the paper--not as a comment on the current stance of policy, but as an exploration of the factors that should be taken into account when thinking about the tradeoffs associated with monetary policy more generally.

The model in the paper is a simple one, and it does a nice job of framing the issues. In particular, here is how I think about the value-added of the theory: On the one hand, an emerging body of empirical work documents that an easing of monetary policy--even via conventional policy tools in normal times--tends to reduce both the term premiums on long-term Treasury bonds and the credit spreads on corporate bonds.<sup>3</sup> That is, monetary policy tends to work in part through its effect on capital market risk premiums, perhaps through some sort of risk-taking or reaching-for-yield mechanism.

On the other hand, while this empirical observation sheds some interesting light on *how* monetary policy influences the real economy, it does not by itself suggest that there is any financial stability dark side to the lowered risk premiums that go with

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<sup>2</sup> See Feroli and others (2014), p. 6.

<sup>3</sup> See, for example, Hanson and Stein (2012); Gertler and Karadi (2013); and Gilchrist, Lopez-Salido, and Zakrajsek (2013).

monetary accommodation. For there to be any meaningful tradeoff, there would have to be some sort of asymmetry in the unwinding of these risk premiums, whereby the eventual reversal either happens more abruptly, or causes larger economic effects, than the initial compression. Said a little differently, if an easing of Federal Reserve policy puts downward pressure on term premiums and credit spreads, and if this downward pressure is only gradually reversed as policy begins to tighten, then what is the problem?

The nice feature of the model is that it speaks to this asymmetry. That is, it features a gradual compression of risk spreads during a period of monetary ease, and then, when policy begins to tighten, it delivers a sharp and abrupt correction, driven by a particular form of market dynamics.

Of course, this is just a theoretical prediction. One thing that the paper does not do, but which would be very helpful in assessing the real-world relevance of the model, would be to see if this sort of asymmetry in bond returns is present in the data. In particular, if I am interpreting the model correctly, it implies a specific form of conditional volatility and skewness in bond returns. For example, when term premiums are unusually low relative to historical norms, the model suggests an elevated probability of a sharp upward spike in rates. I don't know of any evidence that bears on this hypothesis in the bond market, though an analogous pattern does appear in stock market returns.<sup>4</sup>

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<sup>4</sup> See Chen, Hong, and Stein (2001). They document that, consistent with a "bubble popping" view, stock returns are more negatively skewed when past returns have been positive and when valuation ratios (for example, market-to-book ratios) are high. Alternatively, the ratio of downside to upside volatility is unusually high in such circumstances.

It is worth saying a little about the “musical chairs” mechanism that leads to the sharp spike in rates. The fund managers in the model care about their relative performance in that they are averse to posting lower returns than their peers, holding fixed absolute performance. These relative-performance concerns induce a form of strategic complementarity of fund manager actions. Specifically, as short-term rates begin to rise and fund manager  $i$  contemplates whether she should bail out of long-term bonds and move into short-term bills, she is more apt to do so if she thinks that some other manager,  $j$ , is also going to bail--because she is worried that otherwise, she may wind up underperforming manager  $j$  and finishing last in the relative-performance tournament.

While appearing in a different guise here, this strategic-complementarity effect--the idea that any one agent is in more of a rush to get out when he or she thinks that others may also want to get out--is essentially the same mechanism that drives bank runs in the classic work of Diamond and Dybvig, and that, in one manifestation or another, creates financial fragility in many other settings.<sup>5</sup> However, one thing that is distinctive about the variant presented in the current paper is that there is a clear prediction of exactly what sets off the run for the exits on the part of money managers--namely, a small increase in short rates beyond a certain threshold level.<sup>6</sup>

The model focuses on one particular source of run-like fragility that might emanate from the asset-management sector, but there are others. One that the paper

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<sup>5</sup> See Diamond and Dybvig (1983).

<sup>6</sup> This feature is in contrast to many other models in the Diamond-Dybvig (1983) tradition, which have multiple equilibria and hence convey a sense of fragility, but have less to say about what underlying variable tips the scales toward a run-like equilibrium. The more pinned-down nature of the model in this paper comes from an application of the global-games methodology described in Morris and Shin (2003).

briefly mentions, and that is worth a fuller treatment, has to do with the potential for outflows of assets under management (AUM) from open-end funds. Note that the model is effectively one of a closed-end fund, since the manager is assumed to have a fixed amount of AUM; the fragility, in this case, comes entirely from the manager's portfolio allocation decision and from the strategic interaction among *fund managers*. But another source of run-like risk comes from the strategic interaction among *fund investors* and the incentives that each of them may have to get out before others do when asset values are at risk of declining.

These AUM-driven run dynamics are more likely to arise in those open-end funds that hold relatively illiquid assets. The key question in determining whether there is a strategic complementarity in the withdrawal decisions of fund investors is, When investor  $i$  exits on day  $t$ , does the net asset value (NAV) at the end of the day that defines investor  $i$ 's exit price fully reflect the ultimate price effect of the sales created by his exit? If not, those investors who stay behind are hurt, which is what creates run incentives. And, if the run incentives are strong enough, then a credit-oriented bond fund starts looking pretty bank-like. The fact that its liabilities are not technically debt claims is not all that helpful in this case--they are still demandable, and hence investors can pull out very rapidly if the terms of exit create a penalty for being last out the door.

A fund's stated NAV is less likely to keep pace with the ultimate price impact of investor withdrawals if the underlying assets are illiquid, for two distinct reasons. First, some of the assets are likely to have stale prices--that is, not to have been recently marked to market. And, second, if most of a fund's assets are illiquid securities, its

manager will be inclined to accommodate early exits by drawing down on the fund's cash reserve while planning to sell securities and replenish the cash stock later.

Why, at the end of the day, should one care if run-like incentives come predominantly from the strategic behavior of fund investors, as opposed to that of fund managers? Isn't there the same worrisome fragility in either case? Perhaps, but the policy response may differ depending on the exact diagnosis. In the former case, when the primary worry is AUM runs on the part of investors, there is at least in principle a natural regulatory fix: One could impose exit fees on open-end funds that are related to the illiquidity of the funds' assets, in an effort to make departing investors more fully internalize the costs that they impose on those who stay behind. In the latter case, when the problem is driven more by the portfolio choices of fund managers, it is harder for me to see an obvious regulatory response, so I am more inclined to share the authors' view that if there is, indeed, a significant financial stability problem, monetary policy would be left to take up some of the slack.

To be clear, I am not advocating for exit fees of the sort I just described; I do not think we know enough about the empirical relevance of the AUM-run mechanism, to say nothing of its quantitative importance, to be making such recommendations at this point. But, given the detailed nature of the microdata that are available on individual fund holdings and returns, there is clearly room to make significant further progress on this front. Indeed, recent work by Chen, Goldstein, and Jiang is very much in this spirit, although it restricts its analysis to equity funds and doesn't consider the fixed-income categories that are the focus of the current paper.<sup>7</sup>

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<sup>7</sup> See Chen, Goldstein, and Jiang (2010).

With this framing in mind, let me comment briefly on the empirical work in the paper. There is a lot of it, and I will just touch on a couple of points. A first observation is that the heavy focus on flows in and out of funds is a bit at odds with the theoretical model. As I mentioned earlier, the model, taken literally, is one of closed-end funds with fixed AUM. If one were interested in testing the specific mechanism in the model most directly, it seems to me that one would want to look not at fund flows but rather at the *portfolio allocations* within each fund. For example, the model suggests that, during the unfolding of an episode of bond market volatility like the one in the spring and summer of last year, we should see a coordinated shift among bond managers out of long-term bonds and into bills so that the average durations of their portfolios would co-move strongly together. There is a well-developed empirical literature on herding among fund managers in their portfolio allocations, but, as far as I know, this work has not looked at how such herding responds to changes in the monetary policy environment.<sup>8</sup> So this avenue seems like a potentially promising one to pursue.

The paper's focus on flows in and out of funds is, however, well suited to thinking about mechanisms related to AUM-run dynamics. In this regard, a particularly interesting set of findings has to do with the ability of flows to forecast future asset returns, even controlling for past returns. And, most notably, this forecasting effect is much stronger in the less liquid high-yield and emerging market categories than it is in U.S. Treasury securities; indeed, it is essentially nonexistent in the latter category. While not a decisive test, this pattern is consistent with one of the necessary preconditions for the existence of strategic complementarities and run-like dynamics. Again, the key idea

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<sup>8</sup> Chevalier and Ellison (1999) is a classic reference.

is that, when a fund's assets are illiquid, outflows today are met in part with drawdowns from cash reserves, with the other assets being sold off more gradually over time--hence, the predictable downward pressure on prices going forward. This predictability is what creates the incentive for any given investor to pull out quickly if he or she sees a large number of co-investors pulling out.<sup>9</sup>

Let me summarize by noting the areas in which I agree most closely with the authors and by adding one key qualification. First, I think they are absolutely on target in emphasizing that the rapid growth of fixed-income funds--as well as other, similar vehicles--bears careful watching. As they point out, it would be a mistake to be complacent about this phenomenon simply because such funds are unlevered. Other economic mechanisms can mimic the run-like incentives associated with short-term debt financing, and one or more of these mechanisms may well be present in fixed-income funds.

Second, I also agree that there is no general separation principle for monetary policy and financial stability. Monetary policy is fundamentally in the business of altering risk premiums such as term premiums and credit spreads. So monetary policymakers cannot wash their hands of what happens when these spreads revert sharply. If these abrupt reversions also turn out to have nontrivial economic consequences, then they are clearly of potential relevance to policymakers.

My one qualification is as follows: In the absence of a general separation principle, when one might consider addressing financial stability issues either with

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<sup>9</sup> Indeed, the results in the paper closely parallel those in Chen, Goldstein, and Jiang (2010), who find that fund flows forecast future returns more strongly among those equity funds that hold relatively illiquid stocks (for example, small-cap stocks). Moreover, Chen, Goldstein, and Jiang cast their regressions as being an explicit test of the strategic-complementarity hypothesis.

regulation or with monetary policy, it becomes all the more critical to get the case-by-case analysis right--that is, to really dig into the microeconomic details of the presumed market failure and to ask when a regulatory intervention is comparatively more efficient than a monetary one, or vice versa. So while I think it is important to remain heterodox and to be open to taking either approach, I would not want to rule out the possibility that some of the risks identified by the authors could be mitigated, at least in part, via a regulatory approach. I look forward to seeing more work that helps us sort through these challenging issues.

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