

## ICI VIEWPOINTS

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## Setting the Record Straight on Dilution, First-Mover Advantage, and Financial Stability Risk

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Policymakers are laser-focused on a concept in open-ended funds called *dilution*, suggesting that it poses financial stability risks. In a nutshell, dilution occurs when fund shareholders redeem and the transaction costs of meeting those redemptions—such as bid-ask spreads or the market impact costs from the fund having to sell portfolio securities—are borne by non-redeeming shareholders as a reduction in the fund's returns. ICI has spent countless hours evaluating whether dilution is so sizable in mutual funds that it could incentivize investors to redeem heavily to avoid dilution. The answer, according to the evidence, is no.

Let's briefly unpack regulators' concerns and then turn to the evidence. For more than a decade, regulators and academics have theorized that there is a so-called *first-mover advantage* in mutual funds ("funds") that could cause fund shareholders to redeem heavily during a crisis. Raising cash to satisfy these redemptions purportedly could cause funds to fire-sell securities, possibly driving securities prices even lower. This hypothesis, regulators argue, means that speedbumps or roadblocks should be mandated to limit or stop fund shareholders from redeeming during periods of market stress.

We, however, have long disputed this hypothesis, both for theoretical and empirical reasons. In a companion piece, we briefly revisit some of the theoretical concerns we voiced as far back as 2016. Even farther back (2014), we began questioning the putative empirical evidence of a first-mover hypothesis ([Collins and Plantier, 2014](#); [Collins, 2016](#)). In this *ICI Viewpoints*, we present new empirical evidence from March 2020 showing that although the first-mover hypothesis is an interesting theory, it just isn't supported by the facts.

Proponents of the first-mover hypothesis note that a first-mover advantage and fund dilution are one and the same thing.<sup>[1]</sup> Thus, for the first-mover hypothesis to work, dilution must be both highly predictable and so substantive that it incentivizes investors to redeem heavily to try to avoid dilution. If dilution is economically small, there is little cost to investors staying put in funds.

Simple examples indicate that dilution is likely to be sizeable enough to motivate mass redemptions only in very rare cases, when fund flows and portfolio transactions costs are both unexpectedly *very large* over a few days.

Dilution can be measured as fund flows times the costs to the fund of accommodating those flows. So, suppose that bond funds in aggregate experienced net outflows of 5 percent on a given day and that the costs of accommodating those flows were 300 basis points—both extreme assumptions relative to figures actually seen in March 2020.<sup>[2]</sup> In that case, dilution would be  $.05 \times 300$  basis points, which is just 15 basis points.

Although simple examples are helpful, there's no substitute to looking at the data. We recently estimated dilution for various types of mutual funds using approaches taken from the academic literature.<sup>[3]</sup> We found that estimated dilution is far too small to motivate the vast redemptions that the first-mover hypothesis envisions.

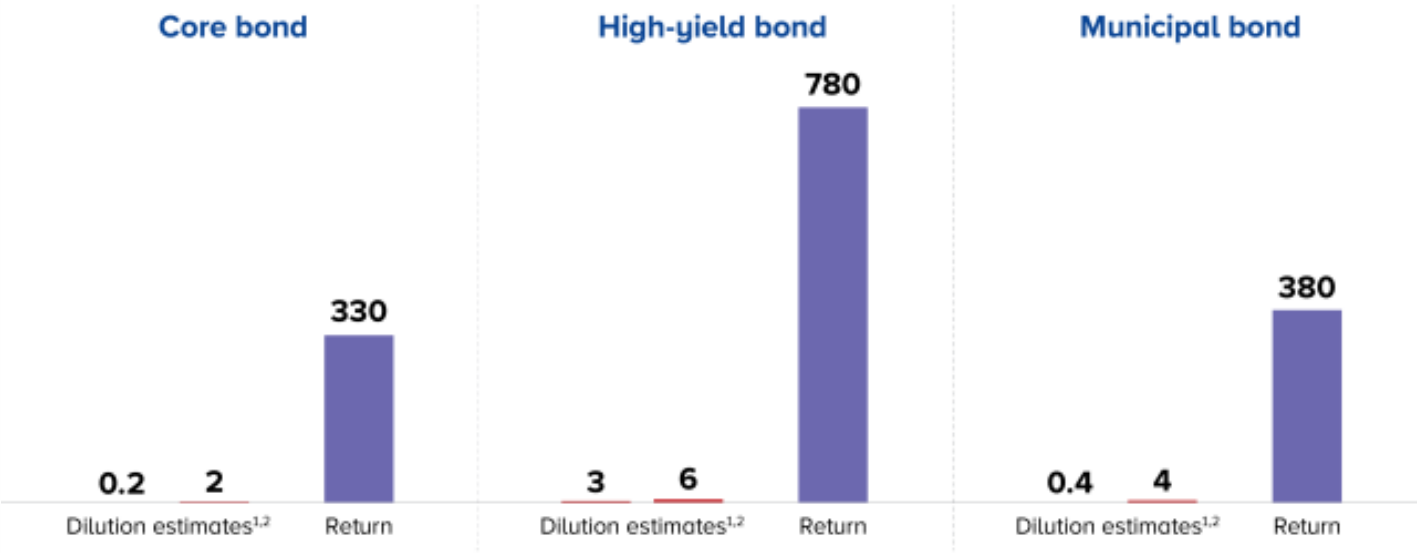
For instance, we estimated that dilution for US high-yield bond mutual funds averaged 3 to 6 basis points *per annum* from 2009 to 2022 (Figure 1).<sup>[4]</sup> Although not zero, these estimates give a sense of how small dilution is likely to be on *daily* basis, and even more so compared to the large daily returns on such funds during periods of stress.

Case in point, in March 2020—a period of broad market stress stemming from pandemic-related developments—estimated dilution

remained negligible, especially compared to the negative market returns arising from the rapid deterioration in global macroeconomic conditions (Figure 2). Readers can decide for themselves whether investors in March 2020 likely focused on dilution or global macroeconomic conditions.

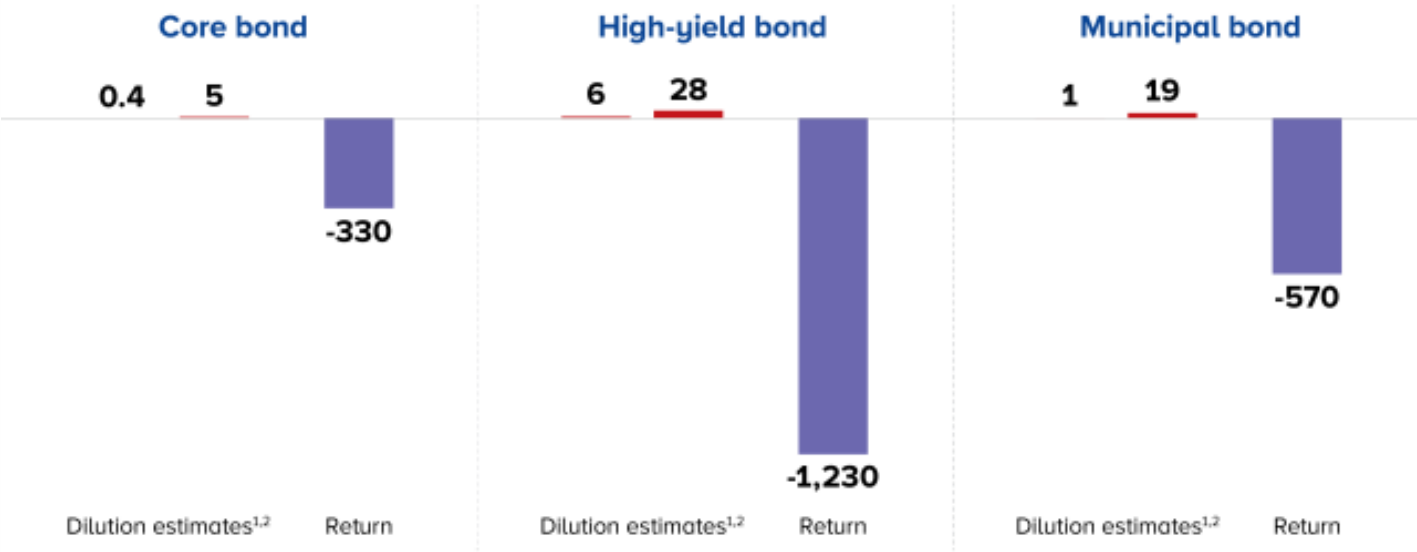
When faced with our evidence about the lack of economically material dilution, regulators have asked: “Yes, but the fact we haven’t seen it so far doesn’t rule it out for the future, right?” Sure, in theory, anything’s possible. The question is whether a theoretical possibility, however improbable, should be a basis for public policy. Should we craft rules and regulations that will in reality harm potentially hundreds of millions of mutual fund and UCITS investors around the world because of a questionable theory about dilution, first-mover advantage, and financial stability?

**Figure 1**  
**Hard to See That Dilution Is a Factor Motivating Shareholders to Redeem from Bond Mutual Funds**  
*Annual average in basis points, 2009 to 2022*



<sup>1</sup> Left red bar represents ICI estimate based on model from Zitzewitz (2003).  
<sup>2</sup> Right red bar represents ICI estimate based on model from Choi, Kronlund, and Oh (2022).  
Source: ICI calculations of Morningstar and Refinitiv data. See Figure 2.3 of “ICI Comment Letter on Open-End Fund Liquidity Risk Management Programs and Swing Pricing” at [www.ici.org/system/files/2023-02/23-cl-sec-liquidity-proposal.pdf](http://www.ici.org/system/files/2023-02/23-cl-sec-liquidity-proposal.pdf).

**Figure 2**  
**Even in March 2020, Was Dilution Really a Consideration for Bond Mutual Fund Investors?**  
*Total estimated in basis points, March 2020*



<sup>1</sup> Left red bar represents ICI estimate based on model from Zitzewitz (2003).

<sup>2</sup> Right red bar represents ICI estimate based on model from Choi, Kronlund, and Oh (2022).

Source: ICI calculations of Morningstar and Refinitiv data.

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Another question regulators have posed is: “Yes, but ICI has shown averages for dilution for various fund types. Couldn’t dilution be much bigger for individual funds?” Certainly. It could also be much smaller for given funds—that’s what averages are about. That’s also precisely why we have argued that regulators must avoid applying highly prescriptive rules to broad swathes of funds—such as the SEC’s proposed *swing pricing and liquidity rule* that would be mandatory for *all* mutual funds—without regard for those funds’ individual circumstances, especially given the evidence that dilution pales in comparison to the long-term returns enjoyed by investors (Fig. 1).

In sum, dilution is too small to motivate mass redemptions by fund shareholders, and the first-mover hypothesis shouldn’t be used as any basis for public policy. Indeed, costs to shareholders from redeeming—e.g., potential capital gains taxes or being out of the fund for some period and missing a market rebound—could far exceed the costs from dilution. We welcome an honest conversation about open-end funds and their role in the financial markets. But if policymakers insist on unsubstantiated claims about dilution and financial stability risk, we will continue to set the record straight.

For further reading on dilution, the first-mover hypothesis, and financial stability, we recommend our [annotated bibliography](#).

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## Notes

[1] See for example, Malik and Lindner (2017), “On swing pricing and systemic risk mitigation,” *IMF Working Paper*, WP/17/159, who note that the first-mover hypothesis can “be described as being the result of ‘strategic complementarities’ [another term for the first-mover advantage] amongst fund investors, where redemption activity by one investor, or a group of investors, motivates other investors to also sell their shares to avoid dilution.”

[2] In March 2020, outflows from bond funds totaled about 5 percent of their assets *over the entire month*. Similarly, bid-ask spreads on investment grade corporate bonds peaked at over 300 basis points on the *worst day* in March 2020. Thus, the example in the text uses very extreme assumptions and still finds rather limited dilution.

[3] See ICI’s [comment letter to the SEC](#) on its proposed *Open-End Fund Liquidity Risk Management Programs and Swing Pricing; Form N-PORT Reporting*. There, we estimated dilution for various types of funds using two prominent approaches in the academic literature—one by Zitzewitz (2003) and the other by Choi et al (2022).

[4] In Figures 1 and 2 a *positive* number for dilution implies a *reduction* in the returns of nonredeeming fund investors.

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