

Economic analysis of the liquidity provided by open-end mutual funds and consequences for forthcoming new regulations

Olivier Davanne

Risk Premium Invest

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Mutual funds are a very important part of efficient financial markets. But competition between providers of open-end mutual funds cannot alone lead to efficient redemption rules for reasons (“market failures”) that we will briefly develop in this note. We therefore strongly welcome the SEC's intention to improve its regulations to limit the risk of "runs" due to "first-mover advantage."

However, we think the SEC's economic analysis is a bit superficial when it comes to the welfare-enhancing properties of mutual funds. There is some pooling of risks and costs in open-end mutual funds, which is not necessarily bad, but benefits investors. In this context, swing pricing does not seem to be an optimal solution. In this note, mainly drawn from a more general analysis of efficient liquidity provision (Davanne (2015)), we briefly discuss alternatives.

A/ The (not completely) “free lunch” offered by mutual funds in the provision of liquidity to investors.

Mutual funds are an ancient essential innovation that improves the well-being of investors.

Above all, mutual funds allow investors to benefit from professional management of their financial assets. But they also offer significant liquidity benefits.

Generally, open-end mutual funds do not fully pass on to the investors who buy or sell shares in the funds the full costs of dealing in secondary markets. In many cases (the majority?), there is a single Net Asset Value (NAV) per share based on the mid-quote prices of securities held by the fund, with no entry or exit fees. These valuation rules coupled with the possibility to redeem the shares at short notice bring a lot of liquidity to investors. Indeed, this is one of the key competitive advantages of the mutual fund industry. As John Bogle (1994), founder of Vanguard explains, *“the third principle of mutual fund investing is liquidity. Mutual fund shares may be acquired or liquidated at a moment's notice at the fund's next determined net asset value per share. What is more, there is no direct cost of market impact, wherein buying securities tends to drive prices higher and selling securities tends to push prices lower. Nor is there a charge when shares are liquidated (although in some cases a 1% redemption fee is charged and in other cases a contingent deferred sales load may be assessed). Owning securities individually, of course, is also apt to provide a reasonable level of liquidity. However, mutual funds can easily be converted into cash at a fraction of the cost you would incur in selling individual stocks or bonds. More, the ability to switch easily among different investment options provides remarkable flexibility in building a diversified portfolio, especially considering the costs involved in exchanging individual securities”* (page 53).

There is in general no free lunch in financial markets and it is important to understand how this liquidity boost is economically made possible. A basic observation is that in most funds the internal compensation between buying and selling orders allow fund managers in normal times to accommodate orders with little trading costs. But, at a more fundamental level, the key to understand this little miracle is to observe that making markets in a bundle of securities – which is what fund managers are really doing on behalf of the stable investors when they process buy and sell orders – is

not the same as making markets in each of the securities making the portfolio. In normal times, it is much more difficult to get an informative advantage on a bundle of diversified asset than on a specific security. So, in normal times, most of the inflows and outflows in a mutual fund are not based on information asymmetry but on pure liquidity shocks which can be accommodated by the fund at no or little cost.

Therefore, one can defend that part of the liquidity services provided by mutual funds do not come from cross-subsidization between different categories of investors but is indeed explained by a sort of free lunch : thanks to the mutual fund industry, many final investors efficiently trade some bundles of assets instead of individual securities. Tirole (2006), winner of the Nobel prize in 2014, made a similar point with respect to other bundles of assets: *“This flight to low-information-intensity securities takes multiple forms, and debt is only one of these. Another way of limiting costly trade with speculators is to buy bundles of indices on the grounds that they are less exposed to asymmetric information ‘thanks to the law of large numbers’: stock index futures, closed-end mutual funds, real-estate investment trusts, etc..”* (page 460). Tirole could have added ETFs to this list.

However, it is probably not without reasons that Tirole did not mention traditional open-end funds. The lunch here is not completely free and this provision of liquidity is not without risks. When the flows become unbalanced, single mid-quote pricing will trigger costs for the stable investors as the fund will have to buy or sell assets in the secondary market at prices non consistent with the NAV per share. In particular, when there are some significant outflows in a fund invested in assets not perfectly liquid, the fund manager has the choice between two unpalatable solutions. The first one is to keep the structure of the fund unchanged and sell the securities without taking into consideration whether they are liquid or not. Remaining investors will take an immediate hit as they will support the full difference between the selling price and the mid-quote price used to calculate the NAV. The second is to sell only the liquid securities to minimize the dealing costs. However, the structure of the fund can become unbalanced and remaining investors may be encouraged to leave since it will become more and more difficult for the fund manager to sell the remaining illiquid assets.

As a result, open-end funds which provide liquidity in normal times may be exposed to “runs” when securities markets become less liquid. As soon as there is a risk of significant outflows, there is an incentive to leave the fund first to avoid subsidizing those who sell their shares. Obviously, this risk of run is very much aggravated if there is a bias in the valuation process and if the NAV per share is not estimated at mid-quote prices, but at higher prices to avoid showing losses.

B/ The various possibilities to preserve much of the liquidity “free lunch”.

What are the different possibilities to keep the benefits of the “bundle of assets” liquidity free lunch, while limiting the risk of “run”? Obviously, this is not a question only for regulators. A fund subject to the risk of “run” with a first-mover advantage is not in the investors’ interest. By construction, it is not possible for all investors to be the first movers and a run destroys a lot of value for the investors community. Indeed, one could argue that there is an alignment of interest for fund managers and regulators to build robust redemption rules that avoid “runs” while keeping the benefits of managing a “bundle of assets” (more on this possible alignment of interest in the following section).

There are four possibilities – all examined by the SEC - to limit the risk of runs, and the SEC’s favored solution – “swing pricing” – is probably not the best one.

- **Introduction of “gates”.** Gates limit how much investors can withdraw in order to keep the fund’s selling at a level that is absorbable by the market. Gates may have a role to play to protect investors in funds which invest in very illiquid instruments. But they don’t suppress the

first mover advantage, or even they aggravate it as investors have an incentive to be at the beginning of the exit file. When activated, they also completely destroy the mutual fund's comparative advantage as they massively reduce the liquidity offered to investors.

- **"Swing pricing"**. This seems to be the SEC's preferred solution despite all its drawbacks. To protect investors in the fund, the valuation of shares depends on the direction of flows. With large net inflows that lead the fund manager to buy new assets, shares are more expensive and based on "ask" prices of the underlying assets. With net outflows, shares are undervalued and based on "bid" prices (plus maybe some correction for the market impact). In theory, this should suppress the first-mover advantage and the risk of runs, but unfortunately with the disappearance of a large part of the liquidity free lunch that mutual funds can offer. It is true that investors have still an advantage to deal in mutual funds rather than buying the underlying assets, as if there are lucky they will be in the opposite direction of the average flow. If they sell while the majority of other investors is buying, they will benefit from higher prices. The penalty put on new entrants will be used both to buy new assets in the market and offer a sort of premium to investors lucky to redeem their shares at the right time. Remaining investors are not impacted, with no benefit nor penalty. The symmetric situation applies when there are net outflows, to the benefit of lucky new investors in the fund. But it is easy to see that there is a sort of lottery going on where the liquidity "free lunch" is distributed in a hazardous manner, with a large uncertainty on the pricing that will be applied. This lottery is neither just nor efficient. Moreover, the need to establish the direction of flows to value the shares constrain to impose a "hard close": investors should send their orders to their intermediary soon enough, for these orders to reach the fund manager before the fund official closing time. Thus, investors lose again on visibility on the price they will get as the market may move against them while their orders progress towards the fund manager. This delay will increase the ETF's comparative advantage.
- **"Dual pricing"**. With a dual pricing system, the fund tries to replicate the price that investors would get if they transact directly in the market. New entrants pay all the trading cost they would incur if they were buying the assets, while investors redeeming their shares get only the "bid" prices. The dual pricing system seems to make disappear the liquidity "free lunch" that mutual funds can offer. But obviously, the free lunch does not vanish: it is simply transferred to stable investors as the fund is fully compensated for trading costs that it does not support as long as inflows and outflows are broadly balanced. In this system, open-end mutual funds lose the liquidity comparative advantage highlighted by John Bogle, but gain in relative performance. But isn't a good allocation of the available "free lunch"?
- **"Exit fees"**. "Dual pricing" makes a lot of sense, but it should be clear that we are not constrained to choose between systems where all the "free lunch" is either performance-improving (dual pricing) or liquidity-improving (in an unsustainable manner in the traditional mid-quote pricing or in an inefficient way with swing-pricing). Corner solutions are often not the best solutions, and it is possible to devise sustainable systems that share the benefit of investing in mutual funds. This is the case of "exit (or liquidity) fees", where the fund's shares are still priced in a the traditional manner, but where sellers of shares have to pay an exit fee. The way the exit fee is calculated determines how the "free lunch" is used. If the exit fee is always relatively large, taking full account of the difference between mid-quotes and bid prices, half of the "free lunch" will be performance-enhancing (as, compared to a dual pricing system, buyers of the funds still benefit from mid-quote pricing). But the exit fees may be

adjusted to market conditions, and reach their maximum level only in times of stress to limit the risk of run. In this case, most of the free lunch stays liquidity-enhancing.

C/ The responsibility of regulators.

As we have argued, the interest of the regulators and fund managers seem to be broadly aligned.

A run is very costly for everyone, except for the very few who are lucky enough to escape at the very beginning, since the introduction of gates or the fire sale of the assets held by the fund penalize everyone.

Thus, why do we need regulators to intervene? Why fund managers should not be allowed to choose their own redemption policy? The preferred solution may lead to some pooling of costs and risks between various transacting and non-transacting shareholders, but at the end of the day all shareholders are at some stage buyer, remaining shareholder and seller. The SEC seems to seek the purest form of allocation of trading costs, but for many reason, this is not necessarily in the interest of shareholders over the life cycle of the fund.

In other words, what are the "market failures" that justify the current discussion?

The first one seems obvious. There is a sort of externality as a "run" would penalize not only the shareholders of the fund, but also other market participants impacted by the fire sale of assets. The main problem with the current redemption rules is not dilution per se (i.e. the redistribution of trading costs in the shareholder community), but the risk of "runs". Moreover, fund managers can expect public authorities to act as "investor or market-maker of last resort" to stabilize the situation. In other word, they expect a sort of free liquidity insurance that distorts their choices¹.

The second reason for regulators to intervene is to protect the less sophisticated investors. One of the reasons why competition does not seem to work is that the smartest investors may rationally choose to invest in funds who don't manage well their liquidity. They probably anticipate that they may be the first to leave the fund whenever a risk of illiquidity appears. In other words, they may benefit from the bounded rationality of other investors who may accept to subsidy for a while the liquidity provided by the fund. As a result, due to bounded rationality, "bad products" may well continue to dominate the market even if a significant proportion of the participants are fully rational. This bad product trap is very similar to the mechanism described by Gabaix and Laibson (2006)².

Taking into account the risks of runs and the "bounded rationality" of investors previously discussed, we tend to believe that the SEC is right to tighten its regulation of the liquidity provided by open-end

¹ Note however, that here the term of externality used by many to analyze this type of "market failure" is a bit misleading. If public authorities act as investors of last resort and buy assets at undervalued prices, they are likely to make money! Thus, as long as public authorities keep the situation under control, there is no real negative externality, only a redistributive impact between those penalized by fire sales and those who benefit. Indeed, the view of many in the mutual fund industry is probably that the need for public authorities to intervene from time to time to stabilize markets is not a worrying externality, but a reasonable price to pay to help them provide in general a lot of liquidity to investors. In some way, this argument is very similar to the Diamond and Dybvig (1983) argument that when banks assume liquidity risks they improve the population's welfare, and that they should continue to do so, even if this constraint the public authorities to intervene (through deposit guarantees or lending of last resort).

² Here the "shrouded attribute" of the mutual funds is their vulnerability to "runs". Sophisticated investors avoid to be penalized by this shrouded attribute while enjoying the benefits of the liquidity provided by the funds in normal times.

mutual funds. It would make sense to make compulsory in all open-end funds the existence of at least one embedded protection against the risk of “runs”. Currently, this is not the case.

But we don’t think that they should impose “swing-pricing”. Many systems are possible to suppress the first mover advantage and avoid runs, and it is probably not the regulators’ responsibility to choose specifically one (especially as swing-pricing has clear drawbacks). Indeed, the SEC seems to be tempted to open the menu of “anti-dilution tools” as it wrote ““As another alternative to the proposed swing pricing requirement, we could have proposed to require all funds to implement an anti-dilution tool, while allowing them to choose among several tools, such as swing pricing, liquidity fees, or other alternative approaches discussed above. This alternative may benefit funds and their investors, to the extent that certain anti-dilution tools are better suited for certain types of funds in reducing investor dilution (page 346)”

However, the SEC seems reluctant to allow this flexibility for operational reasons as “fund intermediaries and service providers would need to establish systems that accommodate all the anti-dilution options that would exist across mutual funds”.

We finish by two key observations:

- As already said, it is important that the SEC recognizes that the problem is not dilution per se, but the risk of “runs”. Thus, it may allow the “choice of an anti-run” tool rather than “an anti-dilution tool”.
- Regulators should also ensure that the chosen protections would work as necessary. For example, there is probably the need for clear guidelines on how “exit fees” should be fixed, when they constitute the chosen protection.

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