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The Asset Management Industry and Systemic Risk: Is There a Connection?

Draft June 2016

Claude Lopez¹, Donald Markwardt and Keith Savard

JEL code: E6, F4, G

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Executive Summary

In the aftermath of the financial crisis, new legislation and regulation have pressured banks (and insurances) to reduce their size, leverage, and riskier lines of business in order to avoid another too-big-to-fail debacle. Nonbank financial intermediaries have naturally taken up some of that slack and, not surprisingly, regulatory scrutiny has turned toward these intermediaries to evaluate whether they could pose similar risks to financial stability that banks did pre-crisis.

Owing to their stunning growth in the past decade, focus among nonbank intermediaries is now centering on asset managers, which include firms offering mutual funds, exchange-traded funds, hedge funds and private equity funds. This report explores whether there is a demonstrable link between the asset management industry and systemic risk.

Key points:

- Systemic risk is distinct from run-of-the-mill financial or operational risk, an important difference when determining whether the sector poses a risk to the broader financial system with the potential for negative spillovers into the real economy.
- Because asset managers do not take on nearly the same level of leverage and do not guarantee balances on customer accounts as banks do with deposits, it is unlikely that the industry is the epicenter of (or *creating*) systemic risk in the financial system. Theoretically, however, they hold the potential to transmit or *amplify* systemic risk in the system based on unique risk factors such as herding and liquidity mismatches.
- One major regulatory concern is the mismatch between asset management firms offering investors highly liquid investment terms for funds investing in highly illiquid assets, which could create fire sale scenarios that negatively impact financial markets. A close look at the role of high-yield debt markets suggests that major disruptions to the sector's funding environment could have a significant impact on the real economy. However, even during periods of acute investor outflows, high-yield mutual funds have managed liquidity risk effectively to-date, and high-yield ETFs have actually been a supplemental liquidity source for institutional investors.
- In a post-crisis world, regulators have as much power (if not more) than financial firms' shareholders. Using this power wisely to simplify rules and minimize complex regulatory changes to the financial system may be the best way to achieve long-term financial stability. Considerations must include:
 - i. The dynamic relationship between financial regulation and financial activity – rules must be targeted sufficiently to strengthen resilience of the desirable economic functions (such as lending to firms), but simplified enough to limit regulatory avoidance.
 - ii. The necessity of proper fiscal and monetary policies to complement prudential oversight – no amount of asset management oversight can prevent investors from reaching for yield in response to extraordinarily low interest rates to meet their investment goals.
 - iii. The reality that financial markets are connected globally – domestic oversight without internationally coordinated policies leaves marked gaps susceptible to opportunism and regulatory arbitrage.

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I. Introduction

Despite the fact that the better part of a decade has passed since the global financial crisis up ended what was described as the Great Moderation and the Goldilocks economy, participants and regulators of the financial system are still grappling with how best to prepare and guard against another episode of systemic risk. While it is generally acknowledged that regulators and government officials were at their best in preventing a massive disorderly deleveraging of the financial system, their subsequent efforts to strengthen the system against further shocks have been frequently criticized. Officials in countries throughout the world have enacted new laws and regulations and set up new institutions to address perceived weaknesses in the financial system. International institutions, like the International Monetary Fund (IMF), the Financial Stability Board (FSB), and the Bank for International Settlements (BIS), have provided their services to collect and analyze data, as well as to coordinate action to put policies in place that cut across national boundaries.

In the United States, the most visible response to the global financial crisis has been the enactment of the Dodd-Frank Wall Street Reform and Consumer Protection Act, which represents the most comprehensive financial regulatory reforms put in place since the Great Depression. The Dodd-Frank law implements changes that, among other things, affect the oversight and supervision of financial institutions, provide

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for a new resolution procedure for large financial companies, introduce more stringent regulatory capital requirements, and effect significant changes in the regulation of over-the-counter derivatives and securitization market. Lopez et al. (2016) provides an overview of Dodd-Frank, contrasting its main goals with its achievements.

Several new institutions have been created under the law with varying responsibilities. An independent Bureau of Consumer Financial Protection has been set up to implement and enforce compliance with consumer financial laws. A Financial Stability Oversight Council (FSOC) is now in place to oversee financial institutions. The Council is charged with identifying risks to U.S. financial stability that could arise from ongoing activities of large, interconnected financial companies, as well as from outside the financial services marketplace. FSOC is also responsible for promoting market discipline by eliminating expectations of government bailouts. Among its long list of duties, the Council is tasked with recommending heightened prudential standards for nonbank financial companies and large, interconnected bank holding companies supervised by the Federal Reserve.

In addition to the enactment of new laws and the establishment of new institutions, officials also have begun to employ a variety of policy tools to tackle systemic risk. Macroprudential policies have gained the most attention. Extensive research by the Milken Institute details the evolution of macroprudential policies across emerging Asia and Europe and highlights the difficulties of these policies gaining traction in the United States.³ This analysis points to the need for precise timing of action and for appropriate monetary policy to be in place in order for macroprudential policy to be effective.

Although macroprudential policy is now seen in many quarters as an essential tool in the effort to mitigate and reduce the susceptibility of the financial system to systemic risk, its application has been almost exclusively focused on the banking sector. In the estimation of policy makers and regulators, this has left much of the remainder of the financial system exposed to possible systemic risk. A number of measures have been put forth to deal with the perceived vulnerabilities, including identifying certain non-bank financial firms as Systemically Important Financial Institutions (SIFIs), which subjects them to extra regulatory scrutiny and rules. In addition, specific rules and regulations are being considered for the operation of asset managers, insurance companies and other nonbank entities.

As might be expected, many senior executives in nonbank financial firms have expressed doubt about the need for many of the rules and regulations being proposed or already enacted by Congress and the U.S.

³ Lopez et al.(2015a) and (2015b)

regulatory community. Indeed, legal action has been taken against regulators in their attempt to impose the SIFI designation on MetLife Insurance. The court overturned regulators' determination that distress at MetLife could put the U.S. economy at risk. The judge took regulators to task for an "unreasonable" decision that didn't consider potential costs and relied on a process that was "fatally flawed."

The U.S. administration has appealed the ruling. As a further decision is awaited, the debate will continue about the need for measures to inoculate the nonbank financial sector against potential situations that could result in systemic risk.

The purpose of this report is to analyze and assess in what ways the asset management industry might act as a catalyst or contributor to systemic risk. The report looks at the structure of the industry and its role as fiduciary agents for clients. Factors commonly associated with systemic risk, like illiquidity and herding, are examined. Stress tests and other measures are discussed as representing best practices in reducing risks. Although a definitive determination of whether or not the asset management industry, and its largest firms, could be deemed sources of systemic risk is beyond the scope of this report, the analysis can nevertheless serve to stimulate an informative dialogue between regulators and practitioners in the industry.

We will proceed as follows. Section 2 recalls the definition of financial stability and systemic risk before turning to the risks specific to the asset management sector that are of concern from a macroprudential perspective. Section 3 discusses the pertinence of the current framework in regulating asset managers from a financial stability perspective. Section 4 explores the necessity of such a role, highlighting the differentiating factors between traditional targets of macroprudentialism (banks) and asset managers. Section 5 concludes.

II. Systemic Risk and Asset Management Industry

The bulk of literature and regulatory focus on systemic risk in the financial system has centered on the banking system. There are parallels between banks and asset managers, especially when referring to the broad notion of what systemic risk and financial stability mean to the industry, as we will discuss.

Fundamentally, however, the asset management industry as a whole and its subsectors are entirely different from the banking system and perform vastly different roles. As a result, they do not present the same risks as banks. Yet, as discussed in FSCO (2016) and FSB (2016), they might possess other dynamics that could contribute to the transmission of – or even amplification of – systemic risk. Next,

we explore these dynamics and take a close look at high-yield debt funds to investigate whether concern about destabilizing spillovers from asset managers to the real economy are justified.

a. Systemic Risk and Financial Stability

Financial reforms following the 2007-08 financial crisis focus on financial stability and systemic risk mitigation. While these two notions play a key role in the current regulatory environment, defining them in a tractable, time sensitive, and relevant manner remains a challenge.

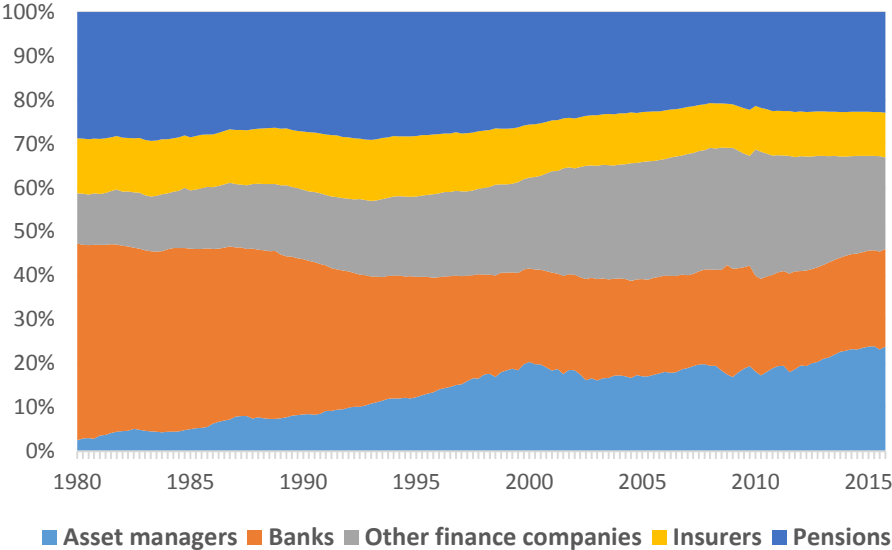
Financial stability is often defined in terms of “its ability to facilitate and enhance economic processes, manage risks, and absorb shocks”.⁴ It is worth emphasizing that such a definition does not imply protecting badly run firms, nor creating a risk free environment. It is a complex topic and ensuring it is not an easy task as it requires identifying commonly agreed objectives as well as their unintended consequences across regulators, firms and clients/investors.

Conceptually, once agreed upon, these financial stability objectives should be used to define, measure and monitor the aspects of systemic risk deemed pertinent and “anticipatable”.⁵ Ultimately, the relevant mix of macro and micro prudential tools should be used to mitigate it. Unfortunately, there are no hard boundaries between systemic and non-systemic risk, and the ever evolving financial landscape requires regular assessment of both objectives and how to achieve them. In other words, monitoring systemic risk and operationalizing a policy response remain a challenge as the risk cannot be directly observed, only its outcome.

⁴ Shinasi (2014)

⁵ Systemic risk is usually defined as a “risk of disruption to financial services that is caused by an impairment of all or parts of the financial system and has the potential to have serious negative consequences for the real economy” (IMF, FSB, BIS). Yet, Reinhart and Rogoff (2009) suggest that more than 50% of the financial crises come for the real side of the economy.

Figure 1: US Financial Assets by Industry



Source: Federal Reserve, authors' calculations

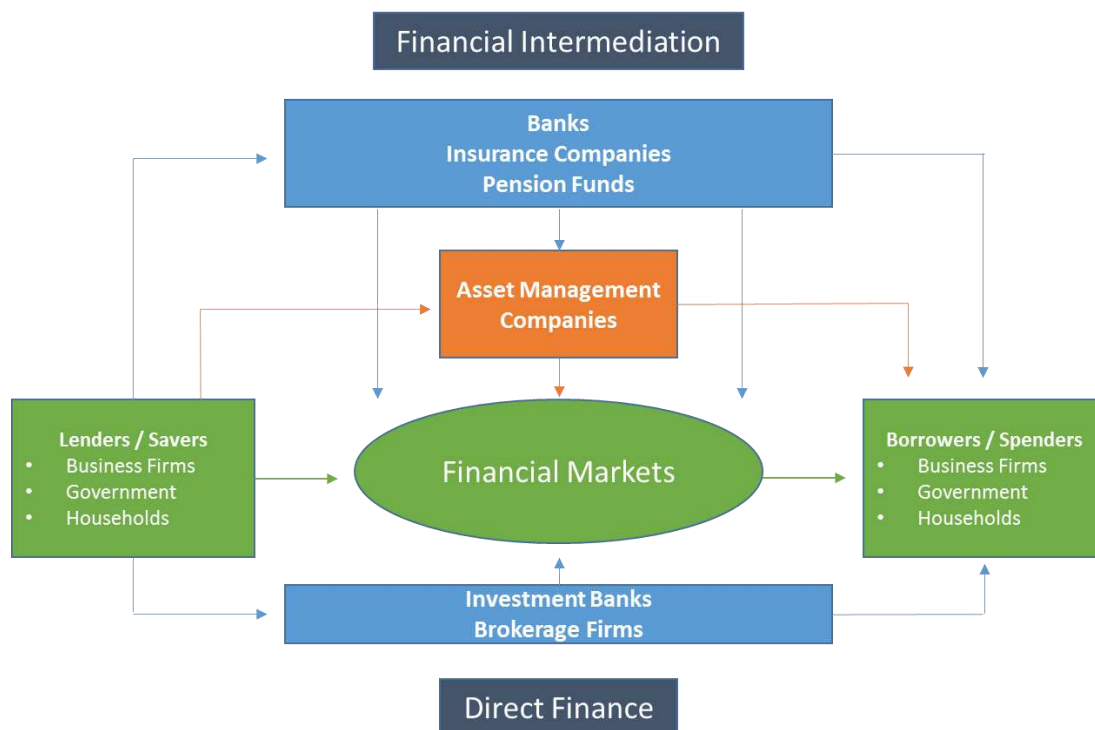
Besides the importance of banks and insurance companies, the 2007-08 crisis highlighted the increasing reliance of large firms and institutions on non-banks to cover their short-term funding needs.

Figure 1 shows the growing importance of non-bank institutions (asset managers and other finance companies) in the functioning of US markets: asset managers oversee nearly a quarter of domestic financial assets, up from less than 3 percent of domestic financial assets in 1980.

b. Asset Management Industry: a Segmented Industry

Broadly defined, asset managers provide investment services as fiduciary agents for their clients, using a wide variety of specific asset management models. A summary of the major fund families' characteristics and risk profile can be found in Appendix 1. They complement existing financial players in their function: Figure 2 illustrates how they service households, business firms and governments, but also the other categories of financial intermediaries, including banks, pension funds and insurance companies.

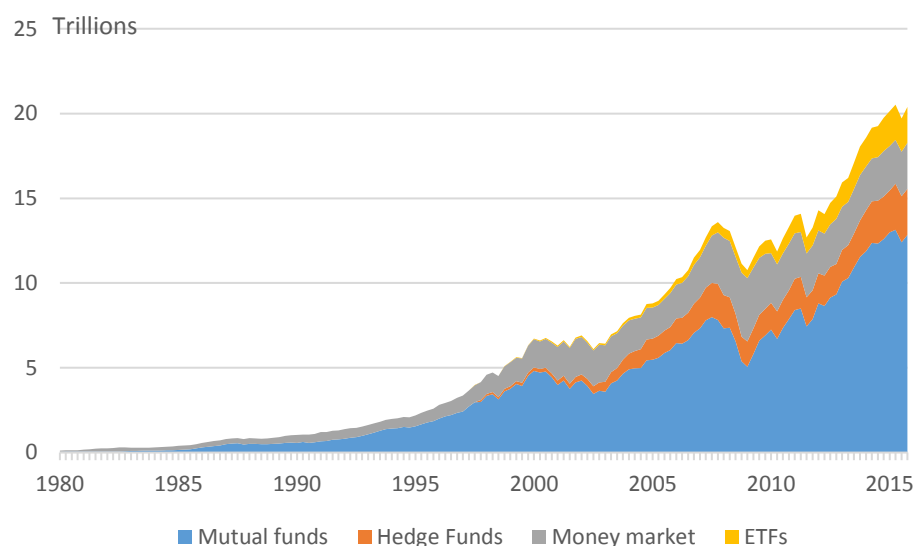
Figure 2: Flow of Funds in the Financial System



Source: Delbecque (2012)

The US landscape of financial markets has changed significantly over the past 35 years: Figure reports a rapid growth of mutual funds, hedge funds, money market and exchange traded funds (ETFs). More specifically, domestic mutual fund assets exceeded \$13 trillion in 2015, while ETFs have emerged as a multi-trillion-dollar industry with assets growing by roughly 20 percent per year in the last decade.

Figure 3: Total U.S. Financial Assets of Asset Managers



Source: BarclayHedge, Federal Reserve and authors' calculation.

Overall, asset managers are engaged in activities occurring either at the management company level or at the fund level. Management company activities include administration, centralized execution of trades, risk management, and market research, while fund level activities include overall asset allocation, selection of specific securities, and liquidity management. Fund shareholders receive any profits or losses while the asset managers' primary source of revenue is from fees for services.⁶ Furthermore, the separation between the custody and the management of assets protect investors from the risk of default of the asset manager.

c. From Financial to Systemic Risks

Basel III framework identifies two dimensions across which financial agents create or amplify systemic risk: either through exacerbating the extremes of the financial cycle (procyclical risk) or increasing fragility across financial sectors or institutions (contagion risk). Activities and incentives built-in to the asset management industry could transmit or potentially amplify risk across both these dimensions.

Theoretically, asset managers do not face the same risks as banks and insurers except for operational risks. Yet, their fiduciary obligation exposes them to some financial risks. As a result, the question is

⁶ Private funds, such as hedge funds, are a partial exception to this rule, as they are not subject to restrictions on receiving performance fees, which gives the management company a direct stake in the performance of the funds.

whether the individual risks can become systemic and via which channels. This section provides a closer look at two types of risks that stand out specific to asset managers, particularly among the plain “vanilla” investment funds such as mutual funds or ETFs: herding and liquidity risks.

i. Herding and Procyclical Risk

The fund management industry has traditionally operated with fund managers actively selecting securities on behalf of their investors. Competing for additional clients and client retention based on relative performance, fund managers are measured against a comparable benchmark. For portfolio managers that are risk-averse or face career risk when falling in a lower percentile of performance, incentives exist to “herd” into similar positions as their peers and not stray too far from benchmarks⁷. This can create strong disincentives for a manager to take countercyclical positions, resulting in “chasing yield” during upswings in the financial cycle and herding to sell financial positions during cycle downturns, thus exacerbating financial bubbles and the devastation of their fallout⁸. The IMF’s recent Global Financial Stability Report finds U.S. mutual funds now exhibit significantly more herding behavior than in 2009 after the crisis.⁹

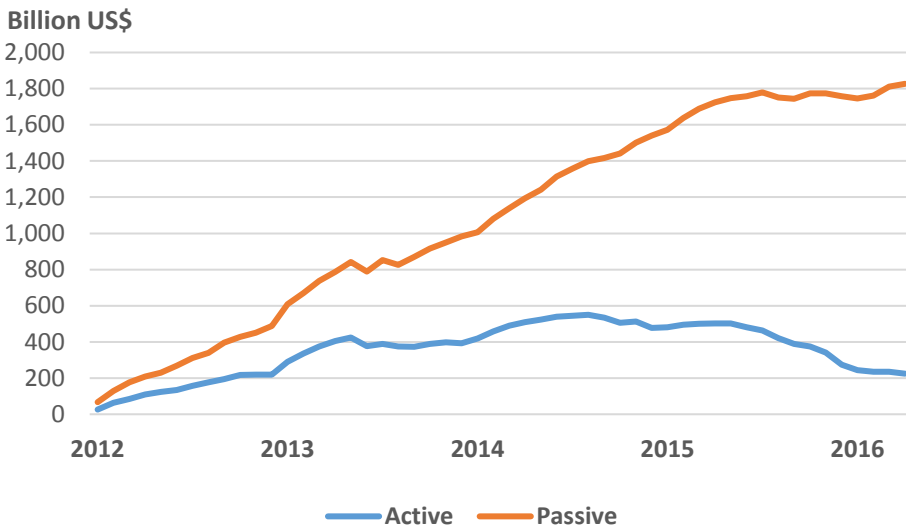
It is unclear to what extent these herding dynamics contribute to financial bubbles, or whether they are merely symptomatic. Equally unclear is what – if anything – can be done to mitigate these potentially destabilizing incentives. Both retail and institutional end investors appear to be moving toward cutting active managers out of the investment process and self-directing investment decisions using passive indexes (see Figure 4).

⁷ Naik and Maug (2011)

⁸ Feroli et al. (2014)

⁹ IMF(2015)

Figure 4: U.S. Fund Cumulative Flows



Source: Morningstar.

Note: Cumulative flows from Jan 2013 – Apr 2016 for U.S. open-end funds excluding money market and funds of funds.

The rise of passively managed funds – those that track indexes without fund managers actively selecting securities – introduces new potential consequences for the financial cycle and stability. The majority of passive funds buy or sell securities based on the market capitalization weights of their respective indexes. This can lead to a “momentum bias” where fund managers must buy (sell) the fastest-appreciating (depreciating) index constituents, again exacerbating the highs and lows of financial asset price cycles.¹⁰

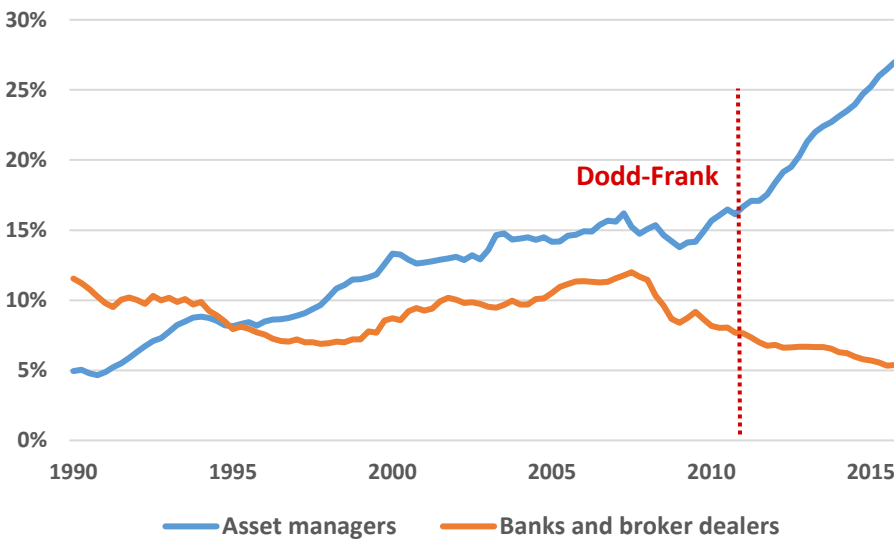
While it is generally accepted in the literature and the industry that limits to arbitrage exist that could lead to unconstrained asset price bubbles, it is less obvious that anything could reasonably be done to mitigate these unmeasurable impacts. Potential reforms such as introducing alternative benchmarks or altering investor-manager contract designs with stronger emphasis on long-term performance appraisal are unlikely to be adopted by the industry en masse and would be difficult to enforce on a regulatory basis. Regulatory attention is instead primarily turning toward the other major perceived risk emerging from the asset management industry: liquidity mismatches in investment funds.

¹⁰ Jones (2015)

ii. Liquidity and Contagion Risk

The implementation of the Dodd-Frank Act following the financial crisis placed greater constraints on the ability of banks and dealers to engage in various risky activities, including warehousing bond risk on their inventory (see Figure 5). The result has been a sharp decline in ability of dealers to offer two-way quotes (an offer to buy *or* sell a given security). While bonds have always been more difficult to trade compared to equities given their size and lack of standardized exchange, the diminishing role of dealers in the bond market has led many fund managers to complain that bonds – corporate bonds in particular – have become increasingly illiquid.

Figure 5: Share of Corporate and Foreign Bonds Owned



Source: Federal Reserve.

Note: Asset managers include closed-end funds, ETFs, mutual (including money market) funds, and REITs.

This refers to *market liquidity*: the ability to trade securities without creating adverse price movements. As bond market liquidity has declined and broker-dealer bond inventories have declined, investment funds' ownership of corporate debt securities has risen substantially, in part displacing previous broker inventories but also in response to greater demand for corporate bond mutual funds and exchange-traded funds (ETFs). Notably, as sluggish global growth and easy monetary policies have pushed interest rates to new lows not witnessed in recent decades, there has been increased appetite for higher yielding bonds such as emerging market bonds, leveraged loan funds, and domestic high-yield corporate bonds.

While many of these higher yielding securities have grown increasingly illiquid (and owe part of that additional yield to the illiquidity factor), the proliferation of mutual funds and ETFs providing exposure to these securities continue to offer end-investors very liquid redemption terms: investors can easily buy and sell the funds on a daily basis without meaningful gates or fees. This contrast between highly liquid redemption terms and illiquid underlying securities that the funds invest in creates a *liquidity mismatch*, which is a concern for regulators and many in the industry.

Liquidity mismatches on a large scale are of concern to financial stability monitors due to their ability – in a worst case scenario – to cause a “death spiral” of mass investor redemptions causing fire sale asset prices, which leads to further investor withdrawals. Studies find that funds investing in less liquid corporate bonds experience disproportionately high outflows in response to bad performance¹¹, and that these outflows can create destabilizing financial shocks even in the absence of significant leverage or actions by leveraged intermediaries.¹² Manconi et al. (2012) find funds holding illiquid bonds during the market turmoil of the global financial crisis were forced to sell higher-quality investment grade bonds to raise cash, thus “propagating the crisis” across the entire corporate bond sector, suggesting the potential for cross-sector contagion.

To some extent, this fire-sale scenario is analogous to countless historical examples of bank runs where depositors rush to withdraw their funds before the bank runs out of money, or more recently the “breaking of the buck” in money market mutual funds that sparked extreme fears in the aftermath of Lehman Brothers’ collapse. Unlike banks or money market funds, investment funds do not guarantee investor balances; rather, they float with the net asset value that provides an up-to-date cash value of the fund’s underlying investments. Nonetheless, they can still be vulnerable to redemption runs when investors have a “first-mover advantage” as is the case with mutual funds. In mutual funds, redemptions cause expenses to the funds that are not experienced by redeeming investors but are instead passed on to future NAV values that negatively impact continuing fund holders.

The high-yield debt sector, especially mutual funds and exchange-traded funds, can provide useful insights on how major disruptions to the sector’s funding environment could have a significant impact on the real economy. This sector finances a number of mid-sized companies and benefited greatly from investment fund flows in the years following the financial crisis.

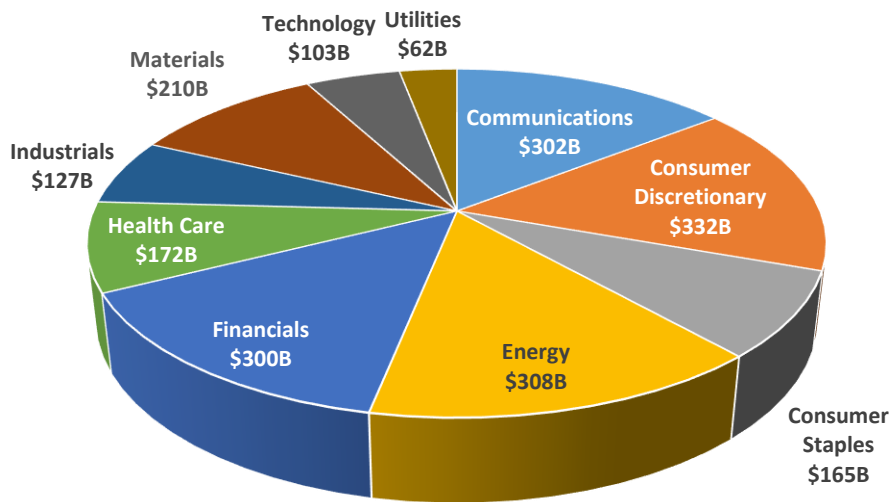
¹¹ Goldstein et al. (2016)

¹² Feroli et al. (2014)

iii. High Yield Focus.

As the largest investable class of illiquid securities, high-yield corporate bond funds take center stage in concerns of liquidity mismatches causing destabilizing spillovers into the real economy. Since 2010, high-yield bonds have provided debt financing of over \$2 trillion to a wide array of companies from virtually all major industries, from energy to health care to technology (see Figure 6). Significant disruptions to these companies' ability to raise new capital or roll over existing debt would doubtlessly create serious knock-on effects for the U.S. economy.

Figure 6: High-Yield Debt Issuance by Industry, 2010 - 2015

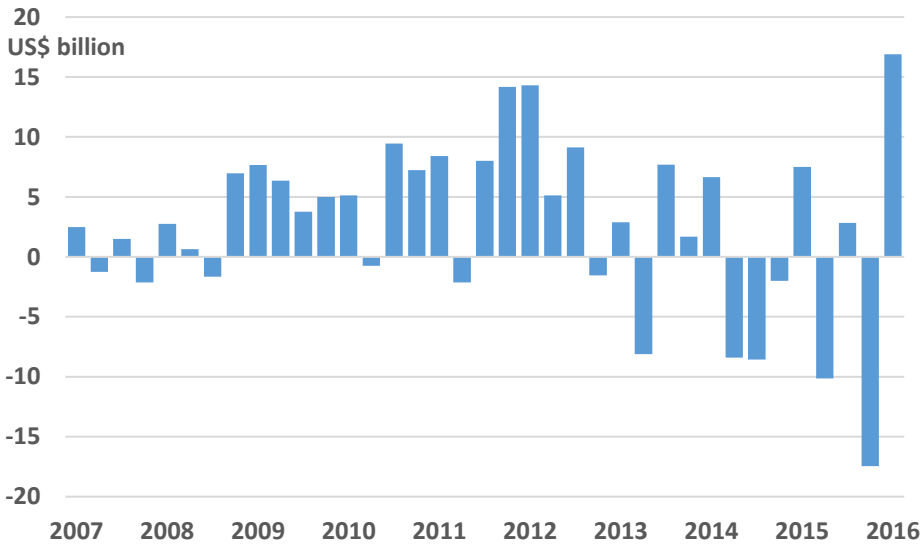


Source: Bloomberg.

Dedicated high-yield mutual funds and ETFs have grown substantially since the financial crisis (see Figure 7). U.S. fund assets increased from less than \$100 billion at the beginning of 2009 to nearly \$300 billion by 2014. At the same time, global net assets of dedicated high-yield funds exceeded \$700 billion, more than double the amount just three years earlier. However, investor flows into these funds have become more volatile in recent years as the performance of the asset class has dwindled and major events such as the “Taper Tantrum”¹³ of 2013 and oil crash in 2015 incited fear in debt markets.

¹³ In the summer of 2013, the Federal Reserve signaled it could raise interest rates at a faster pace than market participants had anticipated, causing heightened price volatility in financial markets.

Figure 7: U.S. High-Yield Quarterly Fund Flows

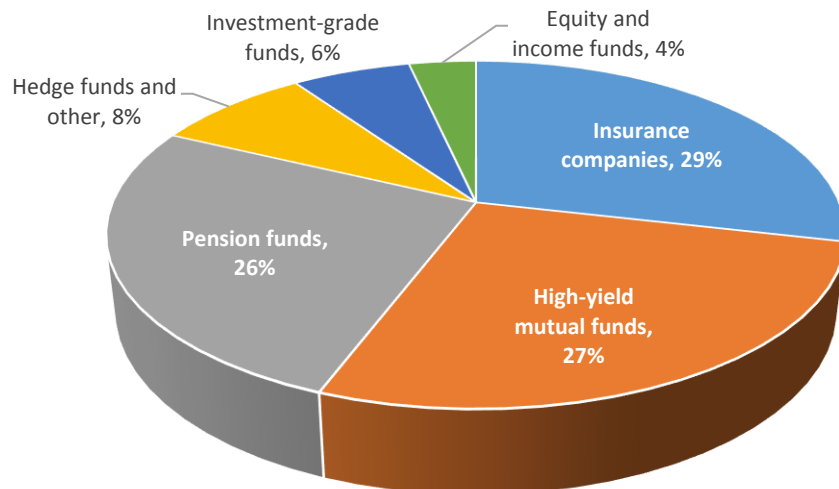


Source: Morningstar.

Note: Net flow estimates for open-end mutual funds and ETFs.

These periods of increased investment flow volatility (especially disproportionately large negative flows) raise concerns that prolonged outflows from high-yield funds could adversely impact the high-yield sector and create ripple effects across these financial sectors that disrupt funding for mid-sized businesses. Market observers – from regulators to concerned participants – fear a distressed fire-sale scenario in which investor withdrawal requests exceed cash in the portfolio, thus causing portfolio managers to sell off existing fund investments to raise the necessary cash. If other buyers (hedge funds, insurance or pension funds) fail to step in to support the market, a destabilizing feedback loop of fund redemptions and funds liquidating debt investments could take effect. The current breakdown of high-yield ownership (see Figure 8) suggests that more than a third of demand for high-yield has come directly from investment funds, and more than one quarter from dedicated high-yield mutual funds. Insurance companies and pension funds, meanwhile, make up more than half of ownership.

Figure 8: Owners of High-Yield, 2015



Source: JPMorgan.

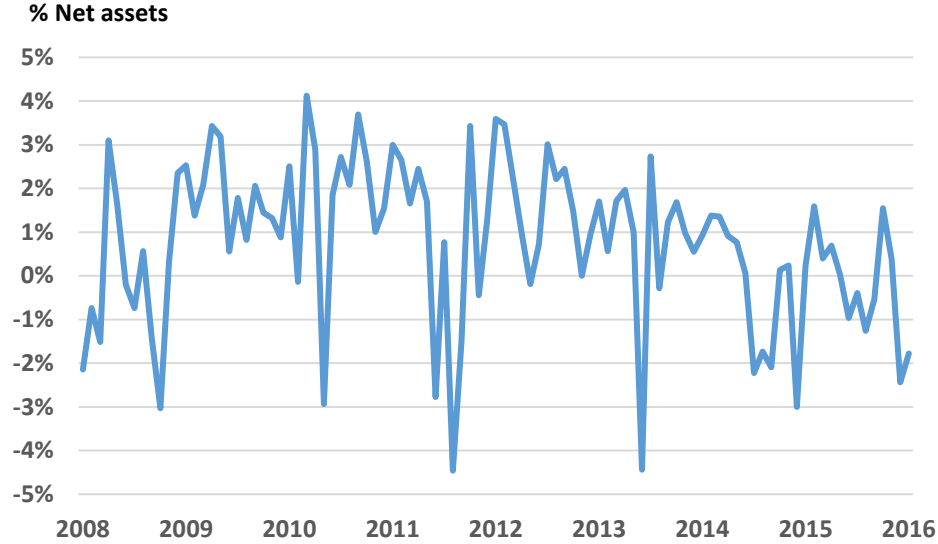
It is difficult to determine whether fears of high-yield fire-sales and death spirals are justified or fear-mongering: one bothersome characteristic of systemic risk is the inability to precisely measure the likelihood of systemic events. The previous global financial crisis was precipitated in part by the extrapolation of historical housing returns and underestimating or ignoring the catastrophic “fat tail” of the risk distribution. Nonetheless, the best guess at what would happen in the event of a major episode of high-yield outflows may be seen by observing recent history to determine how funds have managed periods of distress and acute fund outflows until now.

Mutual funds are the primary focus for fund liquidity concerns in the high-yield space for two key reasons:

1. **Mutual funds are the largest holders of high-yield bonds** among asset management funds, with U.S. high-yield dedicated mutual funds holding \$247 billion in net assets as of April 2016, compared to \$41 billion in net assets for high-yield ETFs.
2. **Most mutual funds offer daily liquidity** in the sense that investors can redeem shares and receive the net asset value (NAV) of the fund at the end of the day. This ignores potential administrative costs of the fund, including executing the sale of fund assets, which creates the potential for a “first-mover advantage” that benefits early fund redeemers and penalizes later redemptions. This dynamic is not dissimilar from the incentives facing depositors in a bank run, thus heightening fears of distress in the sector.

One reason net fund flows appear more volatile in recent years is the sheer size of high-yield funds have increased. When normalized by net assets, monthly U.S. high-yield fund flows were quite stable in the ten year period beginning in 2007, characterized by frequent net inflows and punctuated by brief net outflows during periods of financial stress (see Figure 9). The Euro-zone crisis in 2011 and Taper Tantrum in 2013 were the only months experiencing outflows in excess of 3 percent of overall net assets for the sector.

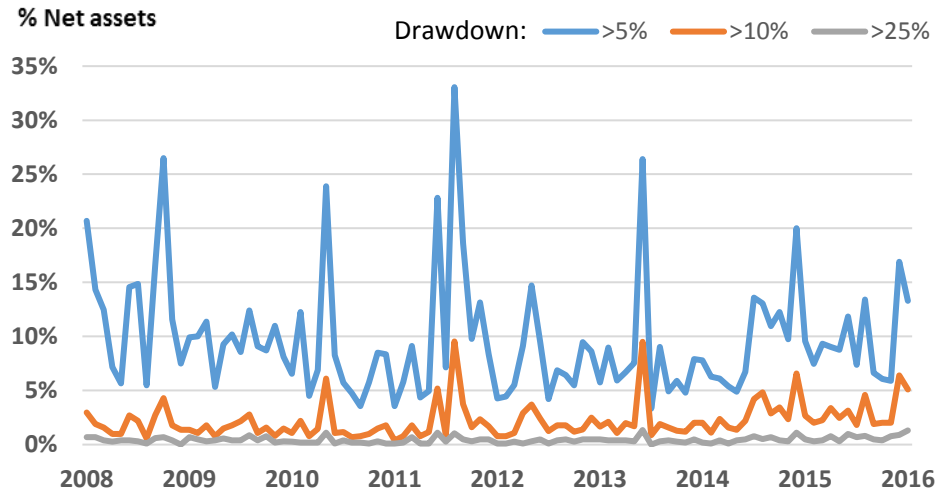
Figure 9: Monthly High-Yield Flows as Percentage of Net Assets



Sources: Morningstar, authors' calculations.

Zooming in on a fund-level we observe the number of funds experiencing large investor withdrawals relative to the size of the fund. Figure 10 shows the proportion of funds experiencing fund outflows in excess of 5, 10, and 25 percent of the starting month's net assets. Even in the most stressful periods to date, less than 2 percent of funds experienced monthly outflows in excess of 25 percent of starting fund assets.

Figure 10: High-Yield Mutual Fund Net Flows as Percentage of Net Assets

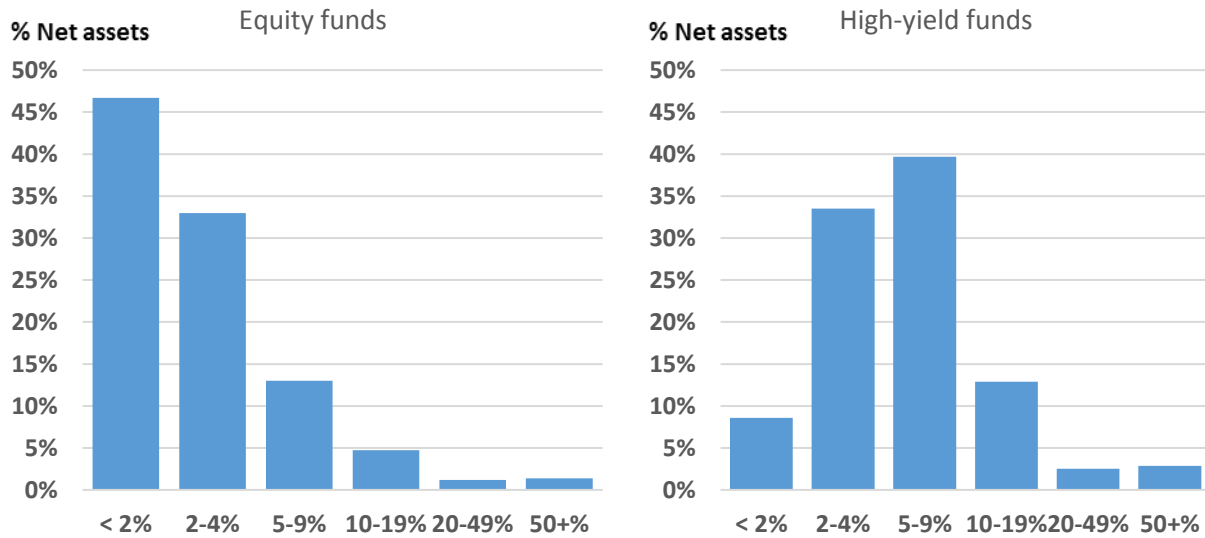


Source: Morningstar, authors' calculations.

Note: Calculated using net outflows divided by previous month's ending net assets.

On a handful of occasions, more than 20 percent of high-yield funds experienced outflows in excess of 5 percent of starting assets. Outflows at these levels are less concerning, as portfolio managers are experienced in liquidity risk management and can draw on cash reserves or lines of credit to manage investor redemptions without disruptions to existing investments that they want to retain. Figure 11 shows mutual fund portfolio allocations to cash by fund type, illustrating the built-in cash cushion high-yield fund managers keep on hand that reflect the more volatile liquidity environment compared to equity funds. More than half of high-yield funds report keeping more than 5 percent of fund assets in cash.

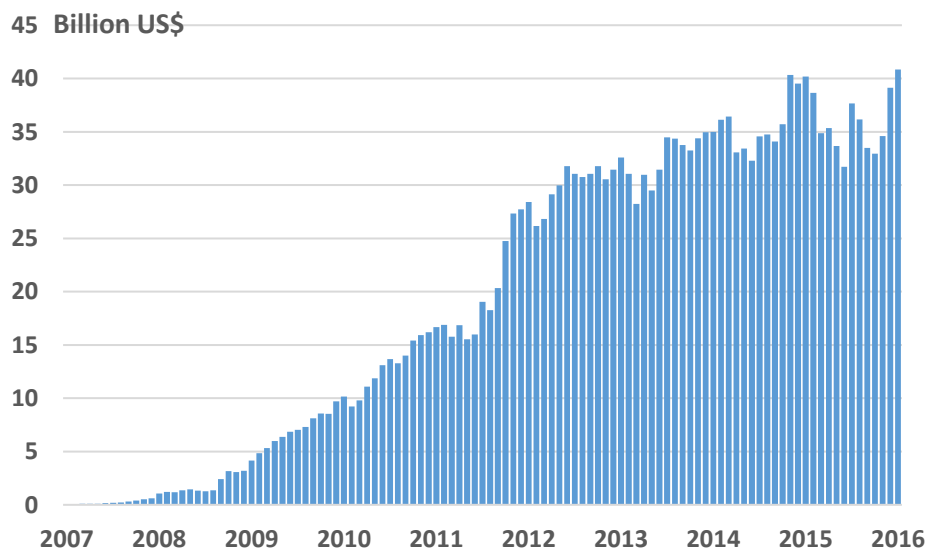
Figure 11: Cash Allocations by Fund Type



Sources: Morningstar, authors' calculations.

High-yield bond exchange-traded funds are not nearly as large as mutual funds, but have experienced significant growth in popularity over the past decade. Starting from \$30 million in assets in 2007, they have grown to over \$40 billion in assets in April 2016 (see Figure 12). Their popularity stems from the liquidity benefits they provide: unlike mutual funds, ETFs are (as their name imply) traded on exchanges and can be bought or sold intraday.

Figure 12: High-Yield ETF Assets

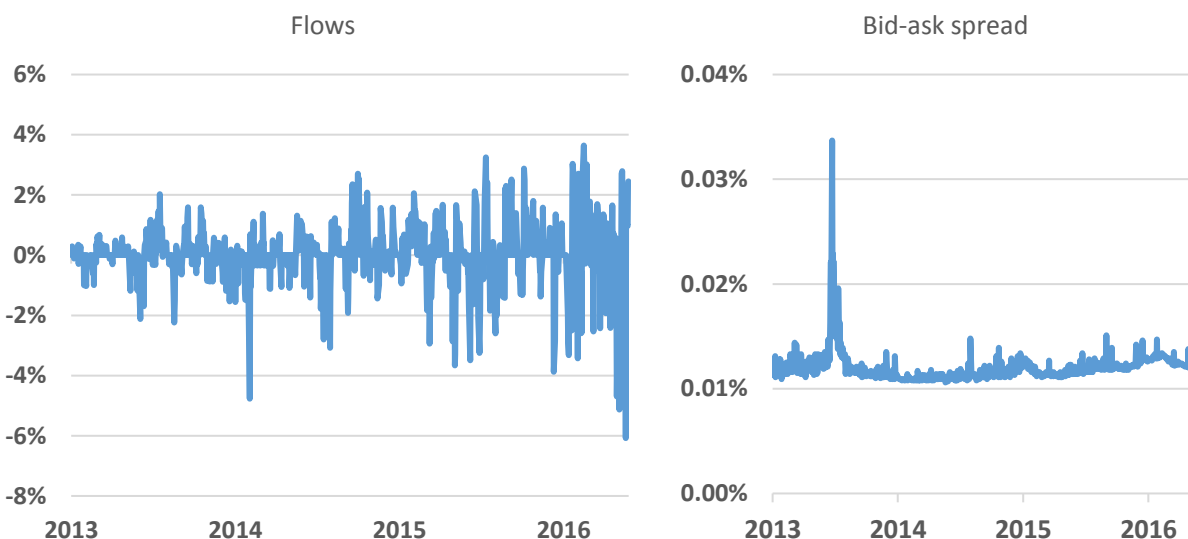


Source: Morningstar.

Despite providing even greater liquidity to investors, ETFs do not necessarily present the same “first-mover advantage” or run risks as mutual funds because buying and selling ETF shares on an exchange (in the secondary market) does not necessitate cash inflows or outflows from the ETF.¹⁴ Institutional investors have turned to ETFs to achieve high-yield debt exposure without the illiquidity typically associated with holding large bond positions or even bond mutual funds.¹⁵ There is evidence that the largest high-yield bond ETFs have been more liquid than the underlying bonds in periods of market stress, and have served as a price-discovery vehicle for market participants to express their views on the sector.

Indeed, Figure 13 shows that the average daily bid-ask spreads for the largest high-yield corporate bond exchange-traded fund have remained remarkably stable in recent years despite increasingly volatile daily flows. Increasing daily outflows, which reached more than 6 percent of total assets in May 2016, do not appear strongly related to daily liquidity or volume measures. One explanation for greater flow volatility may be bond dealers buying ETFs instead of the underlying bonds themselves, and redeeming ETF shares “in-kind” to receive the underlying (resulting in an outflow) and selling them to clients. Far from creating distressed runs, ETFs appear to have promoted liquidity in the underlying high-yield bonds and accessibility for investors.

Figure 13: iShares iBoxx \$ High Yield Corporate Bond ETF



Source: Bloomberg. Note: Flows as percentage of ETF total assets.

¹⁴ The ETF sponsor interacts only with select large institutional “authorized participants” to create/redeem ETF units, which can be exchanged “in kind” for the underlying basket of securities. See Ramaswamy (2011) for further ETF structure details.

¹⁵ McCollum (2016)

High-yield ETFs and – to a lesser extent – mutual funds have withstood short-term tumultuous financial periods from the euro zone crisis to the Taper Tantrum to the recent decline in oil prices that impacted high-yield energy companies. Funds’ performance to date does not guarantee they are safe from a more severe, prolonged downturn, but does suggest a certain level of resilience.

III. Current US Macroprudential Policy Framework

The initial targets of Basel III and the Dodd-Frank Act were banks or institutions presenting similar transmission channels in terms of systemic risk, mostly based on leverage. As discussed previously, this framework identifies two risk dimensions that may threaten the stability of the entire financial system: across institutions (contagion risk, mostly using the SIFI denomination) or across the financial cycle (procyclical risk). Both dimensions are closely linked and their problems often accumulate at the same time.¹⁶ This section compares the current framework with the risks it should be assessing.

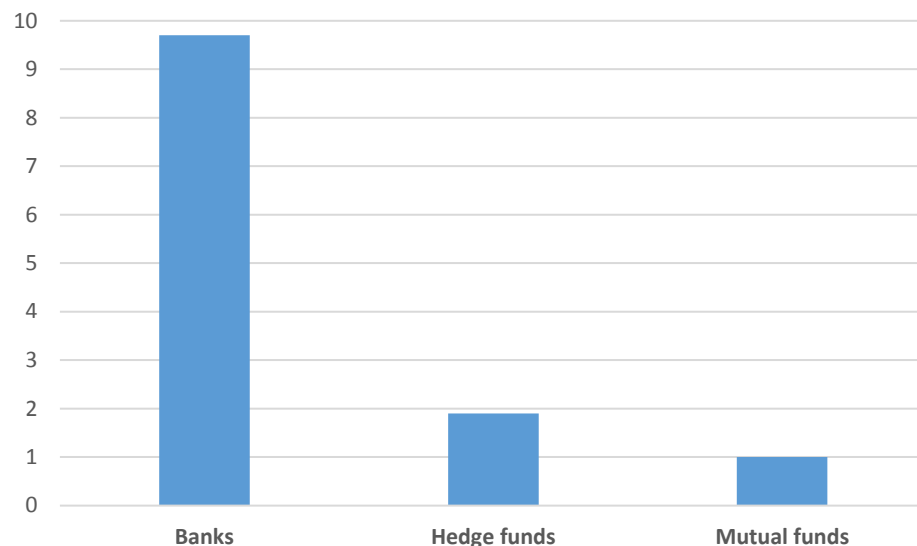
a. Systematically Important Financial Institution, SIFIs

The SIFI denomination relies on the size of an institution. This proxy seems adequate when assessing the amplitude of risk that banks can generate to the system. By contrast, most fund managers tend to have simpler funding mechanisms: Figure 14 shows they incorporate little or no leverage while Table 1 compares the potential solvency risks banks and asset managers might experience during crisis periods when asset prices fluctuate.¹⁷ It also shows that some asset managers are divisions of institutions already identified as SIFIs.

¹⁶ While the size of the banks’ balance sheet and degree of leverage have been identified as potential contagion risks, Shin and Shin (2011) and Lopez et al.(2015a) have shown that looking at the sources of funding provide information regarding procyclical risk; especially banks’ excessive reliance on “non-core” liabilities – short-term funding in particular.

¹⁷ Hedge funds often make use of short-term funding arrangements and achieve leverage synthetically through the use of derivatives, but on average are not leveraged to the same extent as banks.

Figure 14: Median Leverage Ratio (2016)



Sources: Bloomberg, Morningstar, Office of Financial Research, authors' calculations.

Note: Calculations for U.S. institutions. Average liabilities to average assets for banks, gross assets to net assets for funds.

Table 1: Largest U.S. Banks vs. Asset Managers

	Total Assets (billion)	Financial leverage		Assets under management (billion)	Gross fund leverage
JPMorgan Chase	\$ 2,423	10.7	BlackRock	\$ 4,652	1.1
Bank of America	\$ 2,185	9.2	Vanguard	\$ 3,148	1.1
Wells Fargo	\$ 1,788	10.6	State Street Global Advisors*	\$ 2,448	1.0
Citigroup	\$ 1,731	8.5	Fidelity Investments	\$ 1,974	1.1
U.S. Bancorp	\$ 422	10.4	BNY Mellon Management*	\$ 1,710	n/a

Sources: Bloomberg, Morningstar, authors' calculations

Note: Bank data as of Q1 2016. AUM data estimated for end of 2015. Gross leverage calculated as gross long + gross short exposures of open end, closed end, exchange-traded funds and separate accounts / CITs estimated based on latest reported portfolio data as of June 2016. * identifies asset managers that are divisions of SIFIs (insurers or banks).

If the definition of systemic risk focuses on the possibility of disruption to the real economy and the dislocation of markets, then the main concern related to the size of asset managers is the potential for direct wealth loss. However, this issue fades in importance when considered in conjunction with the interconnectedness and substitutability of an institution. Interconnectedness measures the potential of one firm to transmit financial distress to other firms: the more a firm is able to transmit distress, the greater potential impact its own distress can have. Substitutability focuses on the critical functions

performed by an asset manager and the extent to which other firms could provide similar services at a similar price in a timely manner in the case of its failure. The asset management industry is an intensely competitive business with relatively low barriers to entry, hence substitutability from the perspective of investors in the market for investment management services is of limited concern. However, it is important to consider the degree to which the manager or its funds are a hard-to-replace source of financing for certain businesses or sectors of the economy. Due to both interconnectedness and substitutability, the effects of asset managers on the economy depend on the asset classes, while the channels of risk transmission (and their complexity) depend on the instruments used and how they are combined. Box 1 illustrates the difficulty of linking size and systemic risk for asset managers.

[Insert Box 1 around here]

b. Liquidity Risks

The financial crisis has shown that family of funds such as money market funds could lead to a systemic crisis via two channels: liquidity-risk and connections between lightly regulated businesses and banks.

As a direct response to the first issue, the SEC adopted in 2014 a set of rules, that “require a floating net asset value (NAV) for institutional prime money market funds, which allows the daily share prices of these funds to fluctuate along with changes in the market-based value of fund assets and provide non-government money market fund boards new tools – liquidity fees and redemption gates – to address runs.”¹⁸ More recently, the SEC has proposed rules for mutual funds and ETFs to set up programs for managing liquidity risks and broaden disclosures about their liquidity and redemption practices. Furthermore, the Dodd-Frank Act requires the SEC to run stress tests on asset managers of more than \$10 billion in assets. Since, as previously discussed, banks’ and asset managers’ business models are significantly different, the methodology needs to be adjusted. So far, there is no consensus on how to define and measure the concepts of liquidity and leverage that matter in the context of systemic risk buildup within the asset management industry.

Dodd-Frank addresses the second issue by requiring standardized derivatives transactions to be centrally cleared. The resulting strengthening of central clearing counterparties (CCP) or clearing houses comes with a trade-off: it makes the credit chains more transparent, providing a foundation for centralized risk

¹⁸ SEC website

management and data processing operations. However, it also concentrates credit, liquidity, and operational risk within the CCPs themselves. The CFTC is also required to implement stress tests on CCPs in order to monitor potential systemic risk build up, but runs into similar difficulties as the SEC.

The challenges faced by the SEC and the CFTC led to the creation of a working group within the FSOC to investigate these issues, including counterparty exposures, margin investing, trading strategies and possible standards for measuring leverage.¹⁹

c. Herding

Basel III is, by design, unable to discourage herding behavior as it relies on the Asymptotic Single Risk Factor Model to compute capital requirements for the monitored institutions. The model assumes that all financial institutions have a diversified portfolio and they are all exposed to the same single risk factor. Wagner (2010) discusses the trade-off between ensuring that they all have the same prudent behavior, and encouraging heterogeneity in risk-taking: recent reforms could encourage more correlation across banks and financial institutions. Similar reasoning would hold for asset managers if stress tests were to assess their reaction to a common shock.

IV. Is There a Need for System-wide Monitoring of Asset Management?

The asset management industry encompasses a wide variety of business activities ranging from traditional asset management to alternative investing and direct lending. In other words, it is a highly segmented industry with little amount of information available to regulators attempting to monitor it. Little is known of the importance of portfolio size compared to the possibilities of non-linear and threshold effects due to the strategic situation of the institutions involved. Furthermore, the lack of clear regulatory leadership requires significant amount of coordination among the different institutions such as the SEC and CFTC to design a coherent body of rules.

While asset managers have not been the primary focus of recently introduced macroprudential policy, they have been impacted and continue to be. Basel III, and for the US Dodd-Frank Act, moved riskier activities (proprietary trading) off banks onto nonbank intermediaries. New regulations are still being

¹⁹ UCITS and European alternative investment funds (AIFs) have been subject to such requirements and have had access to a range of liquidity management tools for some years.

implemented, including the Department of Labor’s fiduciary rule and the “living wills” of large banks.²⁰ Furthermore, the regulatory and political momentum that followed the financial crisis is fading, leading to some questioning of the current framework and its potential expansion to the asset management industry.²¹ So far, regulators seem mostly focused on identifying the largest potential sources of systemic risk rather than the likelihood of a systemic shock originating from a specific institution.²² This approach captures the functional risk of banks where size is an appropriate proxy of importance when it comes to systemic risk. However, in the case of asset managers, it would confuse large institutions with systemically strategic institutions, giving wealth loss too much importance over the potential for broader economic disruptions and market dislocations.

The segmentation of asset manager industry previously discussed above explains in large part the industry’s resilience as a whole, as well as its usefulness to the “real” economy. It is, by business design (low cost of entry, fiduciary activity) a dynamic industry that evolves and adjusts its strategies to new conditions (direct or indirect regulations, technological progress or very low interest rate) and that passes all asset values fluctuation to its clients. As a result, monitoring and regulating the asset management industry is quite challenging. One suggestion is for regulation to focus on the type of activity that provides an economic function and, that, if failing, would trigger systemic crises. Then the appropriate resolution strategies should be designed to avoid such chaos. This approach implies an iterative process or rounds of communication between all parties involved (regulators, firms and their clients) in order to secure the buy-in of all sides. Cooperation among all parties is required to ultimately minimize unexpected consequences like pushing risky activities in more shadowy environment or generating unrealistic expectations on the part of investors. It would also reduce the risk of layers of uncoordinated regulations due to the numerous institutions overseeing part of a same industry. The current set up of the FSOC could facilitate such a process as long as it remains politically independent and a lead institution is identified to oversee the asset management industry.

V. Conclusion

The success of prudential regulation depends on several key elements. First and foremost, prudential policies are complements to proper macroeconomic policies (monetary, fiscal, structural) and not

²⁰ The Department of Labor’s fiduciary rule is not part of the Dodd-Frank Act but an initiative competing with the SEC fiduciary rule.

²¹ Lopez et Saeidinezhad (2016) provides an assessment of the implementation of Dodd-Frank Act.

²² The SIFI denomination ignores whether the scenario suggested in the stress tests are likely or not.

substitutes. The current global monetary policy stance with pervasive low or negative interest rates and continued divergence among major central banks could generate financial instability that prudential policies would be unable to fix. Second, many financial markets and actors are international. As a result, successful toughening of prudential requirements requires international coordination. Yet, Frankel (2016) provides several explanations why such coordination remains a challenge as shown in recent G20 and G7 summits. Third, the financial world is highly complex whether it is due to business models or extremely integrated activities across different industries. Therefore, it is rather unlikely that any data sets will provide a complete understanding or mapping of all the risk profiles. As a result, limitations should be clearly accounted for when designing regulations and their goals.

Looking ahead, it will be important for political decision makers and regulators to realize that the nature of systemic risk will change with the evolution of the financial landscape. Already it is apparent that the business model of banks is in a state of flux with banks' *raison d'être* in question by many. The center of power in finance is shifting to the buy side. As assets under management, according to some projections, rise toward \$100 trillion by 2020, the buy side is poised to replace banks as the major source of funding for deals and underwriting. In the post crisis world, regulators have as much power, if not more, than financial firms' shareholders. Using this power wisely to simplify rules, minimize complex regulatory changes to the financial system while providing the right of incentives for the private sector to adopt proper governance and monitoring seem the best way to achieve long-term financial stability and benefits to the real economy.

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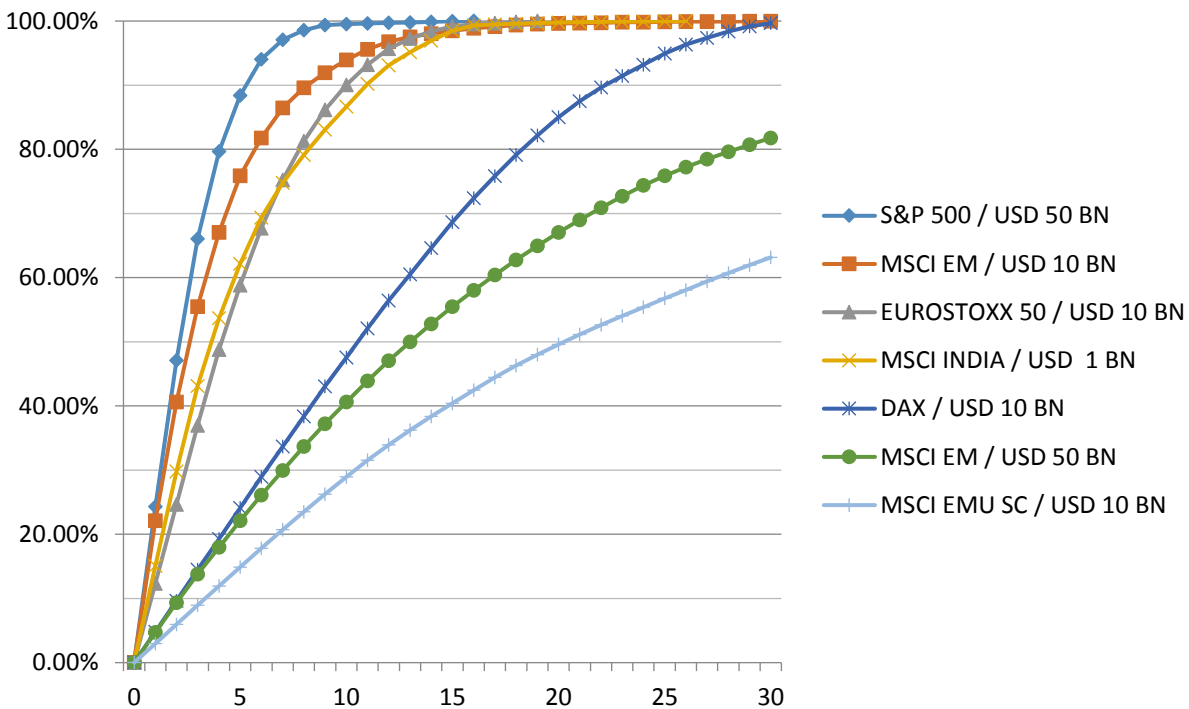
>>> Box 1: Fund Size and Systemic Risk

Roncalli and Weisang (2015) illustrate the difficulty of linking size and systemic risk for asset managers. To do so they generate an indicator, the liquidation ratio, that measures the proportion of the fund that can be liquidated after t trading day. This statistic depends on the size of the liquidation, the fund's asset classes, its portfolio construction and the liquidation policy.

Figure B.1 summarizes a set of simulations based on the following assumptions²³

- the asset classes and portfolio compositions duplicating those of S&P 500 Index, EUROSTOXX 50 Index, DAX Index, NASDAQ 100 Index, MSCI EM Index, MSCI INDIA Index and MSCI EMU Small Cap Index, on April 30, 2015.
- the fund sizes of \$1 billion for MSCI India, \$10 billion for MSCI EM, EUROSTOXX 50, DAX, MSCI EMU SC and \$50 billion S&P 500, MSCI EM
- the assumption that 10 percent of the average daily volume can be sold every day.

Figure B.1: Size and Liquidity



Source: Roncalli and Weisang (2015)

²³ We refer the reader to Roncalli and Weisang (2016) for more details and simulations. While the results reported here are based on a cap-weighted portfolio, the authors use other weighting schemes to illustrate the impact of portfolio construction on the liquidation ratio.

Table B.1 reports the free float market capitalization (MC) of each index as well as the ownership ratio by size of Assets under Management (AUM)

Table B.1: Statistics of Ownership Ratio

Statistics	S&P 500	ES 50	DAX	NASDAQ	MSCI		
					Emerging Markets	India	EMU Small Cap
MC (Billion US\$)	18,109	2,512	1,052	4,887	4,564	381	448
AUM (Billion US\$)	Ownership ratio (%)						
10	0.06	0.40	0.95	0.20	0.22	2.62	2.23
50	0.28	1.99	4.75	1.02	1.10	13.12	11.16
100	0.55	3.98	9.51	2.05	2.19	26.25	22.32
200	1.10	7.96	19.01	4.09	4.38	52.49	44.64
Ownership ratio (%)	Maximum fund size (Billion US\$)						
0.1	18	3	1	5	5	0	0
0.5	91	13	5	24	23	2	2
1	181	25	11	49	46	4	4
2	362	50	21	98	91	8	9

Source: Roncalli and Weisang (2015)

The results show that:

- S&P 500 based fund while being one of the largest fund (size of \$50 billion) in the simulations, presents a better liquidity profile than smaller funds such as the one based on MSCI EM (\$10 billion) or MSCI India (\$1 billion).
- A closer look at the indexes' capitalization provides a potential explanation: S&P 500 capitalization is equal to \$18 trillion, while it is \$4 trillion for MSCI EM and \$381 billion for MSCI India.
- Alternatively, the lower panel of the table shows that funds based on S&P 500, MSCI EM and India all have an ownership ratio of 1 percent if their size is \$181 billion, \$46 billion and \$4 billion, respectively.

Liquidity risks are often identified as one of the main components of systemic risk that could be linked to asset managers. These numerical results show that size is not an appropriate proxy of this risk.

Appendix

Appendix 1: Main Categories of Asset Managers

Vehicle	Features and Risk Profiles
Open-End Mutual Fund	<ul style="list-style-type: none">• These funds issue “redeemable equity securities” and stand ready to buy back their shares at their current net asset value (NAV)—the price per share of a fund.• These funds invest in generally liquid publicly traded bonds and equities.• Many of the funds offer daily liquidity to clients, making liquidity risk the key risk for the fund.• In particular, some funds invest in relatively illiquid securities (for example, corporate bonds instead of equity). This is often referred to as “liquidity transformation” that could lead to “liquidity mismatch,” which makes the fund vulnerable to redemptions.• These funds have little leverage through borrowing, though they could be taking portfolio leverage using derivatives (the same applies for money market funds and exchange-traded funds, below). Although regulations impose caps on the use of leverage, little quantitative information is available.
Money Market Fund (MMF)	<ul style="list-style-type: none">• These funds invest in short-term cash equivalent instruments such as commercial paper, Treasury bills, and certificates of deposit, and play a major role in short-term funding markets.• MMFs experienced major runs and liquidity distress during the global financial crisis. All U.S. MMFs offered constant NAV (mutual fund price per share) at \$1 per share. This structure created a first-mover advantage because funds continued to honor the \$1 per share repayment even though their actual NAV was worth less as the result of losses from asset-backed commercial paper, which was perceived to be liquid and safe before the crisis.• Constant NAV MMFs continue to exist in the United States and several other jurisdictions.
Exchange-Traded Fund (ETF)	<ul style="list-style-type: none">• ETF shares are traded in primary and secondary markets .• ETF shares can be created or redeemed in the primary market between the fund and “authorized participants” (APs) in large units. APs are typically large securities dealers. Only primary market transactions cause fund flows to ETFs. The settlement between ETFs and APs are usually in kind, meaning that the exchange of ETF shares and the basket of securities is in line with the ETF’s investment objectives.• APs then trade the ETF shares in the secondary market with clients and counterparties on stock exchanges. This intraday trading in secondary markets provides intraday liquidity to end investors.• Most ETFs are index funds, tracking the performance of a specific index.

Hedge Fund

- These funds cover a large variety of investment strategies, ranging from publicly traded equity (highly liquid holdings) to distressed debt vehicles and structured credit products (highly illiquid holdings). Use of leverage and derivatives also varies considerably depending on the strategy. Unlike mutual funds, hedge funds have no cap on leverage.
- Hedge funds tend to be more nimble than mutual funds regarding their investment strategy, leading to potentially rapid alterations in their risk characteristics. Depending on their funding and trading strategies, there can be significant interconnection with other financial institutions.

Private Equity Fund

- Private equity is a broad term that refers to any type of equity participation in which the equity is not freely tradable on a public stock market, such as equities of private companies and public companies that are delisted.
- Private equity funds often monitor and participate in managing the companies whose equity they hold. They aim to maximize financial returns by a sale or an initial public offering of the companies.
- There are four main subclasses among private equity funds: (1) venture capital that invests in early-stage, high-potential, growth startup companies; (2) buyout funds that acquire existing business units or business assets; (3) mezzanine funds that invest in both growth equity and the subordinate debt layer—namely, the “mezzanine” between senior debt and equity—of buyout transactions; and (4) distressed asset funds, which are a specialized segment of buyouts that target mature and distressed companies. In addition, there are real estate and infrastructure funds.
- Some private equity funds could be leveraged, but they are smaller components of the private equity industry .
- Moreover, these alternative investment vehicles offer limited liquidity to end investors, matching the funds’ long-term investment horizon. • Contagion risks are also limited because private equity funds invest in companies not traded in markets

Source: IMF(2015)

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