Market-Based Finance: Its Contributions and Emerging Issues

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Glossary

ABCP	Asset-Backed Commercial Paper
ABS	Asset-Backed Security
AIMA	Alternative Investment Management Association
AUM	Assets under Management
BDC	Business Development Company
BTL	Buy To Let
CCP	Central Counterparties
CDO	Collateralised Debt Obligation
CDS	Credit Default Swap
CGFS	Committee on the Global Financial System
CLO	Collateralised Loan Obligation
ESRB	European Systemic Risk Board
FCA	Financial Conduct Authority
FSB	Financial Stability Board
HQLA	High-Quality Liquid Assets
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IRS	Interest Rate Swap
LTCM	Long-Term Capital Management
MBF	Market-Based Finance
OTC	Over-the-Counter
P2P	Peer-to-Peer
REIT	Real Investment Trust

RMBS	Residential Mortgage-Backed Security
SIV	Structured Investment Vehicle
SPV	Special Purpose Vehicle
ZIRP	Zero Interest Rate Policy

Summary

The paper has three broad objectives.

- To better understand the factors that have transformed the relatively simple traditional banking model into one that is increasingly global and market-based.
- To develop an analytical framework to help us appreciate market-based finance's (MBF) contribution to consumer welfare and identify its potential risks.
- To gather information from various sources on recent developments and discuss their significance for the FCA as a securities markets and conduct regulator.

The paper concludes that:

Market-based finance (MBF) is a system of financial services provision that exploits new ideas and technology

- MBF has grown in response to advances in financial engineering and the globalisation of funding and capital markets, enhancing efficiency through specialisation, giving it comparative advantages over the traditional (bank-based) model of finance. Specifically, it has achieved diversification of the types of funding available to loan-making institutions, geographical diversification of the investor base, and has contributed to the development of new products and services for risk distribution and management.
- Regulatory arbitrage is not a major contributor to the growth of MBF, though it did lead to the emergence of a number of entities and activities that played a role in the development of the financial crisis.
- The MBF ecosystem is still evolving, so new products and services which are currently not part of it can, over time, move inside the MBF perimeter if they become sufficiently large and interconnected.

Market-based finance has many benefits…

- It can provide a 'spare tyre' for the economy in cases when traditional banks are unwilling or unable to lend, thereby reducing the impact of economic shocks.
- It provides a competitive constraint on traditional banking by making alternative forms of finance available to firms and investors, thereby improving the efficiency of the system.
- It provides access to larger markets for those products that prove successful in smaller niches because it can draw on a diverse pool of investors.

…but there are some risks which should not be overlooked

- The system is complex, still not very well understood and can at times be unstable. This is particularly true for some areas in which regulators have not yet gained access to data to assess the risks.
- For some products, unsolved market failures are present.

The risks and potential market failures, including those that may lead to systemic instability, illustrate that regulatory authorities need better data to assess whether policy intervention is warranted.

1 Overview

Purpose

The severity of the global financial crisis of 2008 has marked, an "inflection point in economic history."[1] The extraordinary character of the crisis and its aftermath is revealed not just in the magnitude of the economic dislocations it caused. It also exposed the truth that large areas of a modern, highly complex and evolving financial system have been developing much faster than our grasp of it, both conceptual and quantitative. This prompted wide-reaching re-evaluations of existing theoretical and regulatory frameworks among international organisations, academics and regulators to understand the root causes of the systemic breakdown, learn lessons, and develop effective regulatory and supervisory tools to address the causes proactively. One of the key developments in the run up to the crisis that has come under increased analysis and scrutiny is the rise of entities and activities collectively labelled the shadow banking system.

What do we mean by shadow banking? There is no shortage of definitions for shadow banking. Perhaps the most widely accepted is that they are outside the regulated banking system, thus shadow. Shadow banking is understood as carrying out credit intermediation, a core banking function. This usually involves four aspects: maturity transformation, liquidity transformation, leverage, and credit risk transfer.[2] We therefore arrive at a compact definition of shadow banking as *credit intermediation carried out by non-banks*.

But while this definition captures important elements of shadow banking, it misses perhaps the central element that really sets it apart from the traditional model of banking, namely that the aforementioned aspects of credit intermediation are carried out and priced on, global markets for money and risk. Because of these considerations, in this paper we use a more comprehensive concept of market-based finance (or MBF) which explicitly emphasises the key roles of markets and market-making mechanisms in the new system.

Why do we care? The intellectual and regulatory scrutiny of MBF by academics and policymakers has been mainly directed at understanding its impact on the stability of the financial system as a whole. In these concerted efforts, the perspective of securities and conduct regulators such as the FCA has not been very prominent. It is important that this debate involves expertise from securities regulators, since they possess significant knowledge of how these entities operate and extensive practical experience in directly overseeing many of them. For instance, hedge funds, broker dealers, derivative dealers, and more recently peer-to-peer lenders, all fall within the regulatory remit of the FCA.

This paper should be seen as a first and cautious effort towards the formulation of such a perspective. Its ambitions are limited. Above all, it reflects our attempts to get to grips with the nature of MBF and to understand the benefits and risks that are particularly relevant for securities

[1] Zandi (2010).

[2] For a discussion of what these key aspects mean, see IMF (2013). *What is Shadow Banking?*

and conduct regulators. However we remain conscious of the fact that primary interest in MBF continues to be inspired by its contribution to systemic risk and financial instability.

To arrive at the findings discussed here, we undertook a substantial review of the existing literature on MBF to come up with a useful analytical framework for our purposes. We also carried out a systematic review of the trade press and various web sources to look for new developments in MBF and organised discussions with internal and external stakeholders to gather their views on them, and to discuss our developing views on the significance of MBF for regulators.

Key findings

Our investigation has confirmed that MBF is important for securities regulators because it can contribute to the achievement of their objectives in several respects. MBF can reduce the cost of capital and improve allocation of resources, and it is becoming an important complementary source of credit to companies and households. An economy that has a more diversified mix of institutions financing the real economy is likely to be more resilient to adverse economic shocks. MBF is also instrumental in developing products that can better match consumers' and firms' needs, and compete with the traditional banking sector.

The gradual evolution of the system of market-based finance suggests that MBF is not merely an alternative way of providing banking-like services. It is in many ways a more efficient way of providing these services.

The literature has identified two fundamental drivers of MBF:

- advances in financial engineering, specifically securitisation and risk management, and
- globalisation of funding and capital markets.[3]

This is not to say that the stricter regulatory requirements now being imposed on banks do not make marginal MBF activities attractive that otherwise would not have been. Several of them involved traditional entities such as banks and insurance companies that backstopped MBF entities with lines of credit and mechanisms to unload risk using credit default swaps. The growth of some of these activities was made possible by capital requirements arbitrage. The post-crisis regulatory reforms imposed more stringent capital adequacy and accounting standards on banks' exposure to off-balance sheet entities such as ABCP conduits and SIVs. This contributed to a sharp decline of the US ABCP outstandings from the $1.2 trillion peak in July 2007 to just $226 billion at the end of 2015.[4]

In contrast with pre-crisis MBF, post-crisis MBF may be more accurately described as fund-based, in which cash portfolio and risk portfolio managers' functions are intermediated through dealers.[5] The fund-based MBF operates with much lower leverage and much lower maturity transformation.[6] Moreover, the funds' business model makes them far less dependent on banks and insurance companies as liquidity and credit risk backstops.

[3] See, inter alia, Pozsar (2014) and (2015), Mehrling et al (2013), and Acharya et al (2013).

[4] Fitch Ratings (2016).

[5] We discuss these elements in the next section.

[6] FSB (2015, p. 25) observes that funds, including hedge funds, have low to moderate leverage with the caveat that derivatives-based (or synthetic) leverage is not captured.

Regulation introduced since the crisis has also made banks and insurance companies more resilient to shocks and as such has contributed to making the system as a whole much safer.

Furthermore, a series of innovative activities that have blossomed in recent years are now challenging banks in many of the services they traditionally provided. For instance crowd-funding platforms represent a novel way of funding entrepreneurial ventures and peer-to-peer lending is an obvious alternative to a bank loan for many people. As we elaborate below, these activities have the potential to be beneficial for consumers and businesses by delivering services at a lower cost and providing them with additional funding channels. Whether they are structured as dealers, asset managers, insurance companies, or online peer-to-peer lending platforms, market-based financiers provide competition to banks. MBF entities receive investors' money and use it to provide financial services that are generally helpful to the real economy.

The rest of the paper is structured as follows:

- Section 2 outlines the main historical developments that have led to the system of market-based finance in its modern form.
- Section 3 elaborates on MBF's contribution to consumer welfare and competition in the economy.
- Section 4 presents the results of our assessment of a number of risks posed by MBF activities.
- Section 5 concludes.

Equality and diversity considerations

We have considered the equality and diversity issues that may arise from the proposals in this Occasional Paper.

Overall, we do not consider that the proposals in this Occasional Paper adversely impact any of the groups with protected characteristics i.e. age, disability, sex, marriage or civil partnership, pregnancy and maternity, race, religion and belief, sexual orientation and gender reassignment.

2 Towards an understanding of MBF

Market-based finance as modern banking: an evolutionary view

There is a risk in approaching the MBF ecosystem as if it were simply a loose collection of non-bank entities that perform bank-like functions, pose bank-like risks, and therefore have to be regulated like banks. In this paper we argue that the focus on bank-like functions in non-banks misses several important facts about MBF, and if acted upon by regulators is unlikely to achieve appropriate regulation of this modern form of finance.

We outline elements of what we suggest is a more realistic approach and base our discussion on an analytical framework of MBF known in the literature as the money view.[7] The money view characterises MBF as an intermediate stage in the natural evolution towards a financial system that is likely to become more, not less, market based. MBF, in short, represents a modern and different way of creating, distributing, and managing money, credit and risk globally.

This evolutionary view identifies the fundamental drivers of MBF growth and appeal not in regulatory arbitrage, or at least not primarily, but in developments that are external to it. Consider a world in which traditional banking is unregulated (or regulated at zero incremental cost to traditional banks) and the technological and other changes exploited by MBF occur. Does it seem likely that under these conditions MBF would not have evolved? The answer surely depends on whether MBF could be cheaper or more efficient than traditional banking under zero regulatory costs and therefore able to outcompete it. Given its diversification, scale economies and other efficiencies, MBF has clear scope to outcompete traditional banking. Therefore MBF would in principle have evolved even if traditional banking had been unregulated. It follows that characterising MBF as mainly driven by regulatory arbitrage is unrealistic, though, as mentioned above, at the margin the scope of MBF included and may still include some areas in which it can only outcompete traditional banking because of the incremental costs of bank regulation.

The literature on the evolution of MBF has identified two fundamental drivers of MBF[8]:

Appendix 1: advances in financial engineering, specifically securitisation and risk management (financial innovation), and

Appendix 2: globalisation of funding and capital markets.

Financial innovation is a relatively recent phenomenon that has three drivers (Bernanke 2009):

- financial deregulation that began in the 1970s,
- public policies toward credit markets (in the US the most prominent were the Community Reinvestment Act of 1970 and government support for the development of secondary mortgage markets), and

[7] Mehrling et al (2013) provides a compact overview of the approach.

[8] Pozsar (2015), Pozsar (2014), Mehrling et al (2013) analyse the contribution of these factors in greater detail.

- broader technological change that made possible "the low-cost collection, processing, and dissemination of household and business financial data, functions that were once highly localized and, by today's standards, inefficiently managed."

One result was cheaper, more accessible and individually tailored credit market products.

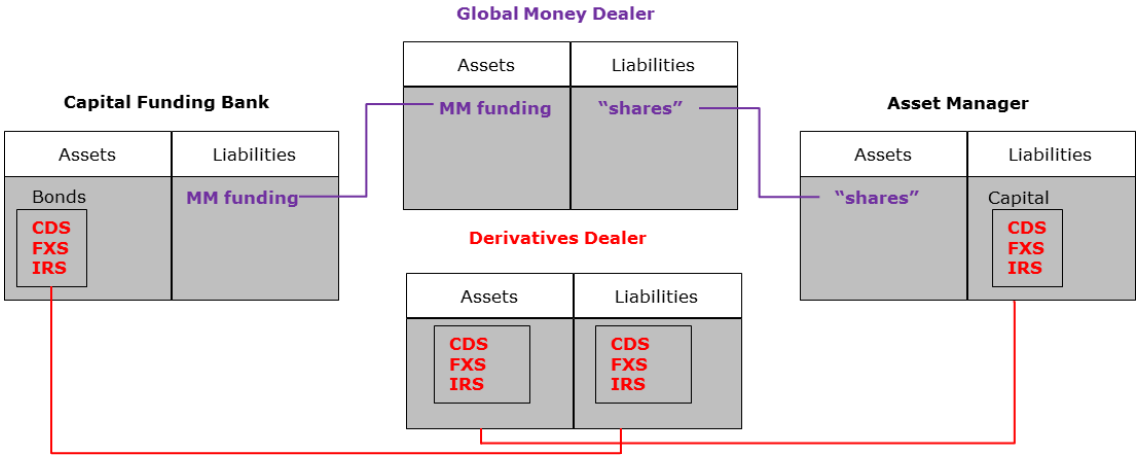
Financial globalisation and advances in financial engineering have gradually contributed to:

- diversification of the funding mix of loan-making institutions from purely deposit-reliant to increasingly wholesale-based (eurodollar, repo, ABCP),
- geographical diversification of the investor base and development of global capital markets,
- creation of new products, the transformation and expansion of traditional banks' range of activities and
- the creation of new entities (money market funds, SPVs, SIV, etc) to manage the complex web of activities and risks.

The cumulative impact of these developments has been an ongoing institutional and functional transformation of the business of banking. Whereas traditional banks made loans funded by insured deposits, linking up ultimate borrowers with ultimate savers, modern financial institutions are increasingly becoming dealer banks (Mehrling et al, 2013) that purchase bond portfolios which are funded by issuing un-insured money market instruments, so "rather than linking ultimate borrowers with ultimate savers, they link cash portfolio managers and risk portfolio managers who in turn manage ultimate savers' savings." (Pozsar, 2013)

To visualise the fundamental logic and contours of the transformed business of banking, consider a highly stylised and simplified model of MBF depicted in Figure 1 below.[9]

Figure 1: A Basic Model of MBF



Adapted from Mehrling et al (2013)

The model singles out four key entity types, each performing a distinct function in maintaining the market-based intermediation mechanisms of funding provision and risk transfer (or sale). And while all four functions can be, and very often are, performed in-house within a single financial institution, usually a large international bank, or a conglomerate, conceptually it might be helpful

[9] Annex 1 develops the model a bit further to analyse the nature of risks that are characteristic to MBF.

to associate them with individual entity types. The model further simplifies and abstracts from the very sophisticated and complex financial engineering supporting the flow and management of money and risk.

To understand the function and the purpose of the 'capital funding bank' (CFB), let us turn to the balance sheet of the bank which on its assets side has an exposure to a long-term fixed-income instrument, 'bonds', such as residential mortgage securities or other asset-backed securities. The CFB typically holds three types of basic derivatives (credit default swaps, foreign exchange swaps, and interest rate swaps) whose function is to carve off credit, foreign exchange, and duration risks to which the bank is exposed by holding the bonds outright on its balance sheet. One purpose of using swaps is to sell off these risk pieces to investors, here the 'asset manager', who want exposure to them. Making markets in the risk transfer, i.e. intermediating the risk flow and establishing the price of risk, is the function and business of the 'derivatives dealer'.

After the CFB has sold off the risks from the bonds it holds essentially a risk-free asset. That risk-free piece of the bond the bank uses as collateral to fund the asset in the (global) money markets. The flow of funding is intermediated by a 'global money dealer'. The ultimate funding source is the asset manager who in the model we have assumed manages both the money of its clients and their desired risk exposure.

In reality, the form in which the ultimate investors hold their wealth ranges from holding shares backed by low-risk securities manufactured by the real-world equivalents of the CFB and managed by cash portfolio managers, to investing with a leveraged fund pursuing a high risk-reward strategy. And so we expect much variation in institutional forms and the complexity of the processes of intermediation across time and jurisdictions that the model does not capture. However, the key message that the model seeks to convey is the essential role of the dealers in ensuring the smoothness and efficiency of credit intermediation from the ultimate savers to ultimate borrowers.

The first analysis to link parts of the market-based banking space was developed by Pozsar (2008). Gorton (2010), and Gorton and Metrick (2010, 2012) initiated research programmes that have grown extensively and now represent a dominant paradigm (Adrian and Ashcraft, 2012; Adrian and Shin, 2012). This work included analysis of off-balance sheet entities that critically relied on repo and ABCP money markets and their contribution to the panic of 2007-08, problems with maturity and liquidity mismatches in different corners of MBF. But ultimately it still places the system of market-based finance squarely within the traditional banking model, arguing that even though it has grown more complex and interconnected, fundamentally MBF is not that different from traditional banking.

One practical implication of this analytical framework is that regulatory approaches do not require much by way of retooling. Standard instruments in bank regulators' toolkits should be sufficient to capture the main risks and to design effective policy responses. So far monitoring efforts have mainly concentrated on identifying relevant non-banks according to a number of typical 'shadow banking economic functions' that they perform and mapping these functions to typical bank-like risks which include maturity/liquidity transformation, leverage, and imperfect risk transfer.[10] While these are important parameters to understand and monitor, they are too blunt and old fashioned to serve as the foundation for effective regulation of MBF.

[10] Cf. FSB (2013).

The danger of approaching MBF as basically old wine in a new bottle lies in potentially overlooking the fact that the system has evolved to acquire several unique institutional and functional characteristics that need to be taken seriously and approached accordingly. Being a market-based system, MBF involves the type of market liquidity and market integrity risks that are more familiar to securities regulators than bank regulators. If these are not addressed by appropriate, market-based regulation, liquidity will be materially lower and prices inefficiently higher than would otherwise be the case. An inappropriate model of regulation will therefore mislead our thinking about the benefits as well as risks of the new system. In terms of regulatory action, the danger of the traditional regulatory perimeter expanding around the widest possible edges of the MBF ecosystem, such as regulating non-banks as banks or providing similar public backstops, is that it is likely to impede useful innovation and competition while contributing little to the system's resilience.

In Annex 1 we further develop the model of MBF to highlight the key operational mechanics of this new and innovative provision of banking-like services that call for an update of the traditional bank-centred approach to financial regulation.

In summary, the market-based credit intermediation system, unlike the traditional banking system is totally dependent on well-functioning markets in both funding and the assets that it manages. These often global markets establish first, the price of the assets on asset markets, and second, the price of funding in money markets. If looked at in this way, market-based finance is more aptly described as "money market funding of capital market lending"[11], rather than credit intermediation by non-banks, and the modern financial system more like a capital market credit system, rather than a bank loan-based system. And in a capital market-based system both key prices are determined in dealer markets. The main risk to the stability and efficient working of a globally interconnected system is the failure of the dealer markets to provide efficient pricing of funding and asset risk exposure. Failure of the dealer markets to perform their market making functions is likely to lead to disruptions in market liquidity and risk transfer mechanisms well beyond local epicentres of initial stress.

MBF and nascent MBF

The financial system's evolution towards being more market-based is, in our view, appropriately captured by analyses that emphasise entities and activities that are distinguished by a very high degree of interconnectedness at the wholesale level. Put simply, the wholesale level is where interbank direct lending and borrowing and such integrally important activities in modern finance as risk transfer are taking place. The risks to market integrity arising from them therefore have been and continue to be of material concern to regulators.

There is also a category of non-banks and their lending-related activities that are smaller in scale and not (or only weakly) integrated with wholesale providers of credit and risk. Positive demand developments, coupled with favourable technological and regulatory conditions surrounding the underlying business models, might eventually enable them to grow in size and sophistication and thus become part of MBF. We label these entities and activities 'nascent' MBF and discuss a few of them in section 4 below. As long as they remain outside of MBF proper, risks in these activities are not significantly likely to spill over into other parts of the market-based ecosystem and therefore can be dealt with through our established policy tools. But because they have that

[11] This definition of market-based finance has its origin in Mehrling (2010).

evolutionary potential, it is worthwhile in our view to monitor their development in case they become an integral and significant part of MBF.

In this paper we consider the entities and their business models that are currently outside of MBF only insofar as our research showed that there are signs of them becoming MBF. Other activities, which are sometimes referred to as 'shadow banks', such as buy to let or corporations lending to other corporations, but are unlikely to develop into bona fide MBF, are excluded from the discussion.

It should however be pointed out that it is inherently difficult to have an unambiguous list of entities that should or should not be counted as MBF. Recent research has shown that over the last three decades modern financial markets have come to be increasingly dominated by conglomerates that house entities such as traditional commercial banks, broker-dealers, specialty lenders, insurance firms and asset managers under a single holding company. Significantly, the evolution towards this so-called "hybrid intermediation" (Cetorelli, 2014) structure seems to have the same roots as the evolution towards more market-based finance in general.

> "…asset securitization has been arguably one of the key events defining this change. Asset securitization turned traditional intermediation upside down, changing both the lending model—diminishing the need to hold and manage on-balance-sheet portfolios of credit claims—and the funding model as well, since the growing stock of asset-backed securities enhances collateral-based forms of financing, driving the increasing importance of dealer intermediaries and the markets for both securities lending and repurchase agreements.
>
> Cetorelli, 2014, p. 4

The case of securities lending being one of the characteristic activities of market-based finance offers probably the best illustration of how entities such as pension companies, insurance companies, mutual funds, hedge funds and other asset management entities who are neither deposit-takers nor lenders in the classical sense are nevertheless key players in MBF. Securities lending involves a temporary transfer of securities from lenders to borrowers usually backed by cash collateral or some other security. Typical lenders are pension funds, mutual funds, and insurance firms that manage large portfolios of securities while principal borrowers are broker-dealers who demand securities to make markets on behalf of their clients, such as hedge funds, or for proprietary trading. Securities lending has developed from a service offered by brokers to facilitate the settlement of transactions on behalf of their clients into one that supports a number of important market activities such as short-selling, market-making and derivative trading, providing an importance source of income for both lenders and borrowers (Fabozzi & Mann, 2005).

At the end of 2015 from an available global lending pool of just under US $15.3 trillion, the volume of securities on loan stood at US $1.9 trillion.[12] Mutual funds and pension plans are the most important suppliers to the global lending pool. Together they made available 66% of the total US $15.3 trillion owned by institutional investors. The market generated more than $8.611 billion gross revenue in 2015, of which by far the largest share at 44% was generated in the US, followed by Europe with 32.8% and Asia with 16.8%. In terms of asset classes, fixed income and equities have an almost identical weight ($843 billion of on-loan securities are fixed-income while on-loan equities amount to $845 billion).[13]

[12] ISLA (2016).

[13] Datalend (2015)

However, there are also services offered by entities that do not have a direct relationship with market-based finance. Custodial services and selection of investment portfolios offered by asset managers are obvious examples. Therefore, and to illustrate the point with a specific example, in Table 1 below asset managers are in the MBF column as entities because they are involved in securities lending but in the non-MBF column as an activity because the activity of managing the assets on behalf of clients is not part of the MBF ecosystem.

Table 1: A summary of MBF entities

Part of MBF	Nascent MBF	Not part of MBF
• Global banks • Broker-dealers • Money Market Mutual Funds • Finance Companies (and other specialty lenders such as credit card lenders, mortgage institutions etc) • Central Clearing Counterparties (CCPs) • Special Purpose Vehicles (SPVs) • Real Estate Investment Trusts (REITs) • Business Development Companies (BDC) • ABCP conduits • Government Sponsored Enterprises • Pension Funds • Insurance Companies • Credit Hedge funds • Asset Managers	• P2P Lending/Online Lending Platforms	• Consumer credit providers[14] • Corporations that lend to other corporations • Buy-to-let lenders

[14] These providers offer products such as store cards and other revolving credit facilities, point of sale or other retail finance, personal loans or short term credit.

Table 2: A summary of MBF activities

MBF	Nascent MBF	Not MBF
• Securities Lending • Collateral mobilisation services (including repo) • Securitisation activities (warehousing of loans, pooling & structuring of loans into ABS, ABS into CDOs, distribution & intermediation of ABS, CDOs) • Derivative Overlay Strategies	• Lending by credit funds • Market-based long term financing solutions • P2P Lending • Equity crowd-funding	• Lending to corporations (by other corporate entities) • Buy to let • Invoice financing • Consumer credit • Asset management services (including custodial services, portfolio selection etc)

3 Competition and the welfare-enhancing contributions of MBF

The financial crisis revealed that the evolving architecture of the new form of banking was far from perfect. Some of the activities and entities did not withstand the test of the financial crisis and have either disappeared or are greatly reduced in size. For example, the pre-crisis institutional landscape of securitisation intermediaries has almost entirely disappeared. Such off-balance sheet entities as Special Purpose Vehicles (SPVs), which were used to help disaggregate and relocate to investors the risks of a pool of underlying property-based credit exposures, have largely been reintegrated onto the balance sheets of the sponsoring banks.[15] In terms of issuance volume, both the United States and Europe have yet to reach half the levels observed in 2006.[16]

By some accounts, there also has been a slowdown in the pace of innovation. The dealer banks, once the principal source of innovation particularly in the markets for derivatives products, have suffered declining staff numbers and are facing greater public and regulatory scrutiny. As a recent *risk.net* report on innovation observed, "ideas that were being pushed aggressively in the pre-crisis years - derivatives on economic events and property, for example - have long since been abandoned, while markets that actually got off the ground are now threatened with extinction."[17] It is too early to assess whether this has been net beneficial or harmful to competition and consumer welfare. Much of the scrutiny was initially driven by the perception that certain financial innovations such as Collateralised Debt Obligations (CDO) and Credit Default Swaps (CDS) may have contributed to the financial crisis, which induced regulators around the world to adopt measures to mitigate risks stemming from financial innovation.[18]

But MBF remains an enormously important part of the financial system, and is here to stay. Moreover, its continuing existence should be welcomed. It has attractive features that need to be nurtured. It can complement traditional banking by expanding access to credit or by supporting market liquidity, maturity transformation, and risk sharing. For example, in developing economies, finance companies and microcredit lenders often provide credit and investments to under-banked communities, subprime customers, and low-rated firms. These entities can be more efficient than traditional banks through specialisation and economies of scale in the origination, servicing, structuring, trading and funding of loans to both bankable and non-bankable credits. Finance companies have for decades served subprime credit card, auto loan customers, and low-rated corporate credits like the commercial airlines, which are not served by banks (Pozsar et al, 2013).

In more developed economies MBF can enhance the efficiency of the financial sector by exploiting a number of specialisations and comparative advantages over the traditional banking

[15] PwC (2011).

[16] Jones et al (2015).

[17] Becker and Cameron (2013).

[18] FSB's G20 meeting in 2009 explicitly addressed risks associated with financial innovation in one of its key recommendation, Financial Stability Forum (2008).

model of finance, most importantly by providing mechanisms for better risk sharing and by deepening market liquidity and economising on costly capital. As a provider of alternative and valuable sources of finance, MBF contributes to greater competition in the financial services industry and is increasingly involved in financing projects of national importance, such as planned long-term infrastructure projects in the UK.[19] On the supply side, the most important driver is the diminishing willingness to assume the long-term maturity risk of holding a portfolio of whole loans which provides a powerful incentive for securitisation. On the demand side, there is increasing appetite to buy income streams from infrastructure investments, like roads and power generation.

There are particular gains from specialisation that the evolution of MBF has brought about:

- In terms of direct borrowing costs to the consumers, the disintermediation of traditional banks, behind which securitisation-based credit intermediation has been the driving force, allows borrowers and lenders to avoid the higher mark-ups, in particular the credit spread, charged by traditional banks.

- To the extent the securitisation process achieves genuine credit risk transfer it provides an important way for an issuer to diversify borrowers, types of loan and markets. Furthermore, securitisation enables lenders to take advantage of economies of scale in the origination, servicing, structuring, trading and funding of loans.

- Securitisation may also contribute to the private, market-driven supervision of banks, by providing third-party discipline and market pricing of assets that would otherwise remain opaque if left on a bank balance sheet. With respect to funding costs, the manufacture and retention of high-quality asset tranches from the securitisation process has allowed lenders to access a greater variety and geographic location of funding sources and thus better manage their asset-liability mismatches. For example, some securitisation intermediaries are able to fund highly-rated structured assets at lower cost and lower levels of leverage to achieve return-on-equity targets comparable to those of banks.

- The development of derivatives products, in particular interest rate and credit default swaps, has helped to improve timely payment of principal and interest on an underlying debt obligation by providing credit guarantees.

A decentralised and diversified financial system is potentially more robust to shocks to the extent that it reduces the relative size of intermediaries and avoids the concentration of business into systemically-important or too-big-to-fail entities. The diversification of functions among more firms may also reduce system-wide correlation and dampen the transmission of systemic risk. It is worth noticing, however, that the impact on the stability of financial markets of MBF cannot be determined so easily. For instance, by developing new services and products that are not sold by

[19] See the BBA/KPMG study on Infrastructure Finance in the UK (BBA 2015). Also see AIMA's recent study on the role of Asset Managers in the financing of the real economy (AIMA 2015). Another AIMA study on the long-term trends of capital markets' contribution to economics growth argues for their crucial importance for sustainable economic development (Kaserer and Rapp 2014). Furthermore, the success of Europe's Capital Market Union is recognized to rely critically on projects financed through capital markets (market-based finance) rather than through bank lending, see Véron and Wolff (2015).

traditional banks, it can make the system more resilient to the failure of a firm as losses can be shared among a more diverse set of participants, but by making the system more interconnected it can result in shocks being propagated more widely and more quickly than would otherwise be the case.

Box 1: What is the contribution of MBF to UK GDP

This paper analyses the activities that make up MBF, discusses the evolution of the system and looks for innovations that might pose risks to the FCA's (and other conduct and securities regulators') objectives. However, by providing a potentially efficient alternative to traditional banking activities as a means of fulfilling consumer needs, MBF also contributes to the macroeconomic performance of the UK economy.

The effects of MBF on growth: current macro models are not of much help

The literature has argued that there is no preferred source of finance (Rajan and Zingales, 1998; La Porta et al, 2000; Beck et al, 2000; Levine et al, 2000, Beck and Levine, 2004) between banking and capital markets. However, Cuadro-Saez and Garcia-Herrero (2008) indicate that having a balanced finance structure does have a positive impact on economic output. The idea is that when one source of financing contracts, the other can pick up the slack (Greenspan's *spare tyre* argument, 1999; see also Adrian et al, 2013).

Since no one source of funding is preferable but the balance of funding seems to be important, the implications of a shock to MBF on GDP might seem similar to those of a shock to bank finance. If additional regulation were to curb lending from MBF there would be no chance of the banking system picking up the slack as it is currently constrained by policy interventions such as increased capital and liquidity requirements that took place over the last few years. The advantage of this approach to estimating the impact of MBF to UK GDP is that there are modelling tools available and a large body of research to rely upon. However, we believe that this approach has some very serious limitations.

First and foremost, current macro models do not incorporate the effect of MBF on the money market. For instance, the supply of money-like instruments generated by the MBF system depends on the underlying collateral. Therefore, and unlike traditional sources of money (deposits or M2), changes in collateral value and its availability can very quickly change the supply of non-M2 instruments. Moreover, the demand for non-M2 instruments comes mainly from economic agents (e.g. asset managers, dealers, etc) whose

consumption/dealing motives are very different from those present in traditional macro models. Additionally, the impact of MBF on aggregate demand is not well captured in current macro models. Another serious problem is that current macro models were tailored to parameters of traditional banking which are not applicable in the newly developed system.

An illustrative estimate

Having these limitations in mind, and purely as an illustration of the contribution of MBF to economic growth, we can use previous studies to get an idea on the impact of potential MBF regulation on economic output. For instance, Barrell et al (2009) estimate the economic impact of bank capital requirements on UK GDP, where higher capital requirements increase the cost of borrowing for households and corporates. In the long run, a one percentage point increase in capital requirements raises the user cost of capital by 0.85% and hence reduces sustainable output in the UK by less than 0.1% (£1.83 bn in the original paper). This may provide an idea of the potential economic implications on UK GDP if MBF regulations led to similar increases in the user cost of capital (holding everything else constant).

In its monitoring report of global shadow banking, FSB (2015) observes that "jurisdictions with a greater increase in shadow banking assets between 2010 and 2014 tended to have greater increases in GDP over the same time period." There are big variations in the size of shadow banking sectors across jurisdictions, so a more accurate comparison should take these differences into account. The United States, for example, had the biggest shadow banking sector in terms of assets with $14.2 trillion in 2014. In terms of its size relative to GDP it stood at 87%. The UK is home to the second largest shadow banking sector in absolute terms with $4.1 trillion in assets, but relative to GDP at 147% it is almost twice as important as its US counterpart. Relative to its modest GDP, Ireland's shadow banking sector stood at 1,190%, with $2.4 trillion in total assets.

4 MBF: risks to securities regulators' objectives and emerging issues

The above discussion of the features of the MBF system suggests that, if appropriately designed and supervised, it can enhance the efficiency of financial markets, reduce costs and risks to borrowers and lenders, and reinforce the stability of the financial system. The challenge is to make MBF simpler, more transparent and much more resilient, and at the same time preserve its welfare-enhancing potential.

In order to evaluate the potential of current developments and emerging trends in MBF and nascent MBF to pose risks to consumer protection, competition, and market integrity (including financial stability issues), we conducted an extensive literature review including reports and papers published by international organisations such as the IMF, the FSB and IOSCO as well as academic studies. We followed this with a systematic search of the trade press including a number of online sources to look for new developments in MBF. We have also held discussions with trade associations and other practitioner groups to gather their views, and have had our views challenged by FCA colleagues with respect to our preliminary findings.

As it is generally agreed that regulation cannot improve overall economic welfare unless market failure is present, we based our assessment on what failures might be expected in the relevant markets and how these impact the functioning of these markets. But given the wide scope of the analysis, we have not considered in depth whether policy interventions could significantly improve the observed outcomes so we do not discuss policy proposals here.

We note that the current market environment makes a confident assessment of MBF exceedingly difficult. Global financial markets are still recovering, remarkably slowly, from the financial crisis of 2007-08 in an uncertain economic and geopolitical environment which poses unique challenges to policymakers. This uncertainty is likely to lead to changes in the behaviour of market participants, the consequences of which are equally difficult to predict. Moreover, even in relatively calm economic conditions lacking features such as extraordinary monetary policy, economic shocks regularly occur and alter the impacts of seemingly benign innovations. So it is worth starting our assessment of MBF with the caveat that, despite our best efforts, our initial assessment of the risks and consequences of MBF is likely to be incomplete.

In the first part of this section we offer a brief overview of the market failures that the literature has identified are likely to befall MBF. As we have learned in our investigation, the list is neither exhaustive nor is it possible to correlate them with the concerns raised by market participants and other stakeholders at any given point in time.

The second and third parts are devoted to the analysis of important recent developments in MBF and nascent MBF that in our view might warrant further scrutiny to assess the extent of the risks inherent in one or more categories of potential market failures.

Table 3: Ares of particular interest

MBF	Nascent MBF
Potential for collateral shortages and clogged collateral flow	Direct lending by credit funds
Risk absorption capacity of the dealer system	Peer-to-peer lending
Leverage shifting	

In Annex 2 we have an extended table of areas of potential interest and offer a high-level analysis of regulatory gaps to determine where existing regulations might fall short and why. In our view, the biggest gaps so far are still in data availability as well as conceptual gaps in understanding the system's many moving, and evolving, parts.

Market failures in the MBF: an overview

1. Regulatory arbitrage

It is often argued that some, not all, MBF entities and activities do not face the same type or degree of regulation as traditional banking does, despite in many respects posing comparable degrees of risks, but at the same time these MBF entities/activities enjoy a comparable degree of protection and ease of access to public funds.[20] This relative imbalance between private gains and social losses across banking models may allow MBF entities to build excessive leverage and other risks, the systemic consequences of which can result in the commitment of public funds. It is also argued that established MBF structures may induce traditional banking activities to migrate outside the so-called 'regulatory perimeter', thereby undermining the effectiveness of traditional banking regulation. However, if, as argued here, the fundamental drivers behind MBF are efficiency-enhancing technological changes and financial globalisation, then migration of traditional banking activities should in principle be greeted as a positive development. On the other hand, regulatory arbitrage is certainly negative if it leads to straight relocation of practices that effective bank regulation currently keeps in check. We note, however, that much MBF activity is regulated within banking groups or within entities subject to other forms of substantive regulation. Incidentally, this is further evidence that MBF is far more than a story of regulatory avoidance.

Related to regulatory arbitrage is also the issue of public guarantees to traditional banks that during the crisis were indirectly extended to MBF entities. These public guarantees were originally designed to contain runs on the traditional banking system. During the crisis traditional banks used these guarantees to support, by means of credit lines, MBF entities such as the ABCP

[20] For example, EU securitisation prudential requirements apply to both banks and broker/dealers, whereas those securitisation rules do not apply to loan-based crowdfunding firms. Another example is that certain types of lending are not subject to prudential requirements (e.g. buy to let), but because banks and investment firms are subject to consolidated prudential requirements as well as individual prudential requirements any entities in the group that do BTL lending would be included in the group prudential requirement. So having group prudential requirements for banking and investment firm groups minimises the opportunity for arbitrage in such groups.

conduits and SIVs that they sponsored.[21] The problem is that the costs of these implicit support measures were not borne by the banks through higher deposit insurance fees and capital charges. Recent reforms in the pricing of deposit insurance schemes as well as tightened capital regulations have substantially increased the cost of government backstops.[22]

2. Agency problems

The theoretical and especially empirical literature on principal-agent problems in MBF is relatively limited. The theoretical analysis of conflicts of interests between sellers and consumers of products and services along intermediation chains has presented problems of opaqueness and transparency.[23] The bulk of the discussion is concentrated on specific problems in securitisation-based credit intermediations as well as related risk transfer mechanisms which do not exist for a traditional bank that uses its own balance sheet for borrowing and lending. These include predatory lending and borrowing, poorly underwritten loans and structured securities, conflicts of interest between servicers, on one side, and investors and borrowers, on the other. This can lead to imperfect risk transfer, threaten the solvency of financial institutions, cause massive losses to investors and lead to the collapse of entire markets.

3. *Information problems*

MBF is a complex web of entities and activities involving long intermediation chains which may exacerbate the following problems:

- Opaqueness associated with asymmetric information may spawn fraud, misconduct, and other opportunistic behaviour.
- Wholesale money market funding such as repo and ABCP is low cost because it is secured by money-like liabilities. The problem is that due to the opaque nature of the underlying long-term assets the money-like liabilities may be mispriced. The availability of cheap funding and ample balance sheet capacity results in low perceived risk of funding assets and is considered by some to amplify asset bubbles. Access to ample wholesale funding facilitates leverage on the way up when asset prices are rising, and margins and haircuts are low. In the downturn, following a major asset price correction, increases in margin and haircuts cause the wholesale funding for many firms to dry up, forcing them to sell assets to raise liquidity to meet their credit commitments.
- The involvement of traditional banks as underwriters or providers of credit lines to MBF entities means that problems originating in MBF may spill over into the traditional banking system.
- Reduced transparency may mislead intermediaries, investors and regulators as to the true size and location of risk. For example, loans of lower quality may require a longer chain and more complex techniques to enhance the quality of the manufactured asset-backed securities to be able to offload them to money market mutual funds and other end investors, thereby masking, rather than truly diversifying, the underlying risks in the process. This may allow risks to accumulate unnoticed and unchecked giving rise to the possibility that, when hidden risks suddenly become apparent, market participants panic.
- Complex intermediation chains may increase system-wide correlation and facilitate the transmission of systemic risks. The longer the chain of financial intermediation, the more

[21] For a detailed discussion, see Adrian (2014) *Financial Stability Policies for Shadow Banking.*

[22] Adrian (2014) *Financial Stability Policies for Shadow Banking.*

[23] For a summary, see Adrian (2014) *Financial Stability Policies for Shadow Banking*.

entities will be exposed to the knock-on effects of dislocation anywhere in the chain. Conversely, this can mean that, depending on whether there are institutions that provide 'firebreaks' in the system, larger chains enable risk to be dispersed without destabilising parts of the system. Firebreaks may arise from the structure of the network or from the nature of institutions in the system enabling them to act as 'shock absorbers'.

Potential risks from MBF

In section 2 we described our framework for understanding MBF. Above we provided an overview of market failures that are usually associated with market-based finance. In this section we dig deeper into specific areas that have emerged most often in discussions with market participants and the extant literature and try to identify market failures which could result in risks of interest to securities and conduct regulators.

The role of collateral

There is a growing recognition that collateral has become new money and as such is an intrinsic feature of the modern financial system.[24] Collateral is needed principally for financing the securitisation of loans, collateralisation of repo transactions, and margining of OTC derivatives trades. Collateralisation of a wider class of activities has contributed to deeper, more liquid domestic and international money and capital markets, linked sovereign and corporate borrowers with investors of different types, and helped to support real economic activity with more investment and greater job creation.

The trend towards greater collateralisation, however, has brought with it concerns about:

i. the balance between the demand and supply of collateral to support the various activities,
ii. the adequacy of the infrastructure plumbing that enables and facilitates the flow of collateral,
iii. the extent to which market participants and regulators enhance or constrain this fluidity, and
iv. the potential systemic risks if the flow is disturbed.

The known market failures in connection with collateral concern the efficiency of the system to execute transfers of collateral-based payment settlements across the global financial system, both in normal times and in times of market stress when a cascade of collateral calls might lead to fire sales to raise liquidity to meet them. This is likely to lead to contagion and weakened financial system resilience. For example, two prominent types of market failure are a lack of price transparency and asymmetric information with respect to who owns what and in what quantities. The most sensible way of addressing them is to support market participants in building resilient structures immune to the effects of wild swings of exuberance and pessimism. One such initiative is the requirement to clear the majority of over-the-counter (OTC) derivative contracts with central counterparties (CCPs).[25]

There are a number of drivers behind the demand for collateral. An important one is the expected additional demand for high-quality liquid assets (HQLA) from the aforementioned new CCPs

[24] An authoritative text on the role of collateral is Singh (2014).

[25] See primarily the European Markets Infrastructure Regulation (EMIR) which came into force on 16 August 2012.

regulation. Under this regulation, counterparties will have to post HQLA for the default fund as well as initial and variation margins.[26] But probably the most important factor is market driven: the complexity of modern finance makes it more likely that market participants will require collateral from their counterparties. The movement from traditional banking to MBF implies that more complex collateralisation is required to make such transactions viable.

On the supply side, the Committee on the Global Financial System in 2013 estimated that the total increase in AAA/AA government securities between 2007 and 2011 was US $7.7 trillion. If we include short-term government securities, corporate bonds rated A or better, and US securitised bonds, the net stock of high quality assets has increased by about US $11.3 trillion. We are also likely to see collateral transformation services that will expand the HQLA universe. There are several ways to increase the supply:

- Collateral mobilisation (from insurance companies and pension funds)
- Increased collateral velocity (i.e. re-use)
- Collateral pooling (among firms in the same company)
- Securitisation of new asset classes (Hauser, 2013). For example, there is potentially a huge market for collateral upgrading

Regulators are aware of the need to balance demand and supply. For example, the European Central Bank urged market participants to find ways to optimise the use of collateral (Coeuré, 2013). The International Monetary Fund (IMF) argues for “some flexibility in the definition of acceptable safe assets” to avoid undue pressure in the market (IMF, 2012, Chapter 3). And the European Systemic Risk Board (ESRB) is generally supportive of collateral transformation services in one form or another (ESRB, 2012).

However, there are substantial risks arising from this transformation that need serious attention. The most prominent is the creation of more interconnections between key players in the financial market leading to an increased risk of contagion and weakened resilience of the financial system in stressed conditions. As Singh (2013) notes: “Collateral transformation is likely to fill the void, but will increase the nexus between banks and non-banks.” Policymakers need to strike a balance between the desire to ensure the soundness of financial institutions and the costs associated with the potentially too-rapid acquisition of safe assets to meet this goal (IMF, 2012).

Changes in the demand and supply of collateral are subject to a great deal of uncertainty and therefore predicting the scarcity of collateral accurately might prove near impossible. Quantitative demand-supply interactions are not the only cause for concern. Matching demand with the effective supply of collateral throughout the system is critical as well. Collateral needs to be moved by someone and by an efficient infrastructure. There are two basic conditions that need to be met to ensure efficient flow:

[26] All clearing members must contribute to a default fund irrespective of their trading activities. Initial and variation margins depend on the positions of each specific clearing member.

- Developed market infrastructure: Efficient and uninhibited flow of collateral between various market participants, depositaries, settlement systems, and jurisdictions depends on an integrated and cohesive legal and market infrastructure for settling trades. Harmonisation of legal and regulatory frameworks, trade reporting, pre- and post-settlement processing, and efficient settlement of both securities and liquidity are among the key requirements. The Eurozone for example remains largely fragmented, and lacks a unified and developed infrastructure to support its financial markets. (Hill 2014)
- Mobilisation mechanisms: Liquid and efficient short term collateralised funding critically depends on efficient market mechanisms to source, price, and mobilise collateral. These functions are primarily performed by bank funding desks acting as intermediaries between collateral givers and takers. If collateral does not flow efficiently, market participants would have to switch to unsecured bank loans and uninsured deposits which would restrict the supply of capital for the real economy, impair secondary market liquidity and increase the risk to investors from owning financial securities.

Overall, there is clearly a role for securities regulators to help design institutional and regulatory mechanisms for efficient collateral flow, controlling risks that might reduce liquidity in wholesale markets.

Box 2: are asset managers systemically important

As we discuss in the main part of this paper, a significant amount of capital market lending has moved from banks to other financial institutions in recent years. The participation of the asset management industry in lending however remains small, although it is active in a number of areas of finance that might be linked to the provision of credit or to capital markets lending. Nevertheless, in international organisations a debate on whether the asset management industry could be systemically important has gathered pace (see OFR 2013, FSB-IOSCO 2015 and IMF 2015). For some parts of the industry there is broad agreement that this is the case: for instance, fixed NAV money market funds were at the core of the 2008 financial crisis and have characteristics that make them prone to runs. Another example is large and highly leveraged hedge funds, such as LCTM in 1998. The debate is about whether similar risks are present in plain-vanilla funds, which are very lightly leveraged (if at all) and do not guarantee the initial amounts invested.

A pertinent question

According to IMF estimates the asset management industry intermediates US $79 trillion of assets (approximately 100% of global GDP). Around 41% of such assets are held in plain-vanilla, open-ended mutual funds and 4% in exchange traded funds, which suggest that some funds could be redeemed in a very

short period of time. The sheer size of the industry means that it could have large implications for the overall stability of the system.

Two mechanisms through which asset managers could be systemically important have been identified in the literature (see IMF, 2015): different incentives between fund managers and investors, and risk of run on a fund. On the former, excessive risk taking and herding (due to the presence of benchmarks) are usually discussed. On the latter, the 'first mover advantage' due to the liquidity mismatch embodied in funds and the potential for the cost of trading to be borne by investors that do not redeem their shares are mentioned. Both could result in negative externalities through fire sales that propagate to the rest of the financial system, as banks and investors seek to limit losses, creating a systemic event.

Large in absolute but small in relative terms

Before assessing the mechanisms identified above, it is worth putting into context the size of the asset management industry. It is large in an absolute sense but the share of assets held by asset managers across asset classes is not particularly high. FCA and Bank of England estimates put this figure at around 20-25% of the total. The remaining 75-80% of assets is held by other market participants including banks, corporates, wealthy individuals and sovereign funds. Not all of the assets in the industry are in redeemable vehicles, as the IMF figures above show. Again, FCA and Bank of England estimates suggest that approximately 50% of these assets are in redeemable funds and approximately half of these assets are held by retail clients. Overall therefore easily redeemable assets controlled by long-only asset managers are approximately 10-12% of the total and retail clients of these asset managers hold approximately 5-6% of global assets.

The figures above suggest that it is probably wrong to focus on the asset management industry in isolation: even in the worst case scenario it represents no more than a quarter of all assets and the behaviour of other participants will be of crucial importance in determining outcomes. In fact, the idea that retail consumers redeeming their units in mutual funds (a run on mutual funds) could promote a systemic crisis is open to challenge, given only 5-6% of total assets are affected. So it seems that the behaviour of other market participants would be crucial to the outcome. Also, it is not obvious that retail investors would lead other market participants. They seem more likely to follow.

Will the mechanisms apply in practice?

The first mechanism deals with the fact that the incentives of the fund manager and of the end investors are not perfectly aligned which could result in excessive risk taking or herding behaviour among fund managers, triggering or exacerbating a negative event. The incentive to take excessive risks however does not apply only to fund managers. Hedge fund managers, bankers managing the bank's assets and other players may be similarly incentivised (and in some cases have a much more powerful incentive). In addition, fund managers must stay within the constraints of their investment mandates and cannot simply buy or sell securities as they please. The governance breaks that apply to fund managers are important in this context and do not apply to beneficial owners who manage their own assets. Another important point is that large fund managers to some extent internalise the externalities of large sales since they have a strong incentive to minimise the market impact of sales. This does not apply to most private investors acting for themselves, and tougher regulation of fund managers could lead to a potentially destabilising shift towards private investors acting for themselves.

With respect to herding, research seems inconclusive on its extent and impact on market quality, but more work could shed light on the likelihood of herding being problematic. Some degree of herding is to be expected and if managers identify appealing opportunities they may trade in the same direction. This contributes to price formation and thus to increased market quality. However, the available research is based almost exclusively on quarterly holdings data and, as such, cannot explain the behaviour of fund managers in shorter timeframes which are likely to be of importance if a systemic event materialises. As a minimum, additional analysis would be required on this issue to establish that a serious problem exists. As has been widely discussed, fund managers did not take mass, co-ordinated decisions and destroy liquidity in response to a range of market shocks over the past five years, but regulators should be, and are, investigating when this behaviour could have systemic impact.

The second mechanism deals with the risk of a 'run' on a fund. There are two main points here. First, investors want to be exposed to the underlying investment, as is the point of putting money in a mutual fund. Second, investors (unlike bank depositors) will receive only the NAV of the fund when redeeming their shares and, as such, the incentive to move first is much smaller than for depositors. The investor is the one bearing the risk of loss in the underlying investment, not the asset manager. In some jurisdictions investors who redeem first have an advantage as the cost of trading is borne

by the investors who do not redeem. In the EU however this is not possible as the cost of trading is borne by all investors in the fund. For instance, apart from in a limited number of circumstances, fund managers usually do not sell the most liquid assets to meet redemptions but sell a slice of all the assets they hold to do so. In addition, fund managers have tools available to them to reduce the impact of unexpectedly high redemptions. They can apply a dilution levy, or they can deliver assets rather than cash (in specie redemption), they can defer the redemption of shares and even suspend dealing. The FCA also has the power to suspend redemptions in a fund if it believes it is in the interest of all unit holders.

There would be costs too

Even if the mechanisms identified do pose significant risks, it is not entirely clear what could reasonably be done to remedy the problem. Some commentators have suggested that fund managers should be subject to more stringent liquidity requirements for the funds they manage or that funds should stop offering daily liquidity (i.e. introduce de facto redemption gates) or that the companies managing the funds should be subject to more stringent capital requirements.

Capital requirements would enhance the financial soundness of the companies offering asset management services but would do nothing to the funds they manage (the risks remain with the investors). Other remedies should be carefully analysed as they would entail a cost ultimately paid by investors. For instance the presence of redemption gates or higher liquidity requirements would encourage investors to hold the securities directly. This has obvious repercussions from a consumer protection perspective (and possibly a stability perspective, as argued above). End investors deciding to remain in a fund would see the cost of investing rise and returns decline, while those holding assets directly would find it more difficult to benefit from diversification. Other consequences of regulation also need to be considered. Any disruption to the flow of capital to the parts of the economy that need it, at the best possible price, is likely to reduce growth which is already fragile.

In summary, while mutual funds have the potential to be systemically important, more analysis is required to assess the magnitude of any risk and whether proposed remedies are warranted in terms of their likely net benefits to society.

Risk absorption capacity of the dealer system

As mentioned above and elaborated upon in Annex I, dealers are crucial players in MBF. Crucial because they are the ones who quote bid/ask prices of asset classes in both money (repo but also fed funds and Eurodollars) and capital markets. Without their continued willingness and ability to support trading and hence price discovery, market-based finance cannot properly function. The challenge is to identify the most likely fault lines in the dealer function that pose the greatest risk to our market integrity objective in particular.

The dealers are market makers in a broad sense. They bring together buyers and sellers of securities, and also supply leverage to a wide range of speculators, including the banks and originators of loans, and help manage risk by buying and selling derivatives positions. Their capacity to do so is not unlimited since even matched book dealers (i.e. dealers that derive revenue from bid-ask spreads and do not buy securities to speculate) face inventory price risk, which needs to be hedged. This risk absorption capacity determines the dealers' willingness to provide liquidity to the market. For instance, a dealer might not be willing to add a position to its inventory if there is no easy and cheap method to hedge it. Functionally the capacity constraint does not just apply to bona fide dealers but also to hedge funds and other entities able to supply liquidity to the system. The principle is that a dealer is more willing to take in, for example, a large MBS position that is trending downward if at the same time the dealer can hedge that position with IRS or Eurodollar futures.

So the dealers supply not just money and intermediate the securities flow, they also supply risk capacity to the system. Their ability to do so is constrained by their internal risk management considerations and by other entities' appetite to supply risk. And if the dealers have no easy and cheap methods of hedging their inventory risk, they will be reluctant to extend leverage.

One immediate challenge to studying dealers' risk absorption capacity is that it is not directly observable. Data gaps are a particularly pressing problem, however the main problem with available data sources is that they do not capture the whole repo market or anything like systemic capacity. Repo is still mostly a (private) bilateral arrangement between two parties. Another angle is repo volume, which is publicly available, as it gives a sense of how dealers are financing inventories. That volume dropped in late 2013 in the US. Deal sizes got much bigger yet prices remained unaltered by supply, which demonstrates robust depth in liquidity and, by extension, risk absorption capacity as the institutions buying in substantial amounts were evidently able to hedge their positions.

Leverage shifting (to corporate lending space)

2013 witnessed a series of highly disturbing dislocations in the US mortgage market reminiscent of runs on the interbank system in 2008 with Business Development Companies (BDCs) and mortgage REITs (Real Estate Investment Trusts) at the epicentre.

BDCs' core business model is the provision of loans to small businesses, which confers tax benefits similar to those enjoyed by REITs. The problem is that BDCs are not simply extending loans to small businesses. They are collateralising them into Collateralised Loan Obligations (CLOs) to fund themselves in the repo markets, not unlike the pyramid of risk that some of the mortgage bubble synthetic structures created. Because these non-banks are unable to fund themselves in the same manner and at the same cost as regulated banks (no access to deposits

and central bank liquidity), their funding model depends critically on these banks and explains why they are able to borrow at relatively low rates. BDCs and mortgage REITs are taking advantage of the Zero Interest Rate Policy (ZIRP) and are able to lower their funding costs by tapping the regulated banks' ability to borrow at essentially zero from the central banks. Market leverage thus reappears in BDCs, once again generated through the repo markets.

Pockets of complexity, opacity and leverage may have reappeared again in somewhat obscure parts of the system of market-based finance.

Nascent MBF: trends and potential issues

Our analysis identified four areas which are currently outside of what we deem to be the MBF perimeter but have the potential to grow considerably in importance in the coming years and move within the perimeter if and when their products enter the globalised and wholesale system.

For two of the four areas, direct lending by credit funds and peer-to-peer lending, we have also identified some specific issues which, in our view, merit further consideration.

Direct lending by credit funds

Bank deleveraging in the context of the low interest rate environment has created powerful supply and demand incentives for the rise of various direct lending strategies. As European mid-size corporations are suffering the most from the dearth of bank lending, asset managers are becoming increasingly important suppliers of credit to them. A recent study by Grant Thornton found that, among UK corporations, lending by non-banks is an established practice and gaining in popularity. Of those interviewed, 61% had used a non-bank lender, and of this group 49% had used direct lending funds, while 79% of the interviewed corporations regarded non-bank lenders positively or very positively.[27]

But the asset managers also cater to institutional investors who are eager to diversify their portfolios and achieve solid risk-adjusted returns. According to the IMF's estimates, non-financial corporates in Europe are expected to require €2.8 trillion of debt capital over the next four years. Risk-adjusted returns on direct lending are among the most attractive private debt strategies. In 2014 Preqin's Investor Survey on private debt reports, 78% of respondents preferred direct to mezzanine lending (61%), distressed debt (59%), and real estate debt (43%).

Among the credit hedge funds, fundamental credit managers are among the more active players and most likely to participate in direct lending. They are typically value investors with long (generally 24-36 months or longer) investment horizons, usually favouring debt of companies in distress purchased from the banks that had to sell the debt positions because:

a. the companies would have breached its lending covenants, or
b. risks of lending to these companies have increased beyond the banks' economic or regulatory tolerance levels (AIMA, 2012, p. 10).

In cases of restructuring or impending bankruptcy, the funds often act as lenders of last resort to such companies by providing bridge financing so that they may continue to function as going

[27] Grant Thornton (2014).

concerns. Some hedge funds lend to borrowers, typically small- and medium-sized companies, who otherwise find it difficult to obtain loans from commercial banks.

According to AIMA, high leverage is usually not an issue with these lenders. However, the low interest rate environment has encouraged some hedge fund managers to establish term funding lines with the banks to obtain some leverage not usually exceeding 50% of equity.[28]

Credit lending hedge funds have long investment horizons. The funds' portfolios are usually overweight with loans. To strengthen their commitment to the borrower, some managers may invest a small share in equity as well.

Investors with fundamental credit strategies, such as hedge funds, usually agree to have their money locked up for two years or longer and will see redemption gates imposed during times of unusual fund illiquidity and investor redemption pressure.

Some hedge funds can contribute to maturity/credit transformation but usually as agents of clients (mainly institutional investors such as pension funds) who want exposure to structured products such as asset backed securities (ABS). However, this activity is considered small and accounts only for approximately 1% of non-bank credit intermediaries, but it may grow.[29] The subdued activity of hedge funds in this space may be a consequence of the collapsed securitisation market since the financial crisis. But as securitisation activity recovers, hedge funds may again become bigger players. And as they search for greater returns, market failures such as agency problems and risk mispricing could increase correspondingly.

There is a lot of discussion around the systemic riskiness of hedge funds in general and credit hedge funds in particular. The usual risks that are brought in connection with asset management strategies such as leverage, maturity and liquidity transformation appear not to be of great importance, at least at present. However, continuous monitoring of the space might be warranted, especially if the practice of direct lending, analogous to peer-to-peer lending, as discussed below, begins to take advantage of securitisation techniques and cheap wholesale funding markets to boost returns.

Market-based long term financing solutions

Another innovation of nascent MBF which is gaining in importance is a line of products designed to accommodate government needs and solve challenges that come with SME and infrastructure financing in different economic and political environments. Governments of various emerging and developed countries are increasingly turning to private capital markets for solutions to financing large-scale infrastructure projects and to provide low-cost, flexible and transparent financing to small and medium enterprises.

In a recent research note, IOSCO discusses case studies of long-term market-based financing structures and instruments designed to overcome challenges inherent in financing large-scale infrastructure and SME projects. Such projects are often characterised by high cost and low quality underwriting processes, difficulties in monitoring post-financing and risk management practices of borrowers, lack of economies of scale (many SMEs require loans of small sizes), low heterogeneity of SMEs' business needs and models, financing requirements exceeding lending

[28] AIMA (2012).

[29] AIMA (2012) p. 12.

capacities of domestic institutions, limited commercial bank funding, high default rates in financing large-scale infrastructure projects in developing countries and other issues.

The instruments and structures contain a mix of all the basic characteristics of MBF, most notably sophisticated (but in contrast to what happened in the run-up to the financial crisis, clearly more transparent) securitisation techniques; risk transfer vehicles;[30] broad (often global) investor base; collateral-based financing; credit enhancements and guarantees provided by private and public entities (development banks, the World Bank and European Investment Bank etc). Two UK-specific relevant examples are:

- **Green Bonds (GBs)**: issued by governments, commercial or development banks, private corporations and designed to attract climate-conscious investors looking to diversify risks from individual green infrastructure projects (mostly climate related projects). Bonds are either standard retail-like bonds or ABS linked to specific projects and vary with respect to the types of issuer, coupon rate, and securitisation arrangements.
- **Project Bond Initiative (PBI)**: an EU-led program designed to encourage capital market financing of infrastructure projects by providing credit enhancement (either in the form of a funded subordinated debt or an unfunded partial guarantee of senior debt) to create two tranches. A senior tranche purchased by private pension funds and insurance companies, and a subordinated tranche. The subordinated tranche is provided by the European Investment Bank through the Project Bonds Credit Enhancement mechanism. The medium-term objective of PBI is to help establish a platform to attract private investors not only for A- and higher-rated bonds but also for the riskier BBB-rated project bonds.

The increasing use of these models of long-term financing demonstrates the attractiveness of the generic technology and infrastructure of MBF offering tailored solutions to meet the demands of borrowers and investors of different sizes and from various jurisdictions. However, the sustainability of these nascent market-based solutions depends crucially on deep, liquid and well-regulated global markets for both funding and capital assets. The design of an effective regulatory framework will have to address multiple challenges. One is the need for continuous reassessment of emerging market failures resulting from innovative practices in the space. The harmonisation of global regulatory standards is another challenge which is currently being addressed by a number of supranational initiatives. A more fundamental challenge, however, still lies in the need to adjust the existing, largely bank-centric approach of financial regulation to a financial system that is increasingly market-based and globally interconnected.

The changing face of peer-to-peer lending

This and the following subsection discuss areas of consumer finance which now seem to be in transition from the model that almost exclusively relied on savers providing funding to small businesses and individual entrepreneurs to a model that increasingly involves hedge funds and banks feeding in institutional money and employing securitisation techniques to satisfy rising investor demand. This latter example is particularly interesting as it shows that an activity that would otherwise be classified as being in the nascent part of MBF, and thus carrying a risk profile limited to consumer-related and integrity issues, is starting to move towards proper MBF.

Peer-to-peer (P2P) lending is usually portrayed as amateur investors who use internet technology to be able to pool their modest contributions and provide money directly to entrepreneurial

[30] IOSCO 2014, p. 118.

individuals and small businesses - a revolution from which banks and other institutional investors are frozen out.

That picture may have been true a few years ago but it is rapidly changing. More institutional capital is entering the P2P market and making increasing use of core MBF techniques like securitisation, loan trading, high-speed algorithms and bulk deals.

The most active new players are the hedge funds. For example, San Francisco-based fund Colchis Capital Management had US $663 million of P2P loan investments at the end of 2014, or 10% of all loans originated by the sector in the US. But it is not just the hedge funds. During the last quarter of 2014, almost 60% of the US $1.1 billion in loans originated in California-based Lending Club, the largest P2P lender in the US, were bought by asset managers, banks, hedge funds, insurance companies, pension funds and other institutions. Prosper Marketplace, another P2P platform, sold 66% of its loans to these same types of investors.

The demand for P2P loans by institutional money is far outstripping supply. One of the reasons for this is that investors can earn 6% to as much as 35% on three- to five-year P2P loans, compared with below 5% on high-yield and other comparable investments. The influx of institutional money has in turn allowed P2P lending platforms to scale up their operations, making them serious competitors for credit card companies and traditional bank lenders. Lending Club and Prosper made US $2.4 billion in loans in 2013, compared with only $881 million in 2012, and are likely to reach the $6 billion mark this year.[31]

But the loan volumes are not growing fast enough to keep up with yield-hungry investors. “Peer-to-peer investors could absorb ‘10 times’ the current loan volume on Lending Club and Prosper. But originating that many loans would put a tremendous amount of stress on the technology, operations, infrastructure and underwriting capabilities of the online platforms. That's where the constraint is.”[32]

This is where the risk of possible market failures, especially when it comes to agency problems, comes in. One concern is that P2P lenders will ramp up origination before the strengths and weaknesses of their underwriting methods are properly understood, or simply lower underwriting standards, repeating the mistakes that contributed to the origination of an inefficient volume of subprime mortgages. The overwhelming demand has provided a powerful incentive for P2P securitisations. The first large deal occurred in October 2013, when New York-based hedge fund manager Eaglewood Capital sold $53 million worth of senior paper to a large reinsurer. A number of deals have followed since then. The first deal, based on securitised loans provided by online student loan-refinancing specialist SoFi, was publicly rated by Standard & Poor's in July 2014.

The recent launches of several funds investing in loans originated on peer-to-peer lending platforms underscores the growing interest from institutional investors in this sector. The fund managers not only intend to invest in P2P/market-place lending but also to take stakes in the platforms that facilitate P2P lending.

Public rating of P2P securitisations is of crucial importance because it could open up the asset class to banks, insurers and pension funds. “Closing the first rated securitisation was the biggest challenge. Now we have the first S&P-rated securitisation, it will be smoother and faster to do the next one. I expect to see the first rated securitisation of Lending Club or Prosper loans in the next

[31] Devasabai (2014).

[32] Devasabai (2014)

18 months, and that will open the floodgates for other securitisations to receive ratings."[33] However, so far the number of new securitisations of P2P loans has been lower than expected due to a combination of stricter standards applied to securitisation deals and rising defaults, market volatility, and corporate governance issues. For example, two major Wall Street investment banks, Goldman Sachs Group Inc. and Jefferies LLC, decided to stop buying the Lending Club's loans following the resignation of the company's CEO Renaud Laplanche.[34]

Overall, it remains to be seen what level of regulation of agency problems in P2P lending is warranted as the activity is clearly not risk free from the perspective of conduct regulators.

Equity-based crowdfunding

In addition to the P2P-lending activities discussed above, equity-based crowdfunding has also been growing recently in the UK. Equity crowdfunding allows retail investors, including sophisticated and high-net worth individuals, to invest in unlisted entities in exchange for shares in the entity by using internet-based platforms. Conversely, business start-ups can use crowd-funding platforms to finance or re-finance their activities.

At present, this sector is relatively small but has experienced dramatic growth in recent years.[35] In contrast with what is happening in P2P lending, we could not find examples of wholesale investors showing interest in such ventures. This is probably because many of the investment opportunities currently available on crowdfunding platforms are at a very early stage of development and mostly relatively small in scale.

However if the sector continues to grow quickly then more mature companies could use this channel to get funding, innovative products and services could be supplied on these platforms and the sector could therefore become an integral part of MBF.

At present, we see risks arising mainly in the investor protection space and it is closely monitored. For example, the FCA is already responsible for regulating crowdfunding platforms and has set out new rules for crowdfunding activity.

[33] Devasabai (2014).

[34] Rudegeair & Baer (2016).

[35] According to Nesta (2016), the size of the equity-based crowdfunding market in the UK increased from £28 million in 2013 to £331.64 million in 2015, i.e. a growth rate of over 1084%.

5 Conclusions

In the course of our work on this paper we have come to appreciate market-based finance as a product of natural evolution towards a financial system that is likely to become more market-based. Evolution in size, growth and complexity of the market-based system over the past three decades has indisputably represented a major shift from the traditional commercial banking model towards a modern and fundamentally different model of creating and managing money, credit, and risk globally. MBF is here to stay.

Market-based finance is an important contributor to consumer welfare mainly because it allows borrowers to access funds from a wider variety of investors with a wider variety of risk preferences. It can provide easier access to credit because it relies on a sophisticated institutional framework that transforms relatively illiquid assets such as long-term individual loans into diversified securities that not only provide the investor with a steady and predictable cash flow but are also globally tradable and can be converted into cash relatively easily. Add to the mix the flexibility of customisable products with different risk-return profiles tailored to the needs of all types of investors and it becomes clear why the demand-deposit-based products traditionally offered by commercial banking could not have stayed competitive for long.

An important supply-side benefit of MBF is that it creates opportunities for gains from specialisation by credit providers by both expanding division of knowledge in single areas of the market and creating additional economies of scale in specific credit intermediation functions. For example, non-bank finance companies and credit guarantors can leverage their comparative advantage vis-à-vis banks in niche areas of specialised consumer credit such as sub-prime auto lending and credit cards, as well as low-quality corporate credits including airlines, and more recently national investment projects. Again, we note that such companies are often part of banking groups, implying that any advantage is substantive rather than regulatory arbitrage.

However, market-based finance is also a harbinger of potentially significant risks if not properly understood and regulated. The observed close relationship between the growth of market-intermediated credit and the 2008 financial crisis should serve as a warning against the potential costs of badly regulated market-based credit. An important category of market failure that we have repeatedly come across is agency problems. They may lead to increased risk of deception and exploitation that comes with long and complex credit intermediation chains characteristic of MBF. That is an area where securities and conduct regulators can use their expertise to improve market outcomes. A closely related problem in connection with the long credit intermediation chains is the asymmetric information that results from them. Long credit intermediation chains make monitoring of counterparties very difficult for both market participants and regulators. Under the traditional relationship banking model, the loan originators have stronger incentives for proper underwriting because they have to hold the assets until maturity. The same degree of incentives compatibility is absent in the market-based system where loans are originated to be distributed into the wider market. The risk of misrepresentation is something that should be taken seriously since it appears to be inherent in the very model of market-based finance.

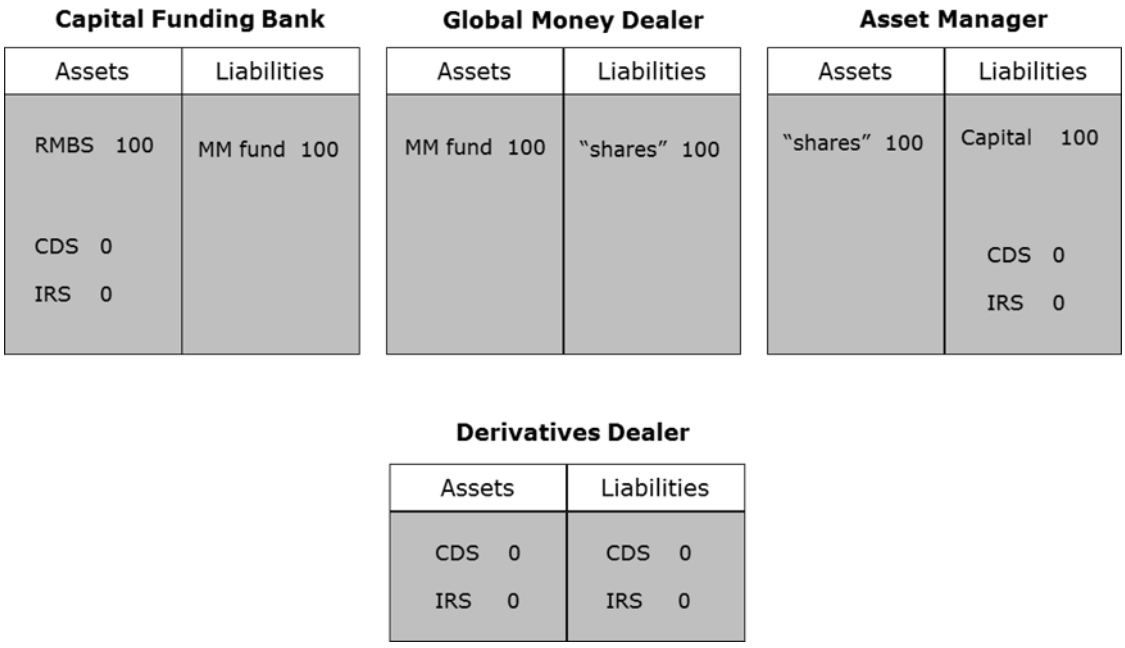
And finally, market-based credit can also increase financial fragility, especially if the plumbing infrastructure is badly designed and fails to efficiently distribute risks across the system. This problem has many dimensions and several challenges. We have looked at a couple of them. One is the issue of potential collateral shortage and clogged flow thereof. Another is the often lamented decline of the dealer system's ability and/or willingness to act as risk intermediaries especially in times of stress. However, in our opinion, the greatest risk has been and remains the insufficiently deep understanding of the system in both its conceptual and data dimensions. To close these gaps and move towards a more robust regulatory framework requires continued engagement with the system on national and international levels.

Annex 1: A qualitative model of MBF

In Section 2 we stated that the MBF system is better understood as "money market funding of capital market lending". Here we present a highly stylised qualitative (balance-sheet) model of the MBF ecosystem, based on Mehrling (2012) in order to justify our assertion.

By virtue of being highly stylised, the model necessarily leaves out a lot of detail about the real world money and capital markets. The aim of the model is not to provide a complete and accurate picture of the system as it exists now, or had existed before the crisis, but to isolate and integrate key elements (entities and activities) that are characteristic of MBF in its internal composition.

Figure 2: Model of collateral-based MBF



Adapted from Mehrling (2012)

We begin the discussion by describing the functions of four key entities and what they do as presented in Figure 1. Then we subject the model to an asset value shock and analyse the system's response mechanism.

Our model is populated by four basic categories of entities that perform four distinctive functions. The Capital Funding Bank (CFB) separates the risks (duration and credit) of some underlying asset such as residential mortgage backed security (RMBS) using derivatives, Interest Rate Swaps (IRS) and Credit Default Swaps (CDS) and manages their transfer. The risks are transferred (sold) to the Asset Manager (AM) who parks these risks as (contingent) liabilities in

some fund on behalf of clients (investors) who become the ultimate and only bearers of the risk in the system.[36] After the risk transfer, the CFB ends up holding CDS and IRS contracts as contingent assets,[37] but also, and importantly, an essentially risk-free, short-term asset, akin to a short-term T-bill. The CFB then uses that leftover riskless piece as collateral to obtain funding from the AM. But just as this riskless piece is the AM's asset, it at the same time constitutes a funding liability of the CFB. Similarly, the derivatives are the AM's contingent liabilities as they are contingent assets of the CFB.

In this system there are essentially three categories of prices: one for each of the derivatives and one for collateralised funding. There are also two critical types of financial intermediaries, Global Money Dealer (GMD) and Derivatives Dealer (DD), who establish these prices by offering their own balance sheets to absorb resultant trading flows. We can conceptualise the function of GMD as essentially taking care of the funding transfer: RMBS collateral of the CFB against customer capital held by the Asset Manager. The function of the DD is to intermediate the risk transfer from the CFB's books on to the AM's balance sheet by designing and trading the derivatives. The business models of both dealers are confined to market making, i.e. quoting buy and sell prices for money as well as term and credit spreads. The dealers are, in other words, matched book dealers in the sense that they are not buying and selling securities for their own account, i.e. they do not do proprietary trading.

In this highly stylised, market-based credit system all positions are collateralised. Collateral thus becomes a critical bulwark and safety valve to protect against counterparty risk under uncertain and changing market conditions. Ideally, the RMBS collateral should flow freely through the GMD to provide continuous money market funding for the CFB, but at the same time making sure that these flows are secured for the AM. The same logic applies to the derivatives exposures assumed by the AM.

Collateral-based system and asset value shocks

To demonstrate how this collateral-based system might respond to price fluctuations and understand where and why it may break down, consider what happens if the value of the underlying RMBS, because of some exogenous shock, decreases by $10, as shown in Figure 3. One immediate consequence of the price decline is that the CFB is now short $10 of collateral to be able to roll $100 over from the GMD. Another is that in response to the decline in RMBS' value, the contingent liability of the AM kicks in, by the same amount of $10, which means that the AM may be required to post variation margin (collateral) to the DD who in turn has to transfer the margin to the CFB so that the latter can continue to post the necessary collateral with the AM and roll his funding over.

[36] In the context of this stylised model, by asset manager we mean any entity that manages the assets (including insurance companies, direct investors etc), and not just entities active in what is called the asset management industry.

[37] They are contingent in the sense of becoming assets only when the events, such as a rise in interest rates or default of the underlying asset, they were written to hedge against do in fact materialise. The value of contingent assets, i.e. their initial (balance sheet) value, is zero. There are changes in value in response to events such as interest rate movements or value fluctuations in the underlying asset. See below for a discussion of these and other asset value shocks.

Figure 3: Equilibrium following temporary asset value shock

Capital Funding Bank

Assets	Liabilities
RMBS 90	MM fund 100
CDS 10	
IRS 0	

Global Money Dealer

Assets	Liabilities
MM fund 100	"shares" 100

Asset Manager

Assets	Liabilities
"shares" 100	Capital 90
	CDS 10
	IRS 0

Derivatives Dealer

Assets	Liabilities
CDS 10	CDS 10
IRS 0	IRS 0

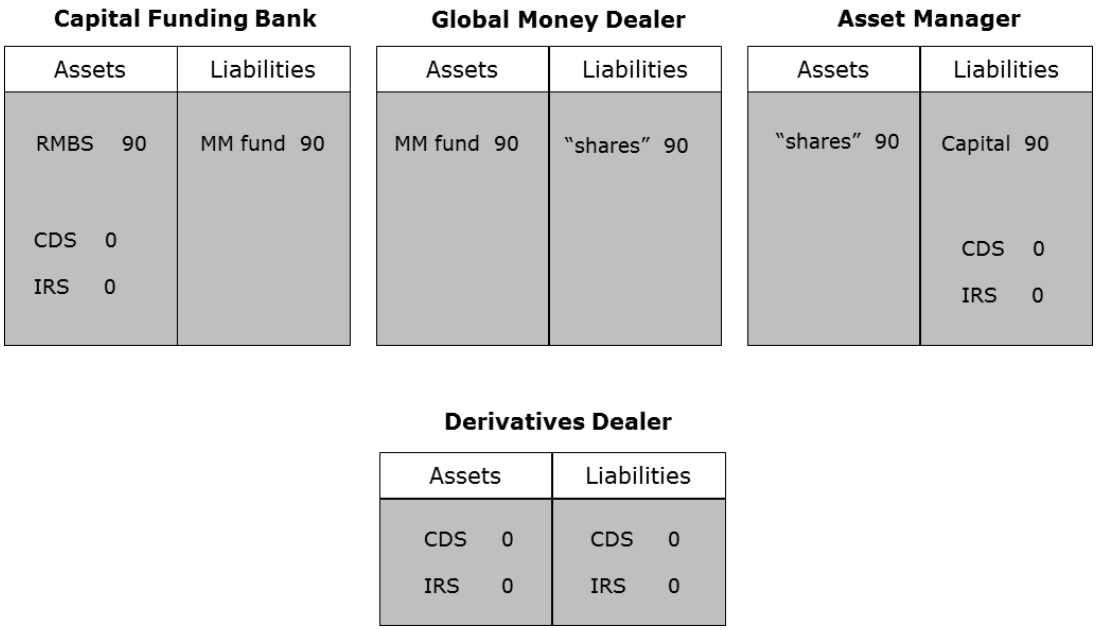
Adapted from Mehrling (2012)

Much depends on whether the decline in the price of the underlying asset is expected to be temporary or permanent. If temporary, then until the price rises back to its original level, the DD might be expected to expand credit on the basis of the collateral received from the AM and thus supply the funds to the CFB.[38] As the value of collateral jumps back to $100, the CFB will repay the DD who in turn will return the collateral to the AM, which reverses the credit expansion and returns the system back to its initial equilibrium.

However, the system will respond differently if the price decline is permanent. A permanent decline in the value of the underlying asset will ultimately lead to an equivalent loss on the part of the investors, i.e. the ultimate bearers of credit (and interest rate) risk. In terms of the mechanics of the underlying transfers, the process plays itself out as follows. The AM transfers $10 worth of collateral to the DD who in turn transfers it to the CFB. The transfer of $10 worth of collateral in effect restores the capital value of the underlying asset held by the CFB to $100. As a consequence of this capital injection from the ultimate investor, the CFB will need to fund only the remaining $90 of the outstanding loan value on the money market. The underlying balance-sheet dynamics are shown in Figure 4 below.

[38] The meaning of temporary depends on the willingness and ability of the dealer to accept collateral and expand credit, i.e. provide a kind of bridging loan. If the dealer expects the price decline to reverse in relatively short order, it is more likely to assume the risk expanding additional credit. Dealers are also likely to face constraints arising from the parameters of the risk models that they use.

Figure 4: Equilibrium following permanent asset value shock



Adapted from Mehrling (2012)

Following a permanent asset shock, possible scenarios could include AM demanding a bigger haircut for the collateral than the CFB was expecting to post for its borrowing. In this scenario, in order to raise the same amount of funding, the CFB is forced to find addition collateral.[39] Faced with this kind of liquidity crunch, the CFB might be forced to sell a more or less sizeable portion of its assets thereby exerting pressure on the asset prices on which it depends for its continued survival. But the problems do not stop here. GMD might be facing funding difficulties of its own if it does not receive the collateral that is due to it from the CFB.

Further issues with efficient risk transfer might arise if AM refuses to post variation margin for its derivative liability. To achieve matched book, the DD will have to look for a counterparty to replace the AM which will drive the derivative insurance price up and the RMBS price down, exacerbating the problem of the initial price decline. Incidentally, the mechanism of this last scenario describes fairly well the essence of what happened during the financial crisis.[40] The initial, fairly modest problems with fundamental valuation of some subprime mortgages were blown out of proportion by extremely high insurance prices caused by funding problems in dealers and the capital base of insurers such as AIG being too thin. Then down the collateral chain, AM's inability to post collateral to the Derivative Dealer might make it face a margin call from the CFB if the latter suspects that the DD might be unable to honour its derivative liability.

The above discussion aimed to emphasise the key economic function of the dealer-managed mechanism, namely, to regulate fluctuations in the value of the underlying risky asset through intermediation of collateral and money payments flows. But already the discussion of the two

[39] Increased initial "haircuts" on RMBS collateral is a way to deal with the problem. FSB's workstream 5 is developing a methodology to implement minimum haircuts to address precisely this problem.

[40] For a full account, see Mehrling (2011).

relatively simple cases makes it abundantly clear that efficient and seamless functioning of this new payments system is far from self-evident and depends on a number of parts moving in harmony. There are potential fault lines and channels in the system that are unknown in traditional banking and which can become sources of self-reinforcing liquidity spirals (Brunnermeier and Pedersen, 2009).

Annex 2: Summary of issues in MBF and nascent MBF

Table below summarises the areas of interest and issues we identified in the MBF and nascent MBF. The areas highlighted in red are those which we believe merit further analytical and regulatory scrutiny. This is because they have the potential to grow considerably bigger in the future and/or are those that have not been considered in as much depth as others according to the analysis we conducted.

	MBF Activity/ Service	Entities	Purpose	Risks to Objectives	Regulatory Gaps?
MBF	Securities borrowing/lending	Banks, Securities dealers, Depositaries, Fund managers, Investment funds, Central Counterparties (CCPs)	Dealers and fund managers engage in securities lending to finance long and cover short positions. It is a cost-effective method to increase leverage and can contribute to profitable investment strategies.	Although securities lending can improve market function by providing additional resources for intermediaries, repeated re-hypothecation can lead to threats to system stability. Higher regulatory requirements for non-banks might lead to concentration of activities amongst largest firms in certain markets, e.g. long-term derivatives. Flawed infrastructure: daily unwind of tri-party repos relied on massive intra-day financing from clearing banks. Market failure: Information problems	Entities engaged in the practices are regulated by national authorities. The basic procedures expected from UK-based participants in securities borrowing/lending are outlined in the Securities Borrowing and Lending Code of Guidance. Moreover, the practice is under ongoing and comprehensive regulatory scrutiny and refinement by FSB WS5 (Securities Lending and Repos). Recent initiatives include application of numerical haircuts to non-bank-to-non-bank transactions to limit leverage of non-banks by borrowing cash against private sector securities, improvement in reporting by fund managers and corporate disclosures, harmonisation of client asset rules with respect to re-hypothecation etc. The main gap identified is information on the composition

	MBF Activity/ Service	Entities	Purpose	Risks to Objectives	Regulatory Gaps?
				that manifest themselves in mispricing of risk, interconnectedness, and lack of transparency.	of collateral used across financial markets to identify concentrations.
MBF	Securitisation transactions	Banks, Finance companies, ABCP conduits, structured investment vehicles (SIVs), credit hedge funds, Money market mutual funds, Securities lenders, limited-purpose finance companies (LPFCs), government-sponsored enterprises (GSEs), Credit rating agencies	Asset securitisation releases balance sheet capacity for other activities through regulatory and economic capital relief, lowering funding costs	Potential risks to market integrity and consumers associated with underwriting standards, pricing of the assets, and inefficient risk transfer. Market failure: Agency and information problems that might lead to risk mispricing.	In the EU, securitisation transactions and areas of concern such as risk retention, due diligence, disclosure and the role of credit rating agencies have been addressed by various regulatory initiatives[41]: • risk retention**:** (AIFMD, AIFMR applied to alternative investment managers; Solvency II Directive applied to insurance and reinsurance undertakings—implementation by Member States on 1st January 2016.) • due diligence and disclosure**:** due diligence and disclosure requirements under the CRR and AIFMR[42], loan-level disclosure under AIFMR, ECB and Bank of England Collateral Eligibility & Loan Level Data Initiatives • credit rating agencies**:** The latest piece of relevant regulation is CRA 3 that aims to reduce over-reliance on credit ratings and conflicts of interests and to increase competition among credit rating agencies. Our literature and discussions with industry representatives have not revealed major gaps.

[41] For an overview, see Hogal & Lovells. 2015. *Summary of key EU and US regulatory developments relating to securitization transactions*.

[42] Articles 406 and 409 of CRR ("Capital Requirements Regulation") and article 52 of AIFMR ("Alternative Investment Fund Managers Regulation").

	MBF Activity/ Service	Entities	Purpose	Risks to Objectives	Regulatory Gaps?
	Derivative overlay strategies	Fund managers, Investment (mainly Pension) funds, Banks' derivatives desks, Securities dealers, Derivatives exchanges	A fund manager who wishes to change the composition or risk profile of her portfolio, to effectively manage cash, reduce costs and risk exposure, can do so by purchasing or selling derivatives to create in effect a different portfolio. For example, selling a derivative of a security held and purchasing a derivative of another can overlay the actual portfolio with a different risk profile.	Changes in the risk profiles of different portfolios can create systemic instability. In addition, the complexity of such strategies may make portfolio evaluation difficult. Market failure: Agency problems, mispricing of risk, lack of transparency.	Fund managers undertaking this activity are regulated. We have not identified any pressing issues, though we suggest a more detailed study and monitoring of overlay and similar investment strategies.
MBF	Collateral mobilisation services (including repo)	Custodian banks, Securities dealers, Depositaries, Investment funds	These are market mechanisms to source, price, and mobilise collateral throughout the system. These functions are primarily performed by bank funding desks which act as intermediaries between collateral givers and takers. If collateral does not flow efficiently through the system, market participants would have to switch to unsecured bank loans and uninsured deposits which would restrict the supply of capital	The most prominent risk is that collateral transformation creates more interconnections between key players in the financial market leading to increasing risk of contagion and weakened resilience of the financial system in stressed conditions. On the other hand, an increased number of techniques and players involved in sourcing of collateral implies greater resilience of the overall supply of collateral, should one or more key asset classes cease to be accepted as collateral or one or more players curtailing their securities lending business.	The entities undertaking these activities are all regulated by either the FCA or the Prudential Regulation Authority in the UK and by other regulators in other jurisdictions. The main gap identified is information to track the terms of transactions, including maturity and haircuts to monitor risk of market-wide margin calls in times of unexpected common price shocks. Further analysis is required to assess the robustness of collateral transformation techniques since they are being designed in a hurry, responding to rapid shifts in market and regulatory conditions.

	MBF Activity/ Service	Entities	Purpose	Risks to Objectives	Regulatory Gaps?
			for the real economy.	Market integrity issues may be present given the long intermediation chains and the lack of price and quality transparency in these markets. Market failure: Interconnectedness, mispricing of risk, lack of transparency.	
MBF	Leverage shifting (to corporate lending space)	BDC, Investment funds	BDCs are extending loans to small businesses and collateralizing them into CLOs to fund themselves in the repo markets. BDCs are unable to fund themselves in the same manner and at the same cost as regulated banks (no access to deposits and central bank liquidity); their funding model depends critically on these banks.	Market leverage reappears in a somewhat different guise in BDCs that get funding on repo markets. Stability and integrity issues could arise because of complexity, opacity and leverage. Because BDCs target yield-seeking investors and the majority of their AUM are in securities issued by SMEs or financially troubled companies, they are more likely to default or cut or eliminate dividends in recessionary environments. Market failure: Interconnectedness, mispricing of risk, lack of transparency.	BDCs are closed-end investment funds in the US that are required to invest the majority of their AUM in “qualifying assets”, i.e. high quality short-term debt and securities, issued by SMEs and financially troubled businesses. Their focus on SMEs is similar to venture capital (VC) and private equity (PE) funds, but unlike VC and PE funds, BDCs have access to general public’s capital and are publicly traded with shares listed on US exchanges. They have important tax advantages, are lightly regulated and operationally more flexible than other regulated investment companies. Regulatory exemptions such as light disclosure, deferred internal compliance and audit requirements, may impair (retail) investors’ ability to analyse risks associated with BDCs. Similar companies exist in the UK and take the form of closed-end investment funds and are prudentially regulated by the FCA. The strengthened prudential regime following CRD IV is the tool to pre-emptively limit the build-up of leverage. However, in a systemic crisis caused for example by rapid sell-off of assets, the prudential buffers of capital and liquidity may prove inadequate and causes major losses for the investors. To limit risks in this

	MBF Activity/ Service	Entities	Purpose	Risks to Objectives	Regulatory Gaps?
					sector, the removal or adjustment of tax and other incentives could be contemplated.
NASCENT MBF	Direct Lending by Credit Funds	Fund Managers, Credit Funds, Private Equity vehicles	This form of alternative lending serves financing needs of a large portion of European mid-size corporations and investing needs of particularly institutional investors. Fundamental credit funds are low leverage value investors stepping in where banks have either no appetite or regulatory capacity to lend directly to small- and medium-sized companies, often in distress.	Credit hedge funds in general have robust mechanisms such as low leverage, long lock-up periods, stringent redemption gates. Selected hedge funds can contribute to maturity/credit transformation but usually as agents of clients (mainly institutional investors such as pension funds) who want exposure to structured products such as Asset Backed Securities (ABS). However, this activity is considered small and accounts only for approximately 1% of non-bank credit intermediaries, but it may grow. Market failure: No significant market failure detected, but may include agency problems, mispricing of risk.	Asset managers managing these funds are regulated by the FCA. Continuous monitoring of the space might be warranted, especially if the practice of direct lending, analogous to peer-to-peer lending discussed above, begins to take advantage of securitisation techniques and cheap wholesale funding markets to boost returns.
NASCENT MBF	Market-Based Long-Term Financing Solutions	Banks, Finance companies, Securitisation vehicles (onshore and offshore), Online lending platforms, credit rating agencies, FOREX Dealers	The solutions offer SMEs and infrastructure projects tailored long-term financing solutions to problems such as higher cost and low quality of underwriting process (lack of reliable data and standardised credit information), difficulties in post-financing activities and risk	Consumer harm could result from investing in products backed by poorly underwritten loans, lower than assumed credit profile of underlying assets (unanticipated deterioration of the credit pool). Market failure: Agency problems, mispricing of risk, lack of transparency.	Key entities and activities are covered by various regulations. The basic elements of MBF build the backbone of the different business models and product structures involved. However, there exist important differences in the funding and investment strategies so that efforts at cataloging and (ideally) detailed analysis should be attempted to have a more informed opinion of possible regulatory gaps.

	MBF Activity/ Service	Entities	Purpose	Risks to Objectives	Regulatory Gaps?
			management of SMEs, lack of economies of scale, and scarcity of bank capital to commit to high-risk SME lending programs. The financing vehicles differ in size, growth rates, business models, and type of capital market (equity, debt) targeted.		
NASCENT MBF	P2P lending	Banks, Online lending platforms, Hedge funds	P2P lending is direct lending by one person to another. It is seen as a sub-set of crowd funding. P2P lending is usually via a P2P lending platform. Hedge funds and other sophisticated institutions are starting to invest in these loans.	Consumer harm could result from the credit risk for (retail and institutional) investors due to poorly understood underwriting standards. As the practice is increasingly relying on institutional money and tailored securitisation structures are emerging to increase yields and satisfy rising investor demand for products backed by P2P loans, substantial growth in leverage and maturity transformation is likely to take place. Market failure: Information and agency problems that lead to poor product and service design that fails to meet consumer needs, lack of transparency, and mispricing of risk.	Since 1 April 2014 the FCA regulates firms running P2P lending platforms. The FCA's rules cover issues arising out of prudential concerns (volume-based capital requirements were introduced and largely welcomed by the industry), protections in case of firm failure, disclosure, dispute resolution and reporting requirements. However, the recent developments towards greater involvement of securitisation structures are not reflected.
F	Equity crowd funding	Individuals providing finance, borrowers, investment funds, investment managers	Individuals and businesses, including business start-ups, raise money through online portals	Consumer harm could result from the credit risk for investors. There are also operational risks arising from the use of platforms or other means of	The FCA is responsible for regulating investment-based crowdfunding platforms, on which people invest in unlisted shares or debt securities issued by businesses. In contrast to P2P lending we have found little evidence

	MBF Activity/ Service	Entities	Purpose	Risks to Objectives	Regulatory Gaps?
			(crowdfunding platforms) to finance or re-finance their activities. Money is subscribed mainly by individuals but also by institutions.	communication. Market failure: Agency problems.	that this activity is becoming more relevant for wholesale players yet.

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As discussed in the main body of the paper, we conducted an extensive search of the trade press to look for innovations in MBF. The following sources have been consulted:

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