Shadow Banking and Financial Stability

By **Jean-Pierre Landau**

The regulatory reforms undertaken after the Great Financial Crisis of 2008 – 2009 have yielded impressive results. Capital and liquidity buffers have been rebuilt and increased in the most critical parts of the world banking system. Those reforms have significantly reduced financial fragility, strengthened the robustness and resilience of global financial institutions and protected taxpayers against the consequences of possible bank failures in the future.

Yet, regulators and Central Bankers cannot rest assured that all dangers have been eliminated. Shadow banking, in particular, has emerged as a major source of debates and concerns for financial stability. This article presents a description of "shadow banking" activities and discusses the challenges they pose for regulators.

1. Different Forms of Shadow Banking

According to the Financial Stability Board (2017) shadow banking can be defined as "*credit intermediation involving entities and activities (fully or partially) outside the regular banking system*". That definition encompasses all forms of credit, by all non-bank entities, including asset management companies and Funds that issue and buy debt and money instruments. This article will follow suit and consider mutual and open "funds" that issue redeemable liabilities and invest into long term securities as integral parts of the shadow banking system.

Yet, while very broad and comprehensive, that definition is not fully satisfactory. The reference to "credit" is partially misleading. Shadow banking is more broadly related to financial intermediation. Maturity transformation, not credit, is a defining component. While credit involves leverage, maturity transformation requires liquidity. Most shadow banking entities have little or no capital. The whole system of shadow banking relies upon the permanence and availability of liquidity inside the intermediation chain. The main risks attached to shadow banking come from that structural liquidity mismatch, as well as potential liquidity shortages and freezes. A better definition, although less official, can be found in an ECB working paper (ECB, 2012): *"shadow banking refers to activities related to credit intermediation, liquidity and maturity transformation that take place outside the regulated banking system*".

Shadow banking is also very country specific. The same denomination has very different meanings in different parts of the world. To oversimplify, two main categories can be distinguished: "Chinese style" and "western style" shadow banking.

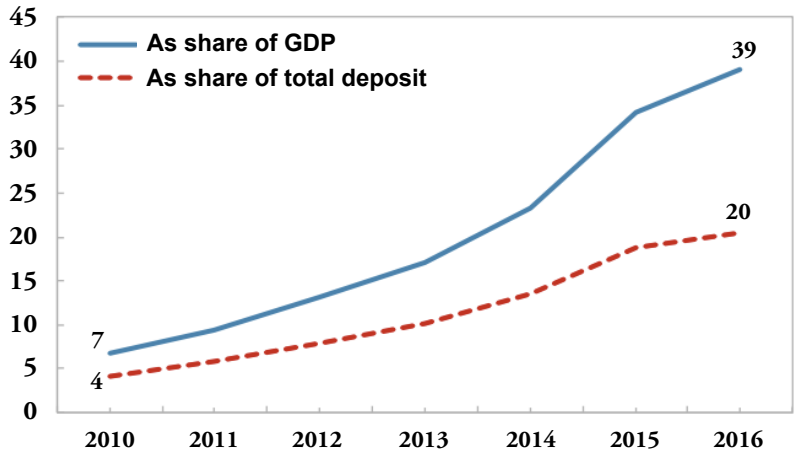
1.1 Shadow Banking in China

In China, shadow banking mainly consists of intermediation activities where banks play a central role as operators but manage to keep the transactions off their own balance sheets – thus avoiding capital, liquidity, and interest rates regulations. This can be done through various means. Two techniques, in particular, have met in China with considerable success and development.

Chinese banks use so called "trust companies", to organize direct lending between corporates, and "bypassing "the banks' balance sheets, through so called "entrusted loans". Trust companies are less regulated than banks, although banks are sitting as effective - but not financial – operators.

For the purpose of collecting savings without being subjected to interest rate regulations, Chinese banks issue "bankers' notes" or sell to households various "wealth management products" (WMPs), whose proceeds are invested into pools of assets, sometimes with high expected returns. Some of those WMPs share many characteristics with the structured investment products and vehicles used by U.S. banks before the 2008 crisis. They offer higher yields than bank deposit rates while being promoted as a low-risk instrument. The graph below illustrates the strong growth of WMPs in China over the last five years and the importance of shadow banking in the Chinese financial system.

Figure 3. China: Wealth Management Products (WMPs) — Balance Outstanding, 2010–2016
(In percent)



Source: Wind Info (2016) and IMF staff calculations.

(Source: IMF FSAP China, p.17)

For all its volume and importance and the risks attached, China's shadow banking remains somehow traditional. The policy response is easy to define and frame, although it may prove politically difficult to implement.

First, supervisors should benefit from full transparency of shadow banking operations so that they can properly measure and assess the risks. They must have the powers to compel the banks, if necessary, to limit or internalize those operations. To the extent that shadow banking effectively prospers in opaque structures, transparency will act as a self-regulating mechanism.

Second, because shadow banking depends on the explicit or implicit capital and liquidity support from its sponsor banks, supervisors may act indirectly through requirements imposed on the banks themselves. This approach was adopted in western economies, to reform securitization and put an end to its excesses after the 2008 crisis.

Finally, strong consumer information and protection as well as regulation of saving products may be necessary to avoid any mis-selling and a subsequent loss of confidence in the financial sector.

Shadow banking in China should not be treated casually. The volumes are significant. The risks are real and must be confronted. From an analytical perspective, at least, the way to stronger regulation and greater financial stability can be well identified. The same does not hold for the "western style" shadow banking.

1.2 Shadow Banking in USA and Europe

"Western type "shadow banking is quite different and more complex. Deposit banks do not play a central role. Major actors are non-bank entities: money market funds, mutual funds, asset management companies and dealer banks. Together, they operate multiple intermediation chains with several layers of maturity and liquidity transformation.

At this stage, it is useful to make a distinction between two types of intermediation: shadow banking in a narrow sense, that designates short term intermediation taking place in debt and money markets; shadow banking in a broader sense involves investment funds and asset managers issuing (almost) immediately redeemable shares and investing the proceeds into long term (debt and equity) securities.

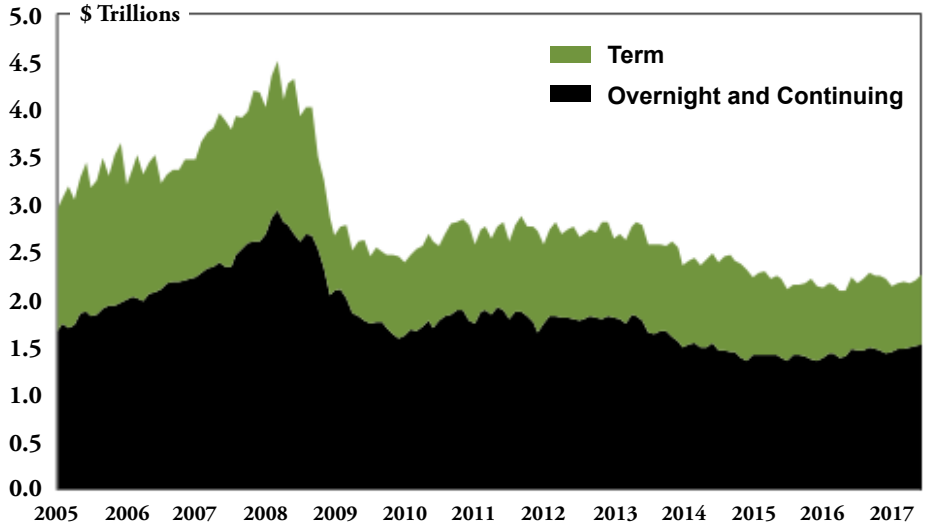
Shadow Banking in a Narrow Sense

The 2008 crisis was mainly propagated and amplified by shadow banking entities which operated on the very short end of financial intermediation, on money and short-term debt markets. The purpose of those markets is to permanently allocate liquidity between financial intermediaries through the exchange of cash vs securities. Suppliers of cash are mostly money market funds (MMFS). Ultimate users of cash are so called "institutional cash pools" who manage long term portfolios but need cash to be able to transact on those portfolios. Those are hedge funds, insurers, and pension funds. Shadow banking helps them to temporarily liquefy their part of their portfolio and get the cash necessary to finance their transactions. In the middle, stand a very small number - less than fifteen - of dealer banks, that intermediate between providers and users of liquidity. In the US, investment banks are a both intermediaries and final borrowers on money and short-term debt markets where they fund their long-term portfolios of securities.

The engine that keeps shadow banking running is the exchange of securities (collateral) for cash through repos (repurchase operations). Repos allow for the circulation of cash in conditions of maximum security as each and every transaction is secured by collateral. The availability of collateral, therefore, is vital for shadow banking to function. Most of collateral consists of Government bonds. A significant part, however, is privately created collateral. This happens through securitization: the bundling and tranching of existing loans, with, as a counterpart, the issuance of short-term debt, such as Asset Backed Securities (ABS) that can serve as collateral.

That intimate link between collateral, repos and securitization, forms the backbone of shadow banking. On the one hand, shadow banking uses collateral in repos between participants: MMFs, cash pools and investment banks; on the other, shadow banking produces collateral through securitization of loans undertaken by investment banks and asset managers. When securitization collapsed in 2008 as a result of its mismanagement and excesses, the whole shadow banking system was paralyzed. The crisis has been aptly described as a "run on repos" (Gorton, Metrick, 2009). As confidence in collateral vanished, repos froze and cash stopped moving. The system progressively recovered, through massive interventions by public authorities, and today it is alive and well. But it never came back to its previous level of activity. The trust in structured securitization had been irreversibly damaged. In addition, regulatory reforms in the banking sector have made it costlier for dealer banks to use their balance sheet and act as intermediaries between other shadow banking entities. As illustrated in the graph below, the volume of outstanding repos in the US has been broadly stable over the last seven years.

Average Monthly Repurchase Agreements Outstanding
2005 – Jun. 2017



Source: Federal Reserve Bank of New York

Shadow Banking in a Broad Sense

Strikingly, however, at the same time when traditional shadow banking is shrinking in terms of overall volume and importance, another form of non-bank intermediation is growing fast. It takes place in open-ended funds that issue short term – almost immediately redeemable- liabilities and invest into long term (debt and equities) securities. This is the contemporary, modern, form of shadow banking, closely identified with the asset management industry. As compared to the more traditional form, there are two differences: first, it involves a shorter chain of intermediation and maturity transformation: cash brought into funds by savers is directly invested in long term securities and does not change hands multiple times through securitized transactions; and, second, a significant part of investments is made across borders.

This is of great importance for Emerging Economies (EMEs) which today are at the receiving end of shadow banking and directly affected by how it works. For them, problems in advanced countries shadow banking translate into "large and volatile capital flows" according to the accepted terminology. These are two sides of the same reality, depending on whether one looks at it from the origin or destination of capital flows. In the future, EMEs will be major actors on both sides of shadow banking. The conjunction of income growth and high saving rates will produce a sharp rise in the ratio of global wealth to income and increase the demand for asset management services in the emerging world. Chinese asset management sector is expected to top trillions of USD in total assets sometime during the next decade.

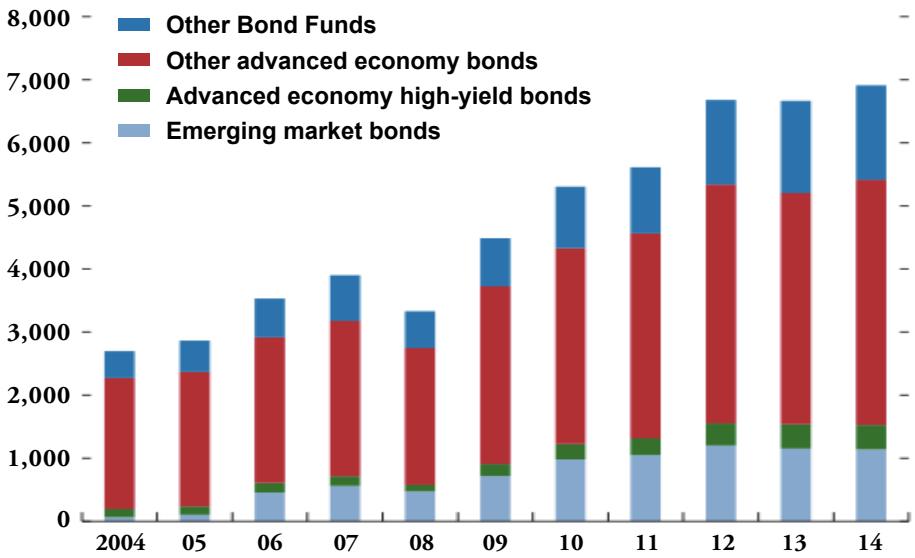
This second aspect of shadow banking – akin to market-based finance and asset management – raise specific challenges due to its growing size and systemic importance.

In advanced economies, and, increasingly, in emerging ones, banks are becoming minority actors in financial intermediation. Already, the balance sheets of asset managers are similar in size to those of banks (Haldane, 2014). In aggregate, the top ten banks and asset managers in the world total $20 trillion and $25 trillion in assets respectively. And asset managers grow faster. It is reasonable to expect that, in a not too distant future, asset management will overcome banks as the main channel for financial intermediation.

At the same time, its systemic importance is becoming apparent. Apart from its size, what makes asset management systemic is the conjunction of its imprint on financial markets and the inherent maturity transformation it performs. A significant part of the industry is represented by collective investment vehicles ("funds") that issue liquid, safe and short-term liabilities and invest into illiquid, risky and long-term securities (or, less frequently, loans). To quote the FSB, (2017)"*growth in the asset management sector has been accompanied by increased investment in particular asset classes, including some less actively traded markets, through open-ended funds that offer daily redemptions to their unit holders*"

Figure 3.6: Growth in Bond Funds by Investment Focus

(Assets under management of bond funds worldwide; billions of U.S. dollars)



Sources: Lipper; and IMF staff calculations.

Source: IMF (2015)

From a historical perspective, open-ended funds have not generally created global financial stability concerns or stress. However, there are reasons to carefully consider future risks and vulnerabilities that result from the core function of those funds, i.e. direct and large-scale maturity transformation. The main vulnerabilities come from their exposure to runs, on the one hand and the illiquidity of their assets, on the other.

The risk of run is obvious when, as for MMFs in the US until the recent reform, the net value is (implicitly or explicitly) guaranteed. Then, if some investors start having doubts on the intrinsic value of the fund, they will try to cash in at the guaranteed value before troubles become intractable, thus triggering a run. That those institutions are susceptible to runs has been illustrated in September 2008 when one such run occurred on a major US MMF, the Reserve Primary Fund, forcing the Federal Reserve to create a special facility to support the whole industry.

Most of the Funds, however, provide no guarantee on the redemption value and the investment risk is being put back to end-investors. Many funds or products, however, such as open mutual funds or Exchange Traded Funds (ETFs), are explicitly organized to provide instant or quasi immediate (daily) liquidity. It is generally assumed that since they do not promise any specific redemption value, they are not exposed to runs. This is wrong. For runs to take place, it is sufficient that "first movers" have an advantage over those investors coming later for redemption. Investors can rationally anticipate that, once redemptions have started, the ensuing liquidation of assets will drive down their price, and the value of the remaining shares will drop. First movers will get better value than those coming later.

A second vulnerability comes from the assets into which funds are invested, especially corporate bonds, both in advanced and emerging economies. There is currently an uncertainty on the liquidity of many, if not most, of bond markets. This is of course, crucial as those securities form "the end of the chain" of maturity transformation by the shadow banking system. Large fire sales could occur in response to redemptions from open funds and would trigger wide instability if markets are illiquid, with huge price swings and potential effects on the financial system and the broad economy.

An active debate is taking place on the impact that Basel III regulation has on market liquidity. Most market participants would argue today that Basel III capital and liquidity requirements have a negative effect by increasing the cost, for intermediaries and market makers, of holding inventories of securities in their balance sheets. Indeed, those inventories have dropped significantly over the last few years. In response, regulators point to usual indicators of liquidity, such as bid-ask spreads, that haven't changed as compared to the pre-Basel III period. Everyone admits, however, that market behavior in times of stress has been puzzling in many

recent episodes. There have been three instances of " flash crash" – ample moves in prices in a few seconds – that have never been fully explained yet. They occurred in the most liquid markets: the bond markets of the largest sovereigns (US and Germany) and foreign exchange (Pound Sterling). It is likely that new methods of algorithmic trading have played a role in those unexpected market dynamics. Those episodes have been very short lived with no consequences. They show, however, that current markets dynamics are unpredictable and difficult to analyze and understand.

Together, the risk of run and asset illiquidity make a very fragile and potentially unstable combination. It is easy to imagine a dynamic where important redemptions and strong corrections in asset prices will fuel each other in a dangerous spiral. Indeed, we've seen examples of such dynamics already. The "taper tantrum" that occurred in July 2013 when markets misinterpreted a Federal Reserve announcement on its future asset purchases is a case in point. In a few days, significant amounts were withdrawn from funds invested, in particular, in emerging bond markets. The subsequent sales and repatriation translated into capital outflows from major emerging economies and significant movements in exchange rates. In the future, this may be one of the main financial stability risks confronting policymakers in emerging economies.

A third source of concern is the herding behavior that naturally affects asset management. As well documented in the literature, the tendency to herd comes naturally from the set of incentives that managers face with their performance compared to others and assessed over short term horizons. It may also result from the business models and product structures. With similar mandates, asset managers hold similar portfolios and react similarly to a change in the environment. Also, some funds, such as ETFs, are specifically designed to offer an exposure to broad indices of securities, increasing the similarities between them. Herd behavior may also come from the original investors themselves: there is evidence that inflows and outflows in open funds invested in EMEs are strongly procyclical and heavily influenced by changes in overall risk aversion.

All those risks have increased in recent years. In an environment of exceptionally and durably low interest rates, investors' search for yield has led them to look for assets with high returns, which are often those with less liquidity. Future shocks may come from those parts of the financial system that are most exposed to interest rates and liquidity risks. Shadow banking, in a broad sense, and non-bank intermediation, may be at the center of any future financial tensions and crises. It is even more important that they are appropriately regulated.

2. Conceptual Challenges in Regulating Shadow Banking and Asset Management

Shadow banking entities are intrinsically fragile because their function is to undertake maturity transformation. They are subjected to runs, vulnerable to changes in risk perception and loss of confidence, exposed to market illiquidity

and may behave in a strongly procyclical manner. They pose multiple and difficult challenges to regulators.

All those problems and potential risks have been very aptly diagnosed and analyzed (FSB, 2017 and IMF, 2015). However, devising a comprehensive policy response has proved very challenging.

Important reforms have been implemented. The rules regarding securitization have been strengthened in the aftermath of the crisis. Most significantly, a major reform of Money Market Funds has been introduced in 2016 in the US. So-called "prime MMFs" (non-invested in Government bonds) were allowed to suspend redemptions and forced to issue shares with floating net asset value (NAV). Following that reform, more than USD 1 trillion were withdrawn from Prime Funds and transferred to Government Funds with fixed NAV.

Important challenges remain in designing a proper and comprehensive regulation. The terminology does not help. Designating those activities as "shadow banking" implies a closeness to - and a similarity with - banking. It creates a presumption that the regulation of market-based finance should be inspired by and transposed from what has been done for banks. On the contrary, shadow banking raises very complex and specific difficulties that have not yet been fully addressed.

To regulate funds, authorities are confronted with a very imperfect choice of instruments. They can either replicate banking regulation with such instruments as capital and liquidity buffers, which are broadly ill-adapted to the task; or use specific tools, such as redemption limits and "gates", that remain untested. None of those instruments offer a protection against a broad-based, systemic liquidity shock.

Banking regulation since the crisis has been rightly - and successfully - organized around one dominant objective: make financial institutions and the whole financial system more resilient by building strong buffers, both on capital and liquidity. Buffers are well adapted to banking activities that face leverage and credit risk. However, those are not the main risks attached to shadow banking – which rests upon maturity transformation – and it is doubtful that buffers can bring efficient protection. A capital buffer protects efficiently against losses, but very imperfectly against runs. It may be that investors will hesitate to run on a well-capitalized institution. But maybe not. The logic is very specific and totally self-fulfilling: people will run on a bank or a fund if they think others might do it, irrespective of the fundamentals and capital situation. The biggest run in modern history occurred on a bank, Northern Rock, that was extremely well capitalized. In addition, capital requirements would not help those funds that act as agents – not principals – and manage other people's money with the risks borne by investors themselves. Those funds do not put their own balance sheet to work and capital ratios, would be, in that case, largely irrelevant.

What about liquidity buffers? They certainly can act as shock absorbers when an intermediary of a fund suffers temporary and unexpected withdrawals. Supervisors are generally very attentive to the liquidity risk management by funds. They frequently require that liquidity levels be tested against stressed scenarios with unexpected withdrawals. Indeed, evidence shows that funds that engage into greater maturity transformation keep higher liquidity buffers. Liquidity ratios, therefore, seem appropriate to protect one specific institution from temporary withdrawals. They might not work when the whole system is facing an aggregate, common, and highly correlated liquidity shock. In that case, the level of buffers necessary to ensure the safety of the system would be so high as to prevent any maturity transformation at all.

In addition, or in substitution, to buffers, fund managers or regulators may consider and use so called "exceptional liquidity risk management tools". Elaborate guidance usually exists, in many jurisdictions, to allow a fund, or its supervisors, to put limits to, or temporarily suspend, redemptions in pre-specified circumstances. Those "gates" could be very efficient as they directly address the immediate source of difficulties by preventing a run to occur. Their systemic impact is uncertain. There is a possibility that putting a gate on an important fund would trigger runs on other, similar, intermediaries and create a more widespread panic. In 2007, BNP Paribas, acting as an asset manager, suspended redemption on one of its funds citing difficulties in valuing illiquid assets. That measure is considered to have played some role in triggering the subsequent events that led to a paralysis on interbank and short-term markets. Overall, gates, as a tool to manage liquidity risk, remain untested.

With only unadapted (buffers) or untested (gates) tools at their disposal, what should regulators do?

They should certainly maintain a continued vigilance on the level of maturity transformation in different parts of the system, on market liquidity and potential adverse dynamics. The terms "close monitoring" are the most often quoted in policy papers relating to shadow banking and asset management. The dominant recommendation is to develop the reporting obligations by the main actors. It is both reassuring and a sign that regulators are still in the learning curve in terms of the appropriate regulatory response.

What may be missing at this stage is a macro prudential approach to shadow banking supervision. Shadow banking involves a multiplicity of actors and, consequently, a multiplicity of regulators. Each of those regulators, whether responsible for banks, markets or insurance, or pension funds has made sure they have the appropriate powers and tools to effectively supervise and protect the institutions in their perimeter. Current regulations are mainly oriented towards investor protection (IMF, 2015). However, the major risks attached to shadow banking arise from the interactions between different types of participants, through

the whole chain of intermediation and maturity transformation. The behavior of the system cannot easily be deduced from the actions of each participant. A macro prudential perspective is therefore essential to control the risks coming from complex dynamics and interactions between actors with different objectives and mandates. Stress testing is a central tool. And closer cooperation between banking, securities and insurance regulators is an absolute necessity.

Finally, one important question looms over the debate on shadow banking, although very often not made explicit. Should shadow banking benefit from some kind of public liquidity support and backstop in the form of a specific lender of last resort? Some of the *ad hoc* facilities created by the Federal Reserve during the Great Financial Crisis (GFC) were aimed at preventing a market freeze in shadow banking by providing liquidity to specific instruments (ABS, commercial paper) or institutions (money market funds). Within the new legal framework created by the Dodd-Frank Wall Street Reform and Consumer Protection Act, most of those facilities could not exist anymore. In normal times, most of the shadow banking, and the mutual fund industry, are outside the reach of central banks. Extending liquidity support to market-based finance would raise very difficult issues of moral hazard. Actors on securities market are expected to assess and control their risks and bear the consequences of their acts. Considering the growing systemic importance of shadow banking and asset management, however, it is difficult to anticipate that authorities would remain passive in the event of a major shock.

Conclusion: Some Final Thoughts

It is commonly assumed that the expansion of shadow banking is mainly driven by regulatory arbitrage, the desire to circumvent the capital and liquidity requirements that have been progressively imposed on banks. There is, of course, an element of truth in that assumption. Shadow banking itself has morphed into a different system with changes in regulations. The long chain of intermediation through securitization and repos has partially given way to a shorter channel of maturity transformation through mutual funds.

However, other, deeper, forces are at work. Shadow banking does not exist in a vacuum. The economy as a whole "demands" maturity transformation. Shadow banking has developed because it fills a need. Savers - and those institutions that represent them - want to keep parts of their assets in liquid form. They also want to earn some return. At the other end of the chain, productive investors need stable financing and long-term commitment.

Reconciling those opposite preferences has been a central role of all financial systems since the beginning of the world. What we call shadow banking is just the latest phase in this evolution. It's getting increasingly sophisticated, complex, and potentially dangerous. But it is also increasingly necessary.

The need for maturity transformation is especially high in the current world environment where many sources of uncertainty combine to increase the demand for safe and short-term liquid assets. And, contrary to basic intuition, financial innovation has not attenuated the demand for liquidity and subsequent desire for maturity transformation. On the contrary, financial innovation creates the impression that it is possible for investors to conciliate, without limits, liquidity and return.

Regulators must determine to which extent this is a realistic aspiration. They must clarify the major tradeoffs involved. They must decide on whether to accommodate the desires of savers and investors – with associated dangers – or to refrain and constrain them. Should some forms of intermediation – or some products, be prohibited? Should the corresponding risks be partly assumed by the society through some form of public support because it would be decided that maturity transformation is a public good? There is no definite answer to those questions. They certainly deserve consideration as modern financial systems move away from traditional - bank based - into more market based financial intermediation.

Editor's note: With the rise in financial stability risks caused by the expansion of shadow banking, it may be tempting for policymakers to assume that the traditional banking sector, bolstered by the reforms put in place after the Great Financial Crisis, will not be a likely source of financial crises in the future. This is a dangerous assumption.

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