

**MANAGING GLOBAL
LIQUIDITY AS A
GLOBAL PUBLIC GOOD**
**A REPORT OF AN
RTI WORKING PARTY**

Chaired by **Bernard Snoy**
Rapporteurs **André Icard** and **Philip Turner**

December 2019





A watch on the international financial and monetary system

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Managing global liquidity as a global public good

A report of an **RTI Working Party**, chaired by **Bernard Snoy** (Chairman of RTI, former Executive Director of World Bank and of EBRD). The rapporteurs were **André Icard** (former Deputy General Manager of BIS) and **Philip Turner** (former Deputy Head of the Monetary and Economic Department, BIS).

Abstract

The cumulative balance sheet effects of a decade of low interest rates, long as well as short, have become very large. This report examines the magnitudes of such effects through the many dimensions of global liquidity. This is not purely a monetary policy phenomenon as regulatory policies, restrictive fiscal policies in some advanced economies and structural factors have all had important impacts. Several indicators suggest increased financial vulnerabilities and higher risks of destabilising market dynamics. The dollar debt of non-banks outside the United States is at a new record: currency mismatches and leverage in the private sector have increased. The dollar funding of non-US banks looks fragile. Greater reliance on international bond markets has created new, opaque risks. There is widespread unease about the domination of the dollar, and about the inadequacy of the Global Financial Safety Net. The search for alternative multi-currency arrangements continues. But the need to address the risk of a new dollar liquidity crunch is urgent. International oversight of this issue is at present too fragmented. Policy responses at national level may require action by several bodies – central banks, regulators and Treasuries. The report therefore proposes that the Financial Stability Board, with inputs from the BIS, the IMF, the OECD and others, report regularly on global liquidity to G20 Ministers and Governors so they can act in time to avert a crisis.

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TABLE OF CONTENTS

Managing Global Liquidity as a Global Public Good *A Report of an RTI Working Party*

Introduction	7
1. The Triffin heritage and the G20	9
2. Key dimensions of global liquidity	12
(a) The official component	
(b) The private component	
(c) Easier monetary policy and tighter bank regulation: the surge in market intermediation	
3. Measures of global liquidity	18
(a) IMF statistics on quantities	
(b) IMF price indicators	
(c) BIS's global liquidity indicators	
(d) The Global Financial Safety Net	
4. Currency and maturity mismatches	27
5. Global liquidity and long-term interest rates	30
6. The post-GFC explosion in bond issuance	34
7. Capital flows, spillovers and macroprudential policies	36
8. Managing global liquidity: a shared responsibility	40
9. What international arrangements for managing global liquidity?	42
(a) Global liquidity statistics	
(b) A global perspective: scenarios and stress tests	
(c) The international management of liquidity	
References	46
Composition of the Working Party	52

Figures

1. Central bank balance sheets
(as a percentage of GDP)
2. IMF global liquidity indicators (G3)
3. IMF global liquidity indicators, by area
(as a ratio of nominal GDP)
4. Marginal dollar funding costs for non-US banks
(three-month cross-currency basis)
5. BIS: growth of foreign currency credit to non-resident
non-banks
6. BIS: international credit outstanding
7. Currency mismatches in EMEs
8. Benchmark dollar interest rates
9. "World" long-term rate and term premium
10. Spillovers to EMEs

Introduction¹

As 2020 approaches, the time is ripe to review the international policy frameworks for managing global liquidity. The risk of an unexpected and unplanned reversal of abundant global liquidity hangs over the world economy. There has been no shortage of warnings about an impending systemic crisis (Hannoun-Dittus (2017), White (2016)). When the major economies faced a sharp downturn, low interest rates and the massive creation of official liquidity pulled the world economy back from the brink of depression. And tighter regulation after the Global Financial Crisis (GFC) lowered the risks of excessive liquidity creation by banks (Turner (2017)). But the US economy is now close to full employment. Although economic forecasts suggest a global slowdown, the other major economies no longer face the threat of deflation.

It is also opportune because successive plans by central banks to “normalize” monetary policy have been frustrated by weaker growth and very low inflation. The prospect of secular stagnation could present an enduring challenge for central banks (King (2019)). The cumulative balance sheet effects worldwide of low interest rates and quantitative easing maintained for much longer than anyone expected a decade ago have therefore become very large. That such spillovers to global liquidity conditions could generate macroeconomic instability worldwide was one of Triffin’s key insights (Ghymers (2017)). Global liquidity (in the sense of foreign currency credit to non-banks) has now risen to well above pre-GFC levels. Dollar exposures have risen faster than other foreign currency exposures. Most of this expansion has gone through bond markets as banks, which had expanded foreign currency exposures too recklessly before the financial crisis, have pulled back. The rapid rise of international financial intermediation through bond markets has created many new, and very opaque, risks. New issuers without good credit records have been able to float bonds in global capital markets.

Many of these bond issues would become illiquid in a less benign environment. Strong contagion across markets could make the endogenous dynamics of global liquidity very dangerous. Bond funds have made investors complacent about liquidity risks: they buy illiquid and high-yielding paper but quote daily prices to provide liquidity assurance (“liquidity illusion”) to investors. Some recent episodes of runs on funds suggest that regulators have acquiesced in non-transparent liquidity and other risk exposures.

In a sharp downturn, which currently cannot be excluded according to the most recent forecasts, liquidity conditions tend to deteriorate. A financial shock could make this worse. Central banks can counter this virtually without limit in their own currencies but not in foreign currencies, constrained by the size of their reserves. The Fed’s LOLR powers – discussed further in Section 2 – have been curtailed by the financial reforms put in place after the crisis (Geithner 2016). Nevertheless, swap arrangements between the Fed and five major foreign central banks were made permanent after the GFC. Whilst not automatic, these arrangements would in principle allow the Fed to decide to lend dollars on an unlimited scale². Such arrangements provide the world economy with its most important backstop in

¹ Several members of the Working Party kindly agreed to develop a number of relevant issues more fully than was possible in this Report. Their articles, referred to in the Report and listed in the references, are available in the Global Liquidity section of the RTI web site www.triffininternational.eu.

² The central banks which are part of this arrangement with the Fed are the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank and the Swiss National Bank. In principle, this arrangement is reciprocal between all six central banks and does not only cover dollar lending.

the event of a dollar liquidity crunch. Providing dollar liquidity to foreign central banks, however, has often attracted hostile comment in the US legislative branch.

IMF financial capacities have not kept pace with the growth of international financial markets. Villeroy de Galhau (2019) noted that the global financial safety net is too small and imperfect in coverage. He quoted a special ECB (2018) study: total IMF resources have dropped from about 4% of global external liabilities in 1980 to less than 1% in recent years. As discussed further in Section 3 (d), the IMF is not in a position to function as an international LOLR. Failure to counter promptly a dollar liquidity squeeze in the next downturn (and offset the associated shortage of safe assets) could aggravate recession and leave the financial system weaker.

1. The Triffin heritage and the G20

The intuitions drawn from the intellectual heritage of Robert Triffin helped to understand better the systemic flaws in current international monetary arrangements. Padoa-Schioppa (2010) and RTI launched the *Triffin 21 Initiative* to explore such flaws. The recommendations formulated in the Report of the high-level Palais Royal Initiative (PRI) of 2011 inform our global perspective. The different elements of Triffin's work are related to many key themes in this Report (Snoy (2019), Ghymers (2017)). These elements have recently attracted greater attention in several forums dedicated to international monetary co-operation, especially on the occasion of the 75th anniversary of the Bretton Woods agreement. See, for example, Villeroy de Galhau (2019) and Wolf (2019), who review the current major threats to international monetary co-operation. As Bordo and McCauley (2018) note, the inevitable conflicts and difficulties that arise when a national currency plays the role of an international public good vindicate Triffin's dilemma in its most general form.

Four fundamental dimensions of international monetary co-operation have a lasting interest:

- a) Adequacy of international reserves;
- b) Avoidance of cumulative balance of payments disequilibria which could strain international financing mechanisms;
- c) Confidence in reserve assets; and
- d) Need for a global lender of last resort to cope with liquidity shocks and for managing global liquidity in the interest of the global community.

Today the specific manifestations of these four dimensions are quite different than in the Triffin's era. The issue of the *adequacy of international reserves* has been altered by exchange rate flexibility and free capital movements. The supply of international liquidity – by the private sector – has responded in a very elastic way to the growth of international trade and the dramatic surge of capital movements. This very elasticity may have created financial and macroeconomic risks. The dollar has become even more pre-eminent. Despite its incorporation in the SDR, the market use of the renminbi has declined over the past five years. The wider use of bilateral central bank swap lines for non-dollar currencies is very helpful in some specific cases and some authors consider that they should be institutionalised since, to become a useful complement to the GFN, swaps need to be a credible source of liquidity in case of need (Guzmán (2019)). However, they are not without risks. If recipient central banks immediately exchange the foreign currency received for dollars, they may create unwanted pressures on the non-dollar currency initially received (Iwata (2018), Guzmán (2019)).

Large balance of payments disequilibria have lasted far longer than believed possible in the 1970s. They remain a major unresolved problem. At a recent G7 conference, Villeroy de Galhau (2019) noted that global imbalances – measured by the sum of the absolute values of net creditor and debtor positions imbalances – have now reached 40% of world GDP, an historical peak and four times larger than in the 1990s. The need for some symmetry in adjustment between creditors and debtors was stressed by several contributors to the PRI³. It has been on the agenda for international monetary reform

³ Aglietta, Mateos y Lago (with other IMF economists), Truman and Reddy (in Boorman and Icard editors (2011)). Historically, the refusal of surplus countries to adjust their own policies to help correct imbalances has led to defaults on their claims on deficit countries (Turner (2013)).

since the Committee of Twenty in 1974. Repeated calls for stronger multilateral surveillance to reduce international payment imbalances has led to the adoption of many procedures both globally (IMF, OECD) and regionally (the European Union's Macroeconomic Imbalance Procedure). But effective mechanisms to correct persistent external surpluses have proved elusive.

The question of *confidence in reserve assets* has in recent years become a question of the supply of safe and liquid assets (Caballero and Farhi (2017)). Government bonds of "safe" sovereigns are the classic safe asset, and fulfil a role akin to money. Caballero et al (2017) identify a major global conundrum: growth in the past 20 years has been driven by high-saving EMEs such as China which had a huge appetite for safe assets only produced by slowly growing advanced economies. The widening shortage compressed the return on safe assets to zero. The ultimate safe assets are dollar bonds, usually US Treasuries⁴. Yet other sovereigns issue safe assets in other currencies. There has been a lively debate on what it would take for the euro area to issue safe assets in greater volume⁵.

In the years before the GFC, the markets had created riskier alternative dollar assets, rated as AAA. Banks could hold such paper free of a capital charge and would accept them as collateral. The demand for safe collateral inevitably increases as financial intermediation shifts from banks to capital markets. The systemic question is how to counter an inadequate supply of safe assets. This brings back the Triffin dilemma dimension: countries need to run fiscal deficits to ensure the necessary supply of government bonds. But larger fiscal deficits can undermine the perceived safety of their debt. Ideally, then, managing global liquidity requires the capacity to manage the issue of safe assets

Some recent and proposed international initiatives could facilitate the selective default of government bonds as part of an adjustment programme. But policies which seek to inject a degree of riskiness into government debt involve many dangers. Anything which undermines the standing of government debt would damage the local banking system, accentuate liquidity stress and make it harder for a central bank to manage a financial crisis or a macroeconomic shock (Saccomanni (2018)). Analysing the strong and growing demand globally for safe assets, Landau (2017) doubts that a more stable, resilient and symmetric monetary system could emerge if only a few countries would issue debt that is considered safe⁶.

The fourth dimension – that of *coping with liquidity shocks* – is fundamental to this Working Party. An important background element of this is that, in the early stages of the GFC (before the failure of Lehman), central banks took too-narrow a view of their *domestic* LOLR responsibilities. Questions raised by Obstfeld (2009) about the adequacy of central bank LOLR operations remain valid. The reluctance of central banks to take radical measures is reminiscent of Bagehot's famous criticism

⁴ Bordo and McCauley (2018) argue that the supply of safe dollar assets is more elastic as US government sponsored entities and high-rated companies can also issue such debt.

⁵ The bonds of only some euro area countries have a safe asset status similar to that of US Treasuries. Measured by share of outstanding sovereign debt held by foreign central banks, the "safe euro area aggregate" (that is, of Germany, France, the Netherlands and Austria) has already reached the level of the dollar (chart 23 in ECB (2019)). The ECB's annual report on the international use of the euro concluded that a stronger international use of the euro depended on having a larger supply of safe assets, perhaps through a "common euro area safe asset ... in a way that does not undermine incentives for sound fiscal policies ... with the indirect benefit of sharing the advantages more widely across euro area sovereigns." Savona (2019) advances a similar argument.

⁶ On how the concentration of safe debt issuance at the "centre" of the euro area aggravated liquidity crises in the riskier "periphery" countries, see Brunnermeier et al (2017).

of the too-timid Bank of England in the nineteenth century⁷. The GFC became so severe because contagion spread illiquidity and panic almost indiscriminately. As Oritani (2019) documents, the line between liquidity and credit risks became blurred: no one knew what assets were worth or which banks were solvent. These dire circumstances left central banks with no option but to purchase (or lend against) illiquid and riskier assets (long-term paper, private assets, commercial bank loans and so on) they would normally have avoided. Because only central banks can create official liquidity on a massive scale and in the light of this history, Scott (2016) argues one key lesson from the GFC is that the central bank needs more, not fewer, powers. In any event, an important debate about the domestic dimensions of such policies is underway⁸.

The international firepower of a central bank is largely limited by the size of its foreign exchange reserves. It is only *unconditional* liquidity that can be seen as a genuine substitute for forex reserves. This has become a black-and-white distinction even if current instruments for international liquidity assistance embody a continuum between conditional and unconditional.

The high-level PRI in February 2011 was driven by the realisation that “seemingly appropriate liquidity conditions in individual economies may add up to excesses or shortages internationally”. Three main policy proposals were:

- i. National macroprudential policies should take account of global liquidity conditions;
- ii. Capital flows are key in the transmission of risks, and hence need to be managed;
- iii. Need for some permanent financing mechanisms that, in a crisis, would act like a global LOLR. The RTI Working Party “Using the SDR as a lever to reform the International Monetary System” (2013) explored how to get the SDR to play greater role in this connection. It examined what might be done to develop private markets in the SDR. Transforming the present SDR into a genuine world currency, by allowing the IMF to issue (or withdraw) the desired amounts of SDRs, remains an ideal solution.

⁷ He wrote in *Lombard Street* (1873) that “an idea prevails at the Bank of England that they ought not advance during a panic on any kind of security on which they do not commonly advance. But the ordinary practice of the Bank of England is immaterial. In ordinary times the Bank is only one of many lenders, whereas in a panic it is the sole lender.”

⁸ This debate, not the direct subject of the Working Party, nevertheless raises many relevant elements. Oritani (2019) argues that governments have proved ill-placed to act rapidly in a crisis (e.g., injecting public money into banks at risk has often historically been too little, too late). Hence the need for independent agencies (e.g., a central bank) with their own risk money. Tucker (2019), however, shows how difficult it can be to square this with democratic legitimacy. There are also disagreements on the future size of the balance sheets of central banks: see Ball et al (2016), Chadha (2018), Friedman (2014) and Goodhart (2017).

2. Key dimensions of global liquidity

A major difficulty is that the term “global liquidity” is an allusive term. It captures what those in markets feel, and is regularly mentioned in the financial press. The macroeconomic dimensions that go beyond the microeconomics of market liquidity remain work-in-progress for economic theory. The vehicular currency is crucial. Dollar debt instruments are more likely to remain liquid after an adverse shock, and thus dominate international sources of liquidity.

Global liquidity is not therefore a definitive term. Nor is it just the product of monetary policy – fiscal policy and regulatory policy also matter. The absence of a simple and unambiguous definition means that many indicators, including those of a microeconomic nature (e.g. on the specific sectors facing severe liquidity constraints), need to be assessed. The public’s perception of the policy reaction function of the central bank to liquidity stresses in specific markets (e.g., money markets) is also crucial. As Aglietta (2019) put it in his presentation to the Working Party, liquidity is self-fulfilling – assets are liquid if most think others will want to hold them. But such perceptions can change very quickly. Analysis is all the harder because the characteristics of liquidity are in principle distinct but can become closely linked during a crisis.

The PRI report suggested that the IMF and the BIS should work together to develop a set of indicators based on adequate statistical tools to better measure global liquidity. The IMF developed indicators to measure the liquidity risks in the funding of global banks (Chen et al (2012)). Central Bank Governors meeting at the BIS asked the Committee on the Global Financial System (CGFS) to investigate the measurement, drivers and policy implications of global liquidity. The result was the Landau Report, published in November 2011 (BIS (2011)). Landau (2013) is a good summary.

This report underlined that the main driver of global liquidity had become international financial markets, subject to policies in both the monetary and the regulatory spheres. It noted that, “the concept of global liquidity continues to be used in a variety of ways and this ambiguity can lead to unfounded and potentially destabilising policy initiatives.” The analysis in the report started from the distinction between the official components and the private components of global liquidity.

(a) The official component

A key question is how central banks exercise their domestic LOLR policies in a crisis. During the GFC, private liquidity had contracted in a severe and protracted Global Liquidity Freeze. To give just one number: global interbank claims fell from \$9 trillion in early 2008 to less than \$6 trillion by the end of 2009 (Domanski and Turner (2011)). Markets froze.

Aglietta expounded to the Working Party how financial markets pivot around not fundamentals but around liquidity. The economy does not gravitate to a unique full-employment equilibrium. Rather there is a wide range of multiple equilibria, and beliefs about future liquidity conditions (among other factors) influence which equilibrium⁹.

⁹ In a very similar spirit, Farmer (2017) underlines the importance of models that analyse multiple equilibria. Simply assuming automatic convergence to a unique full employment equilibrium evades the coordination problems that lie at the heart of macroeconomics. He also assigns a key role to the state of expectations.

Confidence in a framework that will govern LOLR policies (domestic and international) in response to some future shock can provide reassurance that conditions of extreme illiquidity will be avoided. This is why the Working Party believes it is essential to develop adequate frameworks before trouble strikes. Depending on circumstances, ending financial panics will also require discretionary policy intervention including directly in financial markets.

As noted in Section 1, central banks (and governments) during the early phases of the GFC failed to recognise that the loss of international confidence in the viability of many large banks would provoke a severe global recession¹⁰. Short-term liquidity assistance in domestic currency to local banks could not meet this threat.

The surge in the demand for liquid assets was global, and it was for dollar assets. This international dimension was accentuated by the fact that many non-US banks had built up large short-term dollar liabilities. It took many months for the authorities to grasp the scale of the dollar funding needs of their banks. And many monetary authorities (that is, government plus the central bank) responded by themselves accumulating additional liquid assets, thus adding to the demand for liquid dollar assets (Allen (2013)).

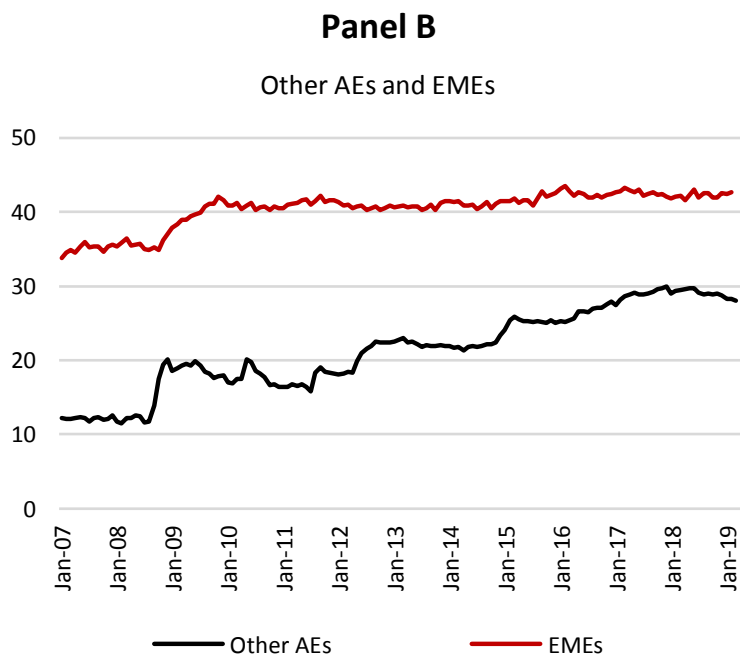
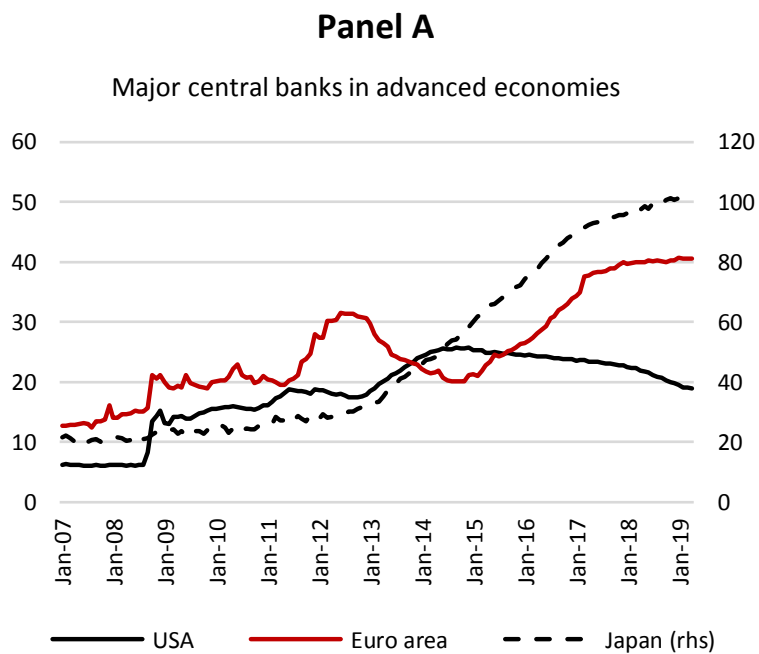
Eventually, however, action to ease this global liquidity shortage was led by the Federal Reserve and supported by other reserves-issuing central banks. Figure 1 shows the sizes of central bank balance sheets relative to GDP – perhaps the one measure of official liquidity easy to compute for all central banks¹¹. Between 2008 and 2014, the Fed was expansionary while the ECB was not¹². From 2014, this position reversed. By early 2019, the ECB's balance sheet was, measured relative to GDP, twice as large as that of the Federal Reserve. The EMEs' balance sheet was in aggregate rather stable.

¹⁰ On this, the post-GFC analysis of Bernanke (2018) of the real damage from disrupted credit is enlightening.

¹¹ Other dimensions also matter. Buying assets of long maturity or of higher credit risk is more expansionary than buying, say, 3-month Treasury bills which has little significance.

¹² The ECB adopted short-term lending operations early and on a large scale. But its interest rate policy failed to address the deflationary threats the euro area faced (Ball (2019), Honohan ((2018), Mody (2018)).

Figure 1. Central bank balance sheets
(as a percentage of GDP)



Source: BIS

The decisive role played by swap arrangements between central banks during the crisis confirmed that only central banks can provide an elastic supply of foreign currency liquidity on a scale large enough to dominate financial market expectations. The Fed's swap lines with 14 central banks, who then provided dollar credits to their banks, peaked at just below \$600 billion. By forestalling even heavier dollar borrowing by foreign banks in US markets, which would have pushed dollar rates higher when the Fed was seeking to lower such rates, the swap lines served the objectives of US monetary policy. And it was the recipient central bank – not the Fed – which bore the credit risk of lending dollars to its banks.

Nevertheless, these swap lines, even though made permanent after the GFC by an agreement between the Fed and five other central banks, attracted strong but ill-informed political criticism within the United States. Since the GFC, US regulators have paid more attention to the dollar exposures of non-US banks. The warning by Geithner (2016) in his Per Jacobsson lecture that the Dodd-Frank Act has constrained the LOLR powers of the Fed is a sobering one.

The issue of liquidity shortages management that straddle national borders by the central banking community was addressed by the Nakaso Report on “Designing Frameworks for central bank liquidity assistance” (BIS (2017)). This report focuses on cross-border dimensions of the central banks' liquidity support and spells out specific issues that have to be dealt with before the next crisis. Many of the issues identified remain unsolved.

Nakaso (2018) identifies three key quandaries:

- i. Firepower needed to address liquidity shortages affecting several jurisdictions simultaneously;
- ii. Trap of transparency: simultaneous disclosure of liquidity support to all counterparties could be counter-productive;
- iii. Capital market intermediation: what assets CBs could buy or accept as eligible collateral in support to the functioning of important markets ?

No doubt that pragmatic solutions could be devised should the need arise. But hesitation and delay – motivated for instance by moral hazard worries – can quickly worsen any ensuing crisis.

(b) The private component

The Landau Report demonstrates that private liquidity is now considerably larger than official liquidity. The increasing trend in global liquidity is a result of deeper financial integration between countries and financial innovation (spurred, among other things, by regulatory changes). The BIS's statistics reviewed in Section 3 confirm the quantitative dominance of private liquidity. The Report notes that the creation and destruction of private liquidity is closely related to leveraging and deleveraging by private institutions. The dynamics of gross international capital flows, including cross-border banking or portfolio movements, are linked to private liquidity. Such flows can create currency mismatches and increased maturity exposures, features that have been key in several financial crises in the emerging markets.

Private liquidity is also highly cyclical because it is driven by divergences in growth rates and in domestic financial and monetary conditions. Movements in risk appetite are crucial.

The Report discusses three possible policy responses which should aim to counter both excesses and shortages in the supply of global liquidity.

First is the regulatory framework. The post-GFC strengthening of financial regulations has made global banks better able to counter liquidity shocks and more resilient more generally. But there are two qualifications to this optimistic assessment.

One is that when market liquidity is abundant, banks should build up liquidity buffers which they can and should draw down when markets go through temporary periods of illiquidity. Regulations which require banks to maintain high liquidity ratios irrespective of swings in market liquidity and the business cycle fail to do this (Landau (2018)). How regulators seek to make their liquidity rules more responsive to circumstances deserves closely watching.

The other qualification is that capital market intermediation has grown relative to bank-based intermediation since the GFC. As discussed in Section 6 below, this has given rise to new vulnerabilities: poor credit and liquidity risk pricing; weaknesses in non-bank intermediaries; market practices and infrastructure.

Second is the role of domestic policies. Foreign exchange intervention policies and monetary policies can help countries mitigate the impact of financial shocks from abroad.

Building up reserves can help countries insure themselves against liquidity shocks. The Landau Report noted that reserves are built up for many reasons: insuring against a run on domestic financial systems; providing foreign currency liquidity to local companies and financial institutions; and influencing market sentiment and risk premia. These same reasons may also explain the fear of losing reserves in times of stress – exactly when reserves should in theory be used. This underlines the need to identify other sources of foreign currency liquidity.

Reserves may also accumulate as a result of intervention in foreign exchange markets to offset swings in capital inflows. Recent research has indeed focused on the macroprudential function of such intervention (Kim and Lee (2017), Agénor and Pereira da Silva (2019)). Such intervention can keep the exchange rate away from extreme values. Building up reserves helps to counter too-sudden or excessive appreciation and provides ammunition against future depreciation.

There is no consensus on whether the costs of building reserves are in general too high because of differences in individual country circumstances (notably the credit spread a government borrowing foreign currency would have to pay). Up to now, the reserves-issuing central banks have generally avoided targeting exchange rates: Villeroy de Galhau (2019) suggests that this stance helps to explain the “fruitful paradox of recent years – the co-existence of domestically focussed monetary policies that result in a globally cooperative monetary environment.”

Deeper local financial markets in many emerging market economies have helped them to better withstand liquidity shocks. In addition, more extensive local financial markets give central banks greater scope for using balance sheet policies to meet macroeconomic objectives in the face of volatile capital flows than they had in the 1980s (Gagnon and Turner (2018), BIS (2019)).

The third is LOLR policies. Only central banks can intervene in the very large, even unlimited, way required by a liquidity shock. As liquidity evaporates across market segments, the line between solvency and liquidity becomes blurred and the Treasury almost inevitably gets involved. The forensic account of Ball (2018) of the US Treasury policy mistakes on the failure of Lehman Brothers is telling on this point. The international dimension brings added complexity.

(c) Easier monetary policy and tighter bank regulation: the surge of market intermediation

The central bank balance sheet provides liquidity domestically. Monetary policy in the advanced economies since the GFC has been very expansionary with policy rates near zero (or even negative) for years, the size of central bank balance sheets rising substantially relative to GDP (see Figure 1 above) and central banks assuming greater risk exposures.

At the same time, there was a major tightening of bank regulation worldwide. For the first time, liquidity rules were incorporated in the international agreements on bank regulation. Given this, monetary expansion helped to strengthen the financial system – because higher real incomes limited bankruptcies and because higher asset prices not only helped debtors to reduce their leverage but also made it easier for banks to reduce their NPLs.

The net effect of easier monetary policy but tighter bank regulation was to constrain the expansion of bank credit to the private sector which, given the pre-GFC excesses, was inevitable. But the scale and the modalities of such restrictions remain a matter of debate. For instance, during our meetings a banker argued that maturity transformation by banks in the euro area (now focused on reducing risk in their lending) had been reversed, with banks borrowing medium-term from the ECB and lending short-term. Longer-term bank loans would have helped SMEs more.

Larger firms with access to capital markets have been able to take advantage of the exceptionally low long-term interest rates. The shift in international financial intermediation from bank loans to capital markets has changed the nature of global liquidity, creating new financial risks.

The radical changes in central bank balance sheets since the GFC (size, the longer maturity of assets and private risk exposures) are not likely to be unwound quickly. Major questions have appeared on the future use of the central bank balance sheet for monetary policy in both expansionary and contractionary directions. The specification of monetary policy objectives is under active review. The range of tools used by central banks has widened significantly, and evaluating their long-term effects will take time. There is a debate about how best to counter unintended side-effects, domestically and internationally.

The recent review by the Independent Evaluation Office (IEO) of IMF advice on unconventional monetary policy (UMP) speaks to this debate. The IEO found that the Fund made the right call in supporting the radical expansion in the balance sheets of advanced economy central banks. The associated financial risks are better contained by regulatory and macroprudential policies, rather than by limiting monetary expansion needed on macroeconomic grounds. In the future, balance sheet policies could well be needed again to counter the next recession. The Fund was nevertheless urged to be vigilant in monitoring financial risks (IEO (2019 b)).

A BIS report by a working party of central bankers (BIS (2019)) also found that UMP helped central banks to address the global recession. Such policies had proved to be an effective addition to the tool-kit of central banks. The report also argued that several medium-term trends (such as the secular decline in equilibrium real interest rates) could require such policies be used again in the future. It concluded that side-effects (such as dis-incentives to private sector deleveraging and spillovers to other countries) were not strong enough to reverse the benefits of UMP. Lowe (2019) warns policy-makers not to overburden monetary policy, arguing that fiscal policy and macroprudential policies also have crucial roles to play. These broad conclusions – on the success of UMP, on its future use, on the need to analyse financial risks and on the role of other policies – are widely shared (Ball et al (2016), Bean (2018), Carstens (2018), Farmer (2017) and Friedman (2014)).

3. Measures of global liquidity

Global liquidity is a complex notion and there is no agreement about how best to measure it. Several indicators have been put forward by the IMF and the BIS. The private sector has also developed and maintained measures of global liquidity (Ghymers (2019), Howell (2018)). Indeed, statistical coverage has significantly improved since 2011, when the PRI called for the building up of a statistical framework. But the two sets of official statistics differ in their approach and some important elements, especially those implying non-bank institutions which have become progressively very significant, are not fully captured.

The IMF's quantity measures developed by Chen et al (2012) focused on the sources of funding for banks, based on their liabilities, similarly to the way a central bank calculates its money supply aggregates. The IMF made these quantity indicators available to the Working Party but no longer publishes them. The IMF, however, has recently focused on the global dimension of bank liquidity by analysing in depth the dollar funding of non-US banks. This is in many ways the Achilles heel of the international banking system.

By contrast, the BIS measures international foreign currency credit to non-banks. It does this by measuring the loans of banks and outstanding international bond debt. Those statistics are published on a quarterly basis. Such duality of approach underlines the complexity and ambiguity of the notion "global liquidity". In many ways, the two sets of statistics complement each other and so allow a significant (if not exhaustive) diagnosis of the global monetary and financial situation.

(a) IMF statistics on quantities

IMF statistics developed in 2012 divided the liabilities of banks into "core" (that is, what banks can rely upon in normal times, such as retail deposits) and "non-core" (that is, borrowing in the wholesale market or directly from the central bank against collateral). Those indicators help to understand the origin of global liquidity and to clarify the transmission channel from the monetary policy of the major central banks to global liquidity.

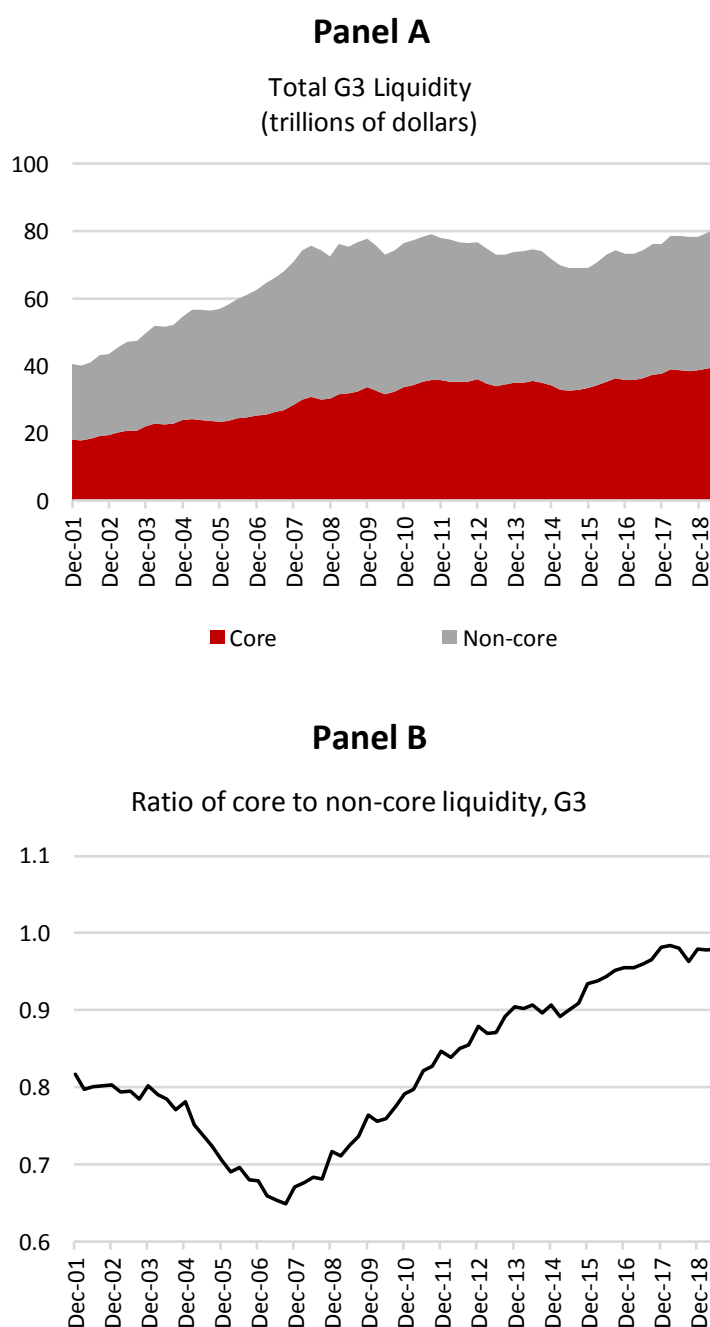
The growth in "non-core" liabilities – usually associated with an increase in leverage of financial firms – is easier to expand when liquidity is abundant. Figure 2 shows that in the years before the crisis, their increased reliance on non-core funding made banks in the US, the euro area and Japan (G3) very vulnerable when the global flight to safe and liquid assets set in from mid-2007. After 2008, regulatory reforms and the market have forced the banks to be more conservative in their funding. Hence the ratio of core to non-core liabilities has risen (panel 2 B). Figure 3 shows that core liquidity has risen as a share of GDP in the US, the euro area and Japan. This suggests that banks are less vulnerable to a sudden flight to liquid assets than they were before the crisis.

Note, however, a couple of caveats to this assessment. The first is that banks in many jurisdictions still rely quite heavily on capital market activities. Some own asset management companies. The second is that the euro area position looks stronger than it really is because the LTRO lending by the ECB gives banks longer-dated liabilities and so reduces their reliance on short-term wholesale markets.

Non-core funding as a share of GDP has also fallen in the United States and the euro area but it has increased in Japan.

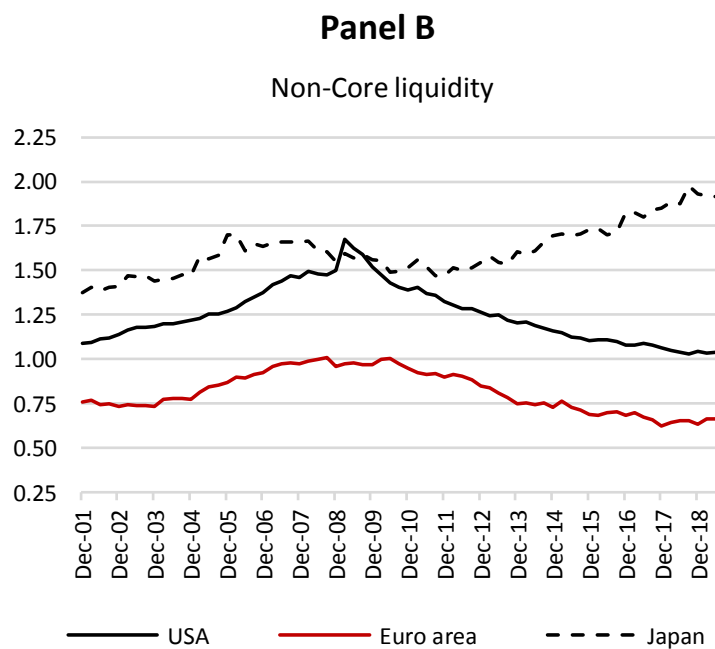
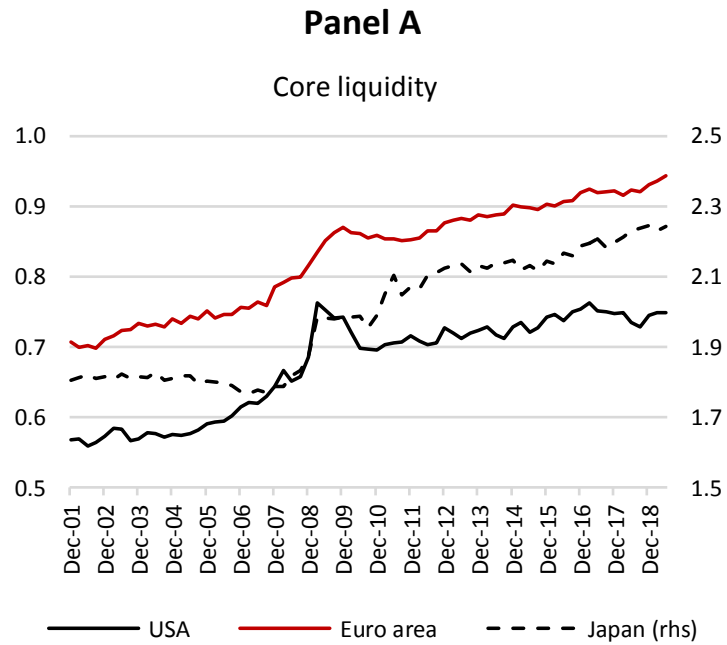
As noted, however, non-US global banks must conduct their international business largely in dollars, and this is where major fragilities lie. Their dollar funding is vulnerable to any dollar liquidity shock. The magnitudes are very large. Banks outside the United States currently have dollar debts which exceed the total liabilities of banks operating within the United States. There is therefore what Cecchetti and Schoenholz (2014) have called a Global Dollar system which grew rapidly before the GFC and has since stabilised at a high level.

Figure 2. IMF global liquidity indicators



Source: Chen et al. (2012) updated by the IMF

Figure 3. IMF global liquidity indicators, by area
(as a ratio of nominal GDP)



Source: Chen et al. (2012) updated by the IMF

The dollar funding of non-US banks was analysed in the IMF's October 2019 *Global Financial Stability Report* (GFSR). Dollar assets of non-US banks – which had risen from around \$10 trillion in 2004 to over \$17 trillion in 2007 – were cut sharply in the first few years after the GFC. Since then, however, dollar assets have crept up to about \$18 trillion – which partly reflects the inclusion of new reporting countries, notably China. Using a small sample of countries with a long run of data, the GFSR reported that dollar-denominated assets of non-US banks have risen by about \$2 trillion since just before the GFC to reach \$12.4 trillion¹³. With dollar-denominated liabilities of \$11 trillion, there is a cross-country funding gap of \$1.4 trillion – up from \$0.8 trillion in 2010 and financed to a significant degree by swaps.

Although US dollar liquidity ratios have risen over the past decade (thanks to regulation, the scare of the GFC, etc), they are still below the all-currencies liquidity ratios of the non-US banks. Financial stress is more likely in economies where banks have higher dollar shares of total assets. Such banks are more exposed to strains in forex markets and to financial conditions of the suppliers of forex swaps. Adrian and Xie (2019) have found that the demand by local banks for dollars has been a major driver of exchange rates. As banks with dollar funding gaps react by buying dollars, the dollar share of banks' total assets has a 60% correlation with the contemporaneous exchange rate.

(b) IMF price indicators

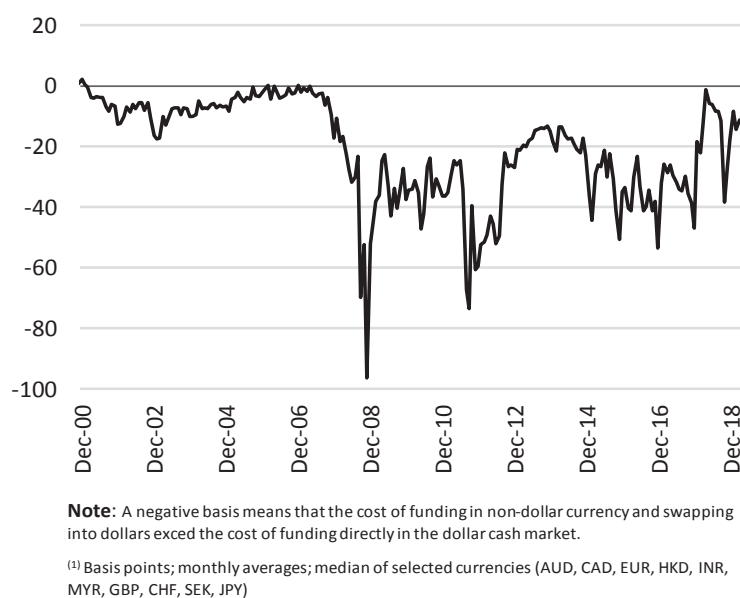
The IMF has also developed two sets of price indicators of liquidity which correspond to their quantity measures. In principle, both price and quantity measures are needed in order to distinguish between supply and demand shocks to liquidity. In addition, price indicators help the timely detection of potential tensions especially in global wholesale markets, and well before quantity measures become available.

Consistent with the methodology developed by the IMF, Chen and al (2012) constructed a price index of non-core liquidity – that is, in wholesale markets. This indicator rose steadily from mid-2007 until the end of 2008, when it had reached 5 standard deviations above normal. During those 18 months, neither central banks nor the IMF fully digested the need for urgent action to counter this severe international liquidity squeeze.

The price indicator used in the IMF's analysis in 2019 derives from the funding gap in dollar-denominated business (that is, assets minus liabilities). Judging that banks at the margin use foreign exchange swaps to close this gap, the price of getting dollars through such swaps (e.g., borrowing euros and swapping into dollars) compared with borrowing dollars in the cash market is the dollar cross-currency basis. The IMF now uses these bases for several currencies to measure the costs of dollar funding for non-US banks.

¹³ This sample excludes some countries which have only recently begun to report international banking data to the BIS.

Figure 4. Marginal dollar funding costs for non-US banks
(three-month cross-currency basis) ⁽¹⁾



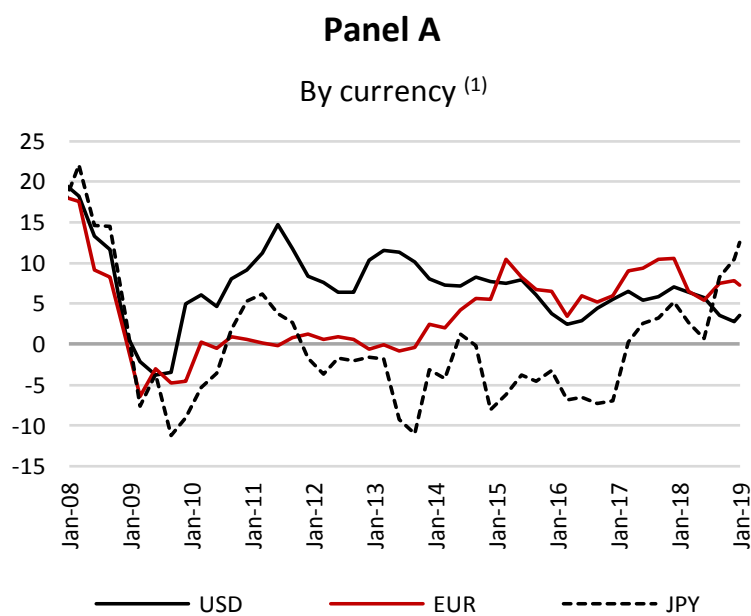
Source: IMF

The IMF's calculation of the median cross-currency basis vis-à-vis the dollar is shown in Figure 4. Before 2007, this was close to zero (indicating the covered interest rate parity was fulfilled). As the GFC crisis deepened, however, the dollar cross-currency bases of many currencies became large and negative. Non-US banks sought dollars by swapping their own currencies. The range between the currencies with the most negative bases and those with near zero bases widened. Pressures were especially heavy around the Lehman bankruptcy and the severe euro area crisis (mid-2011 to mid-2012). Although the negative bases have remained ever since, the median has fallen to (usually) within only 20 basis points from zero from the start of 2018. Cerutti et al (2019) show that the factors that drive such bases are heterogeneous and vary over time: IMF research finds that the cross-currency basis reacts much more to shocks (e.g. a rise in forex volatility) in economies where the banks are more dependent on cross-currency funding (IMF (2019a)).

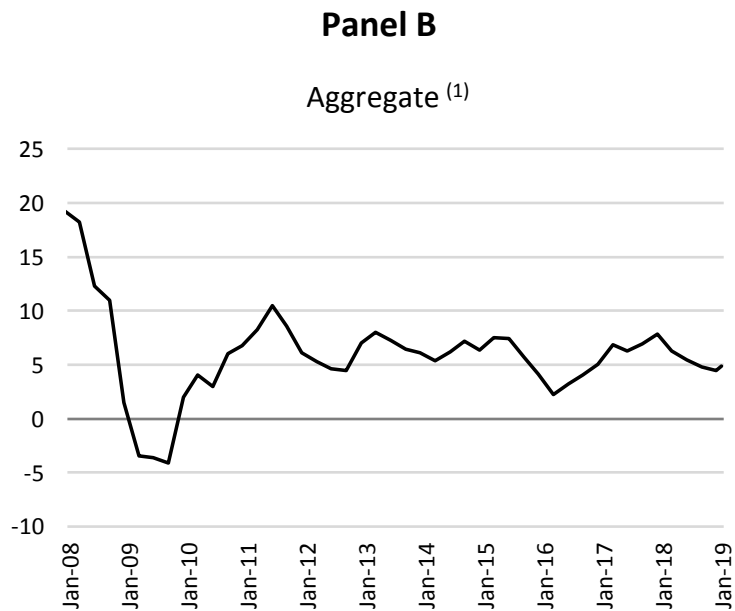
(c) BIS's global liquidity indicators

Figure 5 shows the BIS's measure of global liquidity – foreign currency credit to non-resident non-banks. This includes borrowing via bond markets as well as from banks. The lower panel shows the aggregate for all currencies, and for the past 6 years this has been growing steadily at about 5% a year. The top panel shows that the growth of dollar lending dominated until 2014, but has recently slowed while that of euro lending has risen.

Figure 5. BIS: growth of foreign currency credit to non-resident non-banks
(percentages)



⁽¹⁾ Percentage change from year-earlier quarter adjusted for series breaks.



⁽¹⁾ Percentage change weighted by shares of dollar, euro and yen credit at end-2013.

Source: BIS, Global Liquidity Indicators

The BIS makes no distinction about the maturity of liabilities and thus does not give a full or precise picture of liquidity. Such a distinction is essential because a borrower with short-term debts faces greater liquidity risks than one with long-term debts. Indeed, the BIS measure can be more accurately described as an indicator of gross foreign currency exposures – gross because no account is taken of foreign currency assets. Hence the aggregate *net* dollar liability position of non-US non-banks would be smaller than the gross aggregate. In addition, the country distribution of dollar liabilities will be different from that of dollar assets. These dimensions of currency mismatches need to be measured.

The BIS's banking and bond data (which underlie the global liquidity indicators) can be combined with data from national sources to construct measures of currency mismatches: see Section 4 below.

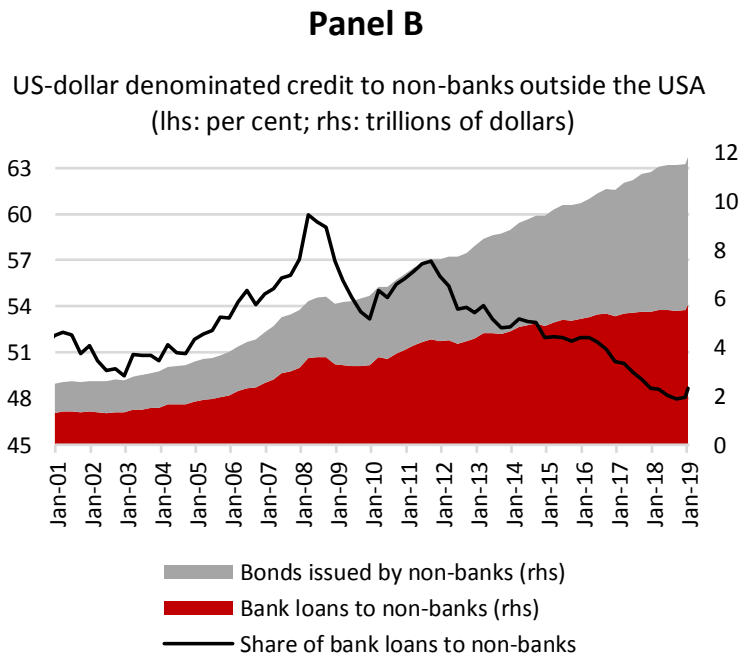
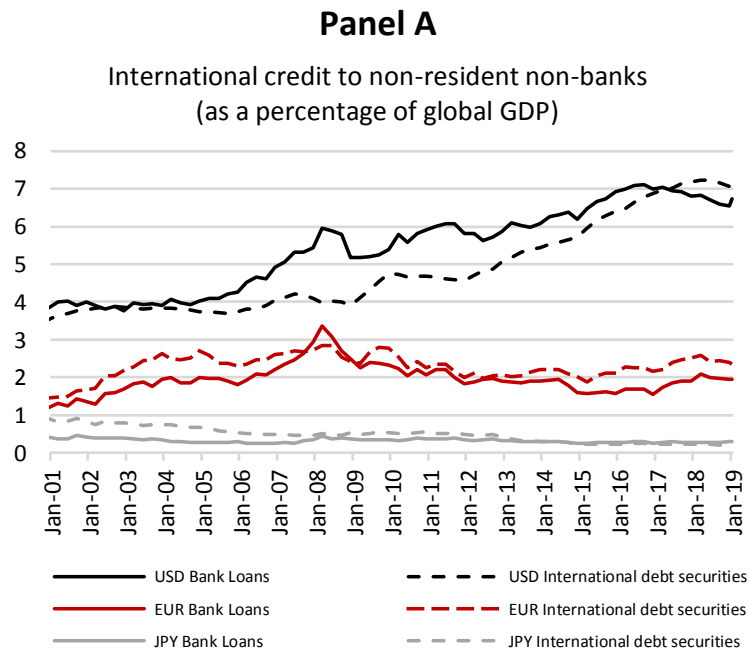
It is also possible to delve further into the details of BIS data to take account of the maturity of liabilities. Although the BIS's global liquidity aggregate includes debt of all maturities, the underlying bond data include dates of maturity. In principle, therefore, the foreign currency bond debt falling due over the subsequent 12 months can be calculated. During recent EME crises, this key indicator of near-term liquidity risks was regularly calculated by the BIS for countries under pressure. The BIS's quarterly report on global liquidity might be extended to include a summary of short-term liabilities by country.

BIS's statistics also provide data on the currency composition of international bonds. During the past 15 years, the proportion of outstanding bonds denominated in dollars has risen substantially while that in euros has declined. Since 2018, however, issuance in euros by non-euro area entities has risen relative to dollar issuance by non-US entities. Developments in renminbi issuance are also of particular interest given the view expressed by many a decade ago that the currency would become a key pillar of a multicurrency system¹⁴. In the immediate aftermath of the GFC, the Chinese authorities strove with some success to stimulate offshore renminbi bond issuance, which rose to \$16 billion in 2014. Since then, however, the market has shrunk sharply, partly because of tighter controls on capital outflows (Lockett and Szalay (2019)).

The BIS aggregate of international credit measured in relation to world GDP provides some indication of the increased leverage behind foreign currency exposures (Figure 6). By 2019 Q2, US dollar credit to non-banks outside the United States had reached \$11.9 trillion, about 14% of world GDP – up from 10% of world GDP in 2007. Recall that the sharp rise in this ratio in the years before 2007 was seen as very dangerous even then. Note also that the share of dollar debt rose from 2010/2011 to the end of 2015 but has since stabilised.

¹⁴ Dailami and Masson (2011) argued that the dollar be likely to lose its position as the key international currency by 2025, making way for a multicurrency system centred around the dollar, the euro and the renminbi. But they were careful to underline the proviso that "China and the euro area implement financial and structural reforms and manage their fiscal and monetary policies in a way consistent with the international status of their currencies."

Figure 6. BIS: international credit outstanding



Source: BIS, Global Liquidity Indicators

Bond debt (dotted line in the graph) has now overtaken that of bank lending. The lower panel shows this bond market/bank loan split more clearly. The big rise in the share of banks before the crisis is now seen as reflecting lax regulation which allowed the banks to increase their leverage on their equity capital and to rely more on wholesale markets. One of the objectives of post-GFC regulation, therefore, was to curb the banks and get more borrowing done in capital markets. The post-crisis decline in the share of bank loans was what the regulators intended.

(d) The Global Financial Safety Net

BIS indicators also allow an easy comparison between the outstanding stock of international credit and the capacity of international support to maintain an adequate level of liquidity in situations of stress.

As of 2019 Q2, the private component of global liquidity as measured by the BIS amounts to almost \$12 trillion. Official liquidity includes IMF quotas (\$634 billion), drawing capacities on liquid assistance procedures such as IMF borrowing resources (\$662 billion), regional safety nets (Chiang Mai Initiative – \$240 billion and European Stability Mechanism – \$500 billion), and central banks discretionary swap assistance on an ad hoc basis (in 2008, the Fed swapped \$583 billion against currency deposits by other central banks in search of liquidity in dollars). As the 2008 experience shows that the supply of private liquidity cannot be relied upon in periods of stress, the comparison of the two components indicates that the capacity of international support to accommodate a liquidity shortage appears limited to about 1/5 of the outstanding of international credits and loans. Official reserves might also be taken into account (\$5 trillion – including gold – owned by the main EMEs; 2/3 belonging to China). But official reserves assets can hardly be considered as set aside for international cooperation. Nor are regional agreements, designed to deal with crises in a small group of countries, appropriate for global liquidity risks.

In addition, major questions still surround the future position of the three components of IMF resources. While the ratio of quotas to GDP, international trade and capital flows would plead for an additional quota increase (Guzmán (2019)), the 15th five-yearly General Review of quotas has not led to any change. The IMF's NABs (\$250 billion) and bilateral borrowing programmes (\$400 billion) will have to be renegotiated soon: before the end of 2022 for the former and 2020 for the latter. The intention to double the NAB on this occasion and begin a new round of bilateral borrowings is a positive, though modest, step but this cannot be a substitute for a quota reform.

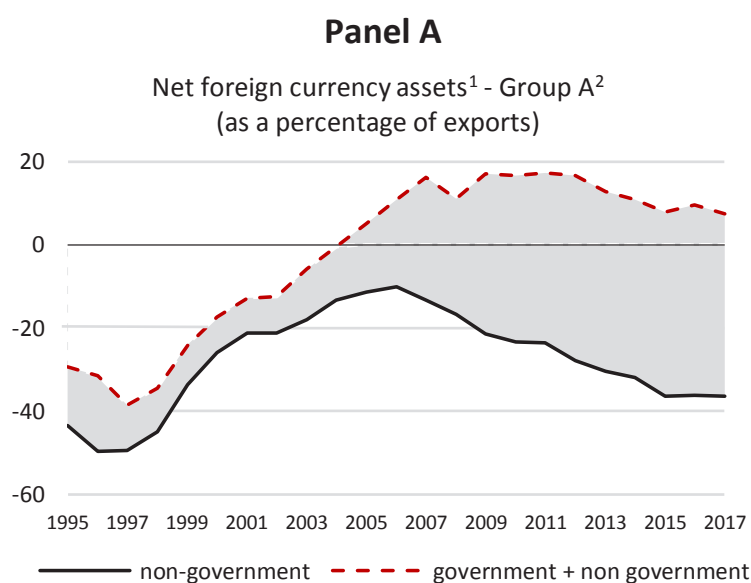
The quantitative dominance of private global liquidity in normal times over official liquidity makes global liquidity very fragile in times of stress¹⁵. Hence strong decisions are needed to reinforce official safety nets with the IMF at the centre (Guzmán (2019)). The EPG (Proposal N°14) suggests stitching together the various layers of the global liquidity safety net. Without granting the IMF sufficient resources or a capacity akin to the one of an international LOLR, the stability of the system will continue to be fragile.

¹⁵ In its report, the PRI noted that during the GFC, gross capital inflows worldwide fell from a peak of nearly 20% of global GDP to less than 2% of global GDP.

4. Currency and maturity mismatches

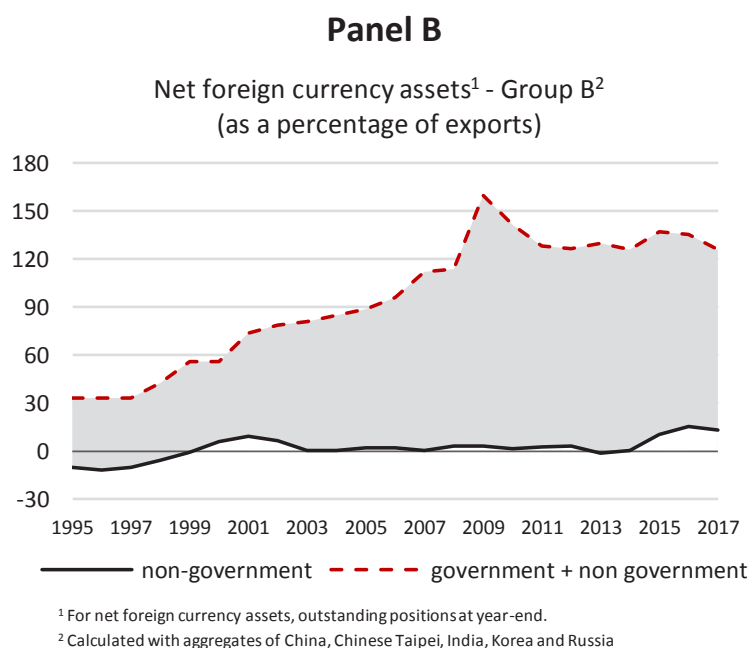
Almost all past crises in the emerging markets have been aggravated by currency and maturity mismatches in foreign exchange exposures. Such mismatches are multidimensional, and various statistical indicators have been developed. A currency mismatch between domestic and foreign currencies arises whenever an entity's balance sheet or net income is sensitive to changes in the exchange rate. But a currency mismatch can also arise from a change in the exchange rate between third currencies. Because the share of debt denominated in dollars is usually larger than the share of trade with the United States (or dollar-based economies), a rise in the dollar against third currencies such as the euro adds to the burden of foreign debt without necessarily improving competitiveness. In countries with large dollar debts, this tends to be deflationary. The much-increased use of the dollar and the reduced use of the euro for borrowing by entities outside these currency areas has therefore increased currency mismatches. The maturity of foreign currency debt also matters, with shorter-dated debt making the borrower more exposed to re-financing risk.

Figure 7. Currency mismatches in EMEs



¹ For net foreign currency assets, outstanding positions at year-end.

² Calculated with aggregates of Brazil, Chile, Colombia, the Czech Republic, Hungary, Indonesia, Malaysia, Mexico, Peru, the Philippines, Poland, South Africa, Thailand and Turkey



Source: M Chui, E Kuruc, and P Turner (2016)

Chui et al (2015) explain how increased global liquidity has created new – and more dangerous – dimensions to currency mismatches. Figure 7 shows the currency mismatch calculations prepared at the BIS from the BIS's banking and bond data and data from national statistics. The novel feature of these estimates is that they separate the country's aggregate currency mismatch into its official and non-official components.

This figure shows net foreign currency assets – that is, foreign currency assets minus foreign currency liabilities – as a percentage of exports. The dotted red line shows this for the country as a whole. This is now positive, not negative as it was in the late-1990s, but has declined somewhat since 2009. This means that the country's balance sheet improves when the currency depreciates. This is stabilising with respect to exchange rate shocks.

But the positive foreign currency asset position mainly reflects a big rise in official forex reserves. In sharp contrast, the private sector now has a large and rising net liability position in foreign currencies. For an aggregate of medium-sized EMEs (Group A countries in panel A of the graph), it is now around 40% of annual exports – compared with 10% in 2005¹⁶. Increased bond issuance by EME companies has been the main driver of this increase in liabilities. Data underlying this graph end in 2017 because the BIS no longer updates these estimates.

¹⁶ Panel B of Figure 7 shows a similar divergence between the official and non-official foreign currency positions of the larger economies, notably in Asia. Foreign currency liabilities of some corporate affiliates in offshore centres may not be fully reported

Companies with dollar debts without the natural hedge of dollar earnings can create destabilising market dynamics that would not usually occur when the dollar debt is held by governments. By buying dollars at times of pressure in forex markets, companies can add to the downward pressure on the local currency. A lower exchange rate makes their debts even harder to service and may further reinforce dollar purchases (Chui et al (2016)). The local banking system is often also affected: companies which find it harder to borrow foreign currency cut their wholesale local bank deposits (Turner (2014)). There is moreover evidence that firms with dollar debts cut business investment (Avdjiev et al (2019)). A currency crisis often goes hand-in-hand with a bond market crisis and foreign investors, aware that the risks they face from currency depreciation and a fall in bond markets are multiplicative, pull out. There is thus a new risk factor for foreign investors (Carstens and Shin (2019)).

The IMF has long urged countries to improve their reporting of the currency denomination of assets and liabilities for the IMF's international investment position (IMF (2014)). Data for Brazil, Hungary, Poland, Russia and Turkey are already on the IMF's website. The IMF has just completed an enlarged dataset on currency mismatches. In addition, currency mismatches are already one of the four key vulnerabilities identified in the Global Risk Map published in the GFSR.

Foreign currency contracts between residents are also relevant (notably via domestic banks) in assessing forex exposures. In recent years, an increasing number of central banks (or supervisory agencies) publish data on the foreign currency deposits with, and loans to, domestic banks. As noted above, households and companies will often hold their foreign currency assets with domestic banks which will in turn place foreign currency deposits with overseas banks and which will then be captured in the BIS's international banking data as assets of banks (but really reflect non-bank assets). Further progress in improving currency mismatch estimates at the international level is indispensable.

5. Global liquidity and long-term interest rates

International bond markets have become more important than short-term bank lending in the evolution of global liquidity and its transmission internationally in the post-GFC period. The rise in global liquidity has been most felt in world bond markets. This suggests that global liquidity and the long-term interest rate are linked.

The simplest exposition of such a link is that of Keynes's liquidity preference theory¹⁷. His insight was that shifts in the private sector's willingness to assume liquidity and maturity risks could move the long-term rate even when other macroeconomic variables did not change. Keynes believed that the future path of the benchmark long-term rate was unknowable (radically uncertain). As Aglietta (2019) pointed out, liquidity preference stems from the intrinsic uncertainty about future prospects. Government bills are more liquid than government bonds. Allen (2019) shows in his historical study of the UK gilt market that the authorities have regularly grappled with illiquidity in the government bond market – even in the present day. Debt managers worldwide are fully aware of such periodic illiquidity, and adapt their operations accordingly¹⁸.

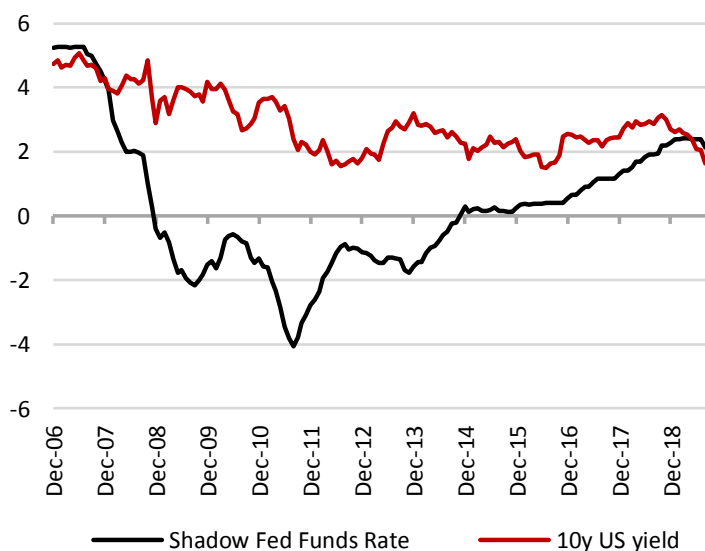
In such a world, subjective factors (mood swings) influence liquidity preferences. If the private sector became more nervous and wanted more liquid assets (and assuming no change in short-term rates), government bond prices would fall¹⁹. Hence in Keynes's model shifts in liquidity preference are reflected in the long-term rate. Given arbitrage between bond markets in different currencies, long-term rates are determined in world markets. This helps to explain why, since the Fed began to tighten, the 10-year US Treasury yield has shown no obvious trend: in particular, low or even negative euro yields have held down dollar yields (Figure 8).

¹⁷ This is of course a simplification of the many influences on the long-term interest rate. Keynes's liquidity preference theory focused on the choices across a given sovereign yield curve (i.e., between government bills and bonds) in a single jurisdiction. That is the simplest term premium discussion. Tirole (2008), extending Keynes's perspective, saw liquidity in terms of the choice between the government bond (the credit-risk-free store of value) and a private sector bond but still in a national context. No private sector bond, Tirole argued, holds its value in an adverse macroeconomic shock affecting everybody. But the value of a government bond would normally rise in such a shock. Hence government bonds would "deliver cash when firms need it, and so are liquid in the macroeconomic sense": the flight to government bonds in a recession might lower the term premium. Caballero et al (2017) put this into an international context by noting that only the bonds of some sovereigns can be considered as safe. Therefore, any flight to safety in a recession benefits disproportionately US Treasuries, safe euro area bonds and a few others.

¹⁸ Allen (2019) points out that in order to use less market liquidity, the UK Debt Management Office syndicates the distribution of some issues, makes auctions smaller and less frequent, and has offered market makers a post-auction option facility.

¹⁹ The price of corporate bonds might fall if credit spreads vis-à-vis the sovereign rise. Section 6 analyses how interest rates in risk assets tend to rise relative to benchmark rates when markets become illiquid.

Figure 8. Benchmark dollar interest rates ⁽¹⁾
(percentages)



⁽¹⁾ Between Nov-2008 and Jul-2015, the "shadow" FFR of Lombardi and Zhu (2014) is shown.

Source: Lombardi and Zhu (2014) updated

Hence it makes sense to talk about a "world" long-term rate which reflects global, not local factors. What determines this rate has been much debated over the past 10 years. There is no agreed answer: indeed, there have been big errors in consensus forecasts of this rate even 12 months ahead. There are wide disagreements on the relative importance of the three factors commonly cited – structural features, regulation and central bank balance sheet policy²⁰:

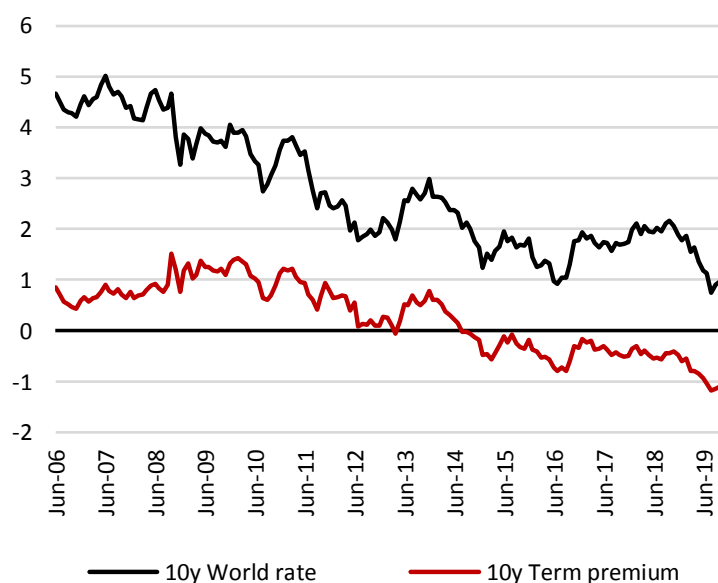
- *Structural* features such as population ageing and perhaps greater inequality have raised the propensity to save. Changes in technology have reduced the demand for long-lived assets. Governments have reduced public investment in infrastructure. Accordingly, a global saving glut has depressed the long-term rate.
- *Regulation* has increased the demand for bonds (Ramaswamy and Turner (2018)). Basel III, Solvency II and accounting rules have driven banks, insurance companies and pension funds in many countries to hold more government bonds. Even worse, such rules may have made regulated firms act in a procyclical way, increasing bond duration in response to a fall in the long-term rate (e.g., to maintain yield or to lengthen the maturity of assets as the present discounted value of long-dated liabilities rise)²¹.
- *Finally*, the expansion in, and longer duration of, *central bank balance sheets* in all the reserves-issuing countries has depressed long-term rates worldwide.

²⁰ Rachel and Smith (2015) and Goodhart and Pradhan (2017) present contrasting views.

²¹ In addition, the IMF has noted that greater similarities in investor portfolio composition and active management (many seeking to sell or hedge simultaneously as expectations change) may have made interest rate markets more procyclical (IMF (2019b)). On the procyclicality of regulation, see Goodhart (2010).

Most empirical studies show that long-term interest rates in the major currencies remain well below the average of expected future short-term rates. As Figure 9 indicates, the term premium in 10-year world long-term rate is still negative. This is unusual historically, and perhaps surprising given several years of sustained real growth. It may well reflect very abundant global liquidity conditions. In any event, the term premium did rise in the two periods over the past decade when liquidity risks increased. During the years the GFC unfolded (2008 and 2009), the term premium increased. There is clear evidence that market liquidity of government debt was impaired by balance sheet constraints and new regulations which had forced market-makers to cut their bond inventories (Allen (2019) summarizes the various studies). The second time was during the 2013 taper tantrum when term premia suddenly jumped. Even the yield on US Treasuries rose by about 100 basis points. Hence there are reasons for thinking that short-term deviations in term premia do contain information about the pricing of liquidity even if the long downward trend in the term premium reflects structural factors.

Figure 9. “World” long-term rate and term premium
(percentages)



Source: Hördahl et al. (2016) updated

The term premium includes an inflation risk premium, a real interest rate risk premium and a liquidity risk premium. It is not hard to think why the term premium might snap back to positive territory, and portfolios of very long-dated bonds are vulnerable to such a snap-back risk. A recent survey of the concerns of financial institutions in Japan (banks, life insurance companies and pension funds), for instance, revealed that one major concern related to Basel III was interest rate risk in the banking book (Sugeno and Sugeno (2019)). Investment products directly affected by this were Japanese government bonds and investment trusts (invested in portfolios of bonds). The increased weight of real estate investment trusts (REITs) in the assets of pension funds was noted.

Recent research on spillovers from post-GFC monetary expansion in the advanced economies on the EMEs has focused on transmission via long-term rates with short-term rates playing a much weaker role. The evidence is that domestic bond markets – in emerging market economies as well as advanced economies – have become more closely linked internationally. This has major implications for monetary policy dilemmas faced by these countries (see section 7 below).

There is great uncertainty about where long-term interest rates are headed in the medium-term. The larger outstanding stock of bonds on the balance sheets of investors and their longer average maturity has greatly increased interest rate risk in the financial system. Even the liquidity of government bond markets has become less resilient to stress. Hence an outsized reaction by investors to quite small changes in interest rate expectations is a danger. EME financial markets were hit by such an effect during the 2013 taper tantrum.

One market consequence of a tightening in global liquidity conditions could be a sudden rise in long-term interest rates. To analyse the implications of alternative interest rate paths for banks, insurance companies and pension funds, a BIS-CGFS working group led by the ECB and the Federal Reserve coordinated joint scenario analyses by all the major central banks (BIS (2018)). It laid out three scenarios for possible interest rate paths for all the currencies of major advanced economies and for many of the currencies of EMEs.

The broad conclusions are as follows. In the **interest rate snap-back scenario** (with 10-year US Treasuries at 6.2% in 2027), banks (which hold more long-dated bonds on their balance sheets than before the GFC) would be hard hit. In the secular stagnation **low-for-long scenario**, long-term rates would remain low for years (end-point at 2.4%). Some insurance companies and pension funds would face insolvency. The **baseline scenario** (end-point at 4.8%) would result in a more acceptable smooth portfolio rebalancing out of long-term assets and a repricing of credit risks.

6. The post-GFC explosion in international bond issuance

Panel B of Figure 6 (page 25) shows that there has been a substantial rise in the bond-intermediated share of dollar-denominated credit to non-banks outside the United States since the GFC. With low (even negative) long-term interest rates (and a negative term premium) on benchmark bonds, many companies have found it attractive to issue debt and investors have taken more risk to get returns. Dollar bonds issued by non-banks outside the United States amounted to just over \$2 trillion in 2007. The amount now is \$6 trillion.

This has been a global phenomenon. The pace of annual corporate bond issuance has doubled from its pre-crisis average. A review in the May 2019 *Economic Outlook* of the OECD identifies several major vulnerabilities. One is the risk of ratings downgrades. The share of BBB-rated bonds (one notch above high-yield or junk status) is now 54% of the global investment grade corporate bond market. In normal times, 4% of BBB bonds are downgraded over a one-year horizon; but in a recession, this percentage rises sharply. This could create a “cliff-edge” effect because most corporate bond investors have a strict investment-grade mandate – especially among the fast-growing indexed mutual funds and exchange-traded funds (ETFs) – and be forced to sell.

A second vulnerability comes from the use of risky structured products. Floating-rate leveraged loans (typically with lower quality credits and weaker covenants than bonds) in the United States and Europe now exceed \$2 trillion, above the 2007 peak. Covenants have been diluted. Most of such loans are packaged into Collateralised Loan Obligations (CLOs) and sold to banks, investment funds and insurance companies. Investors worried about losses on bonds if long-term rates were to rise suddenly have been enticed by floating-rate returns.

The scale of the migration of liquidity creation from banks to other actors and markets risks creating new blind spots in the radar systems of those monitoring global liquidity. This also raises new questions about the quality of bank assets. Global banks have been very active on market segments which are risky and poorly monitored such as leveraged loans and CLOs. In its July 2019 *Financial Stability Report*, the Bank of England concluded that global banks are exposed, in various forms, to more than half of the global leveraged loan and CLO markets.

The assets of non-bank financial companies such as mutual funds, exchange-traded funds (ETF), insurance companies, pension funds, sovereign wealth funds and endowments etc (\$135 trillion according to McKinsey Global Institute (2018)) now exceed those of banks (\$127 trillion). The knowledge of the level of risk imbedded in these assets is poor but it is significant. For instance, US retail mutual funds hold 19% of the \$1.5 trillion US leveraged loan market and almost the same proportion of the \$616 billion CLO market. There is an urgent need to extend the coverage of global liquidity indicators beyond the bond market already included in BIS statistics and to collect more granular data about the very risky leveraged loans and CLO markets. Who holds such instruments? And how do they manage their exposures? Tran (2019) analyses these questions in some detail.

A third vulnerability is that asset managers – whose role has much increased since the GFC – collectively suffer from liquidity illusion. They invest in instant access funds on which a daily price is posted. But the underlying assets of many such funds are illiquid. European rules for “liquid” mutual

funds (which offer a daily trading price) allow up to 10% to be held in less liquid assets. The governor of the Bank of England has said that many of these funds are “built on a lie.”

These major changes in bond market structure are likely to affect bond market dynamics. Investors may be more flight-prone once they think that interest rates are going to go up and that defaults may rise. Leveraged investors are especially prone to run. In stress conditions, bond markets may therefore become more volatile and less liquid.

The last crisis showed that banks had not prepared for a liquidity crisis – a failing the regulators have tried to fix. But they have not addressed liquidity and other risks in capital markets. During the past year or so, several instances of funds facing crises shared one common element: their investments in virtually non-tradable even unlisted paper. In each case, the firms involved pleaded they had been hit by temporary liquidity problems. In each case, the crisis deepened.

The danger is that contagion could spread illiquidity across the whole universe of high-risk bonds (EM corporates, high-yield paper in advanced economies etc). This could trigger distress sales across the asset management industry. Several policy options could be considered. The regulation of illiquid or unlisted assets in open-ended funds needs tightening now – and not after liquidity has already evaporated. Macroprudential surveillance of maturity mismatches and leverage in non-banks needs to be stronger. Evidence that liquidity risk premia are being under- or over-priced by a large margin should lead regulators to react.

Special attention needs to be given to foreign currency liquidity risks – especially dollar debt. Ghymers (2019) has argued in a paper prepared for the Working Party that a liquidity pyramid based on too-narrow US Treasuries is very unstable. “Dollar intermediation that lacks a clear LOLR, “recently warned the General Manager of the BIS,“ is a vacuum that could create a problem” (Hinge (2019)).

It is too early to know whether the sudden stress in dollar repo markets in September 2019 (which caught the Fed by surprise) reflects fundamental rather than just technical factors. Tran (2019), for example, points out that non-banks rely heavily on repos to fund portfolios of risky bonds. Illiquidity of bonds in such portfolios could increase the demand for financing in repo markets. The role of foreign commercial banks or even foreign central banks remains to be explored (Pozsar (2019)). Certainly, a global dollar liquidity crunch would force foreign banks to scramble for dollars. Last, but by no means least, recent stresses may reflect the fact that the liquidity of even US Treasuries has become less resilient to shocks or policy changes²². The latest *Financial Stability Report* of the Federal Reserve (2019) does suggest that their composite indicator of market liquidity for US Treasuries has edged up since early 2019, mirroring a similar change in a standard measure of implied interest rate volatility²³. But the Fed found no sign that liquidity has become more fragile. The negative term premium also suggests that Treasury market liquidity was not a major factor in September 2019.

²² Allen (2019) concluded his recent historical study with the following admonition to policy-makers today: “Governments and central banks will need to make heavy use of bond markets, particularly if they want to unwind quantitative easing, and some contingency planning for a permanently less liquid gilt market would seem no more than prudent.”

²³ The Fed’s index is based on the bid-ask spread, quoted depth (that is, how much can be traded at posted prices) and price impact (that is, how bond prices react to large sales). The measure of implied interest rate volatility is the Merrill Lynch Option Volatility Estimate (MOVE).

7. Capital flows, spillovers and macroprudential policies

Capital flows bring many benefits. If intermediation mechanisms work well, they should contribute to raising world potential output by ensuring that funds are invested where the returns are highest. Indeed, savings need to continue to flow from advanced economies to the emerging economies. The G20 Eminent Persons Group (EPG - G20 (2018)) emphasized that “reforms to the international monetary system should enable developing countries to run sustainable current account deficits where they are fundamentally needed to achieve their growth potential.”

To get global financial markets to put abundant global savings to work meeting the immense investment needs of emerging economies also requires policy reforms in EMEs (de la Torre (2019)). Regulators in the advanced economies also have a part to play by moderating the leverage swings of their lenders which help to drive the feast-to-famine cycles in capital flows. In his Yale lectures, Lamfalussy (2000) concluded that financial crises in the emerging markets in the 1980s and 1990s had so often been driven by “the exuberant behaviour of lenders and investors from the developed world ... which raises leverage and asset prices to levels that eventually become unsustainable.”

In a world of sustainable balance of payment deficits, EME leaders should not believe too much in capital controls or maintain them for too long. Controls which discriminate between residents and non-residents not only create uncertainty and distortions but can also lead foreign investors to require a higher risk premium for holding domestic assets.

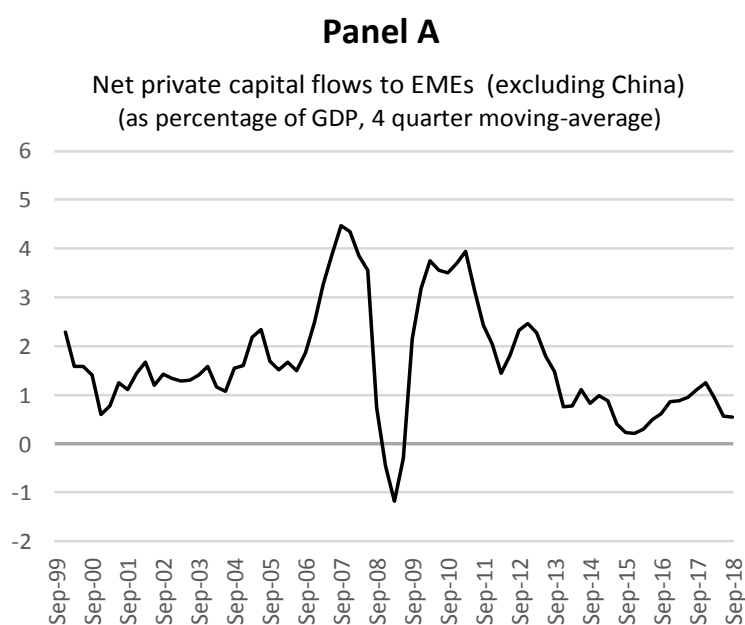
More integrated capital markets increase the convergence of long-term rates internationally. This is one mechanism whereby funds can flow to the emerging markets. But this advantage does come at the price of aggravating the monetary policy dilemmas faced by emerging market economies. Local financial conditions are inevitably shaped by global developments. Local banking systems can be hit by shifts in prices and liquidity in international banking and capital markets. New currency mismatches are likely to be created when local firms or households shift from local currency to foreign currency debt. Central banks in the emerging markets can still set their policy rate to meet domestic objectives. But now they must take greater account of how policy rate changes affect their own bond market, the exchange rate and their banks. A flexible exchange rate might help countries alleviate – but not eliminate – the disruptions to their economies from external financial shocks.

Before considering a possible role for policy in managing capital movements, it should be recognised that capital flows to the emerging markets also react strongly to *domestic* developments. Capital flows to the emerging markets tend to rise when they enjoy an edge over growth in the advanced economies (Clark et al (2019)). Commodity-exporting countries attract increased inflows when commodity prices rise. Exchange rate flexibility can help stabilise real GDP (and inflation) in response to such swings in capital movements. And almost all studies show that it is countries with poor fundamentals or internal political weaknesses which face the strongest outflows when sentiment in global financial markets deteriorates. There is no doubt that changes in the stance of US monetary policy can influence all this, but the links have not been as direct in the post-GFC

period as they have been historically because of the greater role of international long-term rates in global financial intermediation²⁴.

In any event, aggregate capital flows to the major emerging markets have not moved closely with changes in Fed policies during the past twenty years (Panel A, Figure 10)²⁵. The impact on capital flows varies, however, from country to country. Global financial conditions depend not only on monetary policies in the advanced economies but also on fiscal policies and regulations as well as other factors (e.g., market uncertainty, the balance sheet constraints of lending institutions and so on).

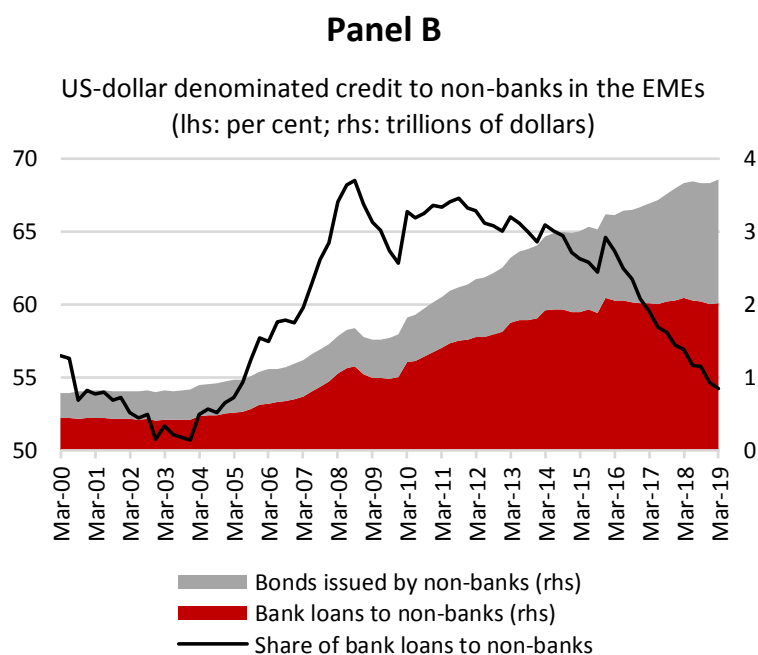
Figure 10. Spillovers to EMEs



Source: Clark et al. (2019) on IMF-BoPS data

²⁴The links were strong and direct when the foreign borrowing of EMEs was largely short-term, and usually priced off dollar LIBOR. But the progressive shift to foreign borrowing via bond markets (both international issuance and foreign purchases of domestic bonds) has made long-term rates more influential in the transmission process. Monetary and fiscal policies in the major countries affect the “world” long-term rate as do many structural factors noted elsewhere in this Report.

²⁵ See Clark et al (2019) for an analysis based on different ways of measuring the stance of Fed monetary policy. In addition, Figure 8 above (page 31) showed how the dollar 10-year yield, the key benchmark for the pricing of international bond issuance, did not rise despite the significant tightening in US monetary policy from early 2014 to the end of 2018.



Source: BIS, Global Liquidity Indicators

EMEs face particular difficulties when confronted with very volatile capital flows associated with risk-off/risk-on swings in global markets (Turner (2015)). More than a decade ago, the Mohan Report published by the BIS demonstrated that a laissez-faire approach to capital flows made little sense (BIS (2009)). The report argued that there were strong prudential grounds for resisting short-term debt inflows, especially those in foreign currency. And a decade before that, Lamfalussy (2000) had urged EMEs to consider “market friendly measures ... to keep short-term capital flows under control.” In certain circumstances, forex intervention could be effective in countries whose policy orientation remains exchange rate flexibility. Particular attention should be given to risk-taking by banks and to opaque (often leveraged) products floated in capital markets.

In the past, the IMF has been too rigid in adapting its policy advice to EMEs to a world of high capital mobility. Under certain conditions, exchange rate intervention, higher forex reserves and temporary capital flow measures (CFM) could be viewed as macroprudential tools aimed at financial stability. The long period of exceptionally low interest rates, especially at the long end where QE has had its greatest impact, could well entail damaging spillovers to EMEs. The advice of the current chairman of the CGFS at the BIS is clear: “recipient countries need to manage capital flows in a way that is consistent with their own priorities and needs” (Lowe (2019)). The Mohan Report (BIS (2009)) suggested that it might be imprudent to take action only after a bout of heavy capital inflows has done its damage. A more prudent course may be pre-emptive measures through appropriate fiscal, monetary, exchange rate and macroprudential policy to manage large capital movements.²⁶

²⁶ Note, however, two caveats underlined by the IMF. One is that measures which discriminate against foreign residents should be temporary. The other is that measures which divert capital inflow surges to similar countries requires international debate (Mizen et al (2018)).

The Working Party agrees with the view of G20 Eminent Persons Group that capital flows can help countries reach their growth potential. The Working Party also supports the argument of the G20 Eminent Persons Group that the “Institutional View” of the IMF needs to evolve so that countries can manage risks to financial stability from capital flows, in particular through macroprudential policies. The IEO noted that most countries welcomed signs of the Fund’s willingness to depart from orthodoxy (see chapter 5 of IEO (2019b)). But it noted that some warn against any “open blessing” on CFMs. The IEO’s current review of capital flows is welcome and indeed very timely (IEO (2019c)).

The IMF has made much progress in helping countries develop effective macroprudential policy frameworks. It has established itself as the international clearing house for analysis on how such policies work (IEO (2019b)). On the international surveillance of risk, the G20 Eminent Persons Group proposed that the surveillance efforts of the IMF, FSB and the BIS should be integrated into a coherent global risk map – a proposal that the recent report by the Independent Evaluation Office of the IMF endorsed.

The Eminent Persons Group stresses that any such joint process of these three institutions “must avoid converging on a diluted consensus”. Tapping market views was also essential. Robust risk surveillance, it suggested, should incorporate non-official and contrarian views. In order to contribute to this debate and to stimulate research, the RTI envisages putting into a unified data base all statistics available and documents related to global liquidity. In particular, it plans to regularly update the statistics in this report, and so monitor global liquidity trends and indeed examine evolving policy issues related to global liquidity.

8. Managing global liquidity: a shared responsibility

There is no doubt that macroeconomic policies in the major reserve issuing countries are at the origin of private liquidity creation and credit extension. Given the international role of the dollar, it is especially the case for the US macroeconomic policy: global liquidity will tend to rise when US budget deficits increase, boosting the supply of long term assets, or when the Federal Reserve lowers dollar rates; acquiescing more bank leverage would have a similar effect. One consequence, stressed by the PRI, is that “*seemingly appropriate liquidity conditions in individual economies may add up to excesses or shortfalls internationally*”. This remark lies at the heart of the Triffin dilemma. It is important to take account of the international spillovers from monetary, fiscal and regulatory policies in the advanced economies on the emerging market economies.

But this is easier said than done. One difficulty is that the sign of such spillovers will not necessarily be the same for all recipient countries. For instance, easier global financial conditions may hurt countries already facing current account surpluses or strong capital inflows but help countries struggling to roll over large foreign debts or to finance current account deficits.

A second difficulty is that governments and parliaments have assigned to central banks mandates that are fully oriented to domestic objectives. This inevitably limits the room for any central bank acting alone to take account of international concerns. Apart from changing the laws governing major central banks, which is hard to imagine even at a medium-term horizon, the best way to circumvent the problem would be to enhance significantly international cooperation up to a point that taking into account the international environment would appear in conformity with national interests.

Nevertheless, it is possible that a collective and international monitoring of global liquidity could help guide national policies (monetary, fiscal and regulatory) to take better account of spillovers. In its proposal N°11b, the EPG indeed suggested developing “an understanding of policy options that enable sending countries to meet domestic objectives while avoiding large adverse international spillovers”.

This kind of cooperation would imply not just willingness within the central bank community but more a large degree of will at the political level. Indeed, it is difficult to imagine a big cooperative effort taking place within the central bank community when the spirit of multilateralism is declining at government level.

Independent of the impact of monetary policies of major economies on global liquidity, the monitoring of changes in private global liquidity is not exclusively in the hands of central banks. The regulation of international financial institutions also has a strong influence on liquidity conditions. International banks in particular have been requested to substantially increase their own holdings of liquid assets. This means that banks are induced to reduce the liquidity they provide to non-bank entities and to capital markets in general. Hence regulators must also play their part in the management of global liquidity. Similarly, policies related to international capital flows and to exchange rates, which play a key role in the transmission mechanism from domestic monetary policies to international financial markets, and vice-versa, are also in the realm of Treasuries.

Again, when considering safety nets, essential in time of financial stress, swap networks are made available by central banks, but IMF facilities play also a key role and decisions regarding them are relevant to Treasuries.

From this rapid review²⁷, one can conclude that managing global liquidity requests the involvement of a number of official institutions: central banks, Treasuries, regulatory bodies in addition to the IMF have a role to play as none of them has the means to manage global liquidity on its own, while each of them holds a certain degree of influence.

²⁷ For a more detailed analysis of the influence central banks, regulatory authorities, Treasuries and the IMF can exert either on the supply of global liquidity or on its demand or on both of them see André Icard's contribution to the working party "Managing global liquidity" (September 2019).

9. What international arrangements for managing global liquidity?

Although the question of global liquidity is a frequent topic of discussion in financial market commentaries, because traders know that changes in market liquidity can have major implications, it surfaces only from time to time in the general economic debate, is rarely referred to in academic circles and is not systematically reviewed within the main official international policy forums.

Due to the significance of the issue, it is important that it appears on the agenda of top officials at international meetings, as a key element of the international economic situation, subject to a strict and regular surveillance. Finding an adequate channel for this step forward is essential.

(a) Global liquidity statistics

The PRI devoted a full chapter of its report to global liquidity at a time (2011) where it was neither clearly defined nor adequately measured. It suggested (suggestion N°9) that the IMF and the BIS work together towards a shared analytical approach for a better measurement and surveillance.

In spite of the significant progress accomplished since 2011 in the statistical approach to global liquidity, more needs to be done. The major international institutions which combine macroeconomic and financial market expertise at the global level – BIS, IMF and OECD – should continue to strive to provide to the international community on a regular basis those indicators which facilitate the monitoring of risks from both liquidity feasts and liquidity famines. Private sector analyses of global liquidity also contain valuable insights.

Recommendation 1: Statistics

The Working Party recommends that:

- The IMF resume publishing its series of the core and non-core banks liabilities of banks. It should update and publish regularly its price indicators of liquidity.
- The BIS should enrich its Global Liquidity Indicators by continuing to estimate aggregate currency mismatches by country and by including estimates of *short-term* liabilities (e.g., those due over the subsequent 12 months) to more accurately capture liquidity risks.

In the spirit of the PRI suggestion, the IMF and the BIS should then work together to complete information and analysis on the influence that non-banking institutions can exert on liquidity conditions at the global level, to provide indicators on currency mismatches and on maturity exposures, to produce a more coherent and comprehensive set of global liquidity indicators. These are indispensable elements of a much-needed “global risk map” called for by the EPG in October 2018 (G20 (2018)-proposal N° 13).

(b) A global perspective: scenarios and stress tests

Any purely national assessment of risks will fail to capture the true risks all would face in the event of a major global liquidity crunch. Increased risk aversion in the global financial system and a decline in foreign aggregate demand would generate powerful feedback effects that could overwhelm even countries with sound fundamentals.

Predicting in advance how such a global liquidity crisis would arise and its subsequent dynamics is impossible. For this reason, scenarios which allow for international financial linkages and feedbacks (such as the central bank exercise for long-term rates outlined in section 5) are essential. Stress tests based on a global liquidity shock would be invaluable. A recent paper of the IEO proposed that the IMF should conduct regular global liquidity stress tests (Jeanne (2018)).

Recommendation 2: Scenarios and a global liquidity stress test

The Working Party recommends that the IMF conduct and publish regular scenario analyses and stress tests for a global liquidity shocks.

(c) The international management of global liquidity

Regarding the management of global liquidity, the PRI envisaged (suggestion N° 10) a joint responsibility between the IMF, the BIS and the FSB and recognised the impact that exchange rate regimes, financial regulation and supervisory policies might have, in addition to monetary stances, on liquidity level and conditions. *The IMF, the BIS and the FSB should regularly monitor developments in global liquidity with a view toward formulating recommendations for all systemically relevant countries regarding the conduct of their policies (including monetary and exchange rate policies, as well as financial regulatory and supervisory policies) with a potential impact on global liquidity*". Furthermore, in its suggestion N° 11, the PRI suggested that the IMF establish a more complete analytic framework on capital flows. Indeed, from the start, the PRI had acknowledged that global liquidity trends were not exclusively influenced by monetary policies and that its management should be the result of a cooperative approach among international institutions.

The global liquidity management process should be adapted to the realities of the international monetary institutional framework. Our proposal, to be effective, should take into account the reality and the weaknesses of the current situation. But of course, in the future, other solutions could be envisaged as a part of an ambitious reform programme: Ocampo (2017) reviews various possibilities in a comprehensive way.

Of particular interest is Michel Camdessus and Anoop Singh's proposal of specific reforms aimed at tailoring the IMF's methods and instruments to today's problems and at strengthening its legitimacy and governance (Camdessus and Singh (2016)). This document confirms the importance of managing global liquidity as a global public good and proposes that a group of central bank governors – comprising those of the central banks whose currencies are included into the SDR – would be created in view of reporting periodically on global liquidity conditions to the IMF's International Monetary and Financial Committee (IMFC) whose role would have been considerably enhanced to the point that it would become the ministerial organ of the G20, in charge inter alia of calibrating global liquidity. This valuable suggestion is sensible but it cannot be immediately envisaged as it comes at the end of the "sequenced agenda", which starts with a profound strengthening of IMF's legitimacy and governance. Indeed, the authors envisage first these structural and ambitious measures and "*preferably simultaneously or as a second step*" those related to global liquidity management. The second step cannot be envisaged independently from the first, especially in the present situation as the IMFC has no formal decision-making powers, and proposing the creation of a central bank governors group without any other significant reform has little chance to be considered.

Interestingly, four converging proposals have been made in the recent past, aiming at strengthening the International Monetary System by a significant development of the use of SDRs.

In 2015, a working party initiated by RTI proposed to use intensively the SDR, both public and private, as a lever to reform the IMS (RTI (2015)). By this mean, the Triffin dilemma would be considerably reduced, a proper management of global liquidity could take place and the IMF could be able to become a real LOLR. John Williamson, who participated in this working party, confirmed these proposals in a subsequent book (Williamson (2016))

In July 2019, during the G7 conference organised by the Banque de France on the occasion of the 75th anniversary of the Bretton Woods agreements, Jean-Claude Trichet (2019) also proposed to strengthen the use of the SDR as a possible element of IMS reform.

Very recently, Joseph Gagnon (2019) suggested that the IMF (a) create a large volume of synthetic SDR bonds of various maturities backed by sovereign bonds denominated in the currencies of the SDR basket and (b) set up a payment system based on such bonds. These measures would make the IMS more symmetric.

All these proposals open interesting perspectives for the future, but only in a medium or long-term perspective. Due to the financial risks analysed in the previous sections, and the urgency to make progress, only a solution immediately applicable can be envisaged at this time, but it should pave the way for more ambitious reforms in the future.

(d) Looking for a pragmatic global liquidity management framework

First, one should admit, even though with regret, that in current circumstances the appropriate forum for discussing global liquidity topics on a regular basis and possibly managing it when needed would not be the IMF, unless it were to be profoundly reformed, but the G20 Finance Ministers and Central Bank Governors Group. During the Pittsburgh Summit (September 2009), leaders designated the G20 as “*the premier forum for our international economic cooperation*” with the objective to strengthen policy coordination, promote financial stability and modernize the international financial architecture. This Summit took place a few months after the one held in London (April 2009) where, as the world was confronted with a drastic liquidity crunch, the G20 decided a general allocation of SDRs equivalent to about \$250 billion which became effective in August 2009. An additional one-time allocation of SDR21.5 billion (\$34 billion) resulting from the Fourth Amendment to the IMF Articles became effective in September.

Second, an effective institutional arrangement for managing global liquidity would depend on a good statistical framework, central banks guidance and possibly action, input from Treasuries, the expertise of financial regulators and IMF support. These requirements suggest the need for a cooperative approach across countries and across international institutions, as indeed envisaged by the PRI.

The report of the Eminent Persons Group to the G20 (G20 (2018)) made a specific proposal that **the IMF, FSB and BIS should integrate their surveillance efforts to produce a global risk map**. Along similar lines, the recent report of the Independent Evaluation Office of the IMF (IEO (2019a)) recommended that the Fund’s work on multilateral financial surveillance should take greater advantage of working with international partners, noting in particular the need to intensify cooperation with the international regulatory agencies. The regular Early Warning Exercise, notably on financial and macro financial risks, produced by the IMF and the FSB is already highly influential. It appears that work

has begun in the BIS, the FSB and the IMF on how to deepen and broaden this surveillance exercise. Regularly and systematically monitoring global liquidity should become a part of this important exercise. This may be especially needed in the years ahead as monetary and financial conditions evolve to a “new normal”, the contours of which remain uncertain.

Recommendation 3: A specific and regular report by the FSB

The Working Party proposes that in advance to the G20 Ministers and Governors meetings, the FSB would provide a report on the level, the nature and evolution of global liquidity, based on the enhanced statistics of the BIS and the IMF. This report should not be limited to a simple statistical exercise. It should also regularly submit, for the consideration of G20 Ministers and Governors, analyses of topics such as: the main vulnerabilities and their evolution; risks generated by the growing financial activities of non-bank financial institutions; and the adequacy of the Global Financial Safety Net.

The IEO report rightly stressed that such a joint exercise should not “compromise the Fund’s capacity to raise out of the box issues”. The same should apply to the BIS so that the two institutions, in addition to their statistical support, could complete the FSB report by their own comments by reference, for instance, to the global economic situation, to financial stability prospects or to the regulatory environment.

In this exercise, it would be essential to seek inputs from other official institutions with a global focus (such as the OECD) or with a relevant regional/technical expertise. This joint report would then be submitted to the Ministers and Governors for consideration and decision. It should also be made public, as transparency appears as a condition for the development of a useful debate and more intensive research by analysts on topics until now too much neglected.

Such an approach would imply a joint statistical effort by the IMF and the BIS. Once this has been done, implementation would require no institutional measure. Simply the inclusion of a new item in the current agenda would be enough to get the issues taken seriously. At least, this would deepen and extend the debate on this topic and would help making global liquidity better known by decision-makers and analysts.

The EPG made a point of stressing that no one knew where the next crisis would start from. Hence it said that robust risk surveillance depended on the incorporation of non-official and contrarian views. It also underlined that the official international institutions should not converge on a diluted consensus. The above proposal could contribute to getting financial risks from global liquidity developments taken seriously without having to consider any institutional reform, just by using to their best current structures and arrangements. Such an approach, pragmatic and adequate in current circumstances, does not preclude more structural measures. A future agenda could well envisage a more ambitious reform of the international monetary system – so often called for, so often studied but yet never seriously considered.

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