

The Financial System Ten Years After The Financial Crisis: Lessons Learnt¹

Willem H. Buiter

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Introduction

If I were to take the last two words of the title -“Lessons Learnt”- literally, this would be a short note indeed, as it is my view that few lessons have been learnt and expressed in legal, regulatory and other institutional reforms, and of these few some were the wrong lessons. So I will extend the scope of the presentation to include lessons that ought to have been learnt but thus far have not been.

(1) No-one saw it coming ...

Almost every non-economist, including the Queen of England, and many economists have expressed surprise at the fact that few if any observers, including researchers, officials, politicians and financial market participants saw the Great Financial Crisis (GFC) coming. No-one got the timing, scope and magnitude of the crisis right, even among those who warned that a crisis would be coming (somewhere, sometime, somehow) and those who warned specifically about the risks associated with US housing finance, especially the securitization of subprime residential mortgages. As late as 17 May 2007, the then Chair of the Fed continued to play down the significance of the subprime mortgage crisis: *“All that said, given the fundamental factors in place that should support the demand for housing, we believe the effect of the troubles in the subprime sector on the broader housing market will likely be limited, and we do not expect significant spillovers from the subprime market to the rest of the economy or to the financial system. The vast majority of mortgages, including even subprime mortgages, continue to perform well. Past gains in house prices have left most homeowners with significant amounts*

¹Note based on remarks made at the NAEC Group Meeting at the OECD, Paris, Thursday 13 September 2018. The views and opinions expressed are those of the author. They cannot be taken to represent the views and opinions of Citigroup or any other entity the author is affiliated with.

of home equity, and growth in jobs and incomes should help keep the financial obligations of most households manageable.”²

Securitization makes illiquid assets liquid and non-marketable assets tradeable. What could go wrong? Two things went wrong with the synthetic CDOs created by these securitizations. First the credit ratings they received from the established rating agencies were flattered to a ridiculous extent. Both incompetence and corrupt behavior played a role in this. No meaningful reform of the modus operandi of rating agencies has taken place. It remains the case that the rating agency gets paid by the entity it is rating and rating agencies still bundle their rating activities with the sale of other financial services.

Second, securitization allowed banks and other originators of residential mortgages to get these mortgages off their balance sheets. The incentives for the originator to verify the creditworthiness of the mortgage borrower was severely impaired. There have been modest reforms here, but the originators are still not required to hold a sufficiently large ‘equity risk’ tranche (say 20% of the entire value of the pool of securities that is securitized).

The writing of large volumes of credit default swaps (CDS) on residential mortgage-backed securities (RMBS) and their sale to purchasers without an insurable interest in these RMBS created massive risks that were not identified until they materialized. I believe things are no different today. CDS are an instrument for risk sharing – a means through which risk can be traded. Risk that is traded does not, however, disappear. It ends up with those most willing to bear it, which is not necessarily the same as those most able to bear it.

The value of US subprime mortgages was estimated at \$1.3 trillion as of March 2007³. The value of car loans outstanding at the end of 2018Q2 was around \$1.2 trillion, most of which was subprime.⁴ No doubt there are differences between the ease of repossessing a car and the ease of repossessing a property that is someone’s primary residence, but I can only take limited comfort from this. Also at the end of 2018Q2, student loans outstanding amounted to just under \$1.4 trillion.⁵ The good news is that most of the student loans are Federally guaranteed, so the lenders are unlikely to take a hit even if there were to be defaults. The bad news is also

² See Ben. S. Bernanke, “*The Subprime Mortgage Market*”, *Speech given at the Federal Reserve Bank of Chicago’s 43rd Annual Conference on Bank Structure and Competition, Chicago, Illinois, Chairman Ben S. Bernanke,* <https://www.federalreserve.gov/newsevents/speech/bernanke20070517a.htm>.

³ “*How severe is subprime mess?*” *msnbc.com*. Associated Press. 2007-03-13

⁴ Federal Reserve Bank of New York, Research and Statistics Group, Quarterly Report on Household Debt and Credit, 2018:Q2 (Released August 2018), https://www.newyorkfed.org/medialibrary/interactives/householdcredit/data/pdf/HHDC_2018Q2.pdf.

⁵ Federal Reserve Bank of New York, Research and Statistics Group, Quarterly Report on Household Debt and Credit, 2018:Q2 (Released August 2018), https://www.newyorkfed.org/medialibrary/interactives/householdcredit/data/pdf/HHDC_2018Q2.pdf.

that most of the student loans are Federally guaranteed, because this means that the borrowers cannot escape the financial commitment represented by the student loans even if they declare personal bankruptcy. Only a legislated student loan forgiveness exercise can help the borrowers. This means that other financial commitments of such borrowers are likely to take a hit, including, for instance, subprime car loans.

We don't know what volume of naked CDS is outstanding on (securitized) subprime car loans. We don't know who wrote such CDS.

We may know a little more about the observable drivers of financial crisis risk, but not enough to make it likely that we will see the next global, regional or national GFC coming.

(1A) The proximate drivers of financial crisis risk

Irrational exuberance (euphoria, overconfidence, misplaced trust, risk denial and “this time is different”), asset bubbles, bandwagon effects and contagion, excessive leverage and growing mismatch between assets and liabilities, especially as regards duration and liquidity, but also as regards currency denomination, perceived creditworthiness etc. are the traditional proximate drivers of financial crisis risk. They reduce the resilience of the economy and increase the vulnerability of the economy to financial excess and the inevitable resulting ‘Minsky moment’.⁶ We have added a new potential cause of financial mayhem: a systemic cyber accident, possibly caused by a cyber attack.

(1Aa) Irrational exuberance

Excessive optimism, unwarranted trust, insufficient caution and risk denial are characteristics of the run-up to every major financial crisis. Today, in the US, we see risk asset markets, especially equity markets, at close to all-time highs despite the fact that much of the current strong growth in the US economy is due to a procyclical and unwarranted fiscal stimulus that will only end in tears. This will be either because a bond market yield spike (or the anticipation/fear of a bond market yield spike) will force a procyclical fiscal contraction when the unsustainability of the public debt trajectory becomes undeniable, or through an even sharper spike if no fiscal correction is forthcoming, driven either by sovereign default risk fear or by the anticipation of an inflationary monetization of the public sector debt and deficits. Other downside risks to the growth outlook, including material and growing risks of trade conflict between the US and

⁶ Wikipedia defines a Minsky moment as follows: A **Minsky moment** is a sudden major collapse of asset values which is part of the credit cycle or business cycle. Such **moments** occur because long periods of prosperity and increasing value of investments lead to increasing speculation using borrowed money.
https://en.wikipedia.org/wiki/Minsky_moment.

China (and possibly also with the EU, Japan, Canada, Mexico and Korea) also appear to be largely ignored by risk asset valuations.

(1Ab) Misplaced faith in financial market efficiency

I don't think this is a much of a problem today as some have argued, nor that it played a major role in facilitating the GFC. It is indeed embarrassing for me as a professional economist that the efficient market hypothesis continues to be treated as a reasonable first approximation to reality in a number of leading graduate programs in Economics. However, among market participants, regulators, supervisors, central bankers, economic policy makers and economic and financial commentators, the efficient markets hypothesis has, at least since I became an active observer, in the 1980s, served at most as a benchmark characterizing how the real world is not rather than as a proximate first characterization of reality.⁷

(1Ac) Political economy drivers of asset bubbles and credit excesses: regulatory capture and state capture

Instead of misplaced faith in financial market efficiency, dysfunctional legislation, regulation and supervision created an environment in which financial excess could thrive. I am not putting any special blame on the greed of lenders (banks and others) and borrowers, because I take these as a given: as a first approximation we live in a "more is better" world. There is ample room for blame for the unethical and outright criminal behavior in the financial sector that contributed to the financial excesses and the magnitude of the eventual financial collapse. Here too, better legislation, regulation and supervision could have helped to minimize the damage, but did not.

Financial deregulation was the norm during the three decades preceding the GFC. Raghuram Rajan showed how political opportunism encouraged legislation that permitted an explosive expansion of subprime mortgage lending.⁸ All this was done in the service of the higher good of encouraging the widest possible spread of home ownership, even to those who were clearly unlikely to be able to handle the financial challenges of servicing a mortgage. A prime example was the Community Reinvestment Act of 1977 in the US which created the conditions under which the subprime mortgage boom, aided and abetted by Fannie Mae and Freddie Mac, could

⁷ See, Sebastian Mallaby, "The Dangerous Myth We Still Believe About the Lehman Brothers Bust", Washington Post, September 9, 2018.

⁸ Raghuram G. Rajan. "[Has Financial Development Made the World Riskier?](https://www.kansascityfed.org/publicat/sympos/2005/PDF/Rajan2005.pdf)". Kansas City Federal Reserve Bank, Jackson Hole Conference 2005, papers and proceedings, pp. 313-369. <https://www.kansascityfed.org/publicat/sympos/2005/PDF/Rajan2005.pdf>

happen. An unholy alliance between would-be subprime lenders and borrowers captured the Federal legislature and succeeded in getting the dysfunctional legislation passed.

In April 2004, the SEC added fuel to the fire by lowering the amount of reserves investment banks had to hold against their risky investments. The result was an entirely predictable explosion of investment bank leverage.

(1Ad) Diversity and Incentives

A frequently asked question is whether there would have been financial excesses of the kind that led up to the GFC if Lehman Brothers had been Lehman Sisters.⁹ Whatever the answer to this question may be, today's financial sector in the advanced economies does not have a greater share of women in positions of authority.

There have been limited attempts to address the perverse incentives created by a defective remuneration structure. When a large share of total compensation consists of equity or options on equity and when the stock markets are myopic, short-term profitability may be favored over longer-term value maximization. Most SIBs now have remuneration structures that involve deferred compensation, which partially addresses this particular incentive problem.

(1Ae) Dysfunctional regulatory structure

The US has a smorgasbord/alphabet soup of financial regulatory institutions – even at the Federal level, let alone when Federal and state-level regulation are considered together. National banks are required to be members of the Federal Reserve System, however, they are regulated by the OCC (the Office of the Controller of the Currency). The Fed is the federal regulator for bank holding companies (BHCs), so it supervises and regulates many large banking institutions. At the federal level, there are five financial regulators covering banks or bank-like institutions:

1. The Office of the Controller of the Currency (OCC),
2. The Federal Deposit Insurance Corporation (FDIC)
3. The Federal Reserve System (FRS)
4. The National Credit Union Administration (NCUA)

⁹ Adams, Renee B. and Ragunathan, Vanitha, “Lehman Sisters” (August 1, 2015). FIRN Research Paper. Available at SSRN: <https://ssrn.com/abstract=2380036>, or <http://dx.doi.org/10.2139/ssrn.2380036>.

5. The Office of Thrift Supervision (OTS).

Non-bank mortgage lenders, including lending clubs, come under the authority of the Federal Trade Commission (FTC). The Federal Housing Finance Agency (FHFA) supervises Fannie Mae, Freddie Mac and the Federal Home Loan Bank System. The Consumer Financial Protection Bureau (CFPB) is involved with many aspects of household finance. Investment banks are subject to the rules and regulations of the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC), as well as self-regulatory bodies like FINRA (the Financial Industry Regulatory Authority). The institutional expression of an attempt to get all those responsible for financial regulation in the same room and on the same page is the Financial Stability Oversight Council (FSOC), created under the Dodd-Frank Act.¹⁰

Insurance in the US is regulated at the State level. AIG was supervised by the New York State regulator for insurance – the New York State Insurance Department (now part of the New York State Department of Financial Services). The fact that it was running a rogue investment bank in London that wrote (mostly naked) CDS was not something the regulator could respond to (legally, writing insurance contracts is different from writing CDS) even if this fact had been known to it. There has been no material simplification and consolidation of the US federal financial regulatory mess. With far too many cooks, the broth is bound to be spoilt again when the next financial crisis comes around.

The UK is at the opposite end of the financial regulatory and supervisory concentration spectrum. Effectively all supervision and regulation of banks, building societies, credit unions,

¹⁰ The voting members of the FSOC are:

- the Secretary of the Treasury, who serves as the Chairperson of the Council;
- the Chairman of the Board of Governors of the Federal Reserve System;
- the Comptroller of the Currency (OCC);
- the Director of the Bureau of Consumer Financial Protection (CFPB);
- the Chairman of the Securities and Exchange Commission (SEC);
- the Chairperson of the Federal Deposit Insurance Corporation (FDIC);
- the Chairperson of the Commodity Futures Trading Commission (CFTC);
- the Director of the Federal Housing Finance Agency (FHFA);
- the Chairman of the National Credit Union Administration (NCUA); and
- an independent member with insurance expertise who is appointed by the President and confirmed by the Senate for a six-year term.

The nonvoting members, who serve in an advisory capacity, are:

- the Director of the Office of Financial Research;
- the Director of the Federal Insurance Office;
- a state insurance commissioner designated by the state insurance commissioners;
- a state banking supervisor designated by the state banking supervisors; and
- a state securities commissioner (or officer performing like functions) designated by the state securities commissioners.

major investment firms and insurance companies and of all key financial markets concentrated in the Bank of England.

There clearly has to be close coordination and cooperation between the national Treasury, the fiscal principal responsible for possible recapitalization of insolvent SIFIs, the central bank (the entity setting policy rates and/or the exchange rate, determining the size and composition of its balance sheet, and acting as lender of last resort (providing emergency funding liquidity) and market maker of last resort (providing emergency market liquidity)), and the financial supervisor(s) and regulator(s)) in charge of microprudential and macroprudential policies. There is, however, no necessary reason why the central bank should be in charge of the supervisory and regulatory universe. The risk of groupthink, collective myopia, UK's central planning 'solution' is unlikely to be optimal. Something between the chaotic institutional pluralism of the US and the monolithic approach of the UK is likely to be the best that can be achieved.

(1Af) Asset bubbles

We still cannot confidently identify asset bubbles. Are the \$ 1 trillion plus valuations of Amazon and Apple examples of bubbles or are they warranted as the fundamental valuation of economic rents created by some combination of genius, luck and monopoly power? Is the fact that cryptocurrencies have any positive value at all and that material amounts of funds can be raised through ICOs evidence of a bubble? There are those who believe the tulip mania wasn't a bubble.¹¹ I can state with complete certainty that the key asset bubble(s) that will precede the next financial crash will not have been identified as bubbles by those in a position to do something about it.

(1Ag) Leverage

Leverage is exposure to changes in the valuation of a financial instrument without directly owning that instrument. It is almost impossible to measure in a world with sophisticated financial derivatives. I can have zero conventionally defined debt and infinite leverage exposure at the same time (for instance, when I write a call option, because prices can rise without bound). The accounting principles embodied in the GAAP permit the netting out of similar derivatives on the asset and liability sides of a bank's balance sheet. That understates the risk unless the asset and liability are truly identical (e.g. offsetting long and short positions in the same security).

¹¹ Peter M. Garber, "Tulipmania", *The Journal of Political Economy*, Vol. 97, No. 3 (Jun., 1989), pp. 535-560.

Banks are better capitalized now than they were before the GFC. That is good news, but strictly limited good news. First, because banks still hold too little capital relative to their debt obligations and other sources of leverage. Second, because systemically important non-bank financial intermediaries remain woefully undercapitalized and likely have increased their share of total financial intermediation as a result of regulatory arbitrage: the tighter regulation of banks has triggered further disintermediation away from banks. Larger banks in the US undergo stress tests, including the annual Comprehensive Capital Analysis and Review (CCAR) - an annual exercise run by the Federal Reserve to ensure that institutions have well-defined and forward-looking capital planning processes that account for their unique risks and sufficient capital to continue operations through times of economic and financial stress. There are no stress tests for non-bank SIFIs.

Banks still can hold their own domestic-currency-denominated sovereign debt with zero capital requirements and without any concentration or exposure limit. In the Eurozone, this strengthens the doom loop between barely solvent sovereigns and barely solvent banks. No learning has taken place.

Banks still have far too much latitude in setting their asset risk weights according to “internal models”. Either no model (i.e. a plain leverage ratio floor) or a common, independently verifiable and testable model would be the obvious solution to this problem. The 3% leverage ratio floor under Basel III is far too low for comfort and should at least be doubled. A tier one capital ratio of at least 15% or 20% (depending on the risk models used) would at last provide a capital cushion capable of absorbing a significant shock.

Total leverage (household, non-financial corporate and public sector), conventionally measured as the value of gross debt instruments outstanding, has increased in most countries since the GFC, both in absolute terms and relative to GDP. In China, gross non-financial sector debt to GDP soared from 150 per cent in 2008 to 250 per cent in 2016. In many advanced countries there has been a shift in gross debt holdings from the private sector to the public sector. The resilience of the financial sector and of the economy as a whole declines when leverage rises and when the growth rate of credit to the non-financial sector increases. These unprecedented debt burdens have not yet become unfinanceable debt service burdens because of the continuing extremely low interest rates – even in the US, the real policy rate is still negative. When neutral interest rates and credit risk spreads normalize, debt service burdens are likely to become unmanageable for many debtors.

There is no operational procedure that allows us to determine when a leverage ratio or a debt-to-GDP ratio becomes critical. Clearly, other things being equal, a higher debt burden increases

the likelihood of a debt crisis, including default, but that truism is not enough to support an informed guess about the timing of the next financial crisis.

It is true that, for domestic-currency-denominated, nominal debt, a shift from the private sector to the public sector reduces the risk of default: the State has unique current revenue raising instruments (taxes) not available to the private sector and the State can monetize the debt. Central bank money is irredeemable – an asset to the holder but not in any meaningful sense a liability of the issuer. A shift from the private sector to the public sector therefore ought to reduce default risk.

There are three qualifications to this “don’t worry – or worry less -, the debt is owed by the State” narrative.

First, there are political constraints on the ability of the sovereign to raise taxes (and to cut public spending). In many countries, these constraints appear to be binding.

Second, while it is true that unanticipated inflation and inflation (anticipated or unanticipated) plus financial repression can lower the real cost of servicing nominally denominated domestic currency debt, the inflation itself can be or can become an economic, social and political problem.

Third, the argument assumes that the government (the issuer of the non-monetary public debt) controls monetization. Despite the notional operational independence of many central banks, I believe that, in practice and in most cases, when a single central bank confronts a single national fiscal authority, fiscal dominance prevails. We see this most clearly during wartime periods.

However, Eurozone governments don’t have the ultimate control of monetary issuance by their national central banks unless they are willing to leave the monetary union. Monetary issuance is a collective decision made by the Governing Council of the ECB. The result is that, from the perspective of an individual Eurozone sovereign, all euro-denominated debt is effectively foreign currency denominated debt. The national government (assuming it remains in the monetary union) cannot ‘print money’ at its discretion. Nor can it devalue the external exchange rate of its currency. The reason is that no national monetary authority is in a position of ‘fiscal dominance’ vis-à-vis the ECB. Even the German finance minister cannot instruct the Governing Council of the ECB on what to do. This means that, unless a national government that is at risk of defaulting on its euro debt and whose fiscal space is exhausted can convince the ECB to monetize its debt, default will indeed occur. This makes the situation of Italy so troublesome. It is true that the Banca d’Italia has allowed private holders of Italian sovereign

debt to exit on favorable terms by purchasing additional Italian sovereign debt at more than twice the rate of net new issuance of such debt since the start of the PSPP in 2015. The Banca d'Italia now holds around 20% of the outstanding stock of Italian sovereign debt. There are likely to be limits (set by the Governing Council) on this process.

(1Ah) Mismatch

Mismatch is another word for financial intermediation. Maturity transformation and liquidity transformation sound better than asset-liability mismatch, but they are the same thing. It's what banks and other financial intermediaries are meant to do. Mismatch means runs can happen. Mismatch means we need a lender of last resort and a market maker of last resort even if, held to maturity, assets cover all liabilities.

In a *Minsky moment*, irrational exuberance turns into irrational despondency and panic, asset bubbles burst, attempts at vigorous deleveraging and reducing asset-liability mismatch are initiated. Financial disruption, even chaos is the result. The timing and often the nature of a Minsky moment is unpredictable. It is likely true that the primary cause of a period of financial instability is a long prior period of apparent financial stability, but this does not provide an operational trigger for preventive or mitigating action.

(1B) The costs of (cross-border) complexity

Lehman Brothers Holdings, Inc. was a firm with \$639 billion in assets and \$613 billion in liabilities. It consisted of over 7,000 legal entities in over 40 countries. At the time it filed for bankruptcy it had almost a million derivative contracts with a notional value of \$39 trillion outstanding. Within days of it filing for bankruptcy about 80 foreign receiverships and insolvency proceedings were brought against it.

In addition to the complexity of large individual (often multi-national) financial institutions, we have learned about network externalities and the complexity of interacting funding illiquidity and market illiquidity. A network of individually small financial enterprises can be systemically important and vulnerable even if the individual entities look to be in good financial shape as long as the network interdependencies are ignored.

While there are fewer global financial institutions than there were before the GFC, this is a reflection of the attrition caused by the crisis and its aftermath, not any changes in the regulatory or legal environment.

The lack of progress in sorting out the distribution of capital requirements across a multinational financial institution is worrying. Admittedly, this is hugely complicated. From an

efficiency of capital use perspective, single point of entry (SPE) capital requirements, where a single holding company pools the capital of all branches and subsidiaries is the natural solution. However, this is politically unattractive from the perspective of the home country when expected transfers across jurisdictions are too asymmetric. In that case the home country national regulator may well fail to set up a proper SPE resolution regime ex ante. Second, when the required ex-post transfers are too large, national home country regulators may well ring-fence assets (capital) instead of cooperating in SPE. In this case, a multiple-point-of-entry (MPE) resolution, where loss-absorbing capital is pre-assigned to each of the national subsidiaries/branches, is more robust.¹²

(1C) Need for orderly (cross-border) resolution mechanisms for G-SIFIs.

In principle, such resolution regimes should permit the bailing in of all creditors. Insured creditors, such as retail depositors, will be compensated through the appropriate insurance mechanisms. This is essential not just from a technical financial stability perspective but also from a legitimacy perspective.

Credible living wills are an important part of an orderly resolution regime for G-SIFIs and indeed for SIFIs generally. The living wills I have seen thus far don't seem likely to be implementable at the speed with which crises occur.

(2) The authorities often did not know what to do when the crisis hit

(2A) The LLR/MMLR roles of the central bank

The GFC has reminded us all of the wisdom of Bagehot – the need for a lender of last resort (LLR) and, in an economy where a significant amount of financial intermediation is through the financial and capital markets, a market maker of last resort (MMLR). The LLR provides funding liquidity and the MMLR provides market liquidity. The crisis has also reminded us the first and primary responsibility of the central bank is financial stability. Other objectives, be it price stability or a dual mandate involving price stability and some real economy objective, are

¹² See Patrick Bolton and Martin Oehmke, “Bank Resolution and the Structure of Global Banks”, CEPR Discussion Paper Discussion Paper DP13032, July 2018.

secondary to financial stability. The simple reason is that price stability or the dual mandate cannot be pursued effectively in the absence of financial stability.

Central banks during the GFC created moral hazard and engaged in inappropriate quasi-fiscal activities by not heeding the third of Bagehot's guideposts for an effective LLR, which can be paraphrased as: lend freely, against collateral that would be good during normal times and if held to maturity, and at a penalty rate.

Central banks did perform their LLR/MMLR functions reasonably well, but with some exceptions. The Bank of England waited too long to intervene in support of Northern Rock, and the Fed permitted Lehman Brothers to fail in a disorderly manner, which unnecessarily exacerbated the crisis. The right solution would have been to provide liquidity support at the same time as bailing in unsecured creditors in an expedited resolution procedure. Such a swift resolution procedure did not and does not exist in the US or in any of the other countries Lehman operated in. The Fed cannot be blamed for the absence of an orderly high-speed resolution procedure to complement its liquidity support, but it can be blamed for being surprised by the issue and for failing to advocate prior to the crisis the creation of an appropriate resolution mechanism.

We need an LLR/MMLR to provide exceptional liquidity assistance to systemically important banks (or networks of banks) and other SIFIs. Without it, a liquidity crisis will become a solvency crisis.

The partial neutering of the LLR capacity of the Fed by the US Congress in the Dodd Frank Act weakens the future ability of the Fed to act as LLR and represents a major error of judgement¹³. Prior to the amendment of the Federal Reserve Act by the Dodd-Frank Act, Section 13(3) permitted the U.S. Federal Reserve to provide idiosyncratic liquidity support to individuals, partnerships and corporations. Under the terms of Section 13.3 of the Federal Reserve Act, a line of credit was indeed extended to a non-bank subsidiary of AIG (an insurance company), and support was also provided to certain other non-banks (and could have been extended to Lehman Brothers).

In a financial crisis the central bank should be able to choose its counterparties freely and to set collateral requirements freely.

The Dodd-Frank Act (2010) deliberately restricts the ability of the Fed to provide idiosyncratic support to financial institutions. While the new restrictions can be arbitrated, they provide a

¹³ See Marc Dobler, Simon Gray, Diarmuid Murphy, and Bozena Radzewicz-Bak "The Lender of Last Resort Function after the Global Financial Crisis", IMF Working Paper WP/16/10, January 2016. <https://www.imf.org/external/pubs/ft/wp/2016/wp1610.pdf>.

worrying reminder of the lack of understanding of the role of the central bank in maintaining financial stability prevalent in the US Congress.¹⁴

Following the GFC, the US Congress did even more to damage the future effectiveness of the official response to a financial crisis. The FDIC is no longer able to issue blanket guarantees of bank debt as it did on 14 October 2008 through the Temporary Liquidity Guarantee Program, and the US Treasury will not be able to repeat its guarantee of the money market funds, as it did on 29 September 2008.

We also need a LLR/MMLR for governments, whose creditworthiness can be perceived to be less than that of the central bank. This is most emphatically true for the Eurozone because, as noted earlier, all (euro-denominated) sovereign debt of a Eurozone member state is effectively foreign currency-denominated debt.

Finally, the GFC has made clear the need for a global LLR/MMLR. The IMF did not and cannot play this role because of lack of resources. Increasing the size of the support funding package for a single emerging market economy – Argentina – from \$50bn to \$70bn puts material strain on the resources of the IMF. The greatest achievement of the Fed during the GFC was that it became the de facto global LLR, through the use of the liquidity swap lines (reciprocal currency arrangements). As early as December 12, 2007, the Fed established foreign exchange swap lines with the ECB and the Swiss National Bank. On September 18, 2008 (note: Lehman Brothers expired on September 15) three more joined the arrangement, including the Bank of England and the Bank of Japan. On September 24, 2008 four more central banks joined. On October 13-14 2008, the Fed lifted all limits on swaps with the European Central Bank, the Bank of England, the Bank of Japan and the Swiss National Bank. It also maintained swap lines with the central banks of Canada, Norway, Australia, Sweden and New Zealand. Finally, on October 29, 2008, Brazil, Mexico, South Korea and Singapore joined the swap arrangements.

There can be little doubt that this act of enlightened self-interest by the Fed prevented a complete financial collapse in Europe. It is unfortunate that the lessons learnt were not applied by the Fed during the Taper Tantrum of May to September 2013, when no swap lines were made available to the central banks of the “fragile five” (Brazil, India, Indonesia, South Africa and Turkey).

(2B) Openness and transparency

¹⁴ The Fed must, under the Dodd-Frank act, obtain prior approval of the Secretary of the Treasury in order to be able to act as lender of last resort – even under “unusual and exigent circumstances”.

Openness and transparency about all transactions – with a suitable lag to allow for commercial confidentiality, financial market conditions etc. should be the hallmark of all central bank actions and financial transactions. Here the performance of all leading central banks has been abysmal. The Bloomberg lawsuit against the Fed, filed on November 7, 2008 and ruled on August 24, 2009, demanded disclosure of information about banks and other financial institutions that had borrowed from the Federal Reserve discount window during the United States housing bubble and ensuing financial crisis. The Fed took it all the way up to the Supreme Court and lost. The argument that information about individual institutions and individual transactions cannot be made public because this would attach stigma to any financial institution that approached the central bank for assistance is a nonsense. A suitable period during which confidentiality is assured (say 6 months or even a year) is enough to debunk the stigma argument.

(3) Pro-cyclicality of accounting rules

There has been no improvement in this. Marking to market and other market-based fair value approximations are inherently procyclical. In this context, permit me to poke a little fun at the IFRS and its insistence that liabilities (debt) be marked to market. If the market suddenly believes that the debt of a bank will be repudiated in full – and its therefore valued at zero – the value of the equity of the bank jumps up.

(4) The nonsense of the Basel liquidity requirements

The new liquidity requirements under Basel III, the Liquidity Coverage Ratio and especially the Net Stable Funding Ratio are an assault not on financial stability but on financial intermediation. Liquidity is a public good. When there is confidence, trust and optimism, almost any asset is liquid. When there is fear, mistrust and pessimism, nothing except central bank liabilities is liquid. It makes no sense therefore, and it interferes with the maturity and liquidity transformations that are the essence of financial intermediation, to require banks to hold during normal times an amount of liquid assets that gets them through disorderly markets and funding crises without external support. Emergency liquidity should be provided by the central bank acting as LLR/MMLR, it should not be hoarded by each financial institution acting in isolation.

(5) Inviting disintermediation

Banks were viewed, correctly, as central to the initiation and propagation of the GFC. They are now regulated more effectively and are likely, as a result, to be more resilient. However, the range of banks and other financial institutions that were key actors in the GFC and that either failed or had to be rescued is wide and varied. A small illustrative set of examples follows:

- Northern Rock: a residential mortgage lender deeply involved in securitizing RMBS.
- IKB, a German bank that traditionally lent to small and medium-sized companies had built up significant subprime mortgage exposure.
- Bear Stearns, an investment bank.
- Lehman Brothers, an investment bank.
- Citigroup, a universal bank that included a large investment bank.
- AIG, an insurance company.
- US money market funds.
- Washington Mutual Bank, the United States' largest savings and loan association.
- RBS, a universal bank that included a large investment bank.
- Landsbanki, Glitnir and Kaupthing, Icelandic universal banks with most of their assets and liabilities denominated in currencies other than the Icelandic Krona, and therefore without a LLR/MMLR.
- Fannie Mae and Freddie Mac: highly leveraged federal agencies created to boost mortgage lending to middle-income and low-income households.

All regulation should pass the duck test: if it looks like a bank, swims like a bank and sounds like a bank, it is a bank, even if it calls itself a private equity firm. Any economic entity that is of a minimal critical size (or is a key component of a network of a minimal critical size), has high leverage and asset-liability mismatch as regards duration, liquidity etc., is a bank and should be regulated as a bank.

(6) What problem is ring-fencing/narrow banking the problem to?

In a number of countries, retail banking activities (deposit taking and retail lending to households and SMEs) have been ringfenced. For instance, from 1 January 2019, the largest UK banks must separate core retail banking from investment banking. It is difficult to see what problem this is the solution to. The cost of deposit insurance should be recovered from the banks and thus from those whose deposits are insured. A LLR takes care of the risk of runs, which is not only present with sight deposits withdrawable on demand on a first-come, first-served basis, but also with overnight funding of long-duration and often illiquid assets in the markets. Lending to households and SMEs is also very risky – the fact that both are part of the

‘real’ economy does not change that, so there is no good case for separating the ‘responsible’ retail banking activities from the ‘casino’ activities of investment banks and other financial intermediaries.

(7) The need for countercyclical macroprudential instruments

Policy rates, the exchange rate and the size and composition of the central bank balance sheet are not sufficient to reduce the likelihood of financial and credit booms and bubbles or the magnitude of the inevitable bust to acceptable levels. This requires macroprudential instruments: countercyclical capital requirements; countercyclical liquidity requirements; countercyclical loan-to-value, loan-to-income or debt-service-to-income ratios; countercyclical margin requirements for equity etc.. The cycle I am talking about is the financial cycle, which may differ from the business cycle. Ideally the countercyclical macroprudential instrumentarium would include the use of appropriate fiscal instruments to lean against the financial cycle – a countercyclical land tax would make both Henry George and me happy – but I am not holding my breath.

Strangely enough, the Fed either does not have any countercyclical macroprudential instruments - other than possibly the margin requirement on equity holdings (which have not been changed since 1974) and the severity/intensity of its audits of the member banks – or does not use them (countercyclical capital requirements).¹⁵ When Janet Yellen talked about macroprudential instruments she was referring to “through the cycle” instruments: high capital requirements, not countercyclical capital requirements; high liquidity requirements, not countercyclical liquidity requirements etc.. This may will create stronger, more robust financial institutions, but it is not countercyclical.

The Fed also has been historically reluctant to use its policy rates to dampen rampant credit growth or asset price booms. It has, however, been quite willing to “clean up the mess” after a credit or asset bubble bursts by cutting policy rates significantly. The asymmetry introduced by this Greenspan-Bernanke-Yellen put (likely soon to be the Greenspan-Bernanke-Yellen-Powell put) has likely contributed to the period overheating of US financial markets. With a proper arsenal of macroprudential policy instruments, there may well be no need to use policy rates to lean against the financial cycle, but in the US beggars can’t be choosers: given the dearth of countercyclical macroprudential instruments, the policy rates (and the size and composition of the balance sheet) have to be used in part to target financial stability.

¹⁵ The initial margin for stock purchases of Regulation T, set by the Federal Reserve Board, has been set at 50% since 1974.

(8) Regulatory capture remains as much of an issue as it ever was

I am not only, or even mainly referring to blatant conflicts of interest created by the revolving door between regulatory and central bank appointments and lucrative positions in the financial sector, although that too remains a problem. I am referring mainly to what I have called cognitive capture and what others have called cultural capture. Cognitive regulatory or state capture refers to a social-psychological, small group behaviour-based explanation of the phenomenon of “capture”. *Cognitive regulatory capture* (or cognitive state capture), is not achieved by special interests buying, blackmailing or bribing their way towards control of the legislature, the executive, the legislature or some important regulator or agency, like the Fed, but instead through those in charge of the relevant state entity internalising, as if by osmosis, the objectives, interests and perception of reality of the vested interest they are meant to regulate and supervise in the public interest.ⁱ

(9) Political limits to central bank independence

The legitimacy of operationally independent central banks has been diminished through the vast increase in the range and scope of central bank activities, especially the quasi-fiscal and explicitly fiscal activities. The fact that this happened mostly because there was a political vacuum that prevented more legitimate actors from engaging in effective financial stability support and macroeconomic stabilization policies does not change the reality of the loss of legitimacy. In a world where authoritarian populism with its distrust of and contempt for elites, experts, technocrats and official bureaucracies is rampant and growing, central banks are at risk of having a period of institutional overreach followed by a virtually complete loss of operational independence. We see this in Turkey and Argentina. It was always so in the PRC.

One might expect that, given the fact that central banks were among the more competent public actors during the GFC, their output legitimacy would have gone up, not down. That may well be so, but the vast enhancement of the range and scope of fiscal and quasi-fiscal activities of the central bank have raised questions of input legitimacy and procedural or throughput legitimacy that overwhelm any increase in output legitimacy that may have occurred.¹⁶ Also, central bank independence has only ever been intended to cover monetary policy and the LLR and MMLR functions of the central bank, not the regulatory and supervisory roles of the central

¹⁶ Fritz Scharpf introduced two normative criteria, which are output legitimacy, i.e. the effectiveness of policy outcomes for people/citizens and input legitimacy, the responsiveness to citizen concerns as a result of participation by the people. A third normative criterion was added by Vivien Schmidt, who analyzes legitimacy also in terms of what she calls throughput, i.e. the governance processes that happen in between input and output.

bank. Many central banks have come out of the GFC with greatly enhanced supervisory and regulatory roles. Traditional central bank operational independence for monetary policy cannot be extended to its enhanced regulatory and supervisory functions.

(10) The need for cooperation between fiscal and monetary authorities and for coordination of monetary and fiscal policies

I have asked all past and present German members of the Governing Council of the ECB except for Sabine Lautenschläger whether they consider cooperation between the fiscal and monetary authorities and coordination of monetary and fiscal policies to be consistent with central bank independence. The answer has been a uniform, resounding: “no”. This seems strange. Cooperation and coordination are the acts of operationally independent agents. For instance, independence is preserved if the fiscal authority requests monetary financing of a fiscal stimulus, as long as the central bank has the right to say “no”. Independence does not require a commitment never to say “yes”. But this is the way it is interpreted by what is likely a blocking minority on the Governing Council.

It certainly looks as though the Teutonic view held sway since the GFC started in 2007. In the US, the fiscal stimuli of February 2008 and 2009 were supported by the first expansion of the Fed’s balance sheet under the QE1 program, which lasted from December 2008 till March 2010 (the balance sheet expansion had already started earlier in 2008, before QE1 was activated).

(11) Readiness to engage in helicopter money drops where appropriate

This is especially important because monetary policy space of the conventional variety (policy rates, exchange rate, size and composition of the central bank balance sheet) is likely to be very limited (especially outside the US) when the next financial crisis and recession hit, and because lack of fiscal space will likely restrict the scope for expansionary fiscal policy (public spending increases and/or tax cuts) if the resulting fiscal deficits cannot be monetized. The lack of fiscal space will become acute when neutral interest rates and credit risk spreads normalize. Helicopter money drops are the only effective way to stimulate demand when the economy is in a liquidity trap and there is limited fiscal space for debt-financed fiscal stimuli. We are not well positioned to deliver here.

In the Eurozone, open monetary financing of public sector deficits (through the front door) is verboten because of Article 123 TFEU. Only limited back-door monetization of public sector deficit and debt is permitted.

In the US, fiscal policy is not made. It happens. Only by chance will the Congress pass an appropriate stimulus when the Fed is able and willing to monetize it. We got the Economic Stimulus Act of 2008 on February 13, 2008, and the American Recovery and Reinvestment Act of 2009 pm February 17, 2009. The Congress approved the TARP on October 3, 2008 only after rejecting, on September 29, 2008, the original version submitted by Treasury Secretary Hank Paulson on September 21, 2008.

In Japan there remains considerable official opposition to a significant additional fiscal stimulus, should the economy slow down materially. This has been quite consistent with an unparalleled expansion of the Bank of Japan's balance sheet to well over 100 percent of GDP. The reason is likely the large fiscal deficit (a general government deficit of 4.5 percent of GDP in 2017 and an underlying primary deficit of 3.3 percent of GDP expected for 2018).

Only in the UK does there seem to exist the political, institutional and ideological prerequisites for the implementation of a helicopter money drop, should it be necessary (say following a chaotic Brexit).

Conclusion

We were not ready in 2007/8 and our monetary, fiscal and financial authorities did not respond in the optimal manner, although the worst outcomes were avoided because some lessons from the Great Depression had been learnt in the US and, to a limited extent, in the EU.

Limited and selective learning has taken place by policy makers and by monetary, supervisory and regulatory technocrats. Some of the lessons drawn, especially in the US, have lowered the ability of the central bank to act effectively as LLR/MMLR. One part of the financial system – the banking sector – may be slightly more resilient. It is not enough, however, to prevent another major financial crisis or even to postpone it by much. Nor is it enough to mitigate the impact on the real economy of the next serious financial crisis.

ⁱ See Willem H. Buiter "[Central banks and financial crises](#)," paper presented at the [Federal Reserve Bank of Kansas City's symposium on Maintaining Stability in a Changing Financial System](#), Jackson Hole, Wyoming, 21-23 Aug., 2008. For a working paper version, click [here](#).