

Banks, private money creation, and regulatory reform

Gerry Cross

Policy and Risk Directorate, Central Bank of Ireland, Dublin, Ireland

Received 11 June 2016
Revised 17 September 2016
14 January 2017
Accepted 30 January 2017

Abstract

Purpose – This paper aims to consider recent arguments that post-crisis regulatory reform has misunderstood the nature of banks' activities. These arguments suggest that a bank's role is not that of intermediation between savers and borrowers but the systemically riskier one of private money creation.

Design/methodology/approach – The paper assesses whether banks' activities are best understood as private money creation rather than intermediation. It considers the argument that regulatory reform has not gone far enough to prevent a recurrence of future credit spirals ending in financial crises.

Findings – This paper analyses banks' activities and finds that it is incorrect to consider that they engage in relatively unfettered money creation. While fractional reserve banking does create flows of money through the economy, these flows are tethered to banks' funding requirements. Multiple use of that money, rather than representing an ill-understood risk, simply reflects the nature of maturity transformation. This has not been missed in designing the post-crisis regulatory framework. The revised framework contains many features that are not fully recognised by proponents of the money creation critique and goes significantly further than they allow. Once completed, it will address many of the concerns they raise. They are right to call for further consideration of whether the countercyclical features of the new framework are sufficiently developed.

Originality/value – The paper provides an early detailed response to recent criticism of the post-crisis regulatory reform programme coming from a money creation perspective of banks' role in the economy.

Keywords European union, Basel, Financial crisis, Credit, Banking regulation

Paper type Conceptual paper

Introduction

The period of intense financial regulatory reform that followed the global financial crisis of 2007-2009 is reaching its end. Recently, pressing demands for economic growth and increasing distance from the crisis have led to a noticeable softening in the political environment.

Some policymakers believe that there is a risk that the reforms may be having unintended consequences, at least when considered cumulatively (Hill, 2015). More widely, it is held that it is timely to embark on an effort to fully understand the separate and cumulative impact of post-crisis regulatory reforms. Noteworthy in this context is the European Commission's call for evidence on the economic impact and unintended consequences of the reforms (European Commission, 2015).

At the same time, a different perspective has emerged. Some commentators argue that regulatory reform has not properly understood how banks' activities impact the economy (Turner, 2016; Wolf, 2015). These arguments suggest that banks' role is not that of intermediation between savers and borrowers but rather the systemically riskier one of private money creation.

This article analyses banks' activities in light of this critique. It finds that it is incorrect to consider that they engage in relatively unfettered money creation. While fractional reserve

Thanks to Valerie Herzberg and Gina Fitzgerald for their comments.



banking does result in flows of money through the economy, these flows are constrained by banks' funding requirements and are therefore anchored in banks' intermediation role.

Based on this analysis we find that post-crisis regulatory reform has properly understood the role of banks' in the economy. It includes a range of features which address the concerns raised by the money creation critique. There is however room to consider further whether the countercyclical features of the new framework could be improved.

The money creation critique

Since early on, there has been broad agreement that a major cause of the crisis, both in its global and its many national manifestations, was a spiral of credit creation that ran out of manageable bounds (G20, 2008, 2009b; De Larosière High-Level Group, 2009, p. 7; Group of Thirty, 2010, pp. 13-15). This insight has been central to post-crisis regulatory reforms. It has been an important consideration in microprudential reforms, including the major enhancement of capital, leverage and liquidity requirements that apply to banks. It has underpinned a new system of financial stability oversight including the establishment of the Financial Stability Board at the global level and the emergence of a suite of new or re-tooled bodies tasked with macroprudential oversight at the national and regional level[1]. And it has triggered a suite of systemic risk reforms which are changing profoundly the way the financial system operates particularly in the context of derivatives markets and interconnectedness within the financial system.

The money creation theory of banking argues that because banks, when they lend, create deposits in borrowers' accounts, their lending is not significantly constrained by the need to raise deposits from savers. They can in effect create the money they wish to lend.

As discussed below, the regulatory critique based on this theory argues that it is not sufficient to see the crisis as springing from the mispricing of risk and undue levels of credit growth. While important, these do not represent the full reality of the matter, and therefore, addressing them does not bring us reliably out of the woods. In this view, banks are unique in being private actors capable of, and permitted to, add to the money supply, and it is this that is at the heart of the problem.

Turner argues that the standard explanation of what banks do, the intermediation of savers' deposits to the funding of productive investments, is incorrect in a number of respects. Banks do not receive deposits which they then recycle in the form of loans and credit. Rather:

[...] they create credit, money, and thus purchasing power. They make loans to borrowers, crediting an asset on the banks' balance sheet; at the same time they put money in the borrower's account, creating a bank liability [...]. The vast majority of what we count as money in modern economies is created in this fashion (Turner, 2016, p. 58).

The Bank of England takes a similar view: rather than banks receiving deposits from customers and lending those out, banks provide loans which result in deposits being created (McLeay *et al.*, 2014a, 2014b).

Wolf argues that neither the diminution of profitable opportunities nor the intervention of central banks through interest rates will effectively curtail banks' activities in this regard. Credit growth breeds asset price inflation. This in turn breeds further credit growth and so on. Interest rates would not solve the problem if the money/credit spiral is not feeding through into elevated levels of inflation, as happened in the period leading up to the crisis. This leaves an economy in which "the most powerful destabilizing force is the ability of the private sector to generate credit and money and so to produce euphoric boom and panic-stricken bust" (Wolf, 2015, pp. 197-199).

Both Wolf and Turner consider the implications of this analysis for the regulation of banks. One proposal they both consider is to eliminate entirely the money creation aspect of banking. This idea for the abolition of fractional reserve banking was originally put forward during the Great Depression and became known as the “Chicago Plan” (Fisher, 1936)[2]. What it means is that for every euro held in demand deposits, a bank would have to hold a euro of central bank reserves. In other words, the bank would have to have continually on hand the cash that would be required to repay the deposit should it be requested. (Banks would however also be allowed to offer investment accounts, with regard to which there would be no guarantee of full return of the amount invested).

Wolf and Turner both come to the view that such 100 per cent reserve banking is too radical a proposal to be adopted, at least at the current moment. Wolf thinks that while such an approach is likely to have considerable positive features, and that it might be necessary ultimately to move to such an approach, it is better to first of all try less radical alternatives. (Wolf, 2015, pp. 209-213).

Turner believes that 100 per cent reserve banking would have a number of important merits. However, he too shies away from recommending it. Replacing private credit creation entirely with fiat money creation would bring its own problems, including the risk of excessive money creation on the fiat side, combined with that of subversion of the power for short-term political advantage. There is also the risk that other private actors – for example, those in the so-called shadow banking sector – would simply step into the gap left by the banks’ departure. Finally, given the starting point, the challenges in transitioning to a 100 per cent reserve banking system would be formidable (Turner, 2016, pp. 188-189).

Short of 100 per cent reserve banking, however, both Turner and Wolf believe that money creation by banks gives rise to the need for more far-reaching reforms than have so far been developed. Both argue that the enhanced capital requirements introduced since the crisis are inadequate. Wolf, who has little faith in the effectiveness of risk-weighted measures of capital, focuses on the leverage ratio of total assets to core equity. He proposes that this be tightened from the 33:1 ratio agreed by the Basel Committee (Group of Central Bank Governors and Heads of Supervision, 2016) to at most 10:1.

An enhanced leverage ratio should, in Wolf’s view, be complemented by stricter, more effective and more automatic macroprudential controls:

Macroprudential policy needs to be as automatic and non-discretionary as possible. It is desirable, for example, to relate capital requirements of – or provisioning by – financial institutions to the rate of credit growth [. . .] (Wolf, 2015, pp. 253-255).

Turner believes that considerably higher capital requirements are needed. He thinks that risk-weighted requirements of 20-25 per cent are a reasonable target, as compared with the 7-10 per cent that he estimates systemic banks are required to hold under Basel III (Turner, 2016, pp. 198-199).

Effective countercyclical measures are also necessary. Turner notes that the Basel III framework does include countercyclical buffers. However, the determination of when a buffer should be imposed is based on the relative growth rates of credit and nominal gross domestic product:

On that basis, credit growth of 10 per cent versus nominal GDP growth of 5 per cent would be perpetually acceptable as long as credit growth was steady, even though leverage would be relentlessly rising (Turner, 2016, p. 200).

Moreover, a countercyclical buffer of a maximum of 2.5 per cent of risk-weighted assets as currently required is simply not sufficient. Much higher countercyclical buffers should be applied where necessary (Turner, 2016, p. 200).

Turner also proposes the reintroduction of central bank reserve asset ratio requirements. This would more directly restrict the money creation power of banks and allow control of the credit supply. He notes that this would be a step along the road “at the extreme end of which lies 100 per cent reserve banking” (Turner, 2016, pp. 200-201).

Turner considers that real estate lending is both relatively unproductive and a central cause of asset price bubbles. This leads him to the conclusion that there is a need for direct additional regulatory requirement on this type of lending. He calls for the introduction of maximum loan-to-value (LTV) and/or loan-to-income (LTI) restrictions. These could either be fixed or varying with the cycle. He proposes the wider application of a rule introduced in the UK that lenders must not assume rising house prices when assessing a borrower’s ability to repay (Turner, 2016, p. 204).

Do banks create money and how much?

The debate as to the true nature of banks’ role – intermediation or money creation – is not new. Werner outlines in helpful detail the views taken by different economists over 150 years (Werner, 2014, pp. 1-19). He identifies three distinct views, each of which has held sway to an important if not absolute degree during different periods[3].

The late nineteenth and early twentieth century marked the high point of the money creation view of banks. In his 1907 paper, Wicksell states that:

[. . .] banks in their lending capacity are not only not limited by their own capital; they are not, at least immediately, limited by any capital whatever; by concentrating in their hands almost all payments, they themselves create the money required, or, what is the same thing, they accelerate *ad libitum* the rapidity of the circulation of money (Wicksell, 1907, p. 214; Werner, 2014, p. 3).

Withers took a similar view: “[. . .] the greater part of the banks’ deposits is thus seen to consist, not of cash paid in, but of credits borrowed. For every loan makes a deposit [. . .]” (Withers, 1909, p. 63; Werner, 2014, p. 3).

Later the credit creation view of banks’ activities underwent an evolution. It became orthodox that each bank taken individually did not in fact have the power to create money but was limited by the need to fund its lending. However, taken collectively, they did have the power to create money. This is the fractional reserve theory of banking. This view was expressed by Philips, amongst others, who argued that the old theory that a bank could make loans to the amount of a number of times of cash received was not well-founded as a “a representative bank [. . .] is actually able ordinarily to lend an amount only roughly equal to such cash” (Philips, 1920, p. 72; Werner, 2014, p. 6). Collectively however a banking system can and does do what an individual bank cannot. Each new reserve “split into fragments, becomes dispersed among the banks of the system. Through the process of dispersion, it comes to constitute the basis of a manifold loan expansion” (Philips, 1920, p. 40; Werner, 2014, p. 6).

The same view is articulated by Crick:

[. . .] the important point, which is responsible for much of the controversy and most of the misunderstanding, is that while one bank receiving an addition to its cash cannot forthwith undertake a full multiple addition to its own deposits, yet the cumulative effect of the additional cash is to produce a full multiple addition to the deposit of all the banks as a whole (Crick, 1920, p. 196; Werner, 2014, p. 6).

During more recent times, Werner notes, including the period leading up to the crisis the financial intermediation theory has been the accepted wisdom. Schumpeter writes of Keynes that:

[...] the deposit-creating bank loan and its role in the financing of the economy without any previous saving up of the sums thus lent have practically disappeared in the analytic scheme of the General Theory (Schumpeter, 1954, pp. 1114-1145. Fn 5; Werner, 2014, p. 9).

In a similar vein, Tobin notes that:

[...] the distinction between commercial banks and other financial intermediaries has been too sharply drawn. The differences are of degree not of kind [...]. In particular, the differences that do exist have little intrinsically to do with the monetary nature of bank liabilities (Tobin, 1963, p. 418; Werner, 2014, p. 10).

Bernanke also takes an intermediation view of banks' activities:

By *credit creation process* I mean the process by which, in exchange for paper claims, the savings of specific individuals or firms are made available for the use of other individuals (Bernanke, 1993, p. 50).

The private money critique claims to provide insights that have not been present in the reform programme to date because it has not been founded in a clear view of banks' activities. What we shall see is that to the extent that the critique rests on a view that individual banks have meaningful money creation ability, it is incorrect, whereas to the extent that it argues that banks collectively have such an ability, there is nothing new or surprising in this and nothing that has not been available to those designing and implementing the reform programme.

We take the pure money creation theory first. This is the argument that by creating a loan asset, a bank creates a liability of an equivalent amount in the deposit account of the borrower, and thus individual banks have meaningful ability to create credit and thus money out of thin air. There are good reasons why this view was early on superseded by the more nuanced fractional reserve theory. Firstly, and rather prosaically, if banks were in fact able to create money in the manner suggested, they would not be concerned nearly as much as they are about the funding of their assets. In fact, as we know, banks care deeply about ensuring that their assets are matched by funding liabilities.

Secondly, there are obvious limitations on banks' ability to create deposits through lending. McLeay et al identify one key constraint: as a loan is generally made to an individual or a company for a purpose, it will very quickly be withdrawn from the account into which it is initially placed. This means that the originating bank is not able to simply create as much credit as it likes without regard to its funding position. Knowing that the money lent is likely to be deployed more or less immediately by the borrower, it will be essential for the lending bank to already or quickly have separate funding liabilities equivalent to the amounts loaned. "[...] Whether through deposits or other liabilities, *the bank would need to make sure it was attracting and retaining some kind of funds in order to keep expanding lending*" (McLeay et al., 2014a, 2014b, p. 5) (original emphasis).

If individual banks cannot create credit beyond that which their funding will support on a more or less one for one basis, is it then possible that the banking system considered as a whole can do so, as is suggested by the fractional reserve system. The answer to this is that looked at from one perspective it may be argued to do so, although in a limited sense. How this works is well explained by Mishkin (2013, pp. 388-391). Mishkin presents a series of simplified balance sheets to demonstrate how this works. In this example, Mishkin assumes a legally required 10 per cent reserve requirement:

- (1) Bank A sells \$100m in bonds to the central bank resulting in an increase of its reserves with the central bank of \$100m: Private money creation

Bank A

<i>Assets</i>	<i>Liabilities</i>
<i>Securities</i> $-\$100\ m$	
<i>Reserves</i> $+\$100\ m$	

- (2) Bank A makes a loan of \$100m to a customer:

Bank A

<i>Assets</i>	<i>Liabilities</i>
<i>Securities</i> $-\$100\ m$	<i>Checkable deposits</i> $+\$100\ m$
<i>Reserves</i> $+\$100\ m$	
<i>Loans</i> $+\$100\ m$	

- (3) The customer takes the money and buys a business for \$100m. The vendor of the house places the money received in her deposit account with Bank B:

Bank B

<i>Assets</i>	<i>Liabilities</i>
<i>Reserves</i> $+\$100\ m$	<i>Checkable deposits</i> $+\$100\ m$

- (4) Bank B uses the deposits received to make a loan to a customer. It decides, or is required, to maintain a percentage, say 10 per cent of the deposit amount, as reserves against the customer deposit withdrawals. That leaves it with \$90m that it can lend:

Bank B

<i>Assets</i>	<i>Liabilities</i>
<i>Reserves</i> $+\$10\ m$	<i>Checkable deposits</i> $+\$100\ m$
<i>Loans</i> $+\$90\ m$	

- (5) Bank C ends up receiving the \$90m into a deposit account and then goes through the same process as Bank B, though now starting with the smaller deposit of \$90m rather than \$100m:

Bank C

<i>Assets</i>	<i>Liabilities</i>
<i>Reserves</i> $+\$9\ m$	<i>Checkable deposits</i> $+\$90\ m$
<i>Loans</i> $+\$81\ m$	

Following the same reasoning, if all banks make loans for the full amount of their excess reserves, further increments in checkable deposits will continue (at banks C, D, E, and so on) [...]. Therefore, the total increase in deposits from the initial \$100 m increase in reserves will be \$1,000 million: The increase is tenfold [...]. (Mishkin, 2013, p. 390).

(While Mishkin assumes a legally required 10 per cent reserve requirement, it makes no difference to the principle whether this is legally fixed or simply represents the bank's view of what it needs keep to hand to meet withdrawals.)

Mishkin's analysis is in one sense correct. It is clear that for every €100m that enters the banking system a multiple is able to be loaned by the system. The question that arises then is whether this represents a matter of special interest that materially impacts our understanding of the dynamics of the recent, or any, financial crisis.

The significance of the question whether banks taken collectively can create significant amounts of additional money in the economy depends on what exactly is meant. If the point is simply that banks carry out maturity transformation – i.e. that they receive short-term demand deposits and use these to fund long term loans, holding only a certain amount in liquid reserves – then it is clear that this is exactly what banks do. There is nothing new, nor surprising in this, and nothing that can be argued to throw a particularly fresh light on banks' activities.

However, those such as Wolf and Turner, who centralise banks' money creation role in their view of the need for deeper regulatory reform, have a much thicker conception of the phenomenon than can be summed up by the phrase maturity transformation. In their analysis, the risk to be addressed is not that of depositor runs but rather of undue levels of credit creation arising from banks' unique monetary powers. But, as outlined further below, this seems to mistake the nature of the dynamic which gives rise to credit-driven financial crises. Banks do of course have a central part in such dynamic. However, it is not as money-creators that their actions are best understood but rather as lynchpin participants in a spiral of exuberance that encompasses funders, lenders and borrowers (as well of course as others such as politicians and regulators).

The underlying fact here, is that there is nothing particularly special about what happens to any given €100 amount when it is loaned by a bank as compared to what happens to another €100 of cash spent, rather than saved by, let us say, the depositor. The €100 loaned by the bank makes its way through a certain number of transactions as described by Mishkin. But the same, more or less, is true of a €100 cash earned and spent by the depositor. This €100 will be received by the seller of whatever it is that the depositor is buying. The seller will then use the cash to buy something else. The seller of that something else will also then use the same cash and so on. This is the concept of the velocity of money.

Indeed, one can go further and say that as the first €100 lent by the first bank needs to be funded either before it is loaned or shortly thereafter, in fact bank lending represents nothing more than the intermediation of that original €100 of funding.

So, if banks do not have unique or unusual power of money creation going beyond maturity transformation, what is it that takes place during a credit boom preceding a bust? Simply put, banks are intermediators and amplifiers in the process. It is their lending activities which foment the conditions of crisis. But it is not their actions on their own, nor in any remarkable or surprising way, that lay the foundations of failure. Rather they are a key part of a dynamic whereby many participants become carried away in a pernicious circle of increased investor appetite, increased funding availability and increased credit flows. These lead to increased asset prices which in turn lead to further increased investor appetite and so on towards eventual collapse.

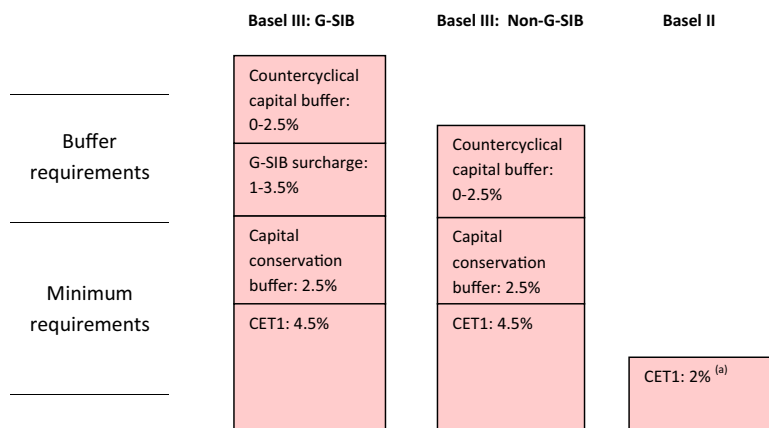
The role of the banking sector is key to this dynamic, but crucially, it does not, and cannot, become untethered from the need for assets to be funded, and so, the root cause cannot be fixed on banks' role in money creation as distinct from their intermediation function. The fundamental dynamic remains rooted in the generalised desire to participate in a sharply rising market to share in returns that are too good to be true (or resisted). (See, in this regard, [Honohan, 2010](#), pp. 25-27, and the [Commission of Investigation into the Banking Sector in Ireland, 2011](#), pp. 12-50, 88-91).

The need for enhanced regulatory reform?

Given this understanding of banks' lending activities does more need to be done in respect of their regulation than has been achieved to date? The issue, in light of the analysis above, is not whether the reforms that have been developed respond to some unfettered power of banks to create money and credit. This as we have seen is a power that does not exist. What can be asked however is whether the reforms have properly taken into account the key role of banks in supporting hazardous levels of growth in credit flows as occurred in the run up to the 2007-2009 financial crisis?

A useful overview of the regulatory reforms introduced since the crisis is provided in the 2015 Basel Committee report to G20 leaders ([Basel Committee on Banking Supervision, 2015](#)). In respect of required capital, there is now a concentration on common equity Tier 1 capital – so-called “CET1 capital”, which comprises only those items such as equity and retained profits which will, with maximum certainty, absorb losses in the event that a bank gets into difficulties. Since the crisis, the requirements in this regard have been increased very significantly as can be seen in the figure below ([Basel Committee on Banking Supervision, 2015](#), p. 4) ([Figure 1](#)).

What we see here is that in the case of the most systemically important of global banks (G-SIBs), the CET1 requirement will, at the peak of the cycle – i.e. assuming a full implementation of capital buffers – have increased from 2 per cent of risk-weighted assets (in reality even lower given the eligibility changes) to at least 12 per cent. This is undoubtedly reform of major dimension and consequence.



Source: BCBS. ^(a)Assuming that the predominant part of Tier 1 capital comprised CET1 capital

Figure 1. Summary of CET1 capital requirements under Basel III compared to Basel II

Turner, as we have seen, takes the view that this figure should be 20-25 per cent as compared with the 7-10 per cent effective regulatory requirement he says that systemic banks are required to hold under Basel III (Turner, 2016, pp. 199-200)[4]. However, in focussing on core equity, the most pure form of bank capital, Turner does not take fully into account the additional discipline on banks' lending capacity that will result from the introduction of requirements to hold material amounts of other types of capital and from the new "bail-inable" liabilities.

When broader forms of capital are included the capital ratio for globally systemic banks increases to the 10-14 per cent range (excluding the countercyclical capital buffer). Beyond this, there are the new requirements that will be imposed on banks to hold other liabilities that will be converted to equity in the event of the bank having to be resolved. While the final outcomes in different regions remain to be determined, it is notable that the Financial Stability Board has determined that G-SIBs will be required to hold a minimum of "Total Loss Absorbing Capital" (TLAC) liabilities of 16 per cent as from 1 January 2019 and 18 per cent as from 1 January 2022[5]. As well as bail-inable debt, TLAC can include CET1 capital used to meet regulatory capital requirements. However, CET1 that forms part of regulatory capital buffers is excluded. This would mean a TLAC plus buffer requirement (if capital conservation and countercyclical buffers were at a maximum) of 23-25.5 per cent.

It is true of course that those parts of TLAC instruments not eligible to meet capital requirements[6] would not be serviceable to absorb losses in a going-concern context but would only be available to do so in the context of a resolution. Nonetheless, the requirement to maintain TLAC ratios, and the degree of conservatism that is brought to the business by having such a degree of direct subordinated exposure to losses in the event of failure, will certainly bring enhanced restrictions on banks' behaviour when it comes to the potential for spiralling credit creation.

It is also important to note the role of Pillar 2 capital charges. These are further capital charges that are imposed on banks to reflect their specific risk profile. Currently, information as to the levels of Pillar 2 capital charges for different banks remains patchy due to different approaches to disclosure in different countries (Scope Ratings, 2015)[7].

Where Turner focuses on ratios of capital to risk-weighted assets, Wolf is sceptical about risk weighting and regards the leverage ratio as the key regulatory capital tool. He would like to see a leverage ratio minimum requirement of at least 10 per cent (Wolf, 2015, pp. 241-243). The Basel proposal of a generally required ratio of 3 per cent (Tier 1 capital: total assets) was confirmed in January 2017, though this remains subject to regional and national legislative decisions. The European Commission has recently put forward a proposal for the implementation of such a leverage ratio requirement in Europe (European Commission, 2016, pp. 229-40). There will be enhanced leverage requirements for globally systemically important banks.

There is inherent in this matter a policy choice as to whether risk-weighted or straight leverage requirements are the best primary requirement. Wolf prefers pure leverage as a measure. However, there are good arguments on the other side and these are reflected in the proposed Basel approach. Having taken such an approach then it is appropriate to see the leverage requirement calibrated as a "backstop", and therefore somewhat lower, level than might otherwise be the case.

Again, the FSB's standard for Total Loss Absorbing Capacity for Globally Systemically Important Banks are relevant. They include a requirement that TLAC must be maintained at a minimum of at least 6 per cent of the Basel III leverage ratio denominator as from 1 January 2019 and 6.75 per cent as of 1 January 2022 (Financial Stability Board, 2015a, 2015b). Once again, it may be noted that CET1 used to meet capital buffers cannot also serve towards this 6/6.75 per cent requirement. This means that the effective leverage ratio, using the broader TLAC definition, is likely to be higher.

Liquidity risk has gone from being lightly regulated prior to the crisis to being the focus of significant regulatory constraint in the post-crisis world. As liquidity restrictions impact directly on maturity transformation activities of banks they are relevant to the issue of banks' capacity to create credit. The liquidity coverage ratio requires banks to have sufficient assets, realisable with a high degree of certainty within a short space of time, to deal with a 30-day period of crisis outflows ([Basel Committee on Banking Supervision, 2011, 2013](#), pp. 9-10; [Regulation \(EU\) No 575/2013, 2013](#), Part 6). This of course restricts the amount of credit assets banks can create as such assets are not readily realisable.

The net stable funding ratio (NSFR) will be consequential for banks' maturity transformation, and therefore credit creation, activities. The NSFR will require appropriate consistency between banks' longer term assets and the maturity profile of their funding outflows ([Basel Committee on Banking Supervision, 2011, 2013](#), pp. 9-10; [Regulation \(EU\) No 575/2013, 2013](#), Part 6).

Under the Basel standards, for example, subject to certain exceptions, loans, other than loans to other financial institutions, which have a residual maturity of one year or more, are weighted for stable funding needs at 85 per cent. Such a loan of €100 would require €85 in stable funding. On the funding side, liabilities are also weighted. Retail demand deposits, for example, are weighted at 90-95 per cent for these purposes, whereas corporate demand deposits are weighted at 50 per cent. This means that for a corporate deposit of €100, €50 of that will be considered to represent stable funding. The NSFR will thus have significant implications for the extent to which banks can create longer term credit assets funded by short-term liabilities, something which will make a material contribution to addressing the concerns of Wolf, Turner, *et al.* In December 2016, the European Commission brought forward its proposal to introduce a legally binding NSFR requirement in the EU ([European Commission, 2016](#), pp. 209-228).

In December 2015, the EBA presented its report to the Commission recommending the introduction in Europe of an NSFR based on the Basel Committee specifications (but subject to a number of differences reflecting specificities of the European context). The report found an already existent large degree of compliance with the requirements of the Basel standard in Europe and no evidence of significant negative impact on banks' lending to the economy ([European Banking Authority, 2015](#))[8].

Macroprudential restrictions have been introduced in different countries since the crisis. In a number of jurisdictions, limitations have been introduced on residential mortgage lending with the objective of limiting the risk of spiralling credit growth and enhancing the resilience of both the banking and household sectors. In Ireland, for example, an LTV ratio of 80 per cent was introduced for principal dwellings (90 per cent for first time buyers) together with a LTI maximum ratio of 3.5 times salary ([Central Bank of Ireland, 2015](#))[9]. The UK has introduced a 4.5 times LTV limit for new residential mortgage lending which must be complied with in respect of 85 per cent of new such lending by volume (except for very small mortgage lenders) ([Prudential Regulation Authority, 2014](#))[10]. In Sweden a requirement has been introduced that the LTV of new residential mortgage loans should not exceed 85 per cent ([Finansinspektionen, 2009](#)). In Belgium, 5 percentage points are added to the IRB risk weights for mortgage loans to Belgian residents in respect of property located in Belgium ([National Bank of Belgium, 2014](#))[11].

Alongside all of this, interconnectedness in the financial system – something that was a key aspect in the unfolding of the 2007-2009 financial crisis – has been the subject of considerable post-crisis regulatory attention. Derivatives markets in particular have been transformed with the introduction of central counterparty clearing requirements for standardised derivatives and enhanced margining requirements for those falling outside this category ([Regulation \(EU\) No 648/2012, 2012](#), Title II). And even if the effectiveness of new derivatives reporting requirements continue to be hampered by inter-jurisdictional and

other challenges, still the ground has been laid for ongoing improvement in visibility as to the levels of counterparty exposure within the financial system arising from derivatives ([Regulation \(EU\) No 648/2012, 2012](#), Title II).

In terms of the regulatory reforms that have been introduced, therefore – or, more precisely, that will have been introduced when the leverage ratio and NSFR are given legal effect – it is clear that they are both multifaceted and transformative. The restrictions and requirements on banks' activities have been very significantly enhanced. While one cannot know for certain that they have been got right in all of their aspects, nonetheless, it is difficult to argue that more should be done at this stage to enhance their impact. Adjustments will no doubt be needed, but these seem likely to be more a matter of refinement than dramatic change. Moreover, such refinements seem as likely to be needed in one direction as the other. The appropriate course now is to assess the impact of the changes and their effectiveness over the period ahead and to refine their calibration as appropriate.

One aspect highlighted by the money creation critique that should be considered as part of this phase of assessment is the extent to which the new framework of financial regulation, considered as a whole, is appropriately countercyclical. What emerges clearly from the analysis is that credit creation by banks can play a pivotal role in the development of cyclical financial crises. It is worth considering whether a sufficient level of countercyclicality has been built into the new framework. While the revised framework does contain a countercyclical buffer (up to 2.5 per cent) and other features capable of contributing in this regard, it is nonetheless desirable to consider closely the overall level and nature of countercyclical features in the revised framework.

Conclusion

Those who focus on the money creation activities of banks to call for further regulation have overstated banks' role in this regard. In fact, banks' role is correctly understood as being one of fractional reserve-based intermediation. To the extent that banks do have a role in money/credit creation, it is well understood and regulatorily addressed.

When assessed in its totality, the regulatory reform which has been introduced since the crisis is very significant and is already having a major impact on how the business of banking is done. Taking account of banks' well understood role in the creation of money and credit, there are no grounds currently to increase significantly the levels of regulation.

At the same time, the analysis underlying the money creation critique with its strong articulation of the dynamic nature of the risks arising from bank credit creation provides two important messages. Firstly, it is important that the current suite of reform proposals is carried through to implementation. In particular the NSFR with its important framing of banks' maturity transformation activities needs to be implemented in accordance with the Basel timeline. Secondly, it seems clear that there is merit in assessing as part of the next phase, the extent to which the reformed framework has managed to achieve an appropriate degree of countercyclicality.

Notes

1. Authorities given new or enhanced macroprudential oversight responsibility include the European Systemic Risk Board (EU), the Financial Stability Council (USA), the Financial Policy Committee (UK), the ECB (Eurozone), the Haut Conseil de Stabilité Financière (France) and the Ausschuss für Finanzstabilität (Germany).
2. For a recent exploration of the Chicago Plan and support for its potential benefits, see [Benes and Kumhof \(2012\)](#).

3. Werner, whose comprehensive analysis of the different views of the nature of banks' activities is relied on below, conducts an empirical test to see how the credit creation process is actually realised in the accounts of a particular bank. He demonstrates that the account of the borrower is credited without there being a matching drawing from funding liabilities or from reserves/cash (Werner, 2014: 12-6). Despite Werner's view that this demonstrates the money creation nature of what banks do in practice, in fact, it is evidence only that there may be some timing difference in the making of credit and the raising of funds.
4. In arriving at the 7-10 per cent figure, Turner includes the minimum CET1 requirement of 4.5 per cent, the capital conservation buffer of 2.5 per cent and an additional requirement of 0.5 to 2.5 per cent imposed upon Globally Systemically Important Banks (G-SIBs). He does not include a potential countercyclical capital buffer of 0-2.5 per cent. He also excludes an additional 1 per cent that could potentially be imposed on systemically important banks representing a currently empty disincentive "bucket" of 2.5-3.5 per cent at the top of the G-SIB additional requirements scale.
5. It is important to note that FSB standards, like those of the Basel Committee and other international standard setters, are not legally binding on banks or others. How the FSB's standard on TLAC will be implemented in Europe and elsewhere remains to be determined as part of the normal EU legislative process. Currently, the European Union imposes the Pillar two-type "Minimum Required Eligible Liabilities" (MREL) requirement for bail-inable debt. This leaves it with resolution authorities to determine the amount of such liabilities each bank is required to hold. In December 2016, the European Commission brought forward its proposal for implementing in the EU the FSB TLAC standards (European Commission, 2016: 52-69).
6. Such instruments should consist of senior debt meeting certain defined criteria and excluding certain types of liability that it would, for policy reasons, not be desirable to bail-in in a crisis. Such excluded liabilities include sight deposits, liabilities arising from derivatives, tax liabilities, etc. TLAC requirements must consist of 33 per cent of debt-type instruments.
7. A recent opinion of the European Banking Authority encourages supervisory authorities to consider requiring increased disclosure of banks' total capital requirements including Pillar 2.
8. In some jurisdictions, additional structural reform requirements have been imposed upon banks. In the USA, Title VI of the Dodd-Frank Act (*Wall Street Reform and Consumer Protection Act* 2010, section 619) prohibits banks from carrying on proprietary trading activities. In the UK the *Financial Services (Banking Reform) Act 2013*, Part 1 requires banks to ring-fence their core banking activities from other activities including investment banking. In the EU more generally, a proposal for separating different types of banking activities has been put forward by the European Commission (*Proposal for a Regulation on structural measures improving the resilience of EU credit institutions*, COM(2014) 43 final) but has recently been withdrawn.
9. Exceptions to both these rules are permitted subject to certain overall limits per category of borrower. For buy-to-let mortgages there is a simple loan-to-value ratio requirement of no more than 70 per cent, subject to exceptions for 10 per cent of total such lending.
10. The powers of the UK Financial Policy Committee have subsequently been enhanced in respect of mortgage lending restrictions. The Bank of England Act 1998 (Macro-prudential Measures) Order 2015 gives the Committee powers to direct the PRA or FCA to impose maximum loan-to-value or debt-to-income ratios for a specified proportion of relevant mortgage lending.
11. A full list of macroprudential measures introduced in EEA countries can be found on the website of the European Systemic Risk Board, esrb.europa.eu (accessed 2 May 2016). In adopting such measures, European authorities have been following a long tradition of such measures in the wider global context. Hong Kong (Hong Kong Monetary Authority, 2015), Singapore (Money Authority of Singapore, 2013) and South Korea (Chang, 2010) to take three examples, all have more or less long-standing traditions of imposing macroprudential restrictions on mortgage lending.

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About the author

Gerry Cross is Director of Policy and Risk at the Central Bank of Ireland. Gerry Cross can be contacted at: gerrycross3@gmail.com

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