Market-Based Banking and the Financial Crisis

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Abstract

This article defines ‘market-based banking’ as used in this special edition. It shows how far banking in the developed economies has moved from its conception in the varieties of financial capitalism literature and suggests that changes in banking represent a key influence for change in national systems. The article compares the extent of market-based banking across the ten countries in this volume, and considers the impact of the financial crisis in terms of necessary government support and lending to non-financial companies. It argues that ‘market-based’ banking provides a typology that is more reflective of banking in modern financial systems, and that it provides a more successful explanation of the differential impact of the recent financial crisis.
Introduction

In the immediate aftermath of the worst banking crisis in modern economic history, the question ‘What were the banks doing?’ is appropriate not only as a cry of exasperation, but as an area of academic inquiry. The crisis has revealed a lack of knowledge, hampered often by a lack of information, of at least the implications of bank activities across politicians, regulators, most academics and arguably many bankers. Increased disclosure by the banks and increased attention by others is now revealing the nature of bank activities. It is now clear that banking in developed world economies, to varying but significant degrees, underwent profound changes in the early years of this century. Amongst the casualties of this change is the distinction, central to the varieties of financial capitalism literature, between ‘bank-based’ and ‘capital market-based’ capitalism. Banking, this special edition argues, has, increasingly but to varying degrees across the countries studied, become ‘market-based banking’. The change has had significant implications for the nature of credit provision in advanced capitalist economies, and therefore for how we consider national financial systems.

As the introductory article argues ([ ], this volume), we seek to show that typologies that distinguish between capital market-based and bank-based financial systems are now obsolete, and to highlight the role of financial market actors – particularly banks – in bringing about systemic change. We develop that argument here, based on three problems we perceive with the standard approach, when applied to modern financial markets. First, as we show the approach does not fit the facts in the developed
economies. The immediate pre-financial crisis period must be seen as a time of rapid expansion of financial, and especially credit, markets, as the result of developments we discuss throughout this special edition. Yet, across a number of countries, and notably the supposedly archetypical ‘Anglo-Saxon’, capital market-based financial system, the United Kingdom, there was dramatic growth in bank lending to NFCs, both in absolute terms and relative to bond and equity market financing (see [ ], this volume). The importance of banks was not diminishing, but increasing, highlighted also by dramatic increases in the size of banks relative to the size of their home national economies. The second problem is the lack of explanatory power of the standard analysis in terms of the impact of the crisis, whether in the fact that supposedly disintermediated banks faced massive, bankruptcy-threatening losses, or in the variable impact of the crisis across national systems, in terms of losses, required government support or impact of the crisis on the availability of credit to NFCs – the development of a ‘credit crunch’.

These problems have arisen, as the introductory article argues, from a third which we seek to rectify here: the lack of focus in the varieties of financial capitalism literature on banking and banks. In this article, we seek to justify an increased focus on banks and banking by presenting a model of ‘market-based banking’ and to show its explanatory power in our understanding of the impact of the worst financial crisis in over 80 years. We first discuss our alternative typology of market-based banking and then consider its explanatory power with regard to the impact of the crisis in terms of losses, the required government intervention and of the availability of credit to NFCs.

**Analysing Market-Based Banking**
The distinctive feature of traditional bank-based financial capitalism, epitomised by Germany, is the idea of patient capital. Banks have a close relationship with NFCs, bolstered by the banks holding shares in companies and bankers serving on those companies’ boards. This results in banks being willing to be patient in their lending decisions, by being more long-term in their initial loans, and/or being more willing to deal sympathetically with companies in difficulties. An underlying assumption of this conception of banking is a core, seemingly incontrovertible, idea: banks make their own lending decisions: ‘We will/will not lend your company €1 million for 5 years at an interest rate of 5 per cent because the bank thinks…’. Outside influence on these decisions could come from national or regional government owners, such as in France as described by John Zysman (1983) and pre-1990s Italy or regional governments in Germany and Spain, but not from the market. It is this core idea of bank or bank owner (national or regional government but not private shareholder) decision-making that we seek to challenge in our broader conception of market-based banking. The financial crisis has revealed that increasingly it is the market that determines both banks’ capacity to lend and even the particular decision to lend. To lend to a company, a bank must have sufficient amounts of both capital – to be able to meet regulatory requirements – and liquidity – in simple terms, so as to have the cash to give the borrower. In a traditional bank, the profit/loss from lending decisions made by the bank adds to/detracts from capital, increasing/decreasing the capacity to lend. Customer deposits provide the cash to make loans, and banks maintain a prudential ‘liquidity buffer’ to meet withdrawals of customer deposits. Depositor runs on banks are rare (indeed, until Northern Rock in the UK, seemingly a thing of the past) and provided bankers do not make large numbers of bad lending decisions (never a thing
of the past), banks are stable. The vast majority of bank assets are therefore loans, and
the vast majority of liabilities are customer deposits. As a result, neither assets nor
liabilities are market-based, as movements in financial markets do not have an impact
on the profitability of assets or on the availability of financing.

Such a conception is implicit in a largely ‘black box’ approach to banks within the
varieties of financial capitalism literature. Change can certainly come about at the
level of banks, through privatisation or increased numbers of foreign shareholders
prioritising short-term bank profitability, but changes in NFC financing are the main
indicators of systemic change. Financing through the bond and equity markets
increases at the expense of bank borrowing, and as a result, bank-based systems such
as France and Germany converge with capital market-based systems such as the UK.
The focus, therefore, is on the disintermediation of the banks (e.g., Hackethal 2001,
2004). Yet the reality is that in recent years this disintermediation has not been
occurring.

We argue in this special edition for a new typology of national financial systems that
distinguishes systems not only by the use by NFCs of directly market-based sources
of financing, but also by the extent to which bank lending is itself market-based. We
begin our analysis, therefore, by defining ‘market-based banking’. The term ‘market-
based banking’ is not new, but our use of it here is. Previously, market-based banking
has been applied to the ‘shadow banking system’: those parts of the financial system
that provide credit, but are not commercial banks, such as investment banks, money
market funds and some of the off balance sheet vehicles made infamous by the crisis
(see Adrian and Shin 2010). We broaden the definition to include those parts of
commercial banking that are also dependent on the market. We also go beyond the concept of ‘deal-based banking’ (Deeg 2010), the focus on the changing sources of bank profits (Ertürk and Solari 2007), or the ‘securitized banking’ of the investment banks (Gorton and Metrick 2010) to include the nature of the financing and hedging of the assets on commercial banks’ balance sheets.

Table 1 summarises the contrast between traditional and market-based banking. ‘Traditional’ banking, in this context, is the conception of banks’ business as making loans to their customers, retained unhedged on their balance sheet and financed by customer deposits. Absent the unlikely event of a customer run on deposits, banks face no funding constraints. The lending decision is driven by the individual bank’s view of a company’s creditworthiness and any bank relationship with the borrower. Once the loan has been made, the profitability of the bank’s decision is determined by the borrower’s payment of the interest and repayment of the loan, i.e., by the accuracy of the bank’s initial lending decision. Banks, whether private, mutually or publicly-owned, have the ability to play their coordination role within a coordinated market economy.

[Insert Table 1 here]

Market-based banking, in all its various forms, changes this. Put simply, the lending decision becomes: ‘The financial institution engaged in banking will/will not lend you $5 million for 5 years at an interest rate of 5 per cent because the market thinks…’ The terms of loans that are made with the intention of selling them into the market, directly or via securitization, are determined by the market price. If that market price
suggests an interest rate of 4.9 or 5.1 per cent, rather than 5 per cent, 4.9 or 5.1 per cent is the interest rate the borrower will pay.\(^1\) Similarly, if the lender decides to retain the loan, but hedge (effectively, insure) the risk through a credit default swap, the price of hedging (insuring) the risk will be a key determinant of the terms of the loan. In the case of market-based banking, the lender may not be what we would generally consider a bank: banking activities, including lending, are also carried out by ‘parallel’ banks (see below), outside the support of the central bank. While such parallel banks exist across the countries considered in this special edition, they are only significant in the US (see [], this volume).

Loans retained by a bank, rather than sold, have to be financed through bank borrowing. In traditional banking, this borrowing is by way of customer deposits, which, despite the recent experiences of Northern Rock and Washington Mutual, can be seen as ‘sticky’ (IMF 2008, 74), meaning it is not necessary to question the lender’s ability to borrow the funds needed to complete a loan. In market-based banking, in contrast, the funds need come not from depositors but from the market, i.e., from other banks or investors. The financial markets determine the availability and price of this financing, and thereby determine the ability of lenders to lend and the price at which they do so. As the financial crisis demonstrates, such funds are far from ‘sticky’ (see, for example, Basel Committee of Banking Supervision 2008, 2); they are in fact highly skittish, and if withdrawn, can force a contraction on lending: a credit crunch. As discussed below, however, the role of market prices is procyclical.

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\(^1\) We are, of course, simplifying here, and ignoring the many factors that are likely to determine the financial institution’s required profit margin on the transaction.
There are three possible developments in the move to market-based banking. Non-market based liabilities (i.e., deposits), could finance market-based assets. However, in the countries studied here, deposits exceed (non-market based) customer loans only in Japan. Alternatively, where loans exceed deposits, market-based liabilities finance non-market based assets. Increased lending is financed by wholesale funding in strong markets, but in weak markets banks face the risk of the equivalent of a bank run, but with wholesale lenders who are far more skittish than depositors. As in a classic bank run, banks hold long term illiquid assets which they cannot sell or finance. An important third possibility also exists: market-based assets are financed by market-based liabilities. This resulted in ‘an increased reliance on ‘liquidity through marketability’, based on the assumption that it was safe to hold long-term assets funded by short-term liabilities because the assets could be sold quickly in liquid markets if needed” (Basel Committee on Banking Supervision 2009, 10). The fallacy of this assumption was central to the crisis. In this extreme version of market-based banking, “the galvanising role of market prices reaches into every nook and cranny of the financial system” (Adrian and Shin 2010, 20). Of particular importance to the problem with the varieties of financial capitalism distinction, “[i]n a market-based financial system, banking and capital market developments are inseparable” (Adrian and Shin 2008, 1).

Of course, our distinction between traditional and market-based banking is stylized. Commercial banks frequently carry out both activities simultaneously. In recent years, the activities of financial market actors have converged (see [ ], this volume). Commercial banks have increased their activities in what have been seen as investment banking, in particular securities trading. Investment banks, meanwhile,
have moved from primarily advising on and intermediating transactions to substantially increasing their balance sheets (Crotty 2008), including by making loans. Other financial market actors have also been active in certain areas of NFC lending (Ivashina and Sun 2010). In reality, also, banks have long done more than take deposits and make loans, and in many countries have always been universal banks. In 1983, the year Zysman’s study was published, only 55 per cent of the liabilities of Deutsche Bank, the largest bank in the archetypal bank-based system, were customer deposits. However, central to our argument is the fact that commercial banks have become more market-based (the 2007 figure for Deutsche Bank was 22 per cent), and that banking as an activity has become yet more market-based as non-commercial banks have entered banking in parallel with the commercial banks. This, we argue, represents a central explanation for the financial crisis of 2007-09, as well as a development that must be included in any typology of national financial systems.

We start our analysis of market-based banking by considering the extent to which commercial banks are no longer the traditional banks implicit in the varieties of capitalism literature. Figure 1 shows the extent to which banks’ balance sheets are made up of loans and deposits in the countries studied in this special edition, as of end-2007:

[Insert Figure 1 here]

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Even this very basic analysis demonstrates a number of points. Those countries closest to the top right corner of the graph are closest to the traditional conception of banks and banking systems: The first point is that, obviously, few countries are. In only five cases are customer loans more than 50 per cent of assets. In only four cases do customer deposits exceed 50 per cent of liabilities. Also obviously, there is considerable variation across the countries considered. Japan, Greece, Spain, to a lesser extent Italy, and significantly commercial banks in the United States remain closest to the traditional banking ideal, France, Belgium, Germany and the UK far from it. Second, the chart shows the extent to which customer lending is financed in the wholesale markets. The further a country is horizontally to the right of the line drawn on the graph, the greater this financing (also known as the ‘funding gap’) is, relative to the size of the banking systems. All countries, with the exception of the Netherlands and Japan (where deposits exceed loans), are to the right of the line: lending to customers in these markets depends to varying degrees on the ability to attract wholesale funding. Perhaps most noteworthy in this regard are the countries furthest to the right of the line, and therefore whose customer lending relies most on the wholesale markets: the UK and Spain, the former seen as archetypically capital market-based in the traditional typology, the latter bank-based.

While an indication of the problems with the assumptions regarding banks within the VoC literature, this data do not, on their own, constitute an analysis of market-based banking. To achieve this, each author of the country studies in this special edition was asked to consider, for their country/ies, the extent to which the market determines the availability of both capital and liquidity for commercial banks. We follow here the
distinction of Adrian and Shin (2010) between ‘shadow’ – banking activities undertaken by commercial and savings banks but either wholly or partially off the balance sheets of those banks – and ‘parallel’ banking – banking activities that take place outside the commercial and savings banks, and do not benefit from lender of last resort support from a central bank. In other countries, the focus is on both the asset and liability sides of the commercial banks’ balance sheets, and also on shadow banking, to analyse the following influences of the market on banks’ willingness and capacity to lend:

- An increasing proportion of banks’ assets are valued at market prices (‘marked to market’). Market prices therefore determine the profitability of lending decisions. Increased/decreased market prices increase/decrease profitability, increasing/decreasing the ability to retain earnings to increase capital, and, through the impact of profitability on bank share prices, increasing/decreasing the ability to raise new capital.

- An increasing proportion of bank lending is not retained on bank balance sheets, but, through the ‘originate and distribute’ business model, sold at market prices either through various forms of securitization or via the trading of loans.

- Shadow banking: bank assets are sold to a variety of financing vehicles—Asset-Backed Commercial Paper programmes (‘ABCP’) and Special Investment Vehicles (‘SIV’)—which in turn finance themselves in the markets, but remain dependent on the banks for guarantees. This results in banks being required to hold less capital Acharya, Schnabl and Suarez 2010, 61 for estimates of ‘missing capital’) and so increase lending, but this advantage for the banks is only maintained if market finance is available.
Market stress leads to the assets returning fully to bank balance sheets, resulting in losses and constrained lending capacity.

- The financing of the assets retained on balance sheets (bank liabilities) is increasingly coming from market sources rather than customer deposits. This financing comes from a variety of sources that have a different impact on market constraints on the ability to lend.\(^4\)

The result is that bank lending across developed economies is increasingly market-based. This change in banking practices has been a key source of change within national economies, but has not been uniform across countries. Indeed, it has arguably been faster in those countries traditionally seen as capital market-based, increasing divergence. However, as we will show, a number of countries have changed in ways not recognised by the traditional VoFC distinction between bank- and capital market-based systems.

**Increased ‘Marking to Market’** Financial markets reached their recent nadir in March 2009, before starting to recover. At the nadir, the Bank of England’s estimate of worldwide losses across a broad range of assets, based on then-prevailing market prices, was equivalent to approximately 40 per cent of global GDP (Bank of England 2009, 6). A year later, the recovery in market prices was sufficient to reduce those losses by the equivalent of over 30 per cent of global GDP (Bank of England 2010, 38). Of equal importance, estimates on the losses on US sub-prime mortgage

\(^4\) As Table 1 notes, these assets are also hedged using Credit Default Swaps. Data limitations preclude a comparison of the use of CDS across countries, but issues surrounding this activity are considered in the context of the US and UK ([ ], this volume).
securities, based on prevailing market prices in 2008, were nearly 60 per cent greater than losses implied by a reasonable assumption of actual default-related losses, as a result of ‘uncertainty…and illiquidity’. For UK prime mortgage securities, losses were 85 per cent greater (Bank of England 2008, 16; see also Hellwig 2008).

Accounting matters. Bank assets that are not priced on the balance sheet according to market prices will remain at the price at which any transaction was originally completed, unless there is a clear reason for change (such as credit impairment on a loan). The value of those assets that are marked to market will move with the market, with implications for bank profitability and capital. The issue, however, is not one solely of losses, but of procyclicality, as market prices above credit fundamentals can also increase profitability and lending capacity (Hellwig 2008, 20).

A significant change occurs in the nature of lending decisions as a result. If a loan is to remain on a bank’s balance sheet at its original value (‘historic cost’), unless there is a credit impairment, the profitability of that loan is determined by the bank’s assessment of the creditworthiness of the borrowing company. With a loan that is marked to market, the profitability is determined by a successful assessment of the value the market will put on that asset. The extent to which banks mark their assets to market varies across countries, although the data are incomplete.

[Insert Table 2 here]

The data make clear that the impact of market prices directly on the value of bank assets is low in Italy, Spain and Japan, relative to France, the UK and, allowing for the investment banks, the United States. The Netherlands lies between, and the data on
Germany is too limited to make an assessment (although the one bank for which data is given, Deutsche Bank, is almost certainly an outlier). For those countries where a high proportion of bank assets were valued at market prices, the excessive weakness of market prices caused severe difficulties for banks, and for some this explains why the sub-prime crisis became systemic (Hellwig 2008, 6). The controversial regulatory response was selectively to suspend the mark-to-market accounting rules: effectively it was decided that the market was wrong.

‘Originate and Distribute’. Increasingly in the period analysed here, commercial banks moved to a business model widely described as ‘originate and distribute’. Banks increasingly make loans not with the intention of keeping them on their own balance sheets, but of selling them to other financial market actors. The lending decision is therefore directly linked to the market via the ability to sell and the pricing of any sale. There are two broad ways in which such distribution can take place. The first is through direct sales of the loans themselves, the second is as a result of various forms of securitization. The securitized assets were then in turn sold directly to the market or to shadow banks.

Trading loans is a relatively new activity, but has grown very rapidly in recent years. The trading volume of loans in the United States reached US$520 billion in 2007, a

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5 This is potentially even more problematic when these assets are financed by borrowing collateralised by the assets themselves, as in parallel banking (see [ ], this volume). A ‘market freeze’ can result (Acharya et al. 2010).
fivelfold increase from 2000. In contrast, in Japan there is no secondary loan market,\textsuperscript{6} and the European market is ‘relatively nascent’ (Standard & Poor’s 2010, 17), with volumes in 2007 of US$225 billion equivalent (Axa Investment Managers, undated). The loan is made because it is expected to be sold, and the terms of the loan are determined by that sale. Much of these sales represent genuine distribution of risk outside the banking system: by 2007 institutional (non-bank) investors bought 62 per cent of leveraged loans in the US (Iversonina and Sun 2010); in Europe one estimate for 2006 exceeds 40 per cent (Morgan Stanley 2006, 12).\textsuperscript{7} However, the slow process of distribution meant that when the market collapsed globally banks were caught out with US$300 billion of loans they planned to sell (Bank of England 2007, 36).

Loans are not only sold directly to the market, but are also sold by way of securitization: the repackaging of pools of loans into tradable bonds. Securitization has played a very significant part in the crisis, especially the securitization of sub-prime US residential mortgages, much of it bought by European banks. However, securitization of European assets has also been significant. Securitization, and the ‘originate and distribute’ model of banking, underpin increased bank lending in benign market conditions, but increases the severity of a credit crunch when markets fall.

\textsuperscript{6} Email communication with Loan Syndications and Trading Association, 16 September 2010.

\textsuperscript{7} These figures include sales via securitization (see Benmelech, Dlugosz and Ivashina 2008).
Deutsche Bank makes the connection explicit in their (pre-crisis) 2006 annual report (2007, 110): ‘A sudden drop in investor demand for asset-backed securities could cause us to restrict our lending thereafter for the types of loans we securitize’. The Bank of England notes that securitization rose to about half the customer funding gap – the extent to which loans were not funded by deposits – by 2008 (Bank of England 2009, 16), and the correlation between the growth of individual banks’ mortgage lending and the percentage of mortgages securitized. The extreme example, Northern Rock, had securitized well over half its mortgage book by the end of 2007 (ibid., 17). The decisions by US, European and UK central banks to support the securitization markets are further proof of their importance (see Cheun, von Köppen-Mertes and Weller 2009). The IMF concludes ‘repairing securitization is critical to supporting the supply of credit’. This is particularly the case in the US, but in the first quarter of 2009 securitization accounted for 14 per cent of outstanding credit in the UK (half the US figure) and 6 per cent in the euro area (IMF 2009a, 32).

Even within the euro area, however, there is significant variation in the importance of securitization to lending activity. Table 3 sets out the amount of collateral in securitizations, by country, as a percentage of GDP.

[Insert Table 3 here]

Clearly the United States stands far ahead of all other countries, including the UK in the significance of securitization to lending. The substantial US figure includes the parallel banking market. Equally important for the analysis here, securitization was also an important influence on lending capacity in a number of continental countries,
including two, Spain and Italy, where bank purchases of such assets was very low, but, as Figure 1 above demonstrates, bank lending still largely relied on wholesale funding sources. In some countries where securitization activity was relatively low, however, growth was rapid. German securitization issuance, for example, was in 2006 over five times that in 2004 (IMF 2009b, 13).

It is important to note, given our focus here on corporate financing, that this was not solely the securitization of residential mortgages. While Residential Mortgage Backed Securities represented over 80 per cent of issuance in Belgium and the Netherlands, and 75 per cent in the US, 68 in Spain and 62 in the UK, it was under half in Germany and Italy (as of Q1 2008). The importance of house prices, and therefore mortgage lending, to growth, and therefore corporate performance, in some countries highlights that residential mortgage securitisation is indirectly important. However, of direct importance to this special edition is the fact that outstanding European securitized collateral other than residential mortgages totalled just under €600 billion at Q1 2008 (European Securitisation Forum 2008), with the US at a further €1.5 trillion. Furthermore, although the Deutsche Bank statement above suggests effectively hypothecated securitization – with the securitization of assets prompting further lending in that specific type of asset – for other banks there also appears likely to be a more generalised ‘freeing up’ of the balance sheet to allow greater lending, for example as a result of the reduced capital required to support overall lending.

In theory, loan sales and securitizations involve the outright sale of assets from bank balance sheets, thereby transferring risk and allowing banks to make further loans. Regarding loan sales, this appears to have been largely the case before the crisis.
Elsewhere, however, much of the risk transfer of securitization proved illusory, with banks retaining very significant proportions of their securitization transactions, especially those completed immediately before the crisis (Barnett-Hart 2009), and valuing them at market prices. However, despite the high publicity given to these ‘subprime’ assets, they were a ‘comparatively small part of the story’ (Borio 2008, 9). We turn next to a more significant element, mentioned briefly in Table 1: the genuinely ‘shadow’ banking system.

‘Shadow Banking’. The term ‘shadow banking’ has been used to describe banking activity outside the commercial banking system (e.g., Pozsar, Adrian, Ashcraft and Boesky 2010; Tucker 2010). Zoltan Pozsar et al. (2010, 66) differentiate between ‘internal’ and ‘external’ shadow banking and adopt a very specific definition of parallel banking related to the distinction between regulatory arbitrage and genuine competitive advantage. We accept their distinction, but for greater clarity adopt the terminology of shadow and parallel banking. This distinguishes lending activity by the commercial banks that until the financial crisis was wholly or partially off the banks’ balance sheets (shadow banking) from banking activity that takes place separate from, in parallel with, the activities of the commercial banks. The former is addressed here, and the latter in the article considering the US ([ ], this volume).

Single purpose companies were established to allow banks to sell them assets. These purchases, often of securitizations, are financed by the single purpose companies issuing securities. The most important of these companies, on which we focus, are ABCP programmes or conduits, which borrow short term, usually from money market
funds (for an overview, see Fitch Ratings 2007). Banks sponsor the establishment of ABCP programmes, and provide them with credit support of various kinds. In a strong market, the programmes make profit for their sponsoring bank from the difference between their interest income and cost of borrowing. ABCP therefore, in good market conditions, increase the availability of credit in an economy, and also increase bank profitability. However, the banks’ credit support leaves them committed to lending, secured on ABCP programme assets, if financing in the Commercial Paper market is unavailable. This resulted in the banks owning the underlying assets of the ABCP entities to which they had provided credit support. In poor market conditions, therefore, ABCP causes an ‘involuntary reintermediation’ pressuring banks’ capital and liquidity. Even where, as occurred with German banks LB Sachsen and IKB, the bank is not bankrupted, further lending is constrained. In the UK, for example, banks had to borrow directly 7.7 per cent more as a result of the collapse of the ABCP market (Bank of England 2007, 33) at precisely the time such borrowing was becoming more difficult. This is therefore a further means by which lending in the economy becomes increasingly market-based (and as a result procyclical).

Outstanding ABCP reached US$1.3 trillion in July 2007, larger than outstanding US government Treasury bills, and a doubling since January 2004 (Acharya et al. 2010, 1). However, the French bank BNP Paribas’ decision to halt withdrawals from three funds on August 9, 2007 triggered what was effectively ‘a bank run’ more than a year before the collapse of Lehman Brothers, with outstanding ABCP falling to US$833 billion by December (ibid.). Banks that had provided credit support found the shadow bit them. Only 2.5 per cent of outstanding ABCP actually defaulted by December

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8 Another type of shadow bank, Structured Investment Vehicles, reached a total size of US$350 billion. Many of the comments here on ABCP apply also to SIVs, although the latter’s borrowing was generally more medium term.
2008, while commercial banks faced losses estimated at US$68-204 billion on assets they had involuntarily reintermediated (ibid., 4).

The bank sponsoring an ABCP vehicle may well also provide the credit (or liquidity) support to that vehicle, but another bank may do so. Table 4 shows the exposure of bank providers of liquidity support for ABCP providers by country. This shows the exposure of a country’s banks to being forced to accept assets fully onto their balance sheets, with capital and liquidity implications, as a result of ABCP funding being unavailable.

[Insert Table 4 here]

Viral Acharya and Philipp Schnabl (2010) also show very low or zero figures for bank sponsorship of ABCP vehicles in Greece and Japan, a good proxy for liquidity support (see also Arteta, Carey, Correa and Kotter 2009). Table 4 shows, once again, the variation in bank involvement in market-based banking. Measured relative to GDP, the Netherlands has by far the biggest exposure (although the impact on the country was mitigated by the highly fortuitous sale of ABN Amro to the Royal Bank of Scotland), followed by Belgium and Germany. The low figure for the US is particularly noteworthy.⁹

⁹ Amounts sponsored relative to bank equity give a similar picture (Acharya and Schnabl 2010: 25). Figures on the amount of capital ‘saved’ as a result of the capital treatment of ABCP (Acharya et al. 2010: 62) and of liquidity support to ABCP entities relative to individual banks wholesale funding (Fitch Ratings 2007: 7-8), also show the high risks run by certain banks, especially in Germany.
**Market-Based Liabilities.** We move now to consider the market-based liabilities of banks, by which we mean the extent to which the capacity to lend is constrained by the availability of funding from the market. As Figure 1 illustrates, the liability side of the balance sheet has moved far from the traditional conception of bank lending funded by customer deposits. Such deposits vary from 69.0 (Japan) to a mere 19.5 per cent (France) of liabilities across the banking systems studied. The balance has been provided by various market sources (‘wholesale’ funding). Although the ratio of customer deposits to total liabilities does represent one measure of market-based banking,\(^{10}\) it is incomplete. Figure 2 presents a more complete picture of bank liabilities by country:

[Insert Figure 2 here]

Even with some caveats, Figure 2 demonstrates the varied dependence of banks on market financing rather than depositors: market-based liabilities. Liabilities are particularly market-based in the UK, and markedly less so in Japan, Greece and Spain. Perhaps most noteworthy, commercial banks in the US are second only to Japan in the reliance on more stable deposits (see Raddatz 2010 for a similar approach). In the US, market-based liabilities are primarily in the parallel bank (see [ ], this volume).

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\(^{10}\) Although there is variation across countries even in the market-based nature of customer deposits. In the crisis, UK corporate deposits were withdrawn very quickly, while in France and Germany they proved stable.
It is, however, necessary to go beyond this analysis to create a more complete picture of banks’ exposure to the market to finance their activities. Some sources of market financing are less stable than others. Table 5 demonstrates the different times that certain wholesale funding markets faced stress.

[Insert Table 5 here]

The extent to which banks rely on wholesale funding increases the market-based nature of lending, as the lower difficulties in borrowing via deposits shows. Banks with greater access to deposits cut lending less over the crisis period (Ivashina and Scharfstein 2009). However, as Table 5 also shows, different wholesale markets experienced problems at different stages, and therefore the degree and timing of liquidity issues for banks and banking systems depended on the use of specific wholesale markets. Heavy exposure to ABCP explains the difficulties of German banks early in the crisis, for example. The impact of problems in these markets on lending capacity was also influenced by the maturity profile of the financing in question: short term financing resulted quickly in problems, whereas banks reliant on longer-term sources of funding, such as bonds and covered bonds, did not face such immediate refinancing pressures.

There is no single way to measure the variation in the exposure to the market, but they can be divided broadly into financing from other banks (with borrowing from international banks particularly vulnerable to withdrawal in the event of market weakness), and financing through the bond and money markets (with the maturity of financing, and the fragility of certain bond markets both concerns). It is generally the
case that increased exposure to wholesale funding goes hand-in-hand with financing from less stable sources.

The authors in this special edition note a number of distinguishing issues regarding the composition of market-based liabilities that shaped their countries’ experience of crisis. The UK is our clearest example of market-based commercial banks: the experience of Northern Rock indicates the risks of a heavy reliance on securitization to finance lending ([ ], this volume). However, the UK is most noteworthy for the banking system’s the high reliance on short-term markets such as the inter-bank (especially international) and commercial paper (via shadow banking activity and directly) markets.\footnote{At the end of 2006, a median of 44 per cent of major UK banks’ wholesale funding matured within three months (Bank of England 2007: 34).} Both these markets, along with the repo markets, were exceptionally short-term immediately preceding the crisis. In July 2008, over 60 per cent of all commercial paper investment was 1-4 days in maturity; this peaked at over 80 per cent during the crisis (Bank of England 2008, 23). European banks borrowed US$1 trillion in this market by mid-2007 (Baba, McCauley and Ramaswamy 2009), with UK (and German) banks particularly active via their shadow banking activities. British banks were also heavily exposed to inter-bank borrowing, especially internationally, and much of this borrowing was overnight, and fell by US$812 billion in the second quarter of 2008 alone (Baba, Gadanecz and McGuire 2008, 25). The overall result was that the UK commercial banks demonstrated many of the vulnerabilities of the central actors in US parallel banking, the investment banks, though in the latter case it was the very short-term repo market that was the focus ([ ], this volume).
Although some of these vulnerabilities were shared by continental European banks (especially the heavy German exposure to shadow banking), overall the market-based liabilities of the European banks most exposed to wholesale markets were in markets that were either a source of more long-term funding, lessening immediate pressure, such as bonds in the case of France ([ ], this volume) or covered bonds\textsuperscript{12} in Germany. Spanish banks (similarly to the UK financing a property boom) were heavily involved in securitization on the liability side of their balance sheet, if not, thanks to regulatory constraint, in shadow banking ([ ], this volume). Spanish banks also borrowed in the international inter-bank market to finance domestic lending, in contrast to other countries’ banks, where such borrowing (or domestic borrowing) financed international activity (McGuire and von Peter 2009, 10).

\textbf{An Overall Assessment of ‘Market-Based Banking’}

Each of the authors in this special edition was asked to provide their assessment of the extent of market-based banking in the countries they studied. Working with the variables discussed above, but in each case able to consider them in far greater depth, their conclusions are summarised in Table 6.

\begin{center}
[Insert Table 6 here]
\end{center}

\textsuperscript{12}Covered bonds are a generally older, more established form of securitized borrowing, especially the \textit{Pfandbriefe} market in Germany, that provide more credit protection to investors (see IMF 2009: 90). The market proved somewhat more resilient during the crisis.
This analysis then allows us to reach a conclusion as to the extent of market-based banking in each country, best displayed along a continuum:

[Insert Figure 3 here]

The figure represents the extent to which bank lending in the national economies is dependent on the market. As such, this already suggests a radical reshaping of the bank-based/market-based dichotomy of the varieties of financial capitalism literature, most obviously, given its extensive coverage in the literature, in the Germany case. The countries can effectively be distinguished by the degree to which banking in each country has moved away from the view of banks in the varieties of capitalism account (still seen in the countries on the left side of the figure) towards lending that depends on the market.

**The Impact of the Financial Crisis**

We seek to move beyond a new model to show the explanatory utility of market-based banking in terms of the impact of the crisis, both its degree and timing. The fact that US sub-prime lending was the initial source of credit concerns does not explain the severity of the crisis for US financial institutions, or the early problems in various parts of the parallel banking system, most noteworthy of which was the US investment bank Bear Stearns. Outside the US, the canaries in the national systems coal mines were then the most market-based banks, particularly in the UK and Germany. The most market-based systems then faced further problems in the wake of
the Lehman Brothers collapse, with those systems that were less market-based at this stage proving relatively immune, at least until more ‘traditional’ problems with lending and government debt emerged ([ ]; [ ]; [ ], all this volume).

**Government Intervention.** While finding comparable data is challenging given different measurements by national bodies, we have enough data to demonstrate that public interventions to support banks – notably in terms of actual capital injections and loans – varied significantly across the different countries (see Figures 3 and 4).

[Insert Figure 4 here]

[Insert Figure 5 here]

Of the financial systems that were worst hit by the financial crisis and therefore required the greatest government support, two were ‘market-based’ (the US and the UK) and two were ‘bank-based’ by the traditional measure. Indeed, the size of the banking sector to GDP might be a more accurate indicator (the UK, Germany, the Netherlands and Belgium suffered significantly). However, France’s large banking sector was less badly affected, while a small commercial banking sector did not protect the US. The explanation for the size of the impact and the timing of that impact lies in the extent of market-based banking in the national systems.

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13 The use of late 2009 figures for total government aid packages (as opposed to late 2008 figures) is more revealing because some of the initial credit guarantees and other elements of national rescue packages which were not drawn upon by banks were withdrawn prior to the end of 2009.
Tightened lending conditions 2008-09. As discussed in Hardie et al. (this volume), engaging with VoFC means we are interested in lending to NFCs. Therefore a central concern is the impact of the crisis on lending to NFCs, and particularly any variation across national systems. We are interested in the extent and timing of, and the reasons for, any tightening of credit conditions. We expect tightening to be greater and earlier in the more market-based systems, and to be, to a greater extent, the result of funding problems. We can explore these issues in a limited way through central bank surveys of bank loan officers. The overall question of tightening is problematic for our purposes, both because of the fact that these are changes in lending conditions, rather than an absolute measure, and because of the importance of overall economic conditions to bank lending conditions. The interaction between lending and the overall economy is a further complication.

While accepting these caveats, we present in Figure 6 the survey data on tightening as a result of the ‘cost and availability of funding’ and due to ‘expectations about economic activities’ from Q3 2007 until the end of 2008. The greater impact of funding problems, both absolutely and relative to overall economic conditions, in the countries with more market-based banking, is clear.14

[Insert Figure 6]

Figure 7 takes this analysis slightly further, to consider the timing and extent of the tightening due to funding concerns. As we would expect – although acknowledging

14 Central banks in Belgium, the Netherlands and Greece do not provide this breakdown, in the first two because of confidentiality concerns in such concentrated banking systems.
the limitations – the more market-based economies tightened earlier and more as a result of wholesale market problems.

[Insert Figure 7 here]

**Conclusion**

The most important source of change in most national financial systems studied in this special edition has not been in the use of bond and equity financing by NFCs; it has been rather in changes in the nature of banks and banking. The one clear exception is Japan, while Spain is a partial exception given the strong rise in equity issued by NFCs in conjunction with the strong rise in bank lending (see [ ], this volume, Table 1). The rise of market-based banking, we argue, has rendered the bank-based/capital market-based dichotomy of the varieties of capitalism obsolete. We cannot understand change in national financial systems, or the onset and impact of the financial crisis, without understanding the actions of banks as agents of change. We have set out in this article the ways in which changes in the activities of banks have resulted, to varying degrees, in increasingly market-based lending, even in national systems where bank lending remains the dominant, and in some increasingly dominant, source of NFC external financing.

One important consequence of the approach taken here to market-based banking is to highlight the fact that the changes in the years immediately preceding the financial crisis have not been reversed. The SIV market has not survived, ABCP has contracted, and investment banks have disappeared or become commercial banks.
Various aspects of the securitization markets seem unlikely to reappear. Overall, this represents a significant reduction in both shadow and parallel banking. However, the market-based nature of commercial banking across most countries remains high. Indeed, much of the government and especially central bank intervention in the crisis – for example extending government support to such entities as money market mutual funds or central banks buying securitizations – has been in support of such market-based banking. Current regulations seek to limit the potential negative consequences of this exposure to the market, but appear unlikely to change the fact that bank lending, in nearly all the countries that are studied here, remains dependent on financial markets. We argue in this special edition that it is necessary, because of these changes, to replace the bank-based/market-based dichotomy with an analysis of market-based banking.

Bibliography


Table 1. Traditional versus Market-Based Banking

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Loans</th>
<th>Funding/Liabilities Of Loans Retained</th>
<th>Credit Risk of Loans Retained</th>
<th>Accounting Of Loans Retained</th>
<th>Official Support Pre-Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional Banking</strong></td>
<td>Commercial Banks/ Savings Banks(^{15})</td>
<td>Retained on Balance Sheet</td>
<td>Customer Deposits</td>
<td>Not hedged</td>
<td>At Cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Central Bank Lender of Last Resort</td>
</tr>
<tr>
<td><strong>Market-Based Banking</strong></td>
<td>Commercial Banks</td>
<td>Sold, in loan market, via securitization or to shadow banks (ABCP etc.). ‘Originate to Distribute’</td>
<td>Wholesale Market (inter-bank, bonds etc.)</td>
<td>Hedged via CDS</td>
<td>Mark to Market</td>
</tr>
<tr>
<td></td>
<td>Parallel Banks (including investment banks)</td>
<td>Sold, in loan market, via securitization or to shadow banks (ABCP etc.). ‘Originate to Distribute’</td>
<td>Wholesale Market (repos, bonds etc.)</td>
<td>Hedged via CDS</td>
<td>Mark to Market</td>
</tr>
</tbody>
</table>

\(^{15}\) These institutions have different names in different countries, i.e., savings and loans, building societies, savings banks, mutual banks.
Table 2: Mark-to-Market Accounting by country, 2007

<table>
<thead>
<tr>
<th>Country</th>
<th>% of Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>46.5</td>
</tr>
<tr>
<td>-BNP Paribas</td>
<td>65</td>
</tr>
<tr>
<td>-Credit Agricole</td>
<td>44</td>
</tr>
<tr>
<td>-Societe Generale</td>
<td>46</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td></td>
</tr>
<tr>
<td>-Deutsche</td>
<td>75</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>19</td>
</tr>
<tr>
<td><strong>Japan</strong></td>
<td>27</td>
</tr>
<tr>
<td><strong>Netherlands</strong></td>
<td>28.4</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>17.2</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td></td>
</tr>
<tr>
<td>-Barclays</td>
<td>52</td>
</tr>
<tr>
<td>-HSBC</td>
<td>40</td>
</tr>
<tr>
<td>-Royal Bank of Scotland</td>
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</tr>
<tr>
<td><strong>US</strong></td>
<td>26.9</td>
</tr>
<tr>
<td>-Bank of America</td>
<td>27</td>
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<tr>
<td>-Citigroup</td>
<td>39</td>
</tr>
<tr>
<td>-Goldman Sachs</td>
<td>86</td>
</tr>
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<td>-JP Morgan Chase</td>
<td>41</td>
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<td>-Lehman</td>
<td>42</td>
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<tr>
<td>-Merrill Lynch</td>
<td>44</td>
</tr>
<tr>
<td>-Morgan Stanley</td>
<td>44</td>
</tr>
</tbody>
</table>


Table 3 Securitization Collateral by Country (end 2007)

<table>
<thead>
<tr>
<th>Country</th>
<th>Medium Term Securitization Collateral (% of GDP)</th>
<th>ABCP Collateral (% of GDP)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>2.3</td>
<td>1.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Germany</td>
<td>1.6</td>
<td>1.2</td>
<td>2.8</td>
</tr>
<tr>
<td>France</td>
<td>2.9</td>
<td>0.8</td>
<td>3.7</td>
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<tr>
<td>Greece</td>
<td>4.4</td>
<td>0</td>
<td>4.4</td>
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<td>Italy</td>
<td>7.8</td>
<td>0.8</td>
<td>8.6</td>
</tr>
<tr>
<td>Netherlands</td>
<td>24.1</td>
<td>6.8</td>
<td>30.9</td>
</tr>
<tr>
<td>Spain</td>
<td>16.9</td>
<td>0.4</td>
<td>17.3</td>
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<tr>
<td>UK</td>
<td>24.8</td>
<td>4.0</td>
<td>28.8</td>
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<tr>
<td>US</td>
<td>70.1</td>
<td>1.2</td>
<td>71.3</td>
</tr>
<tr>
<td>Japan</td>
<td>1.3</td>
<td>0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source: Authors’ Calculations from European Securitisation Forum, Japan Securities Dealers Association.
Percentage of outstanding ABCP as of 28.2.08 versus total ABCP outstanding and GDP as of end 2007. Figures based on ABCP outstanding of €392 billion versus peak

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16 Commercial banks only
of €528.9 billion (Q2 2007). Figures also understated because do not include assets categorised as ‘global’ or ‘Europe’ (19 per cent of total).

**Table 4. Liquidity Support to ABCP vehicles by Country**

<table>
<thead>
<tr>
<th>Country</th>
<th>Amount (US$bn)</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>52.33</td>
<td>11.52</td>
</tr>
<tr>
<td>France</td>
<td>90.66</td>
<td>3.5</td>
</tr>
<tr>
<td>Germany</td>
<td>310.84</td>
<td>9.36</td>
</tr>
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<td>Netherlands</td>
<td>173.87</td>
<td>22.37</td>
</tr>
<tr>
<td>Spain</td>
<td>7.08</td>
<td>0.49</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>214.25</td>
<td>7.75</td>
</tr>
<tr>
<td>United States</td>
<td>356.83</td>
<td>2.58</td>
</tr>
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</table>

Source: Fitch Ratings (2007: 7-8)

**Table 5: Funding Sources During the Crisis**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
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</tr>
<tr>
<td>Interbank</td>
<td>○</td>
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<td>●</td>
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<td>Repurchase</td>
<td>○</td>
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<td>●</td>
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</tr>
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<td>ABCP</td>
<td>○</td>
<td>●</td>
<td>●</td>
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<tr>
<td>CP</td>
<td>○</td>
<td>○</td>
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<td>●</td>
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<tr>
<td>Deposits</td>
<td>○</td>
<td>○</td>
<td>○/◧</td>
<td>○</td>
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<td>Long-Term Financing</td>
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<td>○</td>
<td>□</td>
<td>●</td>
<td>●/◧</td>
</tr>
<tr>
<td>Covered Bonds</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Securitization</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Key: ○ Financing Available
     □ Signs of Difficulties in Financing
     ● Impaired

Adapted from ECB 2009: 11
Table 6 Market-based banking in ten countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Market-Based Assets</th>
<th>Market-Based Liabilities</th>
<th>Shadow Banking</th>
<th>Parallel Banking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>High</td>
<td>Moderate</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>France</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Germany</td>
<td>High</td>
<td>Moderate</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Greece</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Italy</td>
<td>Low</td>
<td>Moderate to Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Japan</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
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<td>Netherlands</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
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<tr>
<td>Spain</td>
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<td>Moderate</td>
<td>Low</td>
<td>Low</td>
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<td>United Kingdom</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>United States</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

Figures

Figure 1: Loans to Assets and Deposits to Liabilities, Selected Countries, end 2007.

Sources: ECB,\textsuperscript{17} Cabinet Office 2008, Federal Reserve,\textsuperscript{18} IMF 2010: 16.

Figure 2: Breakdown of Bank Liabilities, Selected Countries, end 2007.

Euro area data includes only all liabilities outside the euro area as ‘wholesale’. For non-euro area countries, all cross-border borrowing is wholesale. This potentially understates euro area wholesale funding.

**Figure 3: A continuum of market-based banking**

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan Greece</td>
<td>Italy Spain France Netherlands Germany Belgium UK US</td>
</tr>
</tbody>
</table>

**Figure 4 Public funds to banks (by end 2009 as a % of 2009 GDP)**


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19 Authors’ calculations from:
Figure 5 Public sector interventions* in selected countries during the financial crisis end October 2009 (as a percentage of 2007 GDP)

*Includes capital injections, purchase of assets and lending by Treasury and credit guarantees.
Sources: From Miles (2009). Bank of England, HM Treasury, US Federal Reserve, US Treasury, FDIC, IMF World Economic Outlook (October 2009), BIS, ECB and Bank calculations; Bank of Japan, Banco de Espana, Financial Stability Report, 03/2010. (a) End of month data expressed as percentages of 2007 nominal GDP (b) Scale of interventions recorded as potential size of packages when announced, rather than as drawn. Total interventions include insurance, investments, and lending by central banks and governments to financial institutions under measures introduced after the crisis began. Investments are composed of capital injections to banks and SPVs, guarantees of first loss tranches and direct holdings of assets. Unlimited guarantees have not been included. (c) The US Guarantee Program for Money Market Funds expired on 18 September 2009 and the size of the UK Asset Protection Scheme was reduced on 3 November 2009. The estimates for the UK do not include purchases under the Asset Purchase Facility.

Figure 6 Tightening of banking lending due to ‘cost and availability of funding’ and ‘expectations about economic activities’
(net weighted percentage of responses; +tightening, -easing; total over six quarters – Q3 2007 to end Q4 2008; all firms)*
Source: Bank lending surveys. No Japanese data is provided on tightening of banking lending due to ‘cost and availability of funding’. Large companies only. France: ‘capacité de la banque à accéder aux financements de marché’; UK ‘changing cost / availability of funds’; Italy / Spain: ‘banks’ ability to access market financing (e.g. money or bond market financing)’; US: ‘Decreased liquidity in the secondary market for these loans’.

Figure 7 Tightening of banking lending due to ‘cost and availability of funding’.

Sources: National Central Banks: Bank lending surveys. France: ‘capacité de la banque à accéder aux financements de marché’; UK ‘changing cost / availability of funds’; Italy / Spain: ‘banks’ ability to access market financing (e.g. money or bond market financing)’; US ‘Decreased liquidity in the secondary market for these loans’.