The Crisis of 2007-09: Nature, Causes, and Reactions

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The Recent Financial Crisis: Why did it Happen and What Lessons Can it Teach? [*1]

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I. Introduction

Financial crises are of two types: liquidity crises and capital crises. One type rapidly merges with the other, so that beyond the initial stage of a crisis there are both liquidity and capital problems, but it is useful to start with a sharp distinction. That will enable us better to examine the numerous explanations given for the crisis of 2007 – 2009.[2]

A liquidity crisis is what might be described as the classic type of banking crisis. A bank for some reason cannot meet all its payment obligations. Given the imperfect knowledge that customers have of their banks, and the links through the interbank market and

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[*] We are greatly indebted to Charles Goodhart for his, as ever, helpful and insightful comments. We are also grateful to Philip Wood and David Westbrook for comments.

[1] Forthcoming in the *Journal of International Economic Law*, Special Issue 'The Quest for International Law in Financial Regulation', Vol. 13, Issue 3, September 2010.

[2] This does not mean that the crisis ended in 2009, but it means that financial sector difficulties ceased to be acute. However, at the time of writing this paper, the crisis has mutated into a sovereign debt crisis in some countries.

the payment system, other banks experience runs; they too get into difficulties because by the nature of fractional reserve banking they can not immediately pay out on all deposits, and in the extreme the entire banking system collapses like a row of dominoes.[3]

The second is when there is a sharp decline in the value of a bank's capital. This could come about for example if one large loan suddenly collapsed in value. As bank balance sheets are opaque to customers (and apparently often to management too if recent experience is anything to go by) this leads to fears about the solvency of other banks, runs take place on them, and again in the extreme the whole system fails.[4]

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[3] Gary Gorton believes that it was the [wholesale] run on the repo market during 2008, a bank run not so much on depository institution, but on the shadow banking system, that caused the crisis. In 'Securitized Banking and the Run on the Repo', NBER Working Paper No. w15223, August 2009, available at <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1454939>, Gary Gorton and Andrew Metrick argue that the panic of 2007-2008 was a run on the sale and repurchase market (the repo market), which is a very large short-term market that provides financing for a wide range of securitization activities and financial institutions. Repo transactions are collateralized, frequently with securitized bonds. They refer to the combination of securitization plus repo finance as securitized banking, and argue that these activities were at the nexus of the crisis. Concerns about the liquidity of markets for the bonds used as collateral led to increases in repo haircuts – the amount of collateral required for any given transaction. With declining asset values and increasing haircuts, the U.S. banking system was, they suggest, effectively insolvent. Though Gorton singles out the repo market, other markets, such as the commercial paper market, also suffered a 'run'.

[4] These runs may well, in modern circumstances, be what are called "silent runs". We set out this concept later, and also propose at that point that a better name might be "private runs".

Before proceeding any further, however, it is essential to lay out explicitly what we mean by a financial crisis. Certainly until the 20th century, only problems in the banking system narrowly defined were regarded as crises. Even the failure of merchant banks (the traditional term in the UK for what are now called investment banks) was not regarded as a crisis unless the event led to a run on the banks whose liabilities were part of the money stock. This view was restated in the 20th century by Anna Schwartz.[5] She distinguished between 'real' and 'pseudo' crises. A 'real' crisis she defined as follows. 'Such a crisis is fuelled by fear that means of payment will be unavailable at any price, and in a fractional reserve banking system leads to a scramble for high powered money.'[6] Pseudo crises, meanwhile, involve '…a decline in asset prices, of equity stock, real estate, commodities; depreciation of the exchange value of the national currency; financial distress of a large non-financial firm, a large municipality, a financial industry, or sovereign debtors.'[7]

This might at first glance seem to suggest that if we accept Schwartz's definition of a crisis the failure of investment banks or insurers (such as AIG) is of no importance.[8] But it does not suggest that. Such failures matter if they trigger alarm for or threats to the stability of the core banking system. They therefore fall within the scope of the present discussion.

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[5] Anna J Schwartz, 'Real and Pseudo-Financial Crises', in Forrest Capie and Geoffrey Wood (eds), *Financial Crises and World Banking Policy* (New York: St. Martin's Press, 1986).

[6] Ibid, at 11.

[7] Ibid, at 24.

[8] The whole range of definitions of financial stability so far extant is reviewed in William A Allen and Geoffrey Wood, 'Defining and achieving financial stability', (2006) 2(2) *Journal of Financial Stability* 152-172. They conclude by essentially concurring with the Schwartz definition.

II. A liquidity crisis

It is a liquidity crisis that is modelled in the famous Diamond and Dybvig paper.[9] It could not be otherwise, for their model of a bank is of a bank without capital (and, incidentally, in a world without money). Despite the somewhat special nature of that model, it does describe one of the most famous banking crises in history – that which occurred in England on the outbreak of the wars with France in 1793. That crisis has become famous in part at least because, thank to Francis Baring, it led to the emergence of the term 'lender of last resort' or *dernier resort*.[10]

The concept was developed by Henry Thornton (1802)[11] and further explained by Walter Bagehot, notably in *Lombard Street* (1873)[12] but also in his journalism in *The Economist* and elsewhere. How a Lender of Last resort operation by the central bank can stop

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[9] See Douglas W Diamond and Philip H Dybvig, 'Bank Runs, Deposit Insurance and Liquidity' (1983) 91(3) *Journal of Political Economy* 401-19.

[10] See pp. 19-23 of the 1967 Augustus Kelly facsimile reprint of the 1797 edition of Francis Baring's *Observations on the Establishment of the Bank of England and on the Paper circulation of the country* (New York: A.M. Kelly, 1967). Baring both imported the term *dernier resort* and used it in a new, metaphorical, way: in France it referred to the final court of appeal. It is truly remarkable how accurately Baring's description of the 1793 crisis also describes that of 1929 -1923 in the United States. That latter episode is discussed further below.

[11] Henry Thornton, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain* (London: J. Hatchard and F. and C. Rivington, 1802), at 64-65.

[12] Walter Bagehot, *Lombard Street, a Description of the Money Market* (London: Henry S. King & Co., 1873).

a liquidity crisis, and, indeed, what a liquidity crisis is, is best clarified by two quotations, one from Thornton and one from Bagehot.

'If any bank fails, a general run upon the neighbouring banks is apt to take place, which if not checked in the beginning by a pouring into the circulation of a very large quantity of gold, leads to very extensive mischief'.[13]

Bagehot in 1873 explained why this policy worked:

'What is wanted and what is necessary to stop a panic is to diffuse the impression that though money may be dear, money is still to be had. If people could really be convinced that they would have money…. they would cease to run in such a herd-like way for money.'[14]

A liquidity crisis, then, originates in a sudden demand for cash, for central bank money in the modern term. Fractional reserve banks by their nature cannot meet this demand. So unless the central bank meets it many, perhaps all, banks in a system may fail.

III. A Capital Crisis

The archetypal capital crisis also occurred in England, but this time in the 19th century. This episode as it turned out was confined to one bank, and thus was not a banking system crisis,

[13] Above note 10, at 182.

[14] Above note 11.

but it could easily have spread to the entire system and indeed perhaps beyond. This was the 'Baring Crisis' of 1890.

Barings was a bank of high reputation. Driven by competition from newer banks, it had invested substantially in Argentina. Then in April 1890 the Argentinean government defaulted. Next, and partly in consequence, the Argentinean national bank suspended interest payments on its debts. This precipitated a run on the Argentinean banking system. By November its directors realised that Barings could not survive unaided, and on 8th November they revealed this to the Bank of England. The Bank was horrified, fearing a run on the British banking system, and perhaps on sterling, if Barings defaulted. After a hurried inspection of the books of Barings, it was decided that the situation could be saved by an injection of capital. A consortium was organised – the Bank was too small to have sufficient funds on its own - and Barings was saved.

That is a perfect example of a capital crisis. A firm is short of capital and cannot pay its debts. If this brings down other banks, or if depositors in the original bank lose their deposits, a system – wide liquidity crisis may start. But the injection of capital can stop the crisis short. Note that central bank provision of liquidity would not suffice, for, to continue with the example of Barings, Barings did not have the assets to offer in exchange for the capital.

With the distinction between the two types of crisis clearly in mind, we can now proceed to an examination of the 2007 – 2009 Crisis.

IV. 2007 – 2009: Liquidity or Capital?

A comparison between the 2007 -2009 Crisis, the first major banking crisis of the 21st century, and the crisis of 1929 -1933, the first major banking crisis of the 20th century, helps answer the question.

What was the main cause of 1929 – 1933? The US economy started to decline after the 1929 Stock Market Crash. The decline continued until 1933, by which time money income in the United States had fallen by 53% and real income by 36%. There had been wave after wave of bank failures. These did not end until the closure of all banks by President Roosevelt and the suspension of gold shipments abroad on March 6th, 1933. Why did these waves of bank failures occur?

There are two primary explanations: banking practices of previous years, with banks getting into securities dealings, and, in competition with that, the behaviour of the Federal Reserve. The first explanation has been examined by Peach (1941),[15] Benston[16] (1990) and Kroszner and Rajan (1994),[17] among many others. All found that securities dealing did not bring the banks down.. The cause was substantial pressure on bank liquidity, unrelieved by

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[15] William N Peach, *The Security Affiliates of National Banks* (Baltimore: The Johns Hopkins Press, 1941).

[16] George J Benston, *The Separation of Commercial and Investment Banking: the Glass-Steagall Act Revisited and Reconsidered* (New York: Oxford University Press, 1990).

[17] Randall S Kroszner and Raghuram G Rajan 'Is the Glass-Steagall Act Justified? A Study of the U.S. Experience with Universal Banking Before 1933' (1994) 84(4) *The American Economic Review* 810-32

Federal Reserve action. Banks were forced to sell their holdings of government bonds at a deep discount, thus adding shortage of capital to shortage of liquidity.

That was manifestly a liquidity crisis in its origin.[18] How did it spread? As the monetary approach to the balance of payments suggests, the monetary squeeze in the US affected those countries pegged to the US dollar (through gold, at this time) but left countries without such a link substantially unaffected. Countries such as Sweden and the UK, which broke early from the gold standard, escaped the US problems, while these which stayed on gold, such as France, experienced banking strains and severe recessions.[19]

How did the recent crisis spread? The contrast with 1929 -1933 could not be sharper. The recent crisis spread between countries whose exchange rates were floating – the USA and the UK, for example. And it did not spread across all of areas which used a single currency, the extreme case of fixed exchange rates – for the banking systems of some countries in the Eurozone were either unaffected or affected only trivially – for example Finland.

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[18] This is certainly not to deny that the banks also had other problems. Many banks were heavily involved in call loans to the New York Stock exchange, and when that broke many of these loans would have gone bad. Thus they would certainly have experienced considerable losses on their earning assets.

[19] A brief overview of the years can be found in the introductory essay to Forrest Capie and Geoffrey Wood (eds), *Critical Writings on the Great Depression*, forthcoming (2011).

We can therefore conclude that *the first crisis of the 21st century was a capital crisis, not a liquidity crisis*.[20]

There have been numerous explanations given for this recent crisis. We consider all these in turn, and discuss in conclusion one of the consequences of the crisis, the increase in moral hazard and the reduction in competition that the policy response to the crisis has produced.

Our starting point is a comparison of the recent crisis with some notable earlier ones. Time has allowed perspective and some conclusions about the origins of many previous crises, and comparison with them can therefore help in understanding the most recent crisis.

First we examine the seasonal and cyclical pattern of these early crises.

V. Chronology

It is widely accepted that in the 19th and early 20th centuries there was a seasonal pattern to banking crises.[21]

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[20] Happily, in the 21st century world trade rules ensured there was no outbreak of protectionism to make the situation worse. The role of protection in spreading the 1929-1933 recession has been discussed many times – an outstanding and brief overview can be found in Forrest Capie, *Protection and Depression* (London: Macmillan, 1993). How it impeded recovery in the USA is set out clearly in Allan Meltzer, 'The Smoot Hawley Tariff and Economic Recovery' in Karl Brunner (ed), *The Great Depression Revisited* (London: Nijhoff, 1981, 1982). The paper by Michael Gadbaw in this Special issue considers in detail the role of trade regulation.

The still accepted explanation for this seasonality is that given by Jevons in1866. He observed a seasonal pattern, associated with the agricultural cycle, in asset demands. Reserve/deposit ratios for banks fell in the spring and the autumn when there was a seasonal upturn in the demand for both currency and credit. So it was in spring and autumn that banking systems were at their most vulnerable.[22] These were manifestly all therefore liquidity crises.

In contrast, there was little cyclical regularity; Gary Gorton (1988)[23] found that crises were usually at business-cycle peaks, but were not by any means at every business-cycle peak.

VI. East Asia

The East Asian crises were certainly not all identical, but they did have common features. There were asset price booms, followed by crashes, problems in banking systems, and flight from currencies.[24] The build-up of foreign currency indebtedness was encouraged by the

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[21] Jeffrey A Miron, 'Financial Panics, the Seasonality of the Nominal Interest Rate, and the Founding of the Fed' (1986) 76(1) *The American Economic Review* 125-40.

[22] The seasonal pattern in interest rates largely vanished when central banks started smoothing the interest-rate cycle. They could do this only after 1914, with the founding of the Fed, as it was a worldwide cycle.

[23] Gary Gorton, 'Banking Panics and Business Cycles' (1988) 40 *Oxford Economic Papers* 221-5.

[24] Ronald I McKinnon (with Huw Pill), 'Exchange-Rate Regimes for Emerging Markets: Moral Hazard and International Overborrowing' (1999) 15(3) *Oxford Review of Economic Policy* 3.

pegged exchange-rate regime. Because of the guarantees, there was both undiversified lending and undiversified borrowing by banks. In addition, again because of the guarantees, the problem was large in scale.

VII. Summary so Far

In the above brief summary none of the crises so far discussed necessitated an injection of capital.[25] Even the East Asian banks required liquidity, albeit in many cases in a currency their respective central banks could not supply. But the Japanese problems of the 1990s have not so far been mentioned. These problems were of an altogether different scale from those so far discussed. In the Great Depression, US banks lost capital equal to about 3-4 per cent of 1930 US GNP. In the 1990s, Japanese banks seem to have lost capital equal to about 15 -20 percent of 1990 Japanese GNP.[26] Accordingly, then, a first point to emerge from the historical comparison is that while the recent crisis was not unprecedented, it had very few precedents. The Japanese crisis would appear to be the only one.

VIII. The Japanese Crisis

It started with the bursting of an asset bubble at the end of the 1980s, and culminated in 1997 with the failure of several major financial institutions. In the latter half of the 1980s Japan

[25] The same is true of the numerous 19th century banking crises in France, and those in Italy from the middle of the 19th century to the early 20th.

[26] We are indebted to Charles Calomiris for these most noteworthy items of data.

had experienced above trend growth and near zero inflation. The resulting optimism led to a surge in the prices of most assets. There was financial market deregulation, and credit standards were eased. The stock market boomed, peaking at the end of 1989. Then the Ministry of Finance introduced limits on bank lending to the real estate sector. There was a fall in property prices and in the stock market. These damaged Japanese banks since the fall in property prices undermined the real estate companies to which they had lent, and the decline in the value of banks' equity holdings also put pressure on their capital. The entire system was weakened. Then in November 1997 Sanyo Securities declared bankruptcy. This resulted in Japan's first interbank loan default. Two weeks later Hokkaido Tokushoku was unable to borrow in the interbank market, and had to declare bankruptcy –the first failure of a major Japanese bank since the Second World War. Only a week later Yamaichi Securities, one of the four biggest security dealers in Japan, failed. It soon emerged that the rumours of fraud that had led to its failure were true. Next, before the end of the month, Tokuyo City Bank failed. The three month Eurodollar Tokyo Interbank Borrowing Rate rose sharply above its London equivalent. Spreads sharply widened in the domestic interbank market, and by late November some banks were finding even overnight borrowing difficult.

By the end of 1997 the government decided that 'something must be done'. They decided to inject taxpayers' funds, and also approved accounting changes which would allow banks to use either market or book value, whichever they wished, when valuing their share and real estate portfolios.

There is plainly much in common between the background circumstances of the Japanese crisis and the recent and more widely spread one.[27]

IX. Why the recent crisis?

It is possible to divide the explanations for the crisis into ten groups. These are not mutually exclusive; it is conceivable all played a part:

(1) Macro-economic imbalances; (2) Lax monetary policy; (3) Regulatory and supervisory failures; (4) Too big to fail doctrine and distorted incentives (5) Excesses of securitisation; (6) Unregulated firms, lightly regulated firms and the shadow banking system; (7) Corporate governance failures; (8) Risk management failures, excessive leverage and excessive complexity; (9) The usual suspects: greed, euphoria and others; (10) Faulty economic theories.

The first four groups of explanations put the blame mainly on the authorities (governments, regulators, central bankers). The second five groups (5-9) blame mainly the markets (financial products, managers, risk, greed, leverage). The last group (faulty theories) blames economists.

[27] There is much in common, too, between the official responses to the episodes, but that is not a concern of this paper.

1. *Macroeconomic imbalances* notably between the USA and China. The linkage to trade liberalization (the so-called China factor) and the trade imbalances have been cited as causes of the crisis. 'Credit expansion in the US was financed by countries with sizable current account surpluses, notably China and oil exporting nations'.[28] Though there is nothing unusual about one country wanting to borrow and another to lend, large and persistent imbalances should prompt examination. The role of the IMF in the surveillance of macro-economic policies has come under greater scrutiny in the aftermath of the crisis.

2. *Lax monetary policy* in the USA and several other countries. Easy money and cheap credit fuelled the boom. Interest rates in the US were for some years below what the Taylor Rule implied. The measurement of inflation essentially ignored asset prices, in particular house prices. This led in turn to the ignoring of the 'elephant in the room'- the large asset price bubble, including in particular a nationwide surge in house prices, that eventually burst in August 2007.[29] 'An asymmetric approach to managing interest rates, whereby policy is loosened when asset prices plunge but policymakers remain indifferent to asset prices until

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[28] See the report of the House of Lords' European Union Committee on 'The Future of EU financial regulation and supervision' published June 17, 2009, at 7. The report is available at <http://www.publications.parliament.uk/pa/ld200809/ldselect/ldeucom/106/106i.pdf>.

[29] This may be a variant of 'Goodhart's law' - that any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes. See Charles Goodhart, *Monetary Theory and Practice: The UK Experience* (London: MacMillan, 1984) at 96. See also Charles Goodhart, 'What Weight Should be Given to Asset Prices in the Measurement of Inflation?' (2001) 111(472) *The Economic Journal* F335-F356, available at <http://www.jstor.org/stable/2667880>.

they burst' has been cited as a cause of the crisis.[30] In the phrase of the longest-serving chairman of the Fed (from 1951 to 1970), William McChesney Martin, 'the role of the central bank is to take away the punch bowl just when the party is going'. Not, let it be emphasised, when the hangover has taken hold.

3. *Failures of regulation and failures of supervision*. There were of course plenty of regulatory and supervisory failures (as well as a degree of regulatory capture or, at the very least, excessive group think). Rules regarding capital proved inadequate; accounting rules exacerbated problems; and the absence of rules on liquidity was unfortunate. Indeed, capital and accounting regulations actually made things worse by being procyclical, with rules on risk *weighting* capital combining with mark to market accounting to reduce requirements in good times and raise them sharply in bad.[31] And, of course, and this is the most glaring mistake and omission: there was no appropriate legal framework to deal with cross border financial crises. Supervision failed at the level of individual institutions (AIG being a notable example) and at the systemic level, where systemic risk considerations were not properly taken into account.

4. *The too big to fail doctrine and distorted incentives*. The belief that some institutions were too big to fail (and belief too in its variants, too interconnected to fail, too

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[30] See John Plender, 'Just Targeting Symptoms of the Crisis is too Neat' *Financial Times*, 25 February 2010.

[31] The combination of Basel II and mark-to-market fair value accounting was almost a doomsday machine in itself. Both reducing capital requirements under the wrong assumption that the system was extremely strong at the end of the asset price boom, and then reversing horribly during the crash.

complex to fail, too many to fail) and other distorted incentives (a system that rewards short term profits at the expense of long term stability) triggered - and continue to trigger - huge moral hazard incentives. Huertas[32] has pointed out that the sudden and unpredictable reversal in resolution policy that marked the failure of Lehman profoundly changed market expectations and led to a general flight to quality. As right after AIG was bailed out and a couple of weeks before Lehman, Fannie Mae and Freddie Mac had received support, TBTF expectations were inflamed. The sudden change then exacerbated instability in the financial system. We need to remove or properly price the implicit guaranteed that TBTF institutions (both banks and 'systemically significant' financial institutions) at the moment enjoy.[33]

5. *Excesses of securitisation*. This was the 'causa proxima' of the crisis. The securitisation market grew, encouraged by accounting and capital rules, financial innovation, government housing/lending policies to encourage home ownership amongst the poor or less prosperous (sub-prime), mortgage policies and mortgage regulation [in the USA and in the UK] that proved inadequate given what some institutions did, the ratings method that ratings

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[32] Thomas Huertas, 'Resolution as a Source of Contagion' presented at the Financial Markets Group and Bank of England conference on Sources of Contagion, 25-26 February 2010, London. See also Thomas Huertas *Crisis: Cause, Containment and Cure* (Basingstoke: Palgrave Macmillan, 2010).

[33] Some authors have warned about the systemic impact of 'too safe to fail' transactions (such as repo transactions), suggesting that macro-prudential supervision should be more concerned about 'seemingly fail-safe assets' which are typically beyond the radar of micro-prudential supervision. See Viral Acharya, 'Why bankers must bear the risk of "too safe to fail" assets' *Financial Times*, 18 March 2010. 'If a financial activity is viable only if its systemic risk must be borne by society while its profits in good times remain privatised in the financial sector, then it is time to revisit the desirability of the activity in the first place'.

agencies applied to securitised products and the reliance on those ratings both for regulatory purposes and as a substitute for due diligence by the financial institutions themselves. Securitisation is often used as a shorthand for all these various factors – government policies, regulatory actions and behaviour of the private sector – that combined to cause the securitisation bubble. Much has been written about this, since the problems that commenced in the summer of 2007 were clearly related to the securitisation market. But it would be wrong to describe securitisation –a technique needed to bring market liquidity – as 'the cause' of the crisis. The mortgage market in the USA and its associated credit ratings were premised on the fact that there had been no significant fall in house prices *nationwide* in 50 years of data, and such a decline occurred.

6. *The part played by derivatives markets, unregulated firms, lightly regulated firms and the shadow banking system*. The common denominator of these firms, markets and products that now constitute a major part of the financial system is their lighter regulatory, clearing, and accounting structure. Unregulated firms (e.g., credit rating agencies), lightly regulated firms, such as hedge funds, and the shadow banking system generally have also been blamed for the crisis. While credit rating agencies have received much negative publicity,[34] hedge funds and other alternative investment funds have been for the most part relatively unscathed. According to Ken Scott, 'CDS or derivatives in general (…) created none of the losses..... They are an instrument for transferring, and thereby spreading, some of

[34] A recent US Senate investigation into the role of the credit rating agencies (CRAs) in the financial crisis has exposed the conflicts of interest that riddle their business model. See 'Rating Agencies' Nixon Moment' *Financial Times*, 24 April 2010.

the risk, and they worked as designed'.[35] However, naked CDS have come under a great deal of scrutiny (with calls for their regulation) following the crisis in Greece. The expression 'shadow banking system' is imprecise and its contours are not clearly defined. According to Roubini,[36] broker-dealers, hedge funds, private equity groups, structured investment vehicles and conduits, money market funds and non-bank mortgage lenders are all part of this shadow system. Other commentators relate the shadow banking system to the growth of the securitisation of assets.[37] Gary Gorton and others believe that it was the [wholesale] run on the repo market during 2008, the bank run not so much on depository institutions as on the shadow banking system that caused the crisis. Gorton explains that while in the past depositors ran to their banks and demanded cash in exchange for their checking accounts, the 2008 panic involved financial firms 'running' on other financial firms by not renewing sale and repurchase agreements ('repo') or increasing the repo margin ('haircut'), thus forcing

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[35] See Kenneth Scott 'Criteria for Evaluating Failure Resolution Plans' mimeo presented at 'Ending Government Bailouts as We Know Them' Policy Workshop, Stanford University, 10 December 2009 (on file with author).

[36] See <http://www.roubini.com/roubini-monitor/253696/the_shadow_banking_system_is_unravelling_roubini_column_in_the_financial_times_such_demise_confirmed_by_morgan_and_goldman_now_being_converted_into_banks>. See also the entry in Wikipedia <http://en.wikipedia.org/wiki/Shadow_banking_system>.

[37] See Tobias Adrian and Hyun Song Shin, 'The Shadow Banking System: Implications for Financial Regulation', Federal Reserve Bank of New York Staff Report No. 382, 1 July 2009, available at <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1441324>. In this paper they argue that though securitization was intended as a way to transfer credit risk to those better able to absorb losses, instead it increased the fragility of the entire financial system by allowing banks and other intermediaries to 'leverage up' by buying one another's securities.

sudden deleveraging and leading to many banking insolvencies. Earlier banking crises have many features in common with the current crisis. History can help understand the current situation and guide thoughts about regulatory reform, by making the shadow banking system less vulnerable to panic.[38]

7. *Corporate governance failures.* The misaligned incentives between the short term interests of bankers (due to their compensation/bonus pay structure) and the long term interest, and indeed the very survival, of their firms must be addressed. Pay structures, relationships between managers and shareholders and other stakeholders and their respective responsibilities need to be reassessed. Primary here is that shareholders acknowledge and act on their responsibilities.[39]

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[38] Above note 3. Gorton observes that the 'great panic' which commenced really in August 2007 is no different from the Panics of 1907 or 1893, except that in 2007 'most people had never heard of the markets that were involved, didn't know how they worked, or what their purposes were. Terms like subprime mortgage, asset-backed commercial paper conduit, structured investment vehicle, credit derivative, securitization, or repo market were meaningless'. And just like deposit bank runs earlier, the securitized banking system, which is in essence a real banking system, 'allowing institutional investors and firms to make enormous, short-term deposits' was vulnerable to a panic. What should be more troubling is that the event commencing with the August 2007 waterfall, were not a retail panic involving individuals, but a wholesale panic involving institutions, where large financial firms 'ran' on other financial firms, making the system insolvent'.

[39] Martin Wolf writing in the *Financial Times*, 21 April 2010, 'The Challenge of Halting the Financial Doomsday Machine' says: 'The combination of state insurance (which protects creditors) with limited liability (which protects shareholders) creates a financial doomsday machine'.

8. *Risk management failures, excessive leverage and excessive complexity*. Banks and the shadow banking system built up extraordinary leverage, which reached a historical maximum in June 2007. Over the preceding years bank credit expansion was on average much faster than the growth rate of bank deposits. Banks achieved this through reducing their liquid assets, borrowing, massively and short term, in wholesale markets, securitising, and increasing leverage. All these then left them more exposed to any fall in asset prices. (The parallels with the Japanese crisis are particularly striking here.) The decline in lending standards also contributed to the sub-prime crisis. Turner[40] has claimed that some trading activities are socially useless.[41] Management failed to conduct appropriate due diligence, in particular with regard to subprime decisions and relying unthinkingly on ratings. Complexity and opacity are risks per se, and were not properly priced in the build up of the crisis. In the words of Lee Buchheit: 'When history looks back on this crisis, a big culprit will be the astonishing complexity of modern financial instruments and the drafting of their contracts'.[42] Ken Scott and John Taylor, who blame the toxic assets on banks' balance sheets as one of the causes of the crisis, emphasize how 'maddeningly complex' securitisation was and suggest

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[40] Lord Tuner's interview with *Prospect* magazine, 27 August 2009.

[41] Ibid. Lord Turner asserts that many of the financial activities which had proliferated in the City of London over the last ten years were 'socially useless'. He neither defined the term nor provided any evidence for the assertion.

[42] Lee Buchheit, 'Did we Make Things too Complicated', (2008) 27 *International Financial Law Review* 24, at 24-26, <www.iflr.com>, 'We…reached the point where some financial engineers have managed to baffle even themselves. Along the way though, they seem to have befuddled their boards of directors, risk management committees, lawyers, accountants, customers and regulators'.

that 'mandated transparency is the only solution'.[43] One intriguing issue is the extent to which certain financial operations or vehicles are Ponzi schemes or quasi-fraudulent transactions (intended to mislead or to conceal losses).[44] While fraud is clearly a crime, and individuals such as Madoff should have been caught and prosecuted much earlier, there are other complex transactions/schemes which may be intended to obfuscate or disguise the real financial position of a firm. In this 'murky terrain' firms may sometimes exploit opportunities for regulatory arbitrage or 'forum shopping'. At other times they may be playing on the fringes of the law.[45] The report published by Anton Valukas on his investigations of Lehman Brothers raises eyebrows about the questionable use of the so-called Repo 105 transactions. 'Lehman's Repo 105 practice consisted of a two-step process: (1) undertaking Repo 105 transactions followed by (2) the use of Repo 105 cash borrowings to reduce liabilities, thus reducing leverage. A few days after the new quarter began, Lehman would borrow the necessary funds to repay the cash borrowings plus interest, repurchase the securities, and

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[43] See Kenneth Scott and John Taylor, 'Why Toxic Assets Are so Hard to Clean Up', *Wall Street Journal*, 20 July 2009.

[44] William White, 'Modern Macroeconomics is on the Wrong Track' (2009) 46(4) *Finance and Development* 15-18, quoting Minsky: 'Minsky (1982) spoke of stages of credit growth, with the horizon of the credit getting event shorter, culminating into was essentially Ponzi finance. Loand would, in the last stage of the boom, be made to pay the interest on previous loans.'

[45] See Gillian Tett, 'Global Harmony a Distant Prospect Despite Lehman Outrage' *Financial Times*, 16 March 2010, 'The conditions which gave rise to the kind of regulatory arbitrage that Lehman exploited – namely a fragmented global regulatory and accounting regime – do not seem to be on their way out. (…) What drove Repo 105 (…) was a form of "forum shopping"'. Michael Lewis, *The Big Short: Inside the Doomsday Machine* (London: Allen Lane, 2010) suggests that the line between gambling and investment is artificial and thin.

restore the assets to its balance sheet. Lehman never publicly disclosed its use of Repo 105 transactions, its accounting treatment for these transactions, the considerable escalation of its total Repo 105 usage in late 2007 and into 2008 or the material impact these transactions had on the firm's publicly reported net leverage ratio'.[46] The use of an accounting artifice that allowed Lehman to move assets off balance sheet to flatter its results suggests that in some cases complexity and opacity can be intended to misrepresent the true financial implications of certain transactions or to conceal financial distress.

9. *'The usual suspects' – greed, euphoria, etc.* Human frailty is always a factor in both crisis and non-crisis situations. Furthermore, excessive 'group think' and 'herd behaviour' were also to blame. What was surely partly at fault is '*unbridled* greed' – a system of incentives that rewarded the pursuit of excessive profits, while not appropriately internalising the costs of losses. 'Too big to fail' plainly contributed to this; but again, shareholders in institutions must surely take some responsibility for the contracts that they sign with their employees.

10. *Faulty economic theories*. In the decades that preceded the great crash of 2008, some relied with almost unquestioned faith on the efficient market theory, markets as self-correcting mechanisms with rational expectations.[47] The existence of transactions and information

[46] See Lehman Brothers Holdings Inc. Chapter 11 Proceedings Examiner's Report of 11 March 2010 available at <http://lehmanreport.jenner.com> at 733-34. For press coverage see *Financial Times*, 13/14 March 2010.

[47] Above note 43, at 16: 'The recent crisis has demonstrated the inadequacy of models based on the assumption of rational expectations. (…)[T]he simplifying assumptions on which much of moderns macroeconomics is based were not useful in explaining real world developments'.

costs was neglected, and it was forgotten that theory as well as much evidence says that markets tend to display these admirable efficiency properties *on average*, not all the time. Further, a certain belief in the superiority of mathematics, game theory and modelling over what were perceived as less rigorous disciplines - law, political science, psychology, sociology, history - permeated much research and teaching in economics and finance departments.[48] Utopian interpretations of economic theories can be construed as a 'causa remota' of the crisis. At times a crude reliance on modelling with insufficient or incomplete data, proved catastrophic. Particularly damaging was the neglect (and not just in the above-noted case of the housing market) of all but recent history. Any institution which based its risk modelling even on ten years of data was drawing its data from what a longer perspective would have shown to be an unusually benign period; and many of those who looked at a longer perspective nonetheless behaved as if the change in the environment over the preceding few years would last forever. Thomas Cottier in his excellent analysis of the challenges ahead for international economic law suggests that the financial crisis 'epitomizes the failure of the strict tradition of fragmentation and specialization and the lack of truly interdisciplinary research', and suggests the need to deepen the relationship between international economic law, economics and other social sciences, such as international relations theory.[49] Very few economists – with Bill White[50] and Claudio Borio at the BIS and

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[48] See the Turner Review: A Regulatory Response to the Global Banking Crisis (2009) at <http://www.fsa.gov.uk/pages/Library/Corporate/turner/index.shtml>.

[49] Thomas Cottier, 'Challenges Ahead in International Economic Law', (2009) 12(1) *Journal of International Economic Law* 3-16.

[50] William White was Economic Adviser and Head of the Monetary and Economic Department of the Bank for International Settlements from May 1995 to June 2008. His speeches and the BIS Annual Reports which

Nouriel Roubini[51] as some of the most notable exceptions – predicted the magnitude of the crisis. In a visit to the LSE in November 2008, Queen Elizabeth II asked Luis Garicano why no economist had seen the crisis coming. Some had, but no one appeared inclined to listen. Westbrook wrote: 'Why was orthodox finance[52] so convincing, for so long, and yet so wrong? One might start by noting that finance has been oddly insensitive to law. Financial markets are essentially legal. Collateral is a form of property; derivatives are contracts; corporations and fiat money are creatures of law. Economics, however, has always aspired to be a natural science, and so has considered the social as if it were natural. This fundamental ontological error has led to fanciful pricing models, as if we could model the movements of legal instruments like we model the movements of the stars. When times are good, or trading

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included numerous warnings about the perils of the bubbles that were emerging in international financial markets were all but ignored.

[51] Nouriel Roubini, known in some circles as Dr. Doom, predicted the crisis as far back as 2006. See his archive articles in his website Roubini Global Economics at www.rge.com. See e.g., <http://www.roubini.com/roubinimonitor/160927/revisiting_my_july_august_2006_prediction_of_a_us_recession_in_2007>.

[52] The four premises of 'orthodox finance' according to Westbrook are: (1) markets are efficient, that is, price generally reflects the best estimate of fundamental value; (2) market actors are not only rational, but prudent, and therefore can be relied upon to govern themselves; (3) modern information systems and sophisticated modelling make risk manageable and true uncertainty practically irrelevant; (4) markets are self-correcting, even evolutionary, because actors that fail are eliminated from the system. See generally David A Westbrook, *Out of Crisis: Rethinking our Financial Markets* (Boulder: Paradigm Publishers, 2009). Westbrook explains that financial markets are like networks and that no firm should be too big to be resolved without substantial interruption to the trading operations of counter-parties. He also draws an analogy between financial markets and ecosystems.. Economics, he argues, should abandon its claim to be like physics.

intervals are very short, such conceits may be overlooked. But when times are bad, it becomes obvious that legal phenomena deform under political and social stresses, as holders of Greek debt or Lehman Brothers collateral ought to be amply aware. ... Similarly, the autonomous character of market actors, coupled with the proprietary nature of information, mean that transparency is limited in principle, regardless of the sophistication of data management. A risk sharing network cannot be transparent to its members, as we should have learned from Long Term Capital Management or AIG.'

X. A Longer Perspective

While *financial* crises are a fairly common feature of the economic cycle, *banking* crises are rather more rare. Banking crises are a subset of financial crises. Banking crises are both rarer than financial crises, and distributed differently in time and in space.

Financial crises may well be inherent to the business cycle, or to human nature itself. Kindleberger (1973)[53] and Minsky (1975)[54] have both argued that they are an inevitable part of the business cycle, and result from irrational reactions and myopia. Some banking theorists have argued, in a somewhat similar manner, that the structure of bank balance sheets makes

[53] Charles P Kindleberger, *Manias, Panics and Crashes: a History of Financial Crises* (London: Macmillan, 1978).

[54] Hyman P Minsky, 'The Financial Instability Hypothesis' (reprint), The Jerome Levy Economics Institute Working Paper No. 74 (May, 1992).

panics inevitable.[55] If we are persuaded by one argument or the other (or both) we should expect crises always to be with us.

Perhaps we should have that expectation so far as financial crises are concerned; but the evidence is that we should not hold that expectation for banking crises.

Banking crises tend to occur (if they occur) around the time of cyclical downturns, and are closely associated with large declines in the value of bank loans, reflecting declines in the fortunes of the borrowers. Second, they have become more common in recent years, despite government interventions (such as government insurance of deposits) intended to achieve the opposite. Third, panics can happen without failures and failures without panics – the Panic of 1907 in the USA was not associated with a rise in the bank failure rate, and the wave of agricultural bank failures in the USA in the 1920s was not accompanied by a systemic panic. This suggests that uncertainty about small losses can cause panic without failure, while large losses with clear incidence cause failure without causing widespread panic.

Most notable of all is that there are substantially different 'propensities' for crises at different times and places. The US banking system has historically been crisis prone.

Britain too was crisis prone, but that changed in the middle of the 19th century. After 1866 there was none – even the outbreak of the First World War did not provoke a crisis. In

[55] Above note 8.

the years 1875 -1913, only four countries experienced severe waves of bank insolvency. This diverse pattern shows clearly that there must be more to banking crises than the inevitable features of human nature or bank balance sheets.

Changes in the fragility of banking systems usually result from changes in the 'rules of the banking game'. Such changes can be stability promoting – as the Bank of England's adoption of and commitment to a lender of last resort role after 1866 – or risk promoting, as were the pre 1893 Italian guarantees of the property lending of the Banca di Roma. The same story continues up to the present. Restrictions on structure have often proved perverse – the protection of unit banking in the USA, or, again in the USA, the passage of the Glass-Steagall Act despite the evidence against it.[56] In contrast, Canada's early allowing of nationwide branch banking contributed to stability. Getting the rules of the banking game wrong readily makes the game go wrong.

Did that happen this time? Looking at the USA, we certainly see a repetition of previous mistakes. There was pressure from the Congress on banks, on Fannie Mae, and on Freddie Mac, to promote house ownership by taking on more high risk mortgages. There was Federal Housing Administration subsidy of high mortgage leverage. Foreclosures were discouraged. 2006 legislation encouraged rating agencies to relax standards on the rating of securitisations. Unsurprisingly, the US housing market boomed.

[56] Above note 15.

Banks elsewhere, some already caught up in their own housing booms, were drawn into the US boom. Regulators were defective. Preoccupied with individual banks, they did not see, or ignored, that securitisation was simply spreading risk around the system, and focussed instead on the illusory reduction in individual bank risk which it produced.[57] Problems spread round the world and systemic risk expanded.

In addition, it should be noted that the recent crisis was remarkably like the Japanese one. Easy money and steady growth followed by ill thought out regulatory policies were sufficient to cause the Japanese crisis. They were also present in the run – up to the present one.

XI. The regulatory responses

We now turn to the flurry of regulatory responses.

Current proposals can be divided into five groups.[58] The first looks at the substance of regulation, at the 'what to regulate', with new rules (or proposed rules) for capital, liquidity and other indicators of banking and financial soundness. In this we can include the new Basel proposals (sometimes referred as Basel III) and others that look at ways of enhancing the

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[57] See Geoffrey Wood and Ali Kabiri, *Firm Stability or System Stability: the Regulatory Delusion*, forthcoming in *Managing Systemic Risk* (Cheltenham: Edward Elgar, 2011).

[58] See Rosa M Lastra, 'The Check Book that the Banks Cannot Bounce' (2010) March *Parliamentary Brief* 27-28, available at http://www.parliamentarybrief.com/articles/1/new/mag/83/1066/the-check-book-that.html

quality or quantity of regulation (from dynamic provisioning and rules to prevent excessive leverage to rules regarding bonuses or compensation schemes, rules on insolvency and early intervention) at the national, European or international level. With regard to the scope of institutions to be regulated, Andrew Crocket advocates the need to 'widen the net' beyond the three pillars upon which financial regulation has traditionally rested (i.e., banking, securities and insurance) to a wider range of institutions that are now central to financial stability. In particular, he cites the players involved in the originate-to-distribute model of credit intermediation, services providers such as clearing and settlement systems, credit rating agencies and auditing firms, and private pools of capital such as hedge funds and private equity funds.[59] Perhaps the answer in some cases – e.g., with regard to derivatives markets – is not more regulation, but more transparency and accountability, a well functioning clearing system, and on balance sheet accounting treatment.

The second group of proposals looks at the structure of supervision and regulation, at the 'how' and the 'who', and the intensity of supervision. Different proposals in several countries are currently under consideration, but it should be pointed out that all national 'architectures', whether one authority, twin-peak, or many regulators, failed to prevent the crisis.[60] Further, many of these proposals are nationally based. An 'international architecture' may be an essential part of the reform.

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[59] See Andrew Crocket, 'Rebuilding the Financial Architecture', (2009) 46(3) *Finance & Development* 18-19, at 18.

[60] See the paper by Luis Garicano and Rosa M Lastra in this issue for further elaboration on this point.

One of the major 'breakthroughs' in the response to the crisis is that a distinction is now made between macro-prudential supervision and micro-prudential supervision. According to the House of Lords Report on the Future or EU Supervision and Regulation,[61] 'macro-prudential supervision is the analysis of trends and imbalances in the financial system and the detection of systemic risks that these trends may pose to financial institutions and the economy. ... Micro-prudential supervision is the day-to-day supervision of individual financial institutions. ... The same or a separate supervisor can carry out these two functions.'

The third group of proposals concerns the behaviour of the banking industry and bank managers and the need to internalize the costs of protection. Here one can include the proposal by Deutsche Bank CEO Josef Ackermann (set out in Davos in January 2010) to establish a European Rescue and Resolution Fund largely financed by the banking industry, and that of IMF Managing Director D. Strauss-Kahn (19 March 2010), for a 'European Resolution Authority', an agency pre-financed by the banking industry as far as possible, to deal with failing cross-border banks in the EU.[62]

A fourth group focuses on the fiscal side. In particular, 'extracting rents' (rather than merely profit taking) in a banking and financial market which has been largely subsidized by governments' rescue packages, monetary and fiscal policies, raises controversy.[63] Acute

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[61] See <http://www.publications.parliament.uk/pa/ld200809/ldselect/ldeucom/106/106i.pdf>.

[62] See 'IMF seeks Bank Crisis Agency' *Financial Times*, 20 March 2010.

[63] Above note 2930: 'Bankers in the boom were being paid bonuses not for brilliance but for excessive risk taking via leverage and for oligopolistic super-profits. No they have been offered a state safety net and a steep

moral hazard problems persist. Governments have so far targeted only compensation (e.g. the 50 per cent one-off bonus tax on bonus pools of a number of financial institutions in the UK). Some economists and politicians have advocated the imposition of a [global] tax on financial transactions, akin to the Tobin tax. The IMF presented a report to the G-20 during the April 2010 meetings[64] where it considers inter alia a financial stability levy and other tax instruments, such as a financial transactions tax and a financial activities tax.

A fifth group of proposals are bank structural reforms which aim to change the structure of the banking industry and the balance sheet structure of commercial banks and other financial institutions[65] so as to circumscribe the scope of institutions that receive governmental protection, to separate 'utility banking' from 'casino banking'.[66]

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yield curve, whereby they borrow at low cost to invest in higher yielding assets. This guarantees easy, low risk profits, on which they nonetheless expect bonuses'.

[64] <http://news.bbc.co.uk/1/shared/bsp/hi/pdfs/2010_04_20_imf_g20_interim_report.pdf>.

[65] The narrow banking proposals have been again endorsed by John Kay, 'Narrow Banking. The Reform of Banking Regulation', available at <http://www.johnkay.com/wp-content/uploads/2009/12/JK-Narrow-Banking.pdf>, Centre for the Study of Financial Innovation, 15 September 2009; while Lawrence J Kotlikoff has made a case for the mutualisation of the financial industry in his book *Jimmy Stewart is Dead: Ending the World's Ongoing Financial Plague with Limited Purpose Banking* (Chichester: John Wiley & Sons, 2010).

[66] The so-called Volcker rule is also a structural reform. The Volcker rule prohibits federally insured 'banking entities' from engaging in proprietary trading (subject to certain exceptions) and restricts their relationships with hedge funds and private equity funds.

Given the multiplicity of proposals, it might be sensible to follow a simple approach that considers what is essential to maintain financial stability while preserving competition on the one hand, and what is desirable and feasible in the longer term on the other hand. The establishment of a robust and well understood framework for the resolution of cross-border financial institutions, a framework which includes rules on burden sharing, is an essential policy priority.[67] The alternatives to an orderly resolution — either a chaotic resolution or a bail-out — would be disastrous. Capitalism relies on the lure of wealth (privatisation of gains) and the discipline imposed by the fear of bankruptcy (privatisation of losses). It is imperative to reinstate a credible fear of bankruptcy for banks and other systemically significant financial institutions so as to ensure that banks once more play their proper role in a market economy.

XII. Concluding observations

In this paper, we have tentatively analysed the causes of the financial crisis of 2007-2009 and outlined some of the responses. Following a distinction between liquidity crises and capital/solvency crises, we draw on the lessons of history to present the various culprits of the recent crisis. This is not the final story, since only with the benefit of hindsight will anyone be able to write an account of what happened akin to Milton Friedman and Anna Schwartz's authoritative *Monetary History of the United States*, which in 1963, three decades after the

[67] The International Monetary Fund issued a paper 'Resolution of Cross Border Banks – a Proposed Framework for Enhanced Coordination' (to which one of us contributed) on 11 June 2010.

New Deal legislation introduced in the US by President Roosevelt, provided the definitive analysis of that Depression.

This was a solvency/capital crisis, not a mere liquidity banking crisis. As for the culprits, the observation with which we conclude is that it is remarkable how people tend to side with 'one side of the story'. Laissez faire proponents tend to argue that it is unfettered free market that encourages virtue and government regulation that destroys it; markets are the solution, and government is the problem. In contrast, those that believe that markets are principally to blame, advocate more intrusive and extensive regulation and intervention. Where both groups tend to agree is that finance needs to go back to being an instrument directed towards improved wealth creation and development.[68] To ensure this the fear of failure needs to return to the business of banking.

[68] In his speech at the Cass Business School on 17 March 2010, Lord Turner stated: 'A critical issue is (…) whether this increased financial intensity has delivered value added for the real economy – whether it has improved capital allocation, increased growth or increased human welfare and choice (…) And whether it has made the economy more or less volatile to shocks'. See also <http://www.vatican.va/holy_father/benedict_xvi/encyclicals/documents/hf_ben-xvi_enc_20090629_caritas-in-veritate_en.html> (visited 18 March 2010).