Verdict on the Crash:
Causes and Policy Implications

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5 MARKET FOUNDATIONS FOR THE NEW FINANCIAL ARCHITECTURE

Michael Beenstock

Market economics is on trial. Many are arguing that the financial crisis has been induced by market failure and that recent experiments with financial deregulation made the sub-prime crisis inevitable. They are calling for stronger and more effective regulation.[1] My thesis is that regulation is part of the problem rather than its solution. The regulatory paradigm upon which the old financial architecture was designed, and which has dominated thinking since Bagehot, has failed and the time has come to replace it. The solution lies instead in founding the New Financial Architecture on the 'information paradigm', which calls for greater transparency in reporting by financial institutions, and which recognises that financial markets in particular cannot function properly without adequate information. It also calls for minimal regulation, or even no regulation at all.

Information runs

Under the regulatory paradigm, financial institutions report to their regulators but not to the public. Banks provide regulators with detailed information on their loan portfolios. Since these data are not published the public cannot make informed judgements about the risk exposure of individual banks. Even if the data were published it would be difficult to form judgements about the quality of bank credit because the laws of confidentiality prevent naming individual bank clients. It would make a great deal of difference, however, if data at least on the sectoral

1 See, for example, De Grauwe (2008) and Eichengreen and Baldwin (2008).

composition of the loan portfolios of individual banks were made public. The public would then know the involvement of individual banks in, say, mortgages, construction and many other credit sectors, where downside risk may be particularly large.[2]

Suppose a solvency problem arises in a specific credit sector, such as mortgages, and bank A is heavily exposed in this sector, while other banks are not exposed. At present the public has no way of knowing whether the same problem applies in banks B, C, etc. This triggers a run on these banks because the public fears incorrectly that they might be insolvent too. It is in this way that a solvency crisis for one bank turns into a liquidity crisis for all banks and indeed for the financial system as a whole.[3] Had the public had access to information on the credit exposures of the individual banks, depositors would have understood that only bank A has a solvency problem. They would have transferred their deposits from bank A to other banks and there would have been no run on the banking system as a whole. In the absence of deposit insurance some of the depositors would have lost their money. But this is no different in principle from losses that are incurred when any business goes bankrupt.

Just as the public has no information, nor do the banks themselves. Banks B and C suspect that other banks might be insolvent like bank A, and refuse to lend to each other in the interbank market. Since the same applies to banks D, E, etc., the entire interbank market collapses. What started as a simple insolvency problem for bank A rapidly turns into a financial pandemic simply because information on bank portfolios is withheld from the public. The collapse of the interbank market triggers a credit crunch, which in turn leads to further insolvency, and so the information run enters another round. For want of a nail the kingdom was lost.

2 The seminal model in Diamond and Dybvig (1983) and Diamond (1984) assumes that all debtor heterogeneity is unobservable. Since systematic risk varies across credit sectors, however, much of the heterogeneity is observable. See Beenstock and Khatib (2008).

3 The theory of 'information runs' is discussed by Jacklin and Bhattacharya (1988), which should be distinguished from the theory of 'sunspot runs' of Diamond and Dybvig (1983).

Had banks known in advance that information about their exposures would become public knowledge they would have acted differently and with greater caution. They would not have lent in particularly risky sectors for fear of punishment by the market. House prices are inherently cyclical and volatile because the time to build is long and because houses are long-lived assets.[4] As house prices climbed towards their peak bankers should have exercised caution by reducing their mortgage exposure in the face of increasing downside risk in the housing market. They had no incentive to act cautiously, however, because only the regulator was provided with the relevant information. Through long experience bankers know that regulators do not behave punitively. Even moments before the ship went down banks were selling 100-per-cent-plus mortgages to people who could not afford them.

Not only do banks face incentives to act incautiously, they face incentives to skimp on capital and to become over-leveraged. Bankers know that in the event of need they will be bailed out. Therefore regulation induces a double moral hazard; banks take more risk and they hold less capital.

Regulatory failure

In the post-mortem following the financial crisis, regulatory failure should be put under the spotlight. Why did regulators, who had access to all the relevant information, fail in their task? The answer lies in public choice or 'capture' theory.[5] Just as the incentives facing the regulated are unhealthy, so are the incentives facing the regulators. There are two aspects to this. First, like other human beings regulators enjoy power. Keynes remarked that there is nothing more exhilarating to central bankers than a fully blown financial crisis. They move to centre

4 Sharp increases in house prices are typically mistaken for bubbles. See Bar-Nathan et al. (1998).

5 'Capture' theory, originally developed by Stigler (1970) and Posner (1974), predicts that regulators become the captives of the regulated instead of agents of the public good.

stage and become the focus of public attention as they save the world. Regulators have an incentive, therefore, to regulate; they have a self-interest in allowing problems to develop. While this may be a motivation for senior managers, at other levels in a regulatory authority those responsible for regulating institutions have an incentive not to bring emerging problems to public attention. If a solvency problem arises, the responsible regulator might be regarded as having underperformed in his job. Thus, the regulator has an incentive to wait and hope that market movements will resolve the problem. Whatever the motivation, financial regulators tend to have incentives to delay acting.

Second, regulators do not remain regulators for ever. Regulators eventually pass through the 'revolving door' to good jobs in the regulated sector and vice versa. They therefore do not want to jeopardise their future careers by being too hard on their quarries. Gamekeepers turn poachers. This double-edged moral hazard makes regulatory failure inevitable. Of course, bankers internalise this and play their part in the regulation game. They take risks in the knowledge that their regulators will turn a blind eye. In short, as Kane (1997) and Benston (1998) point out, there is an 'agency problem' in financial regulation since regulators do not act as agents of the public at large. They act instead in their own self-interest and in the interests of the regulated.

Providing regulators with information on credit exposures is therefore not the same thing as providing this information to the public. Imagine what would happen if the same non-disclosure rules applied to non-financial companies, which reported only to their regulators and did not publish financial reports as required by law. The public would have no information with which to make informed judgements about the market value of public companies. A solvency problem in one company could lead to a liquidity crisis in other companies. The regulator would then be called in to prevent a run on the business sector. This nightmare does not happen thanks to the onus of company reporting and the development of accounting standards. Indeed, prior to the development of the joint stock company in the nineteenth century and disclosure

requirements, stock markets were prone to instability and manipulation owing to lack of information.

What applies to banks also applies to other financial institutions such as insurance companies and investment banks, which should be required to disclose their asset compositions. These institutions do not need regulators. Suppose, for example, that Lehman Brothers had published its exposure in the US mortgage market and that the Royal Bank of Scotland (RBS) had published its holdings of bonds issued by Lehman Brothers. The public and financial analysts would have understood that RBS was exposing itself indirectly to US mortgage risk, and that Lehman Brothers was adding risk to its portfolio. Maybe the rating agencies would also have done a better job[6] instead of continuing to grant AAA ratings to Lehman Brothers and RBS. The discipline of information transparency would have made both institutions behave more cautiously in the first place and it would have nipped the sub-prime crisis in the bud.

In summary, the regulatory paradigm as applied to banks is fundamentally flawed. This paradigm, which has been adopted in all countries, has been responsible for intermittent financial instability. Until it is understood that the root cause of financial instability lies in information theory, the world will continue to suffer from periodic financial instability.

Recent proposals[7] to generate a system of global regulation under the auspices of a World Financial Organisation, which would set rules for global finance, are based on a fundamental conceptual error. It is ironic that commentators such as Joseph Stiglitz and Michael Spence, who were awarded the Nobel Prize in Economics for their work on asymmetric information theory, have failed to appreciate the significance of their own scientific contributions. It is also ironic that Ben Bernanke,

6 This does not exonerate rating agencies for receiving payments from the companies that they were rating, though this issue is covered in greater detail in the chapter by Morrison.

7 These proposals were made even before the outbreak of the current crisis. See, e.g., Eichengreen (1999), Bryant (2003) and Roubini and Uzan (2006).

who did so much to apply asymmetric information theory to banking, has done the same. Stiglitz and Weiss (1981) established that asymmetric information induces credit rationing. Indeed, credit crunching is predicted by asymmetric information theory. There will always be irreducible asymmetric information because creditors can never fully know what motivates debtors. The vast majority of asymmetric information is reducible, however, because regulators treat the information that they have as if it were nuclear secrets. The asymmetry is artificially induced because regulators refuse to reveal to the public the very information that would prevent bank runs and credit crunches.

Evidence

It is no coincidence that the financial institutions that have got into difficulty are almost exclusively regulated. To the best of my knowledge unregulated offshore banks have thus far survived the financial crisis. Indeed, this may be surprising to some since depositors are often warned that offshore banks are dangerous because they are unregulated, do not have a lender of last resort, and face no restrictions on capital adequacy or liquidity. It is precisely because offshore banks are unregulated that they are more stable. Since they have nobody to bail them out, they cannot afford to behave incautiously. They do not skimp on capital and liquidity and cannot afford to participate in financial adventures, because, unlike onshore banks, they have no regulation game to play. Benston (1998) notes, 'Before depositors relied on government for protection, banks maintained much more substantial capital/asset ratios; in fact, banks used to advertise prominently the amount of their capital and surplus.'

It is also no coincidence that the sub-prime crisis originated in the US mortgage market. Fannie Mae and Freddie Mac are two politicised institutions whose mission since 1992 was to promote home ownership. They could raise cheap capital in the bond market because it was understood that they had semi-official backing, as was subsequently proved

correct. They were especially encouraged to target low-income families who received mortgages that they could not afford, so that politicians could boast about the spread of home ownership in their constituencies. In Germany too, where there was no increase in house prices, the troublesome banks were either state-owned (Länderbanks) or politicised (IKB bank). When these banks got into difficulty an information run was triggered on private banks. Good German banks were brought down with the bad. Politics and stable banking do not mix.[8]

It will be asked how the collapse of US investment banks and insurance companies is consistent with my thesis. After all, Bear Stearns, Lehman Brothers and AIG were unregulated like their offshore counterparts. The answer lies in 'regulatory creep'. The Savings & Loans (S&L) crisis in the 1980s was very much a forerunner to the current US mortgage crisis. S&Ls financed fixed-interest-rate mortgages through equity and deposits insured by the Federal Savings and Loan Insurance Corporation (FSLIC) and regulated by the Federal Home Loan Bank Board. When US interest rates rose in 1978–81, three-quarters of the S&Ls became insolvent and FSLIC became insolvent too. The bailout of the S&Ls cost taxpayers $150 billion. Long Term Capital Management (LTCM), the hedge fund that was bailed out in 1998, was unregulated. The writing was on the wall. If LTCM was bailed out, why should other unregulated financial institutions not be bailed out too? Against the backdrop of the S&L bailout, the bailout of LTCM created a moral hazard problem in unregulated financial institutions.

Something similar happened in the UK when in 1985 Johnson-Matthey Bankers was bailed out by the Bank of England despite the fact that it was a very small unregulated bank with no economic significance beyond the gold market. The Bank of England was quick to panic, and feared an information run on the large retail banks. Managers of unregulated financial institutions are increasingly operating in a climate

8 The banking crisis in Israel in 1983 could not have happened without the cooperation of regulators at the Bank of Israel. The Supervisor of Banks at the time of the crash became the CEO of Bank Leumi.

of moral hazard since they know that if necessary they will benefit from 'regulation creep' and regulators will save them even if they are unregulated. This moral hazard has been greatly increased by the massive bailouts in the current crisis. The seeds have been planted for the next financial crisis as the regulation game is played out even among financial institutions that are unregulated.

Since financial institutions have been regulated for so long, one has to look elsewhere to learn how the information paradigm might function. Prior to the Life Assurance Companies Act 1870 the life insurance industry had an unstable and poorly defined legal framework and the industry was often plagued by instability. The 1870 Act defined a broadly liberal regulatory framework, certainly in comparison with those that existed overseas, which simply required companies to publish information under the so-called 'freedom with publicity' policy.[9] This augured 100 years of stability and growth in the industry. This policy came to an end when the UK joined the EU and was required to enforce its regulatory framework. The 1870 Act essentially applied the information paradigm and what had been a regulated but unstable industry was transformed into a deregulated but stable industry subsequently. The crucial ingredient of the Act was information disclosure to the market, which enabled actuaries to value and pass opinions on companies and which restrained companies from overexposure to risk on both sides of the balance sheet.

Principles of financial misregulation

To justify financial regulation, Brunnermeier et al. (2009) list five negative banking externalities, all of which are false. The first is informational contagion; if bank A fails this will cast doubt on the solvency of other banks. I have already disposed of the argument. The second is that if customers of bank A transfer their business to bank B, loan officers in B will know less about the credit risk of these customers than loan officers

9 See Booth (2007) for a history of the 'freedom with publicity' policy.

in A. This imaginary externality is not limited to banks, and in any case bank B may obtain information on their new customers from credit risk companies. Third, they claim that negative externalities arise through the interbank market. This market is simply an example of inter-industry trade. The existence of inter-industry trade has never been mooted as a source of negative externality. Therefore if bank A does business with bank B, there is no more reason why bank B should fail just because A and B happen to be banks rather than breweries. If, however, non-financial corporations behaved like banks by failing to provide the public with information, we would see 'brewery runs' as well as bank runs.

Fourth, if bank A sells assets to raise liquidity asset prices will fall and the balance sheets of other banks will be adversely affected. Brunnermeier et al. see this as their major new contribution to the theory of systemic risk and financial regulation. But how can an individual bank affect asset prices when it holds but a tiny fraction of the stock of assets in the market? In any case, this imaginary externality would apply universally and not just to banks. Their fifth externality is equally imaginary. If bank A fails, a contraction of credit will be induced with adverse macroeconomic consequences. The macroeconomic implications of a bank failure are not inherently different to those of a brewery failure, provided banks like breweries keep the public informed. In one case there may be less credit and in the other less beer.

I have taken Brunnermeier et al. as a representative example of woolly thinking. One might just as easily invent a theory of brewery regulation as a theory of financial regulation. Banks and financial corporations are not inherently different. They seem different only because banks do not supply the public with sufficient information and banks have regulators while breweries do not.

The future

The regulation paradigm that underpinned the Old Financial Architecture has completely broken down. The idea that clever global

regulators and whistle-blowers can ensure financial stability in the future is an expression of intellectual despair. We are currently witnessing an epidemic of desperate advice: if the paradigm has failed it must be because it was not applied correctly. These desperate voices call to strengthen regulation, make it more watertight and globalise it. Stiglitz is even suggesting that a world currency, based on Keynes's bancor, be introduced with a world central bank to operate it.

These are signs that the regulatory paradigm is in its death throes. I am suggesting that the new paradigm be based on information theory, which should serve as the market foundations of the New Financial Architecture. A practical starting point for this public disclosure policy should be the reporting requirements under Pillar 3 of Basel II, which *inter alia* requires banks to report value at risk (VaR). Indeed, Pillar 3 is based on the principle that market discipline will be enhanced if banks publish information on credit risk by economic branch, as well as information on impaired loans. Under the information paradigm banks and other financial businesses will have an incentive to be transparent and to disclose information. Just as commercial businesses have an incentive to extol the virtues of their products, so will financial businesses have an incentive to persuade the public that their deposits etc. are safe. Indeed, disclosure will generate a genuine industry in the rating of financial products, which in principle is no different to the widespread rating of commercial products.

Derivatives have existed since time immemorial. Following theoretical breakthroughs in the 1970s in the pricing of derivatives, however, the market in financial derivatives has expanded enormously. Derivatives, including credit default swaps (CDS), are instruments providing insurance services and which fulfil an important social function. Since they mitigate risk they encourage business. Genuine hedge funds[10] ensure that derivative prices are at their competitive levels. In the New Financial

10 Hedge portfolios have no wealth since they are long in the derivative and short in the fundamental asset. Many so-called hedge funds are not hedge funds at all because they do not hedge their positions.

Architecture hedge funds must be allowed to short sell, otherwise they cannot fulfil their market function (see the chapter by Copeland).

It is falsely argued that the provision of lender-of-last-resort (LOLR) insurance justifies regulation to prevent moral hazard. Insurance companies deal with moral hazard through deductibles and no-claims bonuses which provide incentives for the insured to behave cautiously, thereby eliminating most if not all of the moral hazard. To internalise moral hazard, Bagehot insisted in *Lombard Street* that banks be penalised for claiming LOLR insurance.[11] The New Financial Architecture will greatly reduce the need for LOLR insurance because information runs will be rarer. The need will not, however, be entirely eliminated. Shareholders should be made to internalise LOLR moral hazard by paying deductibles, a precedent for which may be found in the British government's recent treatment of shareholders of the Royal Bank of Scotland.[12] This principle should be extended to CEOs since agency problems in corporate governance mean that they too should have a direct interest in internalising moral hazard. This feature of the New Financial Architecture would further reduce the need for regulation. Since regulation induces moral hazard, the New Financial Architecture should do without regulation altogether.

In summary, the main structures of the New Financial Architecture are:

1. Banks should make public the sectoral composition of their credit portfolio under Pillar 3 of Basel II.
2. Banks should make public value at risk under Pillar 3 of Basel II.
3. Shareholders and CEOs should pay deductibles when claiming LOLR insurance.
4. Bank regulation should cease.

11 Bagehot was also aware that LOLR insurance would induce banks to skimp on liquidity and capital. He was not apparently aware that moral hazard would also induce banks to take on more risk.

12 Though, in this case, it can be a private arrangement between the central bank and the banks that may wish to make use of LOLR functions.

5. Similar principles should be applied to investment banks and insurance companies.
6. Hedge funds should be allowed to short sell.
7. Credit rating agencies should declare whether they have been paid by rated companies.

Economic history is replete with examples when quite simple concepts, unknown to politicians and their advisers, induce economic havoc. When Britain left the gold standard in 1931 Ramsay MacDonald apparently never knew that it was morally or technically possible to float the exchange rate. When in 1976 James Callaghan abandoned incomes policy and Keynesian demand management theory in favour of monetarism, he did not apparently know that there was an alternative paradigm to Keynesianism. The same applies today. There is an alternative to the regulatory paradigm whose intellectual roots lie in information theory. Financial markets are not endemically unstable. Society does not have to put up with intermittent financial crises. Politicians need to be informed of the information paradigm before designing the New Financial Architecture.

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