

12. Regulation of financial markets: Panics, moral hazard, and the long-term good

Simon Smelt

Introduction

Much of the research relating to the recent events discussed in this chapter is – in academic terms – at an early stage and relatively untested. Hence, this chapter is both provisional and tentative.

Greed and morality

Debate over the causes of the recent financial tsunami and the policies to deal with it will probably continue for decades. There is still considerable disagreement over such matters in relation to the Great Depression.¹ By contrast, the key moral point from recent events – the devastating effects of ‘greed’ – might seem self-evident: greed of financiers, greed of investors, perhaps greed of US consumers. Bankers have been a favourite target. This is understandable given the huge public bailouts they have received. In Britain, the chancellor has referred to ‘kamikaze bankers’ damaging the economy (presumably he did not mean they intended to wreak havoc).² The chief executive of the British Financial Services Authority tried to sound like a tough cop warning the criminals on his patch, ‘a principles-based approach does not work with individuals who have no principles ... People should be very frightened of the [Financial Services Authority]’ (Townsend 2009). An industry spokesperson responded that they were not drug dealers at the school gates (Monaghan 2009).

Alan Greenspan, previous governor of the US Federal Reserve, spoke of financiers having ‘got greedy’ (Goodman 2008), and widespread accusations of out-of-control greed suggest the return of the character Gordon Gecko from the

1 Interpretations of the Great Depression have been a central source of contention between Keynesians and Monetarists. See, for example, Friedman (1994) and Galbraith (1961).

2 See ‘“Kamikaze” bankers damaged economy, says Alistair Darling’ (2009).

1987 film *Wall Street*, with his mantra 'greed is good'. The Australian prime minister, Kevin Rudd (2008), gave a speech entitled 'The children of Gordon Gekko'.

But is this new? As US President Hoover is said to have remarked, 'The trouble with capitalism is capitalists; they're too damn greedy'. Condemning bankers is reminiscent of traditional attitudes to moneylenders who were sought after for credit but otherwise were treated with disdain and got the blame and worse when things went wrong. A current film version of Shakespeare's *Merchant of Venice* (2004) nicely captures this.

In probably the most nuanced and carefully considered moral commentary on the crisis, the Vatican goes much beyond such blame games. To quote Benedict XVI (2009, p. 35):

The market is subject to the principles of so-called commutative justice, which regulates the relations of giving and receiving between parties to a transaction. But the social doctrine of the Church has unceasingly highlighted the importance of distributive justice and social justice for the market economy, not only because it belongs within a broader social and political context, but also because of the wider network of relations within which it operates. ... Without internal forms of solidarity and mutual trust, the market cannot completely fulfill its proper economic function. And today it is this trust that has ceased to exist, and the loss of trust is a grave loss.

Thus, the Vatican sees the need to connect the marketplace to distributive and social justice and the wider community. It identifies the financial failure as stemming from moral factors – solidarity and mutual trust – and without simplistic labelling.

This chapter argues that there is indeed a moral dimension underlying the recent financial havoc, but that it stems from a weakness in the commutative justice that underpins the marketplace, rather than from a lack of distributive or social justice. (That is not to say that distributive justice and social justice are not vital concerns.) Examination of the evidence shows solidarity and trust to be central issues but not in the way one might expect. Attempts at distributive justice may have worsened the situation. The moral questions raised and lessons to be learned are both surprising and generic for policy makers. In the extreme furnace of the financial meltdown, broader principles emerge. The form in which morality is applied turns out to be critical – as both part of the problem and part of the solution.

Warning signs

Consider a key presenting problem: the inability or insouciance of both government authorities and those governing and managing the great commercial financial institutions to spot or act early on impending disaster. We find a seeming weakness in decision making at the micro level, institution by institution, by those who were supposed to be – and paid very well to be – smart at reading market signals.

There was no shortage of warning comments: aside from various commentators and economists, Warren Buffet (2003, p. 15) spoke of ‘financial weapons of mass destruction’, the Federal Bureau of Investigation warned of massive mortgage fraud (Frieden 2004), the Mortgage Insurance Companies of America (2006, p. 15, fn. 32) referred to an apocalyptic paper *This Powder Keg Is Going To Blow*,³ and the annual reports of the central bankers’ central bank made grim reading (Bank for International Settlements 2007, 2008). There was no shortage of warning signs; out of many signs consider those shown in Figure 1 for the United States.

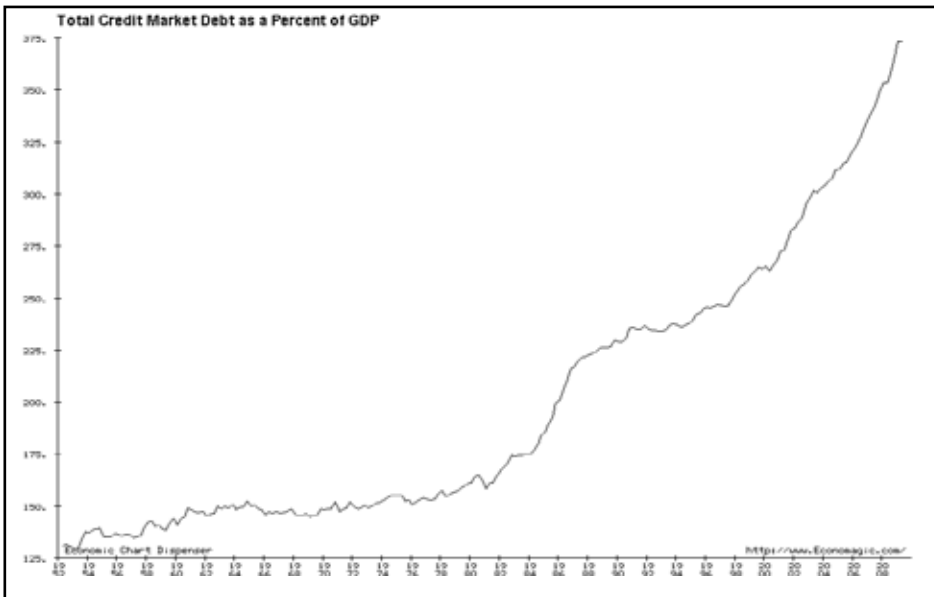


Figure 1: United States total credit market debt as percentage of gross domestic product, 1952–2009

Source: Economagic, www.economagic.com/em-cgi/data.exe/var/togdp-totalcreditdebt.

³ Mortgage Insurance Companies of America (2006) ‘commenting on proposed guidance to lenders on ‘non-traditional’ mortgages.

Figure 1 shows the US economy in this decade fuelled by rapid growth in debt. The predominant view of financial and macro-economic managers was that other variables were more critical. New levels of financial sophistication and economic management were overcoming the old boom–bust cycle. Phrases such as the ‘great moderation’ and the ‘Goldilocks economy’ (‘not too hot; not too cold’) were deployed.⁴ Increasing levels of debt were facilitated by improvements in financial markets and financial products, and it was assumed the marketplace should be left to sort out acceptable levels of debt.

The market did sort out acceptable levels of debt, but through a handbrake turn! We should not be surprised. *This Time is Different*, by Reinhart and Rogoff (2009), brings out a recurrent pattern over eight centuries of debt-fuelled asset price bubbles leading to the inevitable crash.⁵ Before each crash, there were strident claims that ‘this time is different’ – whether it was about South Sea islands, South American silver mines, canals, railways, dotcoms, or – the last manifestation – housing and new financial techniques.

This crash was no different, and Charles Mackay’s 1841 classic *Extraordinary Popular Delusions and the Madness of Crowds* still rings true (Mackay 1996). Are we unable to escape the madness of crowds? The economist Hyman Minsky outlines a cycle of economic boom leading to an appetite for increased risk and looser regulation, culminating in the ‘Minsky moment’, when the bubble bursts, leading to reaction in the opposite direction, and so forth (Minsky 2008).

The basic picture is of a behavioural cycle driven by greed and fear. In July 2007, before the big meltdown in 2008 but when the financial markets were already severely disturbed, the then president of Citibank said, ‘As long as the music is playing, you’ve got to get up and dance. We’re still dancing’.⁶ Is it hubris by the policy makers and financial leaders in thinking that a combination of new technology and market forces could provide escape from cyclical forces or hopelessness in seeing little chance of escape and so just going with the crowd?

Greed as new or greed as a constant

Compare two quotations from Alan Greenspan, the first from 1998, and the second – which we have already glanced at from 2008 (in Goodman 2008):

4 The former term may have originated from Stock and Watson (2002). It was favoured by both Mervyn King, the governor of the Bank of England, and Ben Bernanke. See, for example, Bernanke (2004). The latter term is attributed to David Shulman of Salomon Brothers by wikipedia.org.

5 The most well-known economic text on the recurring nature of financial bubbles is Kindleberger and Aliber (2005).

6 Charles Prince quoted in *Financial Times* interview, 9 July 2007. www.ft.com/cms/s/0/80e2987a-2e50-11dc-821c-0000779fd2ac.html.

Regulation of derivatives transactions that are privately negotiated by professionals is unnecessary.

The problem is not that the contracts failed. Rather, the people using them got greedy. A lack of integrity spawned the crisis.

Between 1998 and 2008 we move from a picture of consenting adults – they know what they are doing and will experience the consequences, so leave them to it – to one of excessive greed: they ‘got greedy’. The verb ‘got’ is the giveaway: imagine the shock headline in the *Wall Street Journal*, ‘Greed found in Wall Street’.

In fact, a whole series of revelations and commentaries by denizens of Wall Street going back to the 1920s show a remarkably consistent picture: downstairs brutal deal room managers bully their staff and ignore the rules whilst upstairs in the boardroom the grey heads reminisce over a more gentlemanly, golden age.⁷ Sociological workplace studies explain why deal room managers behave so badly (Godechot 2008a, 2008b). History is littered with large financial entities that went bust or were damaged due to outrageous greed.⁸

Greed and bad behaviour are not new and the ‘got’ in Greenspan’s ‘got greedy’ does not belong there. This time was not different in terms of greed either. Therefore, why did the new technology fail to deal with greed, if greed were indeed the problem?

We can use the work of Oliver Williamson – who belatedly received the Nobel Prize in 2009 – to unpack the concept of ‘greed’. Williamson puts together five factors:

- asymmetric information (when you and I contract, we each know pertinent things that the other does not know)
- incomplete contracting (it is neither feasible nor economic for a contract to specify every possible circumstance)
- myopia (undue weight given to the short term)

7 For the 1920s, see Lefèvre (2006). See also Brooks (1999). For the 1960s, see Brooks (1998). For the 1980s, see Stewart (1992), Mayer (1990), and Lewis (1990). For the 1990s and early 21st century, see Knee (2006) and Cramer (2002). And no doubt many more.

8 In the last quarter century before the most recent crisis, examples are (a key year indicated in brackets): United States – Continental Illinois (1984), Lehmans (previous incarnation, 1984), E. F. Hutton (1988), Drexel Burnham Lambert (1990), Citicorp (1991), Salomon (1991), Kidder Peabody (1994), LTCM (1997), Arthur Anderson (2002); United Kingdom – Barings (2005), Lloyds of London (1993), Equitable Life (2000); Ireland – Allied Irish Bank (1985, 2002); France – Lyonnaise (1993), Societe Generale (2008); The Middle East – BCCI (1991); Japan – Industrial Bank of Japan (1991), Daiwa (1995), Sumitoto (1998), Bank of Japan (1998), Sanwa (1998). The problems in Australasia with Westpac, the State Bank of South Australia, and the Bank of New Zealand were probably due mainly to poor management.

- opportunism (taking advantage of circumstances)
- satisficing (people economise effort – they are lazy).⁹

Thus, in a world of imperfect information and incomplete contracting, greed is expressed through myopia, opportunism, and laziness. The picture is of bounded rationality, with contracting (whether formal or informal) defining the bounds of both greed and risk.

Williamson's work is widely cited in contemporary economics and received considerable attention in designing contracts to deal with those five issues and solve the 'agency problem'. Greed cannot be eliminated but we know a lot about how to deal with and harness it. In Williamson's terms, adequate contracting serves to contain the adverse impact of greed on a contractual relationship. Weak or inappropriate contracting or enforcement of contracts is liable to lead to failure to contain problems with greed. This perspective is opposite to Greenspan's view that greed undermined contracts that were otherwise satisfactory.

Greed is scarcely new and we have a fair idea how to harness it. Similarly, and as I will discuss shortly, much work has gone into a better understanding of risk and how to handle it. Yet, along with greed, this was a point of failure in the crisis. As with previous bubbles, risk was underestimated, despite the sophisticated tools for assessing and handling it.

Governance and regulatory failure

One might expect that the best available technology for dealing with greed and risk would provide some shelter in the most recent crisis.

A 2009 international study of the crisis uses some well-established OECD metrics to assess the quality of banks' governance and the regulatory regimes to which they were subject (Beltratti and Stulz 2009). The study found an inverse relationship between the quality of governance and regulation on the one hand and the likelihood that the bank had run into difficulties on the other. The *better* governed and regulated the bank, the *more* likely it was to be in trouble. This seems counterintuitive until you put it the other way round: laggard banks were less likely to be in trouble. In other words, the industry leaders were heading over a cliff, with the ones at the back furthest from the edge. The best-available technology failed.

This pattern is illustrated in Figure 2. The figure shows, for the United States, the surge into issuing asset backed securities and then the even stronger move

⁹ Notably in Williamson (1985).

away from issuing this innovative type of security as the crisis began to build. Regulation and governance forms did not restrain the pursuit of profits through asset backed securities.

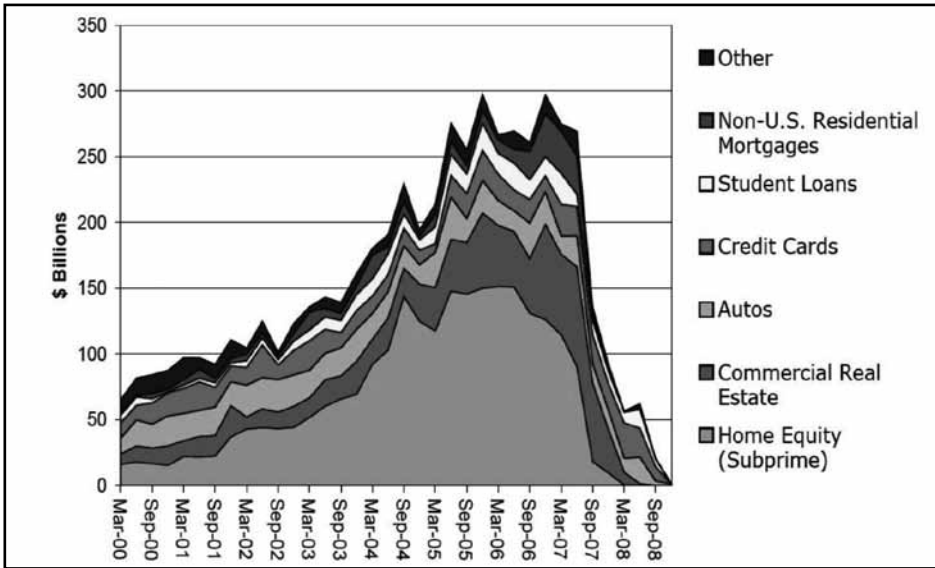


Figure 2: New issuance of asset backed securities, six monthly, 2000–2008

Source: J. P. Morgan from the International Monetary Fund website <http://imf.org/external/np/res/seminars/2009/arc/pdf/ashcraft1.pdf>.

As much of the problem originated in the United States, it could be argued that aspects of it originated from the deregulation in the financial sector that has been under way there since the late 1990s. However, the international nature of the problem and the extent of international effort put into developing the Basel I and Basel II banking accords show that the best regulatory practice (in terms of the prevailing wisdom at the time) may not achieve its goals and can be counterproductive. After 2008, Basel II is widely viewed as being deeply flawed and possibly inferior to its simpler predecessor, Basel I.¹⁰ However, this does not seem to have been a common view before the crash.

Nor can the problems be explained by the size or direction of international capital flows (for example, into the United States and United Kingdom). A new study finds no correlation between the size of the trade deficit or surplus and the extent of dealing in fancy debt instruments (Acharya and Schnabl 2009).

¹⁰ Each of the three pillars of Basel II – minimum capital requirements, supervisory review, and market discipline – requires a high degree of analytical precision and validation to achieve the aims of enhanced risk management and capital adequacy. Basel II gives banks more discretion in some areas than Basel I. As there are lower capital requirements for off-balance sheet items than for on-balance sheet items, the accord sets up perverse incentives for banks to shift liabilities off balance sheet.

For example, German and Icelandic banks were enthusiastic players. Nor is it a matter of big financial entities conning the innocent consumer or small Norwegian town council. The fancy debt instruments were almost entirely dealt between large financial entities (Acharya and Schnabl 2009). If anybody should have understood what was involved, they should have.

The best regulatory and governance endeavours failed and Greenspan's picture of consenting adults failed. With hindsight, it may well be possible to identify certain specific forms of regulation and governance that could have helped counter the crisis and much work is under way. But it would be foolish to say, 'This time is (or will be) different'.

Some of the tough-sounding proposals for regulating the financial sector in fact replicate what is already there. Here is the US Federal Deposit Insurance Corporation (2002, section 4.4–1(II)) on the responsibilities of bank boards:

bank directors are held to the highest fiduciary standards. They are responsible not only to the stockholders who elected them but [also for] the safety of depositors' funds and the pervasive influence the bank exercises on the community it serves.

This sounds both tough and wide-ranging. What about legislation to restrain greedy bankers' pay? Try this:

Compensation Standards – Each appropriate Federal banking agency shall, for all insured depository institutions, prescribe—

(1) standards prohibiting as an unsafe and unsound practice any employment contract, compensation or benefit agreement, fee arrangement, perquisite, stock option plan, postemployment benefit, or other compensatory arrangement [etc.].

The previous quotation is from section 39 of the Federal Deposit Insurance Corporation Improvement Act 1991. It has been in force for some 18 years.

In the United States, in the wake of the 'Savings and Loans' crisis of the 1980s and then in the wake of the Enron fraud and collapse at the beginning of this decade, requirements on banks in particular and corporates more generally have been toughened up in some areas, even as they have been relaxed in others.¹¹ Compliance costs from numerous law changes have been significant and unresolved issues of complexity arise from the interaction of different bodies of

¹¹ The most notable piece of new regulation is the Sarbanes Oxley Act 2002, which imposed new reporting requirements. In terms of deregulation, the Gramm-Leach-Bliley Act 1999 allowed commercial, investment, and insurance activities within a single bank while the Commodity Futures Modernization Act 2000 exempted much trading in futures from regulation by federal or state agencies.

legislation.¹² Current efforts (as of early December 2009) in the US Congress to draft the Wall Street Reform and Consumer Protection Act and, in particular, the Over-the-Counter Derivatives Markets Act, have produced much lobbying, debate, and confusion about phraseology and alleged loopholes, amendments that appear, disappear, and then reappear, and so forth. Starting with a good, clear intention is not enough.

This leads us to the familiar issue of regulatory failure and regulatory capture.¹³ If these were problems before the crisis, they will unavoidably be worse now. High stakes games played under intense pressure are liable to be ugly and destructive of high-minded principles, ivory tower theories, political undertakings, and legislative parameters alike. Previous regulatory bursts responding to financial crises or misdemeanors may have made matters worse.¹⁴

With footloose international capital, there is also the much-discussed problem of regulatory arbitrage: business gravitating towards regimes that have the softest touch.¹⁵ We are left seeking some robust but flexible rules and mechanisms for enforcement that can have international purchase. The G20 and other forums have yet to yield this.¹⁶

Moral hazard

The nature of the game and of the financial sector brings us to the issue of moral hazard. One aspect of moral hazard has been well known since Adam Smith: the problem of banks drifting toward high-risk investments because others will

12 Here are two examples. (1) The Due Diligence Repository was launched by Bankersalmanac.com in 2004. By 2009 it contained over '64,500 documents against 16,800 financial institutions, comprising licenses, corporate governance documents, anti-money laundering policies, USA Patriot Act/Foreign Bank Certification and the Wolfsberg Group Anti-Money Laundering Questionnaire' (American Bankers Association 2009). (2) In September 2009, the US law firm Davis Polk produced a 260-page guide entitled *A Guide to the Laws, Regulations and Contracts of the Financial Crisis* for 'anyone who wants to understand the flurry of new legislation, old law used in new ways, contracts with Treasury, press releases, frequently asked questions, guidelines and other rulemaking that has occurred at a dizzying speed over the last year and a half' (Davis Polk 2009, p. 1).

13 One recent report – *In Praise of Uneven Playing Fields* – is particularly critical of this aspect. See Warwick Commission on International Financial Reform (2009).

14 State-by-state research shows that strong regulatory responses to the 1929 crash tended to worsen subsequent bank failures (Mitchener 2007). Similarly, it can be argued that the main solutions to the savings and loans crisis of the 1980s – securitization, risk-based capital, and market value accounting – contributed to the present crisis. See White (1991). Regulatory missteps may also have played a part in creating the Savings and Loans crisis. See Barth et al. (2004).

15 Regulatory competition between financial centres was an argument advanced for deregulation in, for example, the report by the Presidential Working Group on Financial Markets (1999).

16 The G20 is a group representing 19 leading economies and the European monetary union. Collectively, they account for 85 per cent of the world economy.

share in the costs of failure to a greater extent than in the benefits of such investments (Smith [1776] 1994, pp. 290–340). One might expect that robust solutions would be in place by now.

The intrinsic moral hazard with banks – the government may have to step in and rescue large ones due to their economic importance – is precisely why they are subject to distinct and generally tight regulatory regimes and why for the past 20 years massive international effort has been put into the Basel I and Basel II banking accords. The first two banks to require bailing out in the present debacle were two German *landesbanks* – both with full underwriting by their unfortunate state governments (Acharya and Schnabl 2009).

Even with such generous backing, moral hazard does not mean bankers are indifferent to risk. Part of the costs of the downside is liable to be borne by the stakeholders in the entity concerned. Managers and board members risk prosecution for breach of fiduciary or other duties.¹⁷ Bailouts and a smooth ride for management are not guaranteed. Accounts of the Lehmans and AIG collapses illustrate the highly uncertain future at the time for even the biggest of the commercial financial institutions. As the chief executive of Morgan Chase put it, ‘There aren’t enough lifeboats. Someone is going to die’.¹⁸ Among the major firms, Bear Stearns, Lehmans, Merrill Lynch, Wachovia, and Washington Mutual did not survive 2008 as independent entities. In 2009, to the end of November, over 120 US banks failed, 5 with assets of over \$10 billion (Federal Deposit Insurance Corporation 2009). There are other kinds of risk for financial leaders. The board and chief executive of Royal Bank of Scotland, for example, can scarcely have been indifferent to becoming figures of derision and hate. Iceland’s banking leaders have found themselves repudiated by their fellow citizens.

Obviously, such outcomes were not expected, which illustrates the underestimation of risk that we shall turn to shortly. However, another source of moral hazard lies behind the current crisis and arises from outside financial markets. In the United States, two ‘government-sponsored’ housing agencies, Fannie and Freddie, and a succession of legislation under both Democrats and Republicans – notably the Community Reinvestment Act 1977, the Housing and Community Development Act of 1992, and the American Dream Downpayment Act 2003 – sought to make mortgages, and thus house ownership, more accessible to the poor. Regulators instructed banks to consider alternatives to traditional credit histories because borrowers targeted by the Community Reinvestment Act

17 Following the Savings and Loans crisis of the 1980s, several leading financiers – notably Charles Keating – were indicted.

18 The most well known account so far is Sorkin (2009). See also, for example, the Bloomberg series of articles in *Bloombergs* magazine of 8–10 September 2009 on the Lehmans collapse: Ivry et al. (2009a, 2009b) and Pittman and Ivry (2009). The quotation is on the back cover of Sorkin (2009).

often lacked traditional credit histories. The banks were expected to be creative and consider other indicators of reliability. Similarly, regulators expected banks to relax income requirements (see Litan et al. 2000; Meyer 1998; Comptroller of the Currency Administrator of National Banks 1996). Thus, in pursuing social justice aims, successive governments encouraged loose lending practices for housing. Fannie and Freddie were not federally guaranteed but became the two biggest recipients of federal rescue money.

In pursuing social justice in this way, not only was the housing bubble fed, but the commutative justice of marketplace contracting was undermined. The usual lender's considerations of a borrower's ability to repay and of ensuring the borrower had shown the ability to save and had 'skin in the game' through a down payment were removed. A contract might be signed between lender and borrower but the driver was public policy and the hidden guarantor was Freddie or Fannie and thus, as it turned out, the taxpayer. Neither borrower nor lender was liable to face the full consequences of their actions, so the bilateral contract in many cases became a sham, held in place by moral hazard. With the downturn in house prices, the sham was revealed. The pursuit of social justice by making mortgage funding more accessible, expanded the moral hazard in the financial sector. US housing policy was a destabilising factor in the financial sector.

Risk

Government guarantees and bailouts in the financial sector may shift risk appetites but the core puzzle is the huge underestimation of risk by the financial sector before the crisis. My appetite for investment risk may rise if I (the investor) think I can shed much of the downside onto you, but I still need to evaluate the risks being run before deciding to make an investment: how likely are the downsides and upsides to occur, and how much downside risk can I really shed?

Broadly, the role of financial markets is to match those who have capital with those who want capital and discover a price for the deal. That means pricing the risk involved. The under-pricing of risk revealed in the 2008 bust was a major malfunction by financial markets and the financial institutions. They got it wrong.

Against the Gods: The remarkable story of risk was written in 1998 and describes how humanity has, over the ages, got better at estimating and handling risk and thus discovering business opportunities (Bernstein 1998). It discusses the history of an investment firm called Long Term Capital Management (LTCM) in the 1990s. Two economists, Black and Schoels, received the Nobel Prize for their pioneering work on modelling risk. LTCM was set up to operationalise their

model, which worked extremely well in the real world and made vast sums of money, until it didn't. LTCM went bust and to prevent contagion was bailed out by other Wall Street firms (Lowenstein 2000). *Against the Gods* sees that as a blip on the upward path of risk analysis. Since LTCM-leading Wall Street firms have hired many quantitative analysts or 'quants' – typically with postgraduate qualifications in maths and science from MIT (the Massachusetts Institute of Technology) – to undertake more and more sophisticated risk analysis for them. This worked well, until it didn't.¹⁹ One hedge fund is said to have given its clients a chess set inscribed with the words of a chess grandmaster, 'It often happens that a player carries out a deep and complicated calculation, but fails to spot something elementary right at the first move'.²⁰

The extensive use of quants in the financial sector shows the concern there to measure risk. Sophisticated approaches to measuring 'value at risk' and for 'stress testing' were developed so managers could assess and control the exposure of their company to risk. But the vulnerability to mundane human failure remains. Faced with complex situations, people use computational shortcuts (Tversky and Kahneman 1992). For example, in 2000, the market for collateralised debt obligations was revolutionised by David X. Li, working at J. P. Morgan. Rather than requiring vast amounts of data analysis, Li developed a simple formula for correlating the default rates between different securities. He appeared to have found a convenient law of correlation. His approach was rapidly adopted throughout the industry and it worked well, until it didn't. The years 2007 and 2008 proved his approach to be completely inadequate; the shortcut was illusory.²¹ To quote G. K. Chesterton, 'the world's exactitude is obvious, but its inexactitude is hidden; its wildness lies in wait' (quoted in Bernstein 1998, p. 331).

In *Black Swan*, Nassim Taleb (2007) argues that the quant approach is unable to allow for rare, outlier events. If you have only seen white swans, you are not expecting, and do not allow for, a black one. Thus, quant analysis provides only spurious accuracy. But, as *This Time is Different* (Reinhart and Rogoff 2009) shows, there is no shortage of historical black swans – if one is prepared to look. Analysts have long been aware of the problem of so-called 'fat tails': financial markets do not show anything like a statistically normal distribution of outlier events – such events are more common, so more dangerous, than that.²²

Yet risk modelling in the financial sector was very poor at allowing for outlier events. There appear to be at least three aspects to this.

19 Discussed in Haldane (2009b).

20 Amaranth Hedge Fund, which went bust in 2006 in one of the largest hedge fund collapses to that date.

21 See Salmon (2009). A more favourable view is taken by Tett (2009).

22 See, for example, Mandelbrot and Hudson (2006). The work by Tversky and Kahneman (1992) is seminal.

- Incentives were weak to look at worst-case scenarios; as in most large institutions, why undermine day-to-day practices by looking for trouble.
- There was genuine – even extraordinary – belief in the effectiveness of the risk modelling undertaken and thus in the extreme unlikelihood of events unfolding as harshly as they did.²³
- Increasing complexity and inter-linkages of markets – partially fostered by the risk modelling and new financial products themselves – increased interdependency and reduced the ability to comprehend the exposures to other parties involved.²⁴

The tendency to underestimate risk appears embedded. A November 2009 report to G20 finance ministers and governors found that self-assessments by 20 large financial institutions were ‘too positive and that much stronger ongoing management commitment to risk control’ as well as greater resources were required to ‘close gaps between actual and recommended practices’ (Financial Stability Board 2009, p. 4).²⁵ The expectations embodied in ‘recommended practices’ may well appear to banks as an exogenously imposed extra cost to doing business that is best minimised under competitive pressure: management ‘buy-in’ is needed.²⁶ However, this leaves unresolved the issue of assessing and allowing for risk from outlier scenarios.

To summarise so far, we find a clear impending disaster that was ignored, the implementation of prevailing wisdom on governance and regulation that failed and may have been counterproductive, US government housing policies that added fuel to the fire, the use of best available risk analysis that failed and failed predictably, and an industry unwilling fully to address risk issues in the ways that regulators seek.

Systemic risk and network management

The alternative to blaming particular groups or entities for the meltdown has been to look at systemic risk and see the need for coordinated action at a systemic level. One writer states that the ‘wizardry’ of recent financial innovations is ‘increasing complexity, and by forging tighter links between various markets and securities, making them dangerously interdependent’ (Bookstaber 2008). If

23 Examples of both are given by Haldane (2009a). See also Guttentag and Herring (1986).

24 See, for example, Bookstaber (2008). The role of financial modelling in shaping the markets it seeks to model is discussed in MacKenzie (2006).

25 The Financial Stability Board was referring to a ‘Senior Supervisors Group report’ of October 2009.

26 The Basel Committee on Banking Supervision found that the viability and usefulness of a bank’s economic capital processes – as required by Basel II – depended critically on the existence of a credible commitment or ‘buy-in’ on the part of senior management (Bank for International Settlements 2009).

crowd mentality or systemic risk is the driving force, then policy needs to deal with the crowd or systemic level; network externalities need to be addressed at the network level (see, for example, Kern et al. 2005; Morris and Shin 2008). The whole is greater than the sum of its parts.

Models of infection (whether for the spread of disease or of ideas) are well established in the social sciences. Patterns of usage on websites such as Facebook, YouTube and Twitter demonstrate network behaviour, how things go viral, and so forth, so can help in the design of control mechanisms as can analysis of ecosystems (see Sornette 2009; Crane 2009).

A well-received paper by Andrew Haldane at the Bank of England puts forward several network management solutions on this basis (Haldane 2009a, pp. 16–7). His approach is insightful and some of the solutions may well be valid. However, there is a non-trivial flaw with his and similar approaches. It parallels the flaws with many of the approaches to macro-management and financial supervision and governance that recently failed.

The efficient market hypothesis assumes that enough people are sufficiently rational and sufficiently well informed for a sufficient amount of the time so that markets will work quite smoothly to discover market-clearing prices and allocate scarce resources. The market largely looks after itself, provided the right framework of rules is provided. The granularity of actual deals and behaviours in the market place vanishes. The network management approach recognises the clumpiness around ‘nodes’ and the risks of infections and surges through the network. But, in a similar fashion to the efficient market hypothesis, the graininess of real-life deals vanishes. The market may no longer quite look after itself because of network effects, but a big spider sitting in the middle of the network (such as the Bank of England) can provide control.

The managerial approach to networking makes no reference to trust or integrity or pursuing value for money through the efficient use of resources. The distinguishing characteristics of the marketplace vanish. Instead, analysis of ecosystems or the use of websites such as YouTube is used to provide examples and test beds for network management. This is revealing. Interaction in such cases is largely or entirely non-contractual. The flows of information and network behaviours are consequent on that. Hence, the contractual problem and the way its solutions shape economic institutions are irrelevant. Consequently, the solutions that contracting can provide to opportunism, myopia, and so forth do not apply. Yet, based on Williamson, these contractual solutions are why financial institutions are the way they are and why they rarely show the same patterns of behaviour as ecosystems or YouTube. Market behaviour most resembles such patterns when contracting is superficial or momentary.

The network approach removes itself even further from the details of the marketplace than the efficient market hypothesis. Rather than seeking a higher and higher overview, maybe, as with the boss figure in the current Auckland Savings Bank advertisement, we need to be brought down about 20 storeys so we can ‘almost see people’ from our office window. Then we can discover that ‘markets are as personal as the people in them’.²⁷ Looking at the dynamics of bilateral contracting and the bounded rationality of those involved brings people back into the picture. It also brings ethics back into the picture at the person-to-person level, for contract law is based on a system of moral precepts.

Contracting

The financial innovations of recent years have greatly modified and stretched the nature of contracting.²⁸ It is a commonplace that, over the last quarter century, banks have moved from relational lending – based on personal contacts and knowledge at the bank manager level – to more wholesale and transactional approaches to lending, where transaction costs are lower but competition is more open (see, for example, the discussion in Rajan 1998). Recent innovations have further shifted the locus of contracting.

To gain flexibility and to respond to global opportunities and changes, financial markets seek liquidity; that is, ready saleability of an asset.²⁹ For the individual investor, more liquidity is also generally preferable. The other side of liquidity is less commitment: if I can readily cash up my investment, I am not committed to it. The search for liquidity creates pressure to reduce commitments and hence to loosen up or find ways round contracts that otherwise would bind or limit the actions of the parties concerned. Hence, the move to greater liquidity and flexibility has also been a move to looser contracting and lower levels of mutual commitment by parties.

This has consequences for the way greed and risk are framed and constrained by contracting. Take the remark by Greenspan (1998) quoted earlier:

Regulation of derivatives transactions that are privately negotiated by professionals is unnecessary.

²⁷ A phrase ascribed to the economist and social commentator Thomas Sowell.

²⁸ For example, Haldane (2009a, p. 7) states, ‘Diversification came care of two complementary business strategies. The first was “originate and distribute”. Risk became a commodity. As such it could be bundled, sliced, diced, and then re-bundled for onward sale. Credit became, in the jargon, structured. Securitization was one vehicle for achieving this. Derivatives, such as [credit default swaps], were another. As these marketable instruments passed between participants, the network chain lengthened’. Talking of AIG, Haldane (2009a, p. 16) remarks, ‘The network chain was so complex that spotting the weakest link became impossible’.

²⁹ The concept of liquidity in economics is considerably more complex than this!

Behind this are assumptions both about the capabilities of the professionals involved and the meaningfulness of their contracting. Without the latter, the former fails. If risk and greed are not well bounded, then they cannot be factored in accurately. Greed may not have changed but the vessel to contain it has. If Williamson's approach is accepted, the institutional forms to undertake and enforce such contracting have either changed or need to change if they are to cope with the new high liquidity, global environment.

We have seen how the pursuit of social justice through housing finance riddled the contractual relationship between borrower and lender with moral hazard, because government policies and agencies were effectively a third party to the deal. Competition and innovation have also shifted the nature of contracting. Two instances can be used to illustrate the weakening of contractual relationships occurring in consequence of the financial innovations of recent years.

First consider Mortgage Electronic Registration Systems Inc (MERS), which the big banks set up to facilitate the transfer and recording of mortgages. MERS is vital to the 'slicing and dicing' of mortgages used to construct some of the new debt instruments that fuelled the financial boom. Without MERS, mortgages could not have been so packaged and transferred in financial market dealings. Most US mortgages now reside on the MERS system. But MERS and the trading of mortgages it facilitates create numerous contractual problems. MERS is not a mere register; it actually holds the mortgages. As mortgagee of record, MERS is both agent and principal to lenders and banks. The original holder of the mortgage is rarely the party servicing the mortgage, and modifications and changes of ownership made through MERS will be unknown to the real owner of the promissory note. When a payoff is made, MERS records the release, although it never held a financial interest and the real owner files no release of the mortgage.

These may seem like technicalities but there is a real effect. By making mortgages into mere data points that can be readily aggregated, packaged, sold, and resold, MERS undermines the original contractual relationship between lender and borrower. The borrower may find they are negotiating with an unknown or unexpected party.³⁰ MERS has been widely criticised in courts and its legal standing is in doubt. As one court judgment put it, 'The relationship that MERS has to (the holder of a loan) is more akin to that of a straw man than to a party possessing all the rights given a buyer'.³¹

30 Though not posing the same legal issues, in New Zealand in 1991 the mortgage portfolio of the Crown-owned Housing Corporation was sold to a private company owned by an investment bank. Mortgagees soon found their mortgage payments substantially increased. See *Hansard: Parliamentary Debate* for 5 October 1994 at <http://vdig.net/hansard/content.jsp?id=43766>.

31 Kansas Supreme Court in *Landmark National Bank v. Kesler* 2009 Kan. LEXIS 834 (28 August 2009). It was also stated, 'The relationship that MERS has to [the holder of a loan] is more akin to that of a straw man than to a party possessing all the rights given a buyer ... The law generally understands that a mortgagee is

At the same time, the financial packages assembled together by ‘slicing and dicing’ huge numbers of separate mortgages cannot be assessed by any conventional means, with the ‘due diligence’ documentation estimated to run to over 1 billion pages for some collateralised debt obligation packages (see Haldane 2009a). Hence, the relationship between both borrower and lender and between those selling and buying financial assets has, in the last 10 years or so, been stretched by financial innovations.

The second instance of weakened contractual relations can be drawn from another notorious form of financial instrument: derivatives that enable positions to be taken out against specified future movements in prices. As a farmer or exporter I may wish to insure against unexpected future movements in crop prices or exchange rates or to lock in a current price. Derivatives enable me to take out such insurance and have been around since at least the 17th century.³² However, as a speculator I may also wish to bet on the direction of future price movements. Broadly speaking, the difference is between insurance and gambling. In one case, I am seeking to reduce risk from something I have exposure to. In the other, I am seeking exposure to risk where otherwise I would have none. Of course, in real life it gets more complicated than that. Historically, common law cases have developed sophisticated criteria for distinguishing between insurance and gambling and different procedures for dealing with the relevant contracts. As derivatives developed, so did the common law dealing with them (see Stout 1999). But in the United States, futures were removed from common law coverage and subject to specific ‘black letter’ law, notably the Commodity Exchange Act 1936, which banned some forms of financial speculation, with various attempts to strengthen market oversight of futures since.³³

Since then, derivatives have been used not only for insurance and gambling but to launch hostile attacks on companies by driving down the price of their options or to overinsure a company against failure of its own product so it has been able to bet against both its own product and customers.³⁴ Again, the

not distinct from a lender: a mortgagee is “[o]ne to whom property is mortgaged: the mortgage creditor, or lender.” ... What stake in the outcome of an independent action for foreclosure could MERS have? It did not lend the money ... MERS is not an economic “beneficiary” under the Deed of Trust. It is owed and will collect no money from Debtors under the Note, nor will it realize the value of the Property through foreclosure.’ See also Commonwealth of Massachusetts Trial Court in *US Bank National Association v. Ibanez* and *Wells Fargo Bank v. Larace* 29 October 2009 (www.boston.com/business/articles/2009/10/15/ibanezruling) and New York Court of Appeals *Merscorp v. Romaine* NY Int 167 (2006).

32 See the 17th century writer Joseph De la Vega (1688).

33 The Commodities Futures Trading Commission was set up in 1975 and deals with financial as well as commodity futures. It has struggled with its task and its remit has been extended or reduced on various occasions, for example, by the Commodity Futures Modernization Act 2000. Recently, President Obama has criticised its effectiveness with respect to energy futures (Obama for America n. d.).

34 Goldman Sachs sold subprime-mortgage investments but in 2006 began using derivatives to trade against its own product and clients, without informing them. Chief financial officer David Viniar boasted that their risk bias in the mortgage was short and their net short position profitable (Goldman Sachs 2007).

relationship between the buyer and seller of financial assets is undermined. Application of the common law to this area is now hypothetical but it is noteworthy that historically courts were sensitive to drawing the boundaries of legally enforceable derivative contracts so as to preserve the sanctity of bilateral contracting for the provision of specific goods or services from being undermined by speculative activities (Stout 1999).

These examples show how financial innovations can weaken the basis of contractual relations, with the consequent danger of greed leaking out.³⁵ Previous approaches to, and understandings of, commutative justice no longer apply and solidarity and mutual trust are undermined. Both examples also show how, conversely, the application of common law principles has the potential to return focus to the underlying contract, the parties to that contract, and those parties' responsibilities.

Trust and liquidity

These examples bring out a further consequence of moving away from traditional forms of contracting and commitment: the problem of trust. With the erosion of tight bilateral forms of contracting and their enforceability through a well-understood pattern of contract law, in whom can we trust?

In the complex 'slice and dice' of MERS-based packages, the individual mortgage vanished from sight. Trust was placed in risk modelling and the ratings agencies that provided the label on the package. Liquidity may reduce the need for trust in others but rests on the assumption of a readily accessible market and that the party concerned will know when to utilise that liquidity. Rather than trust in others, liquidity rests on trust in one's own ability to reach the exit quicker than others. The financial crisis showed that this was an unwise assumption. When many parties simultaneously try to exit specific assets, that market becomes illiquid and the assets devalue rapidly, if they can be sold at all. In the 2008 crisis, insurance purchased by major financial entities to cover various exposures they held also proved illusory because the main insurer, AIG, failed. Liquidity and trust in counterparties vanished, and the market teetered on collapse.

Surprisingly, it was not that trust was too low in the build up to the crisis but that trust was far too high or was misplaced. The basis of mutual trust built through clear bilateral contracting occurring within a well-understood, predictable, and relevant legal framework had been lost. In the new era, trust did not prove well founded, whether it resided in the ability to be first to the exit, the reliability

³⁵ Some examples from the 18th century can be found in Dale (2004).

of counterparties to each trade (that is, reputation and labelling), or in risk analysis. In addition, otherwise sound bilateral contracts were inter-locked with those that were not sound. The slowness of financial firms to address risk issues after the 2008 crash may in part stem from the difficulty and implications of not being able to assume reasonably high levels of trust in the business from which they draw their living. Without some level of trust, there can be no music to dance to.

In the wake of the crisis, suggested solutions are focusing on better regulation and on methods to control network or systemic risk. Whatever the value of such solutions, for the most part they do not deal with the issue of the erosion of contractual relations and of commutative justice in the financial marketplace and thus of finding a basis for substantive, mutual trust. Without a well-developed and understood framework to determine what is in and what is out of bounds, players in the marketplace can place little trust in bilateral contracting with each other; it lacks foundation.

The most notable exception to this lacuna in current approaches is the proposal to anchor various types of over-the-counter transactions in specific exchange bodies. This is an attempt to tie down and systematise bilateral contracting in over-the-counter transactions by making the exchange body the counterparty to each deal, rather than over-the-counter transactions involving myriad counterparties in a complex web.³⁶ The experience of MERS suggests a critical challenge will be to ensure the central counterparty for such dealings has legal substance and is not a straw man.

Morality and the law as foundation for change

There are no magic solutions to the problems faced with financial markets; nor can we wind back the clock to the era when traditional commercial banking dominated. However, reference points for navigation can be provided through basic legal precepts and frameworks relating to contract. These provide a platform for fair dealing in bilateral contracts in the marketplace; that is, they provide commutative justice.

Evidence for this possibility is shown in major commercial contracts. Internationally, wherever they originate, such contracts usually include a 'choice of law' clause, and the law chosen is a common law jurisdiction where there is depth of judicial practice.³⁷ The reason for this preference is that the contracting

³⁶ Progress is discussed in Financial Stability Board (2009).

³⁷ For example, corporations are often formed subject to the jurisdiction of the State of Delaware and commercial contracts made subject to the jurisdiction of the State of New York.

parties know broadly what they are getting in terms of the legal framework and its implications. The effect is to make their contracting less incomplete, as the principles and procedures applied by courts should there be a dispute between the parties are predictable. Even for those wishing to proceed dishonestly, the wrong signals are sent to potential partners if a weak or obscure legal regime is sought instead. In this way, the quality of legal regime preferred is driven up rather than being driven down, as with regulatory arbitrage.

Research from the 1990s showed that both capital markets and investor protections were strongest in those countries applying common law (La Porta et al. 1997, 1998). By contrast, pre-crash research found little evidence for the superiority of one form of financial market regulation over another (for example, centralised as against decentralised regulation) (Barth et al. 2002). As we have noted, post-crash research has found the quality of regulation to be inversely related to the adverse impact of the crash. All this points to the legal framework for contracting, rather than financial regulation, as providing the basis for sound financial markets.

Both greed and risk – and the need to handle them in order to undertake commerce – are as old as civilisation. For many countries, basic legal precepts reflect a shared derivation of underlying concepts from the great monotheistic religions and subsequent Christian, Jewish, and Islamic understandings of justice and jurisprudence. These interpretations have been set out most notably through Halachaic (Jewish) law, Sharia (Islamic) law, and Anglo-Saxon common law.³⁸ Of course, the extent and working out of their origins are much debated but one can detect common moral foundations and rules of thumb built upon them.

An interesting comparison can be made. The reach of common law is enormous. Its framework is there to achieve commutative justice for the parties to the contract and make contracting workable. Its jurisdiction is sought after internationally and some underlying precepts are held in common across Western and Middle Eastern societies, and former European colonies beyond that. By contrast, specific regulation of financial markets is typically ‘top down’, very recent in origin, specific to a locality, subject to major shifts, and mostly pursuing broader

38 The seminal work of John Selden (1679), *De Synedriis & Praefecturis Juridicis Veterum Ebraeorum*, traces the relationship between ancient Jewish legal structures and procedures and those of the Classical and Arab worlds and Christianity. Selden was co-participant with Hugo Grotius in the founding debates for modern international law and was chosen by Oliver Cromwell to draft England’s constitution. See Berkowitz (1993). Selden appears to have influenced the views of key legal interpreters and experts on jurisprudence such as William Blackstone ([1763] 1983, cf Vol. 4, p. 59) and Lord Mansfield who in *Chamberlain of London v. Evans* (1767) states, ‘The essential principles of revealed religion are part of the common law’ (speech to the House of Lords, 4 February 1767, see Cobbett 1813, col. 319). Similarly, the impact of Hebrew Scripture on Puritanism was a core resource for developing republican practices and civic norms in the American colonies. See, for example, Cherry (1998).

ends than fairness and predictability for the contracting parties. Consequently, problems arise with regulatory arbitrage and with achieving the necessary degree of buy-in to new regulations by those subject to them, in addition to questions of regulatory failure.

Because common law is the most well-developed and widely accepted basis for commercial practice, it can provide a reference point or platform for the development of real-world contracting practice. Within the bounds set by its framework, it is highly adaptive by means of case law. One example, already noted, is the development of US case law on derivatives in the 19th century. Another example can be drawn from Britain. Before the collapse of Northern Rock in 2007, the last major bank bust in Britain was Overend Guerney in 1866. Overend Guerney was the 'bankers' bank' and its collapse caused significant economic damage. It was occasioned by the bank's misuse of the new vehicle of limited liability companies to over-leverage its bets on a railway boom. After much recrimination and debate, the government left the legislation little changed, taking the view that investors would learn their lesson and that the courts should be left to work through the implications of the new corporate form (Taylor 2006). This appears to be what happened.

Amidst the rubble of the most recent financial bust, we can find some clear reference points and deep-seated rules of thumb provided by an inherited legal and moral framework. Take two specific illustrations of how this might work.

The first illustration is in terms of improving *oversight*. In Basel II and elsewhere much attention has been given to developing sophisticated criteria to distinguish between banks' on- and off-balance sheet items and then to apply different liquidity tests based on such distinctions. Metrics for the tightness and enforceability of bilateral contracting through accepted jurisdictions could probably be as easily developed and would be less liable to produce perverse incentives on banks than the on- and off-balance sheet approach. Minimum capital requirements on banks could be set higher where banks entered into more remote contracting and/or placed contracts outside the most well-known common law, or equivalent, jurisdictions for the type of contract concerned.

The second illustration is in terms of improving *industry practice*. Risk analysis could usefully analyse risks arising from the contractual form itself as well as exogenous events and default risks. Thus, metrics for the degree of stretch in contracting and for the quality and predictability of jurisdiction(s) applying could be developed that would, for example, capture the risks inherent to MERS or be consequent upon the removal of common law coverage of an area.

Such approaches would neither have prohibited recent developments in financial instruments nor applied additional sets of regulations. Instead, these

kinds of approach can identify and internalise (or at least price) the likely costs of innovations or other moves that shift activities away from familiar forms of contracting anchored in a reliable framework for financial transactions. They aid transparency both for the financial sector and for those responsible for its oversight.

Using existent legal frameworks and principles as the reference point moves the focus away from attempting to constrain risky competition and innovation through regulation. Such constraints necessarily struggle with market forces and, if successful, incur unknown costs from innovations forgone. Instead, the suggested focus is on developing the framework for commutative justice so it can continue to provide the basis for fair contracting. Such contracting, when based on a sound framework of law, is the front-line defence and most viable means of constraining greed and contractual risk.

Conclusion

The resources that have been invested during the past decade in governance, regulation, and risk analysis in the financial sector probably far exceed such investment in other sectors. The failure in the financial sector is, therefore, sobering and suggests great caution about how much we know and can deliver through new policy technology. Rather than pursuing lofty goals or solving problems through the top-down application of sophisticated techniques, the moral of the story points toward the practice of ethical policy and governance through established principles of day-to-day fairness applied so as to build and earn trust.

The commutative justice necessary to smooth functioning of contracting in the marketplace does indeed rest on what the Vatican calls 'internal forms of solidarity and mutual trust'. However, the foundations for these lie in the framework of law that provides a basis for determining day-to-day fairness and for adapting past criteria and decisions in the light of new technologies and circumstances. Commutative justice does not flow from the pursuit of distributive justice or social justice by means of market mechanisms. Its requirements are not the same. Pursuing distributive justice or social justice through the market can weaken rather than strengthen the workings of the marketplace, as shown by the impact of the housing boom that led into the financial crisis.

There is a high price to be paid for weakening commutative justice. This chapter suggests the erosion of common law principles and their application in the financial developments of recent years undermined the basis for sound bilateral contracting and mutual trust. In consequence, the ability to harness – set the boundaries for – greed and risk through contracting was diminished.

Trust in sophisticated risk analysis, macro-management and new financial and regulatory techniques has proved to be misplaced. The precise dynamics of how that occurred and who is to blame are beyond our scope. Blaming 'greed' does not help to elucidate matters.

A focus on sound bilateral contracting, along with fairness and predictability in legal procedures and enforcement, provides a humble building block and reference point. It does not exclude other approaches to the regulation and governance of financial institutions and markets. Rather, by drawing on the well-tested foundation of common law-based approaches and principles, it can provide fresh ways of thinking about how to contain the problems that recently devastated global finances.

References

- Acharya, V. V., and P. Schnabl. 2009. 'Do global banks spread global imbalances? The case of asset-backed commercial paper during the financial crisis of 2007–2009.' Paper presented at the 10th Jacques Polak Annual Research Conference, Washington, DC, 5–6 November.
- American Bankers Association. 2009. *BAFT Welcomes Re-Launch of Due Diligence Repository*. News release, 17 February. www.aba.com/Press+Room/021709DueDiligenceRepository.htm.
- Bank for International Settlements. 2007. *77th Annual Report 1 April 2006 – 31 March 2007*. www.bis.org/publ/arpdf/ar2007e.htm.
- Bank for International Settlements. 2008. *78th Annual Report 1 April 2007 – 31 March 2008*. www.bis.org/publ/arpdf/ar2008e.htm.
- Bank for International Settlements. 2009. *Range of Practices and Issues in Economic Capital Frameworks*. Basel, Switzerland: Basel Committee on Banking Supervision. www.bis.org/publ/bcbs152.pdf.
- Barth, J. R., D. E. Nolle, T. Phumiwasana, et al. 2002. *A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance*. Economics Working paper 2002–2. Washington, DC: Office of the Comptroller of the Currency.
- Barth J. R., S. Trimbath, and G. Yago (eds). 2004. *The Savings and Loan Crisis: Lessons from a regulatory failure*. Norwell, MA: Kluwer Academic Publishers.

- Beltratti, A., and R. M. Stulz. 2009. *Why Did Some Banks Perform Better During the Credit Crisis? A cross-country study of the impact of governance and regulation*. Working paper 2009-12. Columbus, Ohio: Ohio State University, Charles A. Dice Center for Research in Financial Economics. <http://econpapers.repec.org/paper/eclohidic/2009-12.htm>.
- Benedict XVI. 2009. *Encyclical Letter: Caritas in Veritate*. Rome: The Vatican.
- Berkowitz, A. 1993. 'John Selden and the biblical origins of the modern international political system.' *Jewish Political Studies Review* 6(1–2): 27–47.
- Bernanke, B. S. 2004. 'The great moderation.' Remarks at meetings of the Eastern Economic Association, Washington, DC, 20 February.
- Bernstein, P. 1998. *Against the Gods: A remarkable story of risk*. New York: Wiley.
- Blackstone, W. [1763] 1983. *Commentaries on the Laws of England*. Birmingham, Alabama: Legal Classics Library.
- Bookstaber, R. M. 2008. *A Demon of Our Own Design: Markets, hedge funds, and the perils of financial innovation*. Hoboken, NJ: John Wiley & Sons.
- Brooks, J. 1998. *The Go-Go Years: The drama and crashing finale of Wall Street's bullish 60s*. New York: Allworth Press.
- Brooks, J. 1999. *Once in Golconda: A true drama of Wall Street 1920–1938*. New York: John Wiley & Sons.
- Buffet, W. 2003. Chairman's letter to the shareholders of Berkshire Hathaway Inc., 21 February. In *Berkshire Hathaway Inc, 2002 Annual Report*, pp. 3–23. www.berkshirehathaway.com/2002ar/2002ar.pdf.
- Cherry, C. 1998. *God's New Israel*. Chapel Hill: University of North Carolina.
- Cobbett, W. (ed.) 1813. *The Parliamentary History of England*. vol 16. London: T. C. Hansard. (Available from the Oxford Digital Library, www2.odl.ox.ac.uk/gsd/cgi-bin/library?e=d-000-00---0modhis06--00-0-0-0prompt-10---4-----0-11--1-en-50---20-about---00001-001-1-1isoZz-8859Zz-1-0&a=d&c=modhis06&cl=CL1&d=modhis006-aap.)
- Comptroller of the Currency Administrator of National Banks. 1996. *New Opportunities to Excel Outstanding CRA Actions for Community Banks*. www.occ.treas.gov/cra/excel.htm.
- Cramer, J. 2002. *Confessions of a Street Addict*. New York: Simon & Schuster.
- Crane, R. 2009. 'Network effects and risks.' Unpublished presentation. Swiss Federal Institute of Technology.

- Dale, R. 2004. *The First Crash: Lessons from the South Sea bubble*. Princeton, NJ: Princeton University Press.
- Davis Polk. 2009. *A Guide to the Laws, Regulations and Contracts of the Financial Crisis: Financial crisis manual*. www.davispolk.com/files/News/7f041304-9785-4433-aa90-153d69b92104/Presentation/NewsAttachment/3c9302c0-409f-4dd1-9413-24e8cd60cd93/Financial_Crisis_Manual.pdf.
- De la Vega, J. 1688. *Confusiones de Confusiones*. Reprint edn. In M. S. Frisdon. 1996. *Confusions and Delusions: Tulipmania, the South Sea bubble and the madness of crowds*. Hoboken, NJ: John Wiley & Sons.
- Economagic. n. d. *Economic Time Series*. www.economagic.com/em-cgi/data.
- Federal Deposit Insurance Corporation. 2002. *Manual of Examination Policies (Safety and Soundness)*. Washington, DC: Federal Deposit Insurance Corporation.
- Federal Deposit Insurance Corporation. 2009. *Bank Failures in Brief: 2009*. Washington, DC: Federal Deposit Insurance Corporation. www.fdic.gov/BANK/HISTORICAL/BANK/2009/index.html.
- Financial Stability Board. 2009. *Progress since the Pittsburgh Summit in Implementing the G20 Recommendations for Strengthening Financial Stability: Report of the Financial Stability Board to G20 finance ministers and governors*. Basel, Switzerland: Financial Stability Board.
- Frieden, T. 2004. 'FBI warns of mortgage fraud "epidemic": Seeks to head off "next S&L crisis".' *Cable News Network*, 17 September. <http://edition.cnn.com/2004/LAW/09/17/mortgage.fraud>.
- Friedman, M. 1994. *Money Mischief: Episodes in monetary history*. 1st Harvest edn. San Diego: Mariner Books.
- Galbraith, J. K. 1961. *The Great Crash, 1929*. Boston; New York: Houghton Mifflin.
- Godechot, O. 2008a. "'Hold-up" in finance: The conditions of possibility for high bonuses in the financial industry.' *Revue Française de Sociologie*, (Supplement Annual English edn) 49: 95–123.
- Godechot, O. 2008b. 'What do heads of dealing rooms do? The social capital of internal entrepreneurs.' In M. Savage and K. Williams (eds). *Remembering Elites*. Malden, MA: Wiley-Blackwell.

- Goldman Sachs. 2007. *Goldman Sachs Reports Third Quarter Earnings Per Common Share of \$6.13*. New York: Goldman Sachs Group, Inc. www2.goldmansachs.com/our-firm/investors/financials/archived/quarterly-earnings-releases/attachments/2007-third-quarter-earnings.pdf.
- Goodman, P. 2008. 'Taking hard new look at a Greenspan legacy.' *New York Times*, 8 October. www.nytimes.com/2008/10/09/business/economy/09greenspan.html.
- Greenspan, A. 1998. Testimony by Alan Greenspan, chair of the Board of Governors of the Federal Reserves System, to United States Senate Committee on Agriculture, Nutrition and Forestry, 30 July. http://agriculture.senate.gov/Hearings/Hearings_1998/gspan.htm.
- Guttentag, J. M., and R. J. Herring. 1986. *Disaster Myopia in International Banking*. Princeton University Essays in International Finance 164. Princeton, NJ: International Finance Section, Department of Economics, Princeton University.
- Haldane, A. G. 2009a. 'Rethinking the financial network.' Speech delivered at the Financial Student Association, Amsterdam, 28 April. www.cnbv.gov.mx/recursos/Combasdr176.pdf.
- Haldane, A. G. 2009b. *Why Banks Failed the Stress Test*. Basis for a speech given at the Marcus–Evans Conference on Stress-Testing, 9–10 February 2009. www.bankofengland.co.uk/publications/speeches/2009/speech374.pdf.
- Hansard: Parliamentary Debate* for 5 October 1994. <http://vdig.net/hansard/content.jsp?id=43766>.
- Ivry, B., C. Harper, and M. Pittman. 2009a. 'Missing Lehman lesson of shakeout means too big banks may fail.' *Bloomberg*, 7 September. www.bloomberg.com/apps/news?pid=newsarchive&sid=aX8D5utKFuGA.
- Ivry, B., M. Pittman, and C. Harper. 2009b. 'Sleep-at-night-money lost in Lehman lesson missing \$63 billion.' *Bloomberg*, 8 September. www.bloomberg.com/apps/news?pid=newsarchive&sid=aLhi.S5xkemY.
- J. P. Morgan. n. d. 'ABS issuance: Growth and collapse by asset class.' [Chart.] In A. B. Ashcraft. *Credit, Investment, and Payment Risk: Discussion of 'do global banks spread global imbalances'?* <http://imf.org/external/np/res/seminars/2009/arc/pdf/ashcraft1.pdf>.

- “‘Kamikaze’ bankers damaged economy, says Alistair Darling.’ 2009. *Daily Telegraph*, 5 July. www.telegraph.co.uk/finance/newsbysector/banksandfinance/5747952/Kamikaze-bankers-damaged-economy-says-Alistair-Darling.html.
- Kern, A., R. Dhumale, and J. Eatwell. 2005. *Global Governance of Financial Systems: The international regulation of systemic risk*. New York: Oxford University Press.
- Kindleberger, C. P., and R. Z. Aliber. 2005. *Manias, Panics, and Crashes: A history of financial crises*. 5th edn. Hoboken, NJ: John Wiley & Sons.
- Knee, J. A. 2006. *The Accidental Investment Banker: Inside the decade that transformed Wall Street*. Hoboken, NJ: Wiley.
- La Porta, R., F. López-de-Silanes, A. Shleifer, et al. 1997. ‘Legal determinants of external finance.’ *Journal of Finance* 52(3): 1131–50.
- La Porta, R., F. López-de-Silanes, A. Shleifer, et al. 1998. ‘Law and finance.’ *Journal of Political Economy* 106(6): 1113–55.
- Landmark National Bank v. Kesler* 2009 Kan. LEXIS 834 (28 August 2009, Kansas Supreme Court).
- Lefèvre, E. 2006. *Reminiscences of a Stock Operator*. Hoboken, NJ: John Wiley & Sons.
- Lewis, M. 1990. *Liar’s Poker: Rising through the wreckage on Wall Street*. New York: Penguin Books.
- Litan, R. E., N. P. Retsinas, E. S. Belsky, et al. 2000. *The Community Reinvestment Act after Financial Modernization: A baseline report*. Washington, DC: US Department of the Treasury.
- Lowenstein, R. 2000. *When Genius Failed: The rise and fall of long-term capital management*. New York: Random House.
- Mackay, C. 1841. *Extraordinary Popular Delusions and the Madness of Crowds*. Reprinted in M. S. Frisdon. 1996. *Confusions and Delusions: Tulipmania, the South Sea Bubble and the Madness of Crowds*. Hoboken, NJ: John Wiley & Sons.
- MacKenzie, D. 2006. *An Engine, Not a Camera: How financial models shape markets*. Cambridge, MA: MIT Press.
- Mandelbrot, B., and R. L. Hudson. 2006. *The Misbehavior of Markets: A fractal view of financial turbulence*. New York: Basic Books.

Mayer, M. 1990. *The Greatest Ever Bank Robbery: The collapse of the savings and loan industry*. New York: Collier Books.

Merscorp v. Romaine NY Int 167 (2006, New York Court of Appeals).

Meyer, L. H. 1998. 'Community Reinvestment Act in an era of bank consolidation and deregulation.' Remarks before the 1998 Community Reinvestment Act Conference of the Consumer Bankers Association, Arlington, Virginia, 12 May. www.federalreserve.gov/Boarddocs/Speeches/1998/19980512.htm.

Minsky, H. P. 2008. *Stabilizing an Unstable Economy*. New York: McGraw-Hill.

Mitchener, K. J. 2007. 'Are prudential supervision and regulation pillars of financial stability? Evidence from the Great Depression.' *Journal of Law & Economics* 50(1): 273–302.

Monaghan, A. 2009. 'FSA treats mortgage lenders like "drug dealers", says CML chief.' *Daily Telegraph*, 13 November. www.telegraph.co.uk/finance/newsbysector/banksandfinance/6562111/FSA-treats-mortgage-lenders-like-drug-dealers-says-CML-chief.html.

Morris, S., and H. S. Shin. 2008. 'Financial regulation in a system context.' Paper prepared for the Brookings Panel meeting, 11–12 September 2008 (version dated 7 September 2008). www.brookings.edu/economics/bpea/~media/Files/Programs/ES/BPEA/2008_fall_bpea_papers/2008_fall_bpea_morris_shin.pdf.

Mortgage Insurance Companies of America. 2006. Letter addressed to the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, and two others, 29 March. www.fdic.gov/regulations/laws/federal/2005/05c45guide.pdf.

Obama for America. n. d. *Barack Obama and Joe Biden: New energy for America*. www.barackobama.com/pdf/factsheet_energy_speech_080308.pdf.

Pittman, M., and B. Ivry. 2009. 'London suicide connects Lehman lesson missed by Hong Kong woman.' *Bloomberg*, 9 September. www.bloomberg.com/apps/news?pid=newsarchive&sid=aNFuVRL73wJc.

Presidential Working Group on Financial Markets. 1999. *Over-the-Counter Derivatives and the Commodity Exchange Act*. Washington, DC: US House of Representatives. www.ustreas.gov/press/releases/reports/otcact.pdf.

Rajan, R. G. 1998. 'The past and future of commercial banking viewed through an incomplete contract lens.' *Journal of Money, Credit & Banking* 30(3): 524–50.

- Reinhart, C. M., and K. S. Rogoff. 2009. *This Time is Different: Eight centuries of financial folly*. Princeton, NJ: Princeton University Press.
- Rudd, K. 2008. 'The children of Gordon Gekko.' Extract from speech by the prime minister in Sydney, 3 October. *The Australian*, 6 October. www.theaustralian.com.au/news/the-children-of-gordon-gekko/story-e6frg7b6-1111117670209.
- Salmon, F. 2009. 'Recipe for disaster: The formula that killed Wall Street.' *Wired Magazine*, 17 March. www.wired.com/techbiz/it/magazine/17-03/wp_quant.
- Selden, J. 1679. *De Synedriis & Praefecturis Juridicis Veterum Ebraeorum*. Three volumes. Amstelædami: Ex officina Henrici & Theodori Boom, & viduae Joannis à Someren, 1679.
- Smith, A. 1776. *The Wealth of Nations*. Edited with an introduction and notes by E. Cannan. 1994. New York: Random House.
- Sorkin, A. R. 2009. *Too Big to Fail: The inside story of how Wall Street and Washington fought to save the financial system – and themselves*. New York: Viking.
- Sornette, D. 2009. *Dragon-Kings, Black Swans and the Prediction of Crises*. Research paper 09–36. Geneva: Swiss Finance Institute.
- Stewart, J. B. 1992. *Den of Thieves*. New York: Simon and Shuster.
- Stock, J., and M. Watson. 2002. *Has the Business Cycle Changed and Why?* Working paper W9127. National Bureau of Economic Research.
- Stout, L. A. 1999. 'Why the law hates speculators: Regulation and private ordering in the market for OTC derivatives.' *Duke Law Journal* 48: 701–86.
- Taleb, N. N. 2007. *The Black Swan*. New York: Random House.
- Taylor, J. 2006. *Creating Capitalism: Joint-stock enterprise in British politics and culture, 1800–1870*. London: Boydell Press.
- Tett, G. 2009. *Fool's Gold: How the bold dream of a small tribe at J. P. Morgan was corrupted by Wall Street greed and unleashed a catastrophe*. New York: Free Press.
- The Merchant of Venice*. 2004. Directed by M. Radford. Culver City, CA: Sony Pictures Classics.

- Townsend, A. 2009. 'Hector Sants says bankers should be "very frightened" by the FSA.' *Daily Telegraph*, 12 March. www.telegraph.co.uk/finance/newsbysector/banksandfinance/4978496/Hector-Sants-says-bankers-should-be-very-frightened-of-the-FSA.html.
- Tversky, A., and Kahneman, D. 1992. 'Advances in prospect theory: Cumulative representation of uncertainty.' *Journal of Risk and Uncertainty* 5: 297–323.
- US Bank National Association v. Ibanez* 29 October 2009, Commonwealth of Massachusetts Trial Court, Misc. Case No. 08-384283 (KCL). www.boston.com/business/articles/2009/10/15/ibanezruling.
- Wall Street*. 1987. Directed by O. Stone. Beverly Hills: Twentieth Century Fox.
- Warwick Commission on International Financial Reform. 2009. *In Praise of Unlevel Playing Fields*. Coventry: University of Warwick. www2.warwick.ac.uk/research/warwickcommission/report.
- Wells Fargo Bank v. Larace* 29 October 2009, Commonwealth of Massachusetts Trial Court, Misc. Case No. 08-386755 (KCL). www.boston.com/business/articles/2009/10/15/ibanezruling.
- White, L. J. 1991. *The S&L Debacle: Public policy lessons for bank and thrift regulation*. New York: Oxford University Press.
- Williamson, O. 1985. *The Economic Institutions of Capitalism: Firms, markets, relational contracting*. New York: Free Press.