

THE SUBPRIME CRISIS

IN THE SUMMER of 2007 many leading banks in the US and Europe were hit by a collapse in the value of mortgage-backed securities which they had themselves been responsible for packaging.* To the surprise of many, the poisonous securities turned out to constitute a major portion of their ultimate asset base. The defaults fostered a credit crunch as all financial institutions hoarded cash and required ever widening premiums before lending to one another. The Wall Street investment banks and brokerages haemorrhaged \$175 billion of capital in the period July 2007 to March 2008, and Bear Stearns, the fifth largest, was 'rescued' in March, at a fire-sale price, by JP Morgan Chase with the help of \$29 billion of guarantees from the Federal Reserve. Many of the rest only survived by selling huge chunks of preferred stock, with guaranteed premium rates of return, to a string of 'sovereign funds', owned by the governments of Abu Dhabi, Singapore, South Korea and China, among others.

By the end of January 2008, \$75 billion of new capital had been injected into the banks, but it was not enough. In the UK the sharply rising cost of liquidity destroyed the business model of a large mortgage house, leading to the first bank run in the UK for 150 years and obliging the British Chancellor first to extend nearly £60 billion in loans and guarantees to its depositors and then to take the concern, Northern Rock, into public ownership. In late January Société Générale, famous for its skill at financial engineering—indeed the winner that month of the coveted 'Derivatives Bank of the Year Award' from *Risk* magazine—reported that a 31-year-old rogue trader had lost the bank over \$7 billion. The SocGen management began unwinding the terrible positions taken by this trader on 21 January, contributing to a share rout on the exchanges and, it seems, to an emergency decision by the Federal Reserve the next day to drop its interest rate by 75 basis points.

The management of risk—especially systemic risk—in the financial world was evidently deeply flawed. An important part of the problem was that core financial institutions had used a shadowy secondary banking system to hide much of their exposure. Citigroup, Merrill Lynch, HSBC, Barclays Capital and Deutsche Bank had taken on a lot of debt and lent other people’s money against desperately poor collateral. Prior to the US deregulation and UK privatizations of the 1990s, US investment banks would have been barred by the Glass–Steagall Act of 1933 from dabbling in retail finance, and Northern Rock would have remained a solid, and very boring, building society.

The trigger for the credit crunch was rising defaults among US holders of subprime mortgages in the last quarter of 2006 and early 2007, as interest rates were inched up to protect the falling dollar. This led to the failure of several large mortgage brokers in February–March 2007, but the true scope of the problem only began to register in the late summer. Interestingly, the first bank to report a problem was Deutsche Bank, which was forced to bail out two property-based funds in July. In October the US Treasury encouraged three of Wall Street’s largest banks—Merrill Lynch, Morgan Stanley and Bank of America—to set up a \$70 billion fund to establish a clear value for threatened assets. This did not work. Analysts complained: ‘The path they have taken of skimming off the cream from the top doesn’t resolve the fact that there is poison at the bottom’.¹

At the end of 2007, with the credit crisis still as bad as ever, the world’s central banks tried to pump vast amounts of liquidity into the global financial system, but the impact was temporary, and the banks remained unwilling to lend to one another. Lawrence Summers, the former US Treasury Secretary, warned of a looming ‘major credit crunch’—as if six months’ paralysis had been a mere bagatelle; this danger stemmed from the ‘impaired’ asset base of major banks if more capital was not injected.² The subprime debacle and the drying up of credit, themselves the consequences of deteriorating conditions, were hastening

* This article is dedicated to the memory of Andrew Glyn (1943–2007) whose wisdom, generosity and criticism are sorely missed. I would like to thank Yally Avrahampour, Jane D’Arista, Duncan Foley, Max Gasner, John Grahll, Geoffrey Ingham and Julia Ott for helpful comments and suggestions.

¹ ‘Some Wonder if Stabilization Fund Will Work’, *New York Times*, 12 November 2007.

² Lawrence Summers, ‘Beyond Fiscal Stimulus’, *Financial Times*, 28 January 2008.

the slide to recession in the US and global economy. On 10 February US Treasury Secretary Henry Paulson confirmed that credit problems were still ‘serious and persisting’, with more expected.³ On 29 February two senior investment bankers—David Greenlaw (Morgan Stanley) and Jan Hatzius (Goldman Sachs)—and two economists—Anil K. Kashyap (Chicago) and Hyun Song Shin (Princeton)—published a study entitled ‘Leveraged Losses’ which cautiously estimated that losses from the subprime crisis were likely to total around \$400 billion and cause a drop in GDP of between 1 and 1.5 per cent.⁴ You might think the title mainly referred to the plight of millions of mortgaged homeowners but, as we will see, the destructive logic of over-leveraged assets was also at work in scores of financial concerns.

The US President and Congress swiftly agreed a stimulus package of \$150 billion, and on 11 March the world’s central banks clubbed together to offer the banks \$200 billion on easy conditions. But these supposed masters of the universe seemed caught in celestial machinery they did not control. On 16 March the US Federal Reserve intervened to avert the collapse of Bear Stearns and arrange for its purchase by JP Morgan Chase at a small fraction of its earlier price. The remaining investment banks were offered, for the first time, direct loans at low rates, against the flimsiest collateral and in confidence.

The credit crunch came as the climax of a long period of gravity-defying global imbalances and asset bubbles. Fear of recession had prompted the US Federal Reserve to keep interest rates low in 2001–06, and this in turn set the scene for cheap and easy loans. The world’s financiers and business leaders looked to US householders, the ‘consumers of last resort’, to keep the global boom going. Robert Brenner gave an arresting account of the structural flaws and systemic turbulence in the global economy in NLR in 1998. In a substantial Afterword to *The Economics of Global Turbulence* in 2006, he stressed that a contrived ‘consumption-led’ boom in 2002–06 had failed to overcome weak profitability and investment. While labour productivity rose in these years, real employee

³ Michael Phillips and Yuka Hayashi, ‘Markets at Risk for Additional Shocks’, *Wall Street Journal*, 11 February 2008.

⁴ David Greenlaw, Jan Hatzius, Anil K. Kashyap and Hyun Song Shin, ‘Leveraged Losses: Lessons from the Mortgage Market Meltdown’, presented at US Monetary Policy Forum, 29 February 2008.

compensation did not. The maintenance of the boom was made a little easier by cheap Chinese imports, but the vital ingredient in consumer buoyancy was a build-up of personal debt. Brenner characterized the demand-stimulating policies of the Fed and US Treasury as ‘market Keynesianism’.⁵ While Andrew Glyn and Giovanni Arrighi offered extra considerations, they too recognized that the bubble economics of 1995–2007 was not under control and that finance had escaped the reach of the regulators.⁶

According to the Federal Reserve’s *Flow of Funds* data, total debt in the US economy rose from 255.3 per cent of GDP in 1997 to 352.6 per cent of GDP in 2007. Debt growth was strongest in the household and financial sectors. Household debt grew from 66.1 per cent of GDP to 99.9 per cent of GDP over the decade to 2007. But the most rapid growth was in the debt taken on by banks and other financial entities which grew from 63.8 per cent of GDP in 1997 to 113.8 per cent of GDP in 2007.⁷ A succession of asset bubbles fuelled this growth in debt.

Notwithstanding his famous remark about ‘irrational exuberance’ in 1996, Alan Greenspan, the Federal Reserve Chairman, took no stern measures to dampen the share bubble of the late 1990s. Robert Rubin and Lawrence Summers at the Treasury did even less, with Summers insisting that ballooning share prices should be viewed as an increase in US saving.⁸ In the early 2000s Washington found compelling reasons to pursue a cheaper money policy—it wished both to devise a ‘soft landing’ from the share bubble and to demonstrate that the US powerhouse was unscathed by terrorism. It became a national security priority to inflate the purchasing power of US consumers. In the aftermath of 9/11 Americans had a patriotic duty to take on more debt

⁵ Robert Brenner, *The Economics of Global Turbulence: the Advanced Capitalist Economies from Long Boom to Long Downturn, 1945–2005*, London and New York 2006. For rising personal and corporate indebtedness see pp. 157–9, 276–8.

⁶ Andrew Glyn, *Capitalism Unleashed*, Oxford 2006, and Giovanni Arrighi, *Adam Smith in Beijing*, London and New York 2007.

⁷ Federal Reserve Bank, *Flow of Funds*, Washington, DC 2008. The significance of these figures is explored in a fundamental paper by Jane D’Arista, ‘Broken Systems: Agendas for Financial and Monetary Reform’, presented at 17th Annual Hyman Minsky Conference, 17 April 2008.

⁸ See Robin Blackburn, *Banking on Death or Investing in Life: the History and Future of Pensions*, London and New York 2002, p. 218.

in order to keep consumption rising, and banks and regulators to make this possible.

Banks were drawn to consumer debt because of a decline in their traditional role as custodians of savings and deposits, as this was increasingly assumed by pension funds and mutual funds, and also by a drop in the share of their earnings coming from traditional corporate finance. Between 1997 and 2007, the share of total financial sector assets accounted for by the assets of depository institutions plummeted from 56.3 per cent to just 23.7 per cent, while the share of pension funds and mutual funds rose from 21 per cent to 37.8 per cent. Freed by deregulation, the banks found new business by converting consumer debt into tradeable securities and then selling those securities to the funds (or other banks). In order to finance this operation the banks themselves took on more debt, blithely assuming that the return on the securities would be comfortably above their cost of borrowing, and that they would anyway soon sell on the securities to someone else, in what was known as the ‘originate and distribute’ model. It was difficult for anybody to know what was going on, or how justified these assumptions might be, because much of the action was registered only on the banks’ ‘invisible balance sheet’ in a ‘shadow banking system’.⁹ Jane D’Arista argues that these trends also conspired to undermine traditional policy tools, since the latter, especially interest rate changes and great dollops of extra liquidity, work in and through their impact on banks as depository institutions.¹⁰

In what follows I interpret the credit crunch as a crisis of financialization—otherwise put, as a crisis of that venturesome ‘new world’ of leverage, deregulation and ‘financial innovation’ which Alan Greenspan celebrates in his recent memoir. I show how the pursuit of a market in almost everything led to a banker’s nightmare in which key assets could not be valued. I urge that attention be paid to the ideas of Fischer Black, the improbable inventor of structured finance, who warned against ‘loading up on risk’ when declining to become

⁹ The nature of the ‘invisible balance sheet’ will be explored below, but the concept is taken from Salih N. Neftci, ‘FX Short Positions, Balance Sheets, and Financial Turbulence’, in John Eatwell and Lance Taylor, eds, *International Capital Markets: Systems in Transition*, Oxford 2002, pp. 277–96.

¹⁰ D’Arista, ‘Broken Systems’, pp. 8–10.

a founder member of Long Term Capital Management. I evoke both the New Deal response to financial failure and the rise of consumer finance in the postwar world, before considering, in conclusion, what can be done today.

I. INSIDE THE SHADOW BANKING SYSTEM

The very low US interest rates of 2001–06 were hugely lucrative to the banks, allowing them to take on more debt, improve the terms of their business and expand its volume. They sponsored hedge funds and private equity buyouts, packaged their own mortgage-related financial instruments, arranged bond insurance, and furnished lines of credit to their own structured investment vehicles (SIVs) and ‘conduits’. These bets were usually leveraged by extra helpings of debt, with some institutions—the investment banks and hedge funds—borrowing to buy assets worth as much as thirty times their capital. This is how the protagonists of the 2007–08 crisis became heavily leveraged concerns—often, as we will see, indebted to one another. The banks’ embarrassment in changed conditions has at least one element in common with the plight of the heavily mortgaged house buyers. In both cases borrowers were squeezed by rising costs and weakened revenue to sell the underlying assets in a falling market. First the home buyers faced higher interest rates in 2006–07, then the banks and their special conduits ran into an even sharper jump in their borrowing costs in August 2007. Sophisticated and lavishly paid financial professionals should at least have spotted the problem, but they seem to have been deceived by their own legerdemain.

As a *Financial Times* report put it at the close of 2007:

While investors are scrutinizing some of the industry’s best-known names, a spectre will be silently haunting events: the state of the little known, so-called ‘shadow’ banking system. A plethora of opaque institutions and vehicles have sprung up in American and European markets this decade, and they have come to play an important role in providing credit across the system.¹¹

This ‘hidden’ system had expanded rapidly in the 1990s and 2000s as a consequence of deregulation, which allowed many financial institutions

¹¹ Gillian Tett and Paul Davies, ‘Out of the Shadows: How Banking’s Secret System Broke Down’, *Financial Times*, 17 December 2007.

to take on banking functions and loosened the rules that govern borrowing and lending. Following the collapse of Enron it was revealed that several leading banks had helped the company fool investors and regulators by devising a multitude of off-balance sheet special purpose entities. To the surprise of many, the subsequent legislation did not introduce an outright ban but allowed, under rule 46-R of the Sarbanes–Oxley Act, the holding of vehicles off-balance sheet so long as the bulk of the rewards and risks lie with others.¹² While other investors had some exposure, the banks, as owners of the SIVs, have learnt the hard way that structured finance products can generate less controllable losses than simple assets, whose value can never dip below zero.

Fantasy valuations

Martin Wolf has compared the high bank profits of 2006 with long-run equity returns. While the latter run at about 7 per cent, the return earned by US, German, French and Italian banks in 2006 was around 12 per cent, and UK banks returned 20 per cent.¹³ These high rates of return reflect leverage, ‘thin’ capitalization and risk-taking. The miracle of banking has always lain in the fact that bankers’ liquid assets are much less than their outstanding loans. This stems from the credit-creating function of banks. The central banks, as lenders of last resort, are there to insure against bank runs, as the Bank of England reluctantly proved when, with help from the UK Treasury, it bailed out Northern Rock, and as the US Federal Reserve showed when it subsidized the sale of Bear Stearns.

The central banks supposedly control their risks by establishing strict asset qualifications and capital/loan ratios. Level 1 capital for UK banks was only 4 per cent of total outstanding liabilities at the close of 2007. The US banks claim to be better capitalized, with 8 to 9 per cent of Level 1 capital, though Citigroup had dropped to 7.3 per cent at that time—they are meant to stay above 8 per cent. These are not generous levels of capitalization but were still deceptive in that they hid problems created by the lending spree off-balance sheet—with leverage rendered invisible and liabilities rated as assets. This became apparent as the banks were forced to recognize the collapse of the secondary, ‘hidden’, banking system

¹² Floyd Norris, ‘Why Surprises Still Lurk After Enron’, *New York Times*, 29 February 2008.

¹³ Martin Wolf, ‘Why Banking Remains an Accident Waiting to Happen’, *Financial Times*, 28 November 2007.

constituted by off-balance sheet SIVs, conduits and bank-sponsored hedge funds. The ‘slow motion’ collapse reflected reporting periods and rules of disclosure. The SIVs held scores of billions of dollars of credit derivatives, at model prices, reflecting great optimism or even sheer fantasy. Within specified time limits, however, the banks’ accountants are obliged to ‘mark to market’, that is, set a market price on them. The best assets—‘Level 1’ assets—are those which can be valued simply by consulting a Bloomberg screen, where their price at a given moment will appear. ‘Level 2’ asset values are based on a model which relates them to an index of similar traded assets. ‘Level 3’ asset values are based simply on models, with no directly traded element—a form of guesswork, or, in troubled conditions, a wish and a prayer.

By August 2007, mortgage-based securities were difficult to sell and those based on subprime mortgages could scarcely be given away. They had never qualified for Level 1, but now they did not make Level 2 either. On 8 November *The Economist* noted: ‘Among Wall Street firms, the soaring amounts of Level 3 securities now exceed their shareholder equity.’¹⁴ In the case of Citigroup, its collateralized debt obligations (CDOs) alone were worth more than the equity value of the bank, forcing it, in subsequent weeks, not just to search for new investors, but to offer the latter preferred shares or ‘convertibles’ that greatly diluted the holdings of their existing shareholders—a convertible is a bond in so far as it has a prior claim on the company’s revenues but converts to a share above a given strike price.¹⁵ By April 2008 the IMF was estimating that total losses were likely to come to \$945 billion: ‘Global banks are likely to shoulder roughly half of aggregate potential losses, totalling from \$440 billion to \$510 billion, with insurance companies, pension funds, money-market funds, hedge funds and other institutional investors accounting for the balance.’¹⁶ However these funds, especially insurance and pension funds, also have large shareholding stakes in the banks, so will suffer heavy indirect losses. Indeed, most of their losses are ‘collateral damage’ since their direct holdings of subprime CDOs were minimal.

¹⁴ ‘CDOh no!’, *Economist*, 8 November 2007.

¹⁵ ‘Breaking Views: To Raise More Capital, Citigroup Is Shoving Aside its Shareholders’, *Wall Street Journal*, 16 January 2008.

¹⁶ IMF, *Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness*, Washington DC, April 2008, p. 12. The IMF estimate of losses is almost twice that of Greenlaw et al’s ‘Leveraged Losses’ mainly because its coverage is more global and comprehensive.

Low interest rates tempted many homeowners to go deeper into hock by re-mortgaging. As Robert Brenner showed, the asset bubbles—first technology shares and then houses—helped to maintain the mirage of a buoyant economy and consumption growth, but only at the cost of growing personal and corporate indebtedness.¹⁷ Non-financial corporations—especially the auto companies—had long offered consumer credit since this was the only way to maintain sales volume; now homeowners were encouraged to treat their houses like ATMs. By 2003, some 18 per cent of the disposable income of US consumers was required to service debt; yet neither the Federal Reserve nor the Securities and Exchange Commission (SEC) moved to crack down on the securitized mortgage bonanza. Those who felt wealthy could build a McMansion while the majority, with their flat earnings, still aspired to the comfortable lifestyle portrayed in TV and magazine ads. Low teaser rates led millions of the poor to believe they could own a home. By 2007, weak housing and consumer debt were both hovering around the \$1 trillion mark. For some time finance houses had teamed up with retailers to shower so-called gold and platinum cards on all and sundry, with the hope of ratcheting up consumer debt and subsequently charging an annual 18 or 20 per cent on money for which the banks themselves were paying 3 or 4 per cent. These high rates of return whetted the banks' appetite for dubious lending.

By February 2008, after more than a year of wilting prices, the number of US homeowners with negative equity rose to 8.8 million or one-tenth of the total.¹⁸ Because houses seem such good collateral, the total home mortgage debt was around \$11 trillion, of which a little over a tenth was either 'subprime' or almost equally doubtful 'Alt A'. Credit-card debt rose to just short of \$1,000 billion, with automobile debt a little lower at around \$700 billion. In these cases the asset backing the loan is really the earnings capacity of the borrower, not the refrigerator or the car.

Contagion?

How bad could it get? Very bad, some believe. Nouriel Roubini of the Stern School of Business (NYU) has come up with a total of possible losses for the US economy that runs to several trillion dollars. Martin Wolf describes it as a recipe for 'the mother of all meltdowns': the bursting of

¹⁷ Robert Brenner, *The Boom and the Bubble*, London and New York 2002, pp. 146–52.

¹⁸ Edmund Andrews and Louis Uchitelle, 'Rescues for Homeowners in Debt Weighed', *New York Times*, 22 February 2008.

the housing bubble could wipe out between \$4 trillion and \$6 trillion in household wealth; subprime mortgage losses he puts at \$250–300 billion; then there will be consumer credit defaults, the downgrading of bond insurers, a meltdown in the commercial property market, the bankruptcy of a large bank, the collapse of several leveraged buy-outs, a wave of corporate defaults ('a "fat tail" of companies has low profitability and heavy debt'), the crumbling of the 'shadow financial system', a collapse of stock prices, a cascade of hedge-fund failures, and a severe credit crunch. After all this one scarcely needs to add 'a vicious circle of losses . . . contraction . . . and fire sales'.¹⁹

Wolf insists that this is a possible scenario—indeed, the 'bankruptcy of a large bank' prediction came true within less than a month—and that global linkage will be quite strong: Wall Street sneezes, a debilitated US economy catches a nasty virus, and the world comes down with flu. Of course some of these disasters may be milder than feared, and the authorities would try to prevent each element in the catastrophe; but according to Roubini the regulators do not have the right instruments to avert much of the damage. Indeed some of the problems of today stem from past attempts to put off the inevitable recognition of losses. If losses are not recognized and subordinated shareholdings expropriated, then it will remain unclear where new capital injections need to be made and stagnation may ensue, as it did in Japan in the 1990s.²⁰

Chain of irresponsibility

How on earth could such risks build up? The source of the problems which surfaced in 2007—though some had warned about them years earlier—did not lie only in the US deficits or the Fed's easy money policy. It also lay in an institutional complex and a string of disastrous incentives and agency problems riddling an over-extended system of financial intermediation. To start with, take the incentives relating to those notorious 'subprime' CDOs. New subprime mortgages rose from \$160 billion in 2001 to \$600 billion in 2006—by which time they constituted

¹⁹ Martin Wolf, 'America's Economy Risks the Mother of All Meltdowns', *Financial Times*, 20 February 2008.

²⁰ The reluctance of political and financial authorities to recognize losses and carry out expropriations is stressed by Jean-Charles Rochet, *Why Are There So Many Banking Crises? The Politics and Policy of Bank Regulation*, Princeton 2008, pp. 4–5, 28–33, 284.

one-fifth of mortgage originations. The salesmen responsible for this surge received a generous commission for each new loan, paid upfront but expressed as a proportion of the redemption payments to be made over several years. Brokers happily signed up ‘ninjas’—no income, no job and no assets—by the hundred thousand. This behaviour was directly encouraged by their incentive structure, while legislation dating back to the 1960s had relaxed credit standards for the low paid and jobless without reckoning with the likely consequences. The Bush administration’s vision of the ‘ownership society’ somehow latched onto codicils of Johnson’s ‘Great Society’ to encourage the poor to take on housing debt at the pinnacle of a property bubble. The quality of the arrangements made for poorer mortgagees was manifestly inadequate—they had no insurance provision—and also avoided the real problem, which is the true extent of poverty in the United States and the folly of imagining that it can be banished by waving the magic wand of debt creation.²¹ Indeed the subprime borrowers were lured into inherently bad deals by those low ‘teaser rates’ that bore no relation to the large payments required of them down the line.

The bad mortgage bets were to be hugely compounded by the investment banks that purchased the mortgage debt for resale, supposedly according to the ‘originate and distribute’ model—take on debt, repack-age it, and sell it on. As a report in the *Wall Street Journal* explained:

Upfront commissions and fees are well established on Wall Street. Investment banks get paid when billion-dollar mergers are signed. Firms that create complex new securities are paid a percentage off the top. Rating services assess the risk of a new bond in return for fees off the front end.²²

Just to complete the picture, one should add that such fees are not only garnered by those in investment banks who construct and sell asset-backed securities. On the day his employer announced a write-down of over \$8 billion, a managing director at an investment bank explained that the bank’s own senior risk-assessment officer had received a

²¹ Louis Hyman, ‘The Original Subprime Crisis’, *New York Times*, 26 December 2007.

²² Charles Forelle and Jeanne Whalen, ‘US Financiers’ Pay Spurs Financial Crunch’, *Wall Street Journal*, 17 January 2008. This is part of a structural incentive problem evident in earlier bubbles. In a prescient 1993 article two financial economists, Franklin Allen and Gary Gorton, warned of the design flaw in incentive schemes, encouraging financiers to join a speculative bandwagon even if they know it will eventually run into a ditch. ‘Churning Bubbles’, *Review of Economic Studies*, vol. 60, no. 4, 1993, pp. 813–36.

bonus of \$21 million in the previous year for his part in the great CDO bonanza. What was more, this executive still did not report directly to the board.

Returns on risk

The subprime mortgage meltdown perfectly illustrates the perils of financialization and what I have called ‘grey capital’—great clouds of institutionalized savings, including private pension money, entrusted to financial industry insiders. I have previously explained how the growth machine of the 1990s and 2003–06 widened inequalities and was based on unsustainable mountains of debt.²³ At a certain point the burden of debt repayment would extinguish the prospects of more credit. Lulled by success, the banks faced a ‘Minsky moment’, in which the new risks and instabilities of a financialized capitalism would storm through the markets.²⁴

The banks themselves borrowed to buy up subprime lenders, some even with convictions for ‘predatory lending’, because this gave them access to just what they craved—rubbishy assets. They had supposedly discovered how to limit their own exposure, while raking in the charges, by repackaging poor debts as CDOs and selling them on to their clients. Risky debt was potentially far more profitable than good debt because the latter is expensive to acquire and can never be worth more than par, while the value of the former was heavily discounted, and optimism about repayment prospects and the ingenuity of ‘structured finance’ led to high resale prices.²⁵

²³ See Robin Blackburn, ‘Finance and the Fourth Dimension’, NLR 39, May–June 2006 and *Age Shock: How Finance Is Failing Us*, London and New York 2006, especially pp. 175–81.

²⁴ Hyman Minsky argued that capitalist financial markets had a tendency to become steadily more fragile in the course of a boom. Among other reasons, this is because banks become accustomed to low defaults and skimpy margins of safety, and because such booms tend to secrete Ponzi-effects—after Charles Ponzi, author of a pyramid scheme. See Minsky’s essay ‘The Financial Instability Hypothesis’, in Charles Kindleberger and Jean-Paul Laffargue, eds, *Financial Crises: Theory, History and Policy*, Cambridge 1982, pp. 1–39. For a helpful discussion of Minsky see Geoffrey Ingham’s valuable recent book, *The Nature of Money*, Cambridge 2004, pp. 159–62.

²⁵ Tony Jackson, ‘Crazy Crisis May Herald the End of New Derivative Folly’, *Financial Times*, 24 December 2007.

With direct access to subprime mortgages, the banks and hedge funds had enlarged scope for bundling them together as CDOs, in ways that supposedly spread and insured the risk. Thousands of mortgages would be consolidated into one instrument and the resulting pool of debt subdivided into ten tranches, each representing a claim on the income accruing to the underlying mortgages; the lowest tranche represented the first to default, the second the next poorest-paying assets and so on up to the senior levels which were least likely to default. The bottom tranche of the CDO, designated the 'equity', was both vulnerable and valuable, and the mezzanine portion also attracted a good return. The senior ones—the top 70–75 per cent—were more difficult to sell because the reward and (it was thought) risk were quite low. The different tranches' vulnerability to default was hedged by taking out insurance, at rates varying according to the perceived level of default risk. Note that a feature of the securitizing and tranching process is that the holders of a tranche would not know which specific mortgages they held until the default rate within a specified period became clear. Depending on the precise wording of the bundled security, the different classes of holder could also find themselves, if there was a default spike, bundled together in awkward and unexpected ways.

The generally buoyant conditions of 2003–06, with low default rates and low interest rates, meant that CDO insurance was cheap. The purchaser was assured by those assembling the CDO that it came with a secure hedge and that the whole package had a 'triple A' grade from the ratings agencies. The complexity of the CDO with its accompanying insurance made the entire credit-derivative product difficult to value. Unsold portions could be 'sold' at model prices to SIVs or conduits, set up with the bank's own credit. These prices reflected trust in the banks and the ratings agencies that had produced and evaluated the products. At the height of the CDO boom the ratings agencies were deriving half their income from such fees.²⁶ The SIVs were off-balance sheet, so that the bank's stake in them was an asset, while the liabilities stowed away did not show up. Institutional investors could be persuaded to buy the SIVs' supposedly high-quality, short-term commercial paper, allowing the vehicles to acquire longer-term, lower-quality assets, and generating a profit on the spread between the two. The latter included large amounts of mortgages, credit-card debt, student loans and other receivables. Like

²⁶ 'The Moody's Blues' (editorial), *Wall Street Journal*, 15 February 2008.

CDOS, the SIVs are tranching with the bank holding the equity. For about five years those dealing in SIVs and conduits did very well by exploiting the spread between the return from the commercial paper they sold to investors and that from the SIVs' asset base of securitized receivables, but this disappeared in August 2007, and the banks were left holding a very distressed baby.²⁷

Market ignorance?

While the party lasted the big banks could not get enough mortgages to feed their CDO assembly lines. The banks' frenzy to acquire subprime mortgages became so intense that they encouraged brokers to skimp on the credit checks required by standard 'due diligence'. In return for immunity from prosecution, Clayton Holdings, a company that 'vetted home loans for many investment banks', is reported to have delivered documents to Andrew Cuomo, New York's attorney general, showing that its clients—the banks—had allowed it to wave through many 'exceptions' to the normal lending conditions and then conceal the high number involved. The report itemizes serial irresponsibility.²⁸

The complexity of the CDOS and CDSS—credit default swaps, the financial instruments which insure bond holders—generates new risks: documentation risk, operational risk, ratings risk, counter-party risk, liquidity risk and linkage risk among them. At the height of the CDO/CDS surge thousands of mortgage bonds were being packaged and rated every week. Sometimes the back-office paperwork lagged, skipped stages or was out of sequence, leading to unexpected complications. On 15 November 2007 it was reported that an Ohio judge had dismissed fourteen foreclosures brought on behalf of investors in pooled mortgages, on the grounds that they had failed to prove their ownership of the properties they were trying to seize.²⁹

Traditional subprime lenders had tended to cover particular localities about which they built up detailed information. They also had teams who would assess potential borrowers according to quite complex criteria, and

²⁷ For an account of how SIVs work, see BCA Research, Special Report: *A Vicious Circle of Credit Retention*, Montreal, 12 February 2008, p. 8.

²⁸ Jenny Anderson and Vikas Bajaj, 'Loan Reviewer Aiding Enquiry into Big Banks', *New York Times*, 27 January 2008.

²⁹ Gretchen Morgenson, 'Foreclosures Hit a Snag for Lenders', *New York Times*, 15 November 2007.

collection agents who would retain contact with the mortgage holder. But the large mortgage brokers and investment banks had a different *modus operandi*. In the days of J. P. Morgan, the banks rated ‘trust’ even more highly than collateral. But then they were dealing with a relatively restricted number of wealthy individuals and businesses. The ballooning of individual debt offered a vast market but with little scope for personal knowledge and judgment. Fair Isaac and other personal credit-rating agencies believed that the creditworthiness of any customer could be distilled into a single three-digit number, reflecting the statistical probability of default.³⁰ Borrowers and brokers learnt how to manipulate the scores. As the growth of negative equity raised defaults, this algorithm became quite unreliable. In normal times those who hold a mortgage on their house will be greatly concerned to maintain payments, but for the almost 9 million or more with negative equity, the attraction of simply walking away is great. As soon as they believe that the property is worth less than their debt, they have an inducement to put the keys in the post, surrendering the asset and escaping the debt.³¹

The mortgage issuers should have ignored the Fair Isaac scores and taken due note of market risk. After all, default rates correlate more strongly with the trade cycle than anything else. But this factor was ignored, as were the signs from deteriorating credit tests. In a market that had been rising for years there was still money to be made by assuming it would last a little while longer—long enough to ‘distribute’. And many believed that business cycles were becoming so mild, and counter-cyclical action by the monetary authorities so strong and effective, that consumer defaults were dwindling.

The investment banks were playing a fast-moving game of ‘pass the parcel’. According to breathless ‘flat world’ accounts of globalization, loans could be bought one day, packaged overnight in India, and sold on to institutional investors the next day. The sooner the sale, the better the risk profile. But by 2006 the supply of CDOs exceeded demand. Many public-sector and ‘defined benefit’ pension funds declined to buy the

³⁰ Jan Kregel, ‘Minsky’s Cushions of Safety: Systemic Risk and the Crisis in the US Subprime Mortgage Market’, Levy Economics Institute of Bard College, Policy Brief no. 93, January 2008, p. 11.

³¹ Dean Foust and Aaron Pressman, ‘Credit Scores: Not-So-Magic Numbers’, *Business Week*, 7 February 2008; Nicole Gelin, ‘The Rise of the “Mortgage Walkers”’, *Wall Street Journal*, 8 February 2008.

CDOs, because they suspected them or were not sure how they worked. But those with mutual funds and '401(k)' retirement plans were often less well served by their fund managers. There was also demand from other financial institutions—especially hedge funds—who liked the fact that the CDOs came with impressive credit ratings and could indirectly be used to bolster their asset base. Several of the major banks themselves developed a taste for the decorative qualities of their fool's gold. Even if they knew defaults must be in prospect, they believed they could hedge against them or invest only in well-protected tranches. Furthermore, the money-management arms of the banks had some scope for palming off the well-rated derivatives on the less wary of their institutional clients. Thus in January 2008 the secretary of the municipality of Springfield, MA, complained that Merrill Lynch, manager of the authority's fund, had sold it CDOs for a total price of \$13.9 million on the understanding that they were safe assets. By November 2007 they were only worth \$1.2 million. Fearful of the consequences for its reputation, Merrill Lynch repurchased the assets at the sale price.³²

Tremors

A protracted sequence of reporting periods attached to the various financial services and products delayed the impact of the subprime crisis. The earthquake did not bring down everything at once. The default rate jumped in the second half of 2006. By February 2007 it became clear that defaults were running at a level that was likely to take down Countrywide, one of the largest mortgage brokers in the US; in a move prompted by the Fed, Bank of America offered to rescue Countrywide and guarantee its business, but the deal dragged on for months. In early March 2007 the New York Stock Exchange suspended New Century Financial, a company which had taken on insurance obligations for sub-merged tranches of mortgage debt for most of the big banks.

The CDO tranches in the SIVs and conduits were now dubbed 'toxic waste' by insiders. In the context of a credit crunch and mortgage-default rise this colourful phrase had a very exact meaning. The CDO tranches turned from being steady earners into a source of loss as their return fell below the interest that had been promised to investors in the conduits' commercial paper. As beneficial owners of the SIVs and conduits, the

³² Craig Karmin, 'Merrill Faces Fraud Allegations', *Wall Street Journal*, 1–2 February 2008.

banks had to find a way of meeting their obligations to the holders of the commercial paper which had been issued in their name. Sale of the securitized mortgages and other receivables was imperative, but no one wanted to buy them. ‘Leveraged assets’ become a curse when the asset value turns negative.

In the epoch of financialization households have been encouraged to comport themselves as businesses—for example taking out a second mortgage because their home has risen in value. But many householders remain cautious as they realize that they want to go on living in their home. Financial intermediaries, to a far greater extent than households, actively adjust their balance sheets in response to changes in asset prices. Exception made of their flashy headquarters, the banks get no use-value from the assets on their balance sheet and are obliged to chase a monetary return. Greenlaw, Hatzius and their co-authors contrast the pattern of response from households and financial concerns:

financial intermediaries react in a very different way to the fluctuations in net worth as compared to households or non-financial firms . . . households tend not to adjust their balance sheets drastically to changes in asset prices. In general, leverage *falls* when total assets rise . . . However, the picture for financial intermediaries is very different. There is a *positive* relationship between changes in leverage and changes in balance-sheet size. Far from being passive, financial intermediaries adjust their balance sheets actively.³³

This behaviour by financial intermediaries, the authors believe, made a critical contribution to the mortgage bubble: ‘With regard to the subprime mortgage market in the United States . . . when balance sheets are expanding fast enough, even borrowers who do not have the means to repay are granted credit—so intense is the urge to employ surplus capital. The seeds of the subsequent downturn in the credit cycle are thus sown.’ But once contraction sets in, balance-sheet pressure runs powerfully in the opposite direction and the banks are obliged to hoard cash. The super-leveraged conduits and SIVs aggravated the pattern, as they had been set up with access to automatic lines of credit from the parent institution. Greenlaw and co explain:

As credit lines were tapped, the balance-sheet constraint at the banks must have begun to bind, making them reluctant to lend . . . The fact that bank

³³ Greenlaw et al, ‘Leveraged Losses’, pp. 25–6.

balance sheets did not contract is indicative of this involuntary expansion of credit. One of the consequences . . . was that banks sought other ways to curtail lending. Their natural response was to cut off, or curtail, lending that was discretionary. The seizing up of the interbank credit market can be seen as the conjunction of the desired contraction of the balance sheets and the ‘involuntary’ lending due to the tapping of credit lines by distressed entities.³⁴

Balance-sheet pressures were ramped up as accounting deadlines kicked in. The banks’ auditors wanted their clients to accept large write-downs on these assets. But to do so was to make deep inroads on their capital base, and, for the weaker, this raised the spectre of collapse. While grappling with conduit-related balance-sheet pressure they also had to keep a weather eye out for other threats, notably those arising from flaky insurance.

Bond insurance

A string of bankruptcies among the heavily leveraged would test the market for credit default swaps (CDs). Municipal bond insurers, known as ‘monolines’, enjoyed ‘triple A’ rating because of this conservative specialization. Pension funds and other institutions were heavily invested in the monolines, with holdings amounting to \$800 billion at the close of 2007. However, some years back the monolines diversified and took on insurance for corporate as well as municipal bonds, still claiming that their ‘bond only’ insurance remit was of limited risk.³⁵ The meagre capitalization of the large bond insurers weakened their credibility, notwithstanding their past ratings. The search for more exciting returns had drawn them into branches of corporate and financial insurance that overstretched their capital base. An institutional investor complained that Ambac, a monoline with equity capital of less than \$5 billion, insured the debt of California, the world’s sixth largest economy.³⁶ If the monolines lost their coveted triple A ratings, this would sharply raise their cost of capital. They escaped downgrades by means of discreet capital injections arranged by several of their clients, including the banks. Shareholders suffered dilution but the prospect of collapse was staved off. It is possible

³⁴ Greenlaw et al, ‘Leveraged Losses’, pp. 30, 32–3.

³⁵ Saskia Scholtes and Gillian Tett, “‘Casualties and Shipwrecks’” Warning for Credit Markets’, *Financial Times*, 11 January 2008.

³⁶ William Gross, ‘Rescuing Monolines Is Not a Long-Term Solution’, *Financial Times*, 8 February 2008.

that the Federal Reserve helped to promote this outcome, as it undoubtedly did with the buy-out of Bear Stearns. The saving of Bear Stearns and Countrywide by means of takeovers was a win both for their bondholders and for those concerns that had insured their bonds.³⁷ Indeed, when a company teeters towards bankruptcy, bondholders and shareholders can have quite different interests; a ‘rescue’ at fire-sale prices can punish shareholders but leave bondholders relatively unscathed.

We have seen that the securitization boom helped to make up for a stagnation or decline in the banks’ fees from corporate lending and underwriting—IPOs, rights issues etc.—in 2001 and after. Indeed, the banks, helped by their role in packaging and selling all manner of ‘credit derivatives’ including mortgage-backed CDOs, achieved remarkably good profits right up to the actual outbreak of the credit crisis. This was true of both the historic investment banks and the commercial banks, albeit that, in the aftermath of deregulation, this distinction was breaking down. A residual contrast was that the investment banks are ‘prime brokers’ and engage in large amounts of proprietary trading, risking their own money but in ways that are often difficult to fathom. Where commercial banking operations loom large in a financial group, as they do at JP Morgan Chase, the balance sheet tends to be stronger—hence its ability to absorb Bear Stearns. However, credit derivatives had appeal to both types of financial concern, helping to blur the distinctions between them.

Cassandras and others

Warren Buffett warned in 2002 that derivatives were ‘financial weapons of mass destruction’. In a letter to the shareholders of Berkshire Hathaway, he conceded that Berkshire’s main business, re-insurance, was itself conceptually close to the use of derivatives, the latter being calibrated bets on a pattern of future events not unlike those made by an insurer. He pointed out that there are widely shared risks in the derivatives world and that ‘there is no central bank assigned to the job of preventing the dominoes from toppling in insurance or derivatives’. He also observed:

Many people argue that derivatives reduce systemic problems, in that participants who can’t bear certain risks are able to transfer them to stronger

³⁷ Gretchen Morgenson, ‘In the Fed’s Cross-Hairs: Exotic Game’, *New York Times*, 23 March 2008.

hands . . . on a micro level, what they say is often true. Indeed at Berkshire, I sometimes engage in large-scale derivatives transactions in order to facilitate certain investment strategies. Charlie [Munger] and I believe, however, that the macro picture is dangerous and getting more so. Large amounts of risk, particularly credit risk, have become concentrated in the hands of relatively few derivatives dealers, who in addition trade extensively with one another. The troubles of one could quickly infect the others. On top of that, these dealers are owed huge amounts by non-dealer counterparties. Some of these counterparties . . . are linked in ways that could cause them contemporaneously to run into a problem because of a single event . . . Linkage, when it suddenly surfaces, can trigger serious systemic problems.³⁸

Buffett complained that the way banks account for their holdings of derivatives was completely impenetrable and made a mockery of the disclosure requirements placed on them. The derivatives revolution, on this reading, was the most decisive step towards deregulation. Buffett was also clear that the banks were riddled with principal-agent problems:

I can assure you that the marking errors [i.e. the errors made in ‘marking to market’] in the derivatives business have not been symmetrical. Almost invariably, they have favoured either the trader who was eyeing a multi-million dollar bonus or the CEO who wanted to report impressive ‘earnings’ (or both).

Alan Greenspan, whose job it was to monitor such problems, preferred to remain a cheer-leader for the financial services industry. Addressing the Futures Industry Association in March 1999, he insisted that any new regulations on derivative products ‘would be a major mistake’: ‘Regulatory risk-measurement schemes’, he added, ‘are simpler and much less accurate than banks’ [own] risk-measurement models.’³⁹ His view chimed well with the repeal of Glass–Steagall that year and the passage of the Futures Modernization Act, sponsored by Congressmen Gramm, Leach and Bliley and signed into law by President Clinton in 2000. When Greenspan came to write his memoirs he explained: ‘I was aware that the loosening of mortgage credit terms for subprime borrowers increased financial risk . . . But I believed then, as now, that the benefits of broadened home ownership are worth the risk.’⁴⁰ By the time

³⁸ Warren Buffett, ‘Letter to the Shareholders of Berkshire Hathaway’, 2002, p. 14; available on Berkshire Hathaway website.

³⁹ Nelson D. Schwartz and Julie Creswell, ‘What Created This Monster?’, *New York Times*, 23 March 2008.

⁴⁰ Alan Greenspan, *The Age of Turbulence: Adventures in a New World*, New York 2007, p. 233.

this was published the mirage of 'broader home ownership' was beginning to melt away, menacing his 'brave new world' of rising productivity and low unemployment and inflation.

Some of Greenspan's colleagues, however, were alarmed by his cavalier approach to swelling debt. Ned Gramlich, a Federal Reserve governor, queried the chairman's approach in 2000 and later drew up a detailed indictment asking why super-sophisticated mortgage products were being foisted on the poor.⁴¹ Others in touch with the Federal Reserve system were also concerned. In 2004 the Fed published a paper by Michael Gibson outlining how vulnerable CDOs were to the business climate; they could come unstuck very quickly if a recessionary breeze unsettled the interlinked flow of payments.⁴² The US regulators seemed to ignore the broad issues of linkage and correlation risk. No doubt they were loath publicly to draw attention to the risks courted by the banks, their SIVs and their insurers, or the linkage between them. Investors large and small had no viable way of tackling linkage or default correlation risk—insurance costing 400 basis points would wipe out any profit in holding these assets. As we have seen, many public-sector pension funds did shun the CDOs and CDSs, which is one reason why the investment banks were caught with so much inventory on their hands. The managers of these funds are inclined to be cautious and to pay attention to the warnings of informed commentators.

Two men were well placed to anticipate these problems, yet failed to do so: Robert Rubin and Henry Paulson. Rubin was a respected director at Citi and could have ensured a much smaller exposure to the risky instruments. He was at the forefront of the financial revolution in the 1980s, when he recruited the ace risk-evaluators to Goldman Sachs, where he then worked. Henry Paulson as Goldman chief ensured that the bank would emerge almost unscathed from the subprime debacle. Yet at the Treasury he took no public or effective steps to avert the catastrophe. Were there aspects of the problem that simply eluded these super-intelligent and deeply informed financiers? Or were they blinded

⁴¹ Edmund Andrews, 'Fed and Regulators Shrugged as Subprime Crisis Spread', *New York Times*, 18 December 2007. Ned Gramlich's last warning came in a contribution to the Fed's Jackson Hole conference in August 2007, shortly before his death.

⁴² Michael S. Gibson, 'Understanding the Risk of Synthetic CDOs', Federal Reserve Working Paper No. 36, Washington, DC 2004.

by faith in the market, or in the ability of the financial community to regulate itself?

II. THE FOG OF FINANCIALIZATION

The subprime debacle and its sequels train a spotlight on financialization. When properly embedded in structures of social control, finance can help to allocate capital, facilitate investment and smooth demand. But if it is unaccountable and unregulated it becomes sovereign in the re-allocation process, and can grab the lion's share of the gains it makes possible, including anticipated gains before they have been realized. The problem is aggravated as financial intermediaries proliferate and take advantage of asymmetries in access to information and power imbalances. Such distortions multiply as 'financialization' takes hold. It is boosted as the logic of finance becomes ubiquitous, feeding on a commodification of every aspect of life and the life-course—student loans, baby bonds, mortgages, home equity release, credit-card debt, health insurance, individualized pension funds.⁴³ Financialization also encourages corporations to privilege financial functions and to see themselves as chance collections of assets which, as circumstances change, must be continually broken up and reconfigured. While the individual is encouraged to think of him or herself as a two-legged cost and profit centre, the corporation is simply an accidental assemblage to be continually shuffled in response to fleeting market signals.

Resort to 'leverage' in the financialized world supposedly enables individuals and corporations to get rid of 'unrewarded risk' and maximize outcomes. While the word 'debt' has a negative ring to it, the word 'leverage' is positive; indeed it is now often used as a verb, as we leverage our assets in order to reach for the stars. Forgetting that Archimedes' lever had a purchase point, the financial engineers aspire to move the world without securing the land on which they stand. In their philosophy, all that is fixed melts into air. This gives them some insight into capitalist motion but no sense of its limits. In contemporary capitalist conditions, especially a grey capitalism riddled with defective links between principals and agents, financialization becomes hugely destructive.

⁴³ Randy Martin, *The Financialization of Daily Life*, Philadelphia 2002, and Blackburn, *Age Shock*, pp. 29–74.

Two processes that took hold in the 1950s and 1960s nourished financialization—new principles of consumer credit, and the rise of institutional finance and fund management. In the postwar period, American retailers and manufacturers constructed a new world of revolving credit and ‘option accounts’, eventually culminating in the credit card.⁴⁴ Fostering consumer credit soon became critical to the success of a wide range of businesses. The Commercial Credit Corporation (CCC) offered its services to retailers who lacked sufficient expertise—or capital—to set up their own lending operation. General Electric offered finance to purchasers of its wide range of consumer durables, laying the basis for the emergence of the mighty GE Capital, responsible for 42 per cent of group profits in 2000. General Motors expanded the General Motors Acceptance Corporation (GMAC) as of the late 1960s, a finance arm which accounted for nearly all group profits by the close of the century. Louis Hyman concludes: ‘Rather than forced down on consumers and retailers by banks, credit practices trickled *up* to financial institutions as retailers responded to the limits on their capital.’⁴⁵ Diners Club, American Express and Visa picked up and developed such already established lending practices.

The powerful trend towards financialization was also evident in the rise of institutional investment—pension funds, insurance, mutual funds and college endowments. Indeed it was often they who supplied the capital needed to finance the new credit arrangements, with different financial intermediaries taking generous fees as both fund managers and lenders. In the 19th and early 20th centuries, cooperatives, housing associations and insurance companies organized on a genuinely ‘mutual’ basis—i.e. owned by their members, not private shareholders—managed to bring down the costs of intermediation by cutting out the commercial middlemen. But the consumer revolution of the 1950s and 1960s was driven by large-scale commercial retailers and their banks. In later decades many genuine mutuals were

⁴⁴ See Louis Hyman, ‘Debtor Nation: How Consumer Credit Built Postwar America’, Harvard University PhD 2007, Ch. 6. The phenomenon was charted with foreboding by *Monthly Review*, whose early focus on personal debt reflected an analysis to be found in the classic work by Paul Baran and Paul Sweezy, *Monopoly Capital*, New York 1966, arguing that US capitalism was dogged by overproduction. For a more recent reprise see John Bellamy Foster, ‘The Household Debt Bubble’, *Monthly Review*, vol. 58, no. 1, May 2006.

⁴⁵ Hyman, ‘Debtor Nation’, Ch. 6, p. 3.

marginalized or broken up, with members receiving a modest pay-off in the event of privatization.

Theoretical models

The financial surge was accompanied by a revolution in finance theory that was pioneered as much by those advising institutional investors as by economics departments, since most of the latter took no interest in the world of everyday finance. The global turmoil and computing advances of the mid-1970s gave great scope to a new theory of financial economics and a practice of financial engineering. Its principles and methods were incubated by economists and financial professionals, who were both intrigued by the novel credit conditions and ideologically hostile to the well-ordered world of the postwar boom, with its government regulation, managerialism, hierarchy of leading corporations and increasingly influential fund managers. Fischer Black (1938–95), who straddled the world of finance and academia, was the most theoretically fertile and ambitious member of the emerging school. On the one hand Black was co-inventor of one of the financial world's most intensively used instruments—the Black–Scholes options-pricing formula—and on the other he sought to arrive at a new equilibrium model.

In the mid-1960s Fischer Black was asked by the Investment Company Institute (ICI), a fund managers' consortium, to prepare evidence which it could submit to forthcoming Congressional hearings, showing that fund managers were doing a good job for their clients—pension funds, college endowments and investors in mutual funds. In conjunction with two academics also working on the problem, Michael Jensen at Chicago and William Sharpe at Seattle, Black commenced a collaboration that was to redefine the 'capital asset pricing model', underlie the Black–Scholes options-pricing mechanism, and earn his other collaborators, Myron Scholes and Robert C. Merton, the Nobel Prize for Economics in 1997.⁴⁶ However, to the disappointment of his commercial sponsors, Black and his associates, after analysing decades of share price movements, found no evidence that fund managers added anything to the

⁴⁶ For the gestation and significance of Black–Scholes, see Donald MacKenzie, 'An Equation and its Worlds', *Social Studies of Science*, vol. 33, no. 6, December 2003, pp. 831–68.

value of their assets. (The ICI omitted this embarrassing conclusion from the published report.)⁴⁷

The ‘financial engineers’ pinpointed the contribution to share performance made by a particular management by separating it from share price movements which simply reflected overall shifts in the stock market or industrial sector. On average, they found, half of share-price movement is not company- or sector-specific but reflects overall market trends; sector trends accounted for 10 per cent of price changes. The logic of this approach led to a host of share indices, such that investors could bet on their movements to screen out risk and secure reward. This was the origin of risk arbitrage, or the exploitation of asset mis-pricing in the wake of such market events as a hostile take-over bid.⁴⁸ Black urged that the prudent investor should be thoroughly diversified and intolerant of ‘unrewarded risk’. These watchwords of financialized investment have unexpected dimensions. For Black, diversification should extend through time as well as within the universe of assets currently available. The same nominal asset in three days, or three years, was not, in fact, the same asset because, as the Greek philosopher pointed out long ago, you cannot step in the same river twice.

But Black’s stress on longitudinal diversification also supported ‘dynamic hedging’, in which the portfolio is continually reassessed and recomposed. Aversion to unrewarded risk can prompt either a reasonable attempt to remove this—e.g. currency, inflation or interest-rate risk, which can be done by hedging—or a continuous search for risks that carry a reward. This idea often informs the ‘leverage with everything’ approach. Leveraging the assets in a portfolio allows greater diversification; while remaining invested in one set of assets, the investor can mortgage them and establish a claim over another set, perhaps by buying an option or taking out a short position. Such procedures may also minimize tax.

⁴⁷ Perry Mehrling, *Fischer Black and the Revolutionary Idea of Finance*, Hoboken, NJ 2005, pp. 60–4.

⁴⁸ An example being John Paulson—no relation to Henry—a maestro of risk arbitrage. While risk arbitrage usually focuses on just one event, Paulson took a further step in 2005, seeing house prices, mortgages and CDOs as a gigantic bubble; he set up two very bearish hedge funds whose value increased from some \$30 million in 2006 to over \$4 billion by the beginning of 2008. (George Soros also did well backing Paulson in 2007.) Gregory Zuckerman, ‘House Money: How Trader Made Billions on Subprime Downturn’, *Wall Street Journal*, 16 January 2008.

Black's respect for 'strong economic forces' working themselves out through an inescapable overall equilibrium made him a critic of both monetarists and Keynesians. Monetary policy was always impotent in the face of changes in what people want. Black favoured 'uncontrolled banking'—including the waiving of all deposit ratios. In 'Banking and Interest Rates in a World Without Money' he invoked the advantages of a passive banking system—quoting James Tobin to the effect that in such a world, 'the real economy would call the tune for the financial sector, with no feedback in the other direction.'⁴⁹

Black expressed various views concerning the 'efficient market hypothesis', according to which market prices reflect all available information at a given point in time. He did, however, formulate a version he could accept in the following terms:

We might define an efficient market as one in which price is within a factor of 2 of value, i.e. the price is more than half of value and less than twice value . . . By this definition, I think almost all markets are efficient almost all of the time. 'Almost all' means at least 90 per cent.⁵⁰

Many would regard such wide parameters as a very loose concept of efficiency. But Black liked approximations—the Black–Scholes model itself does not aim at great exactness. For Black the market price oscillated around the efficient price, just as Marxist economists hold that market price oscillates around value. Indeed the idea that price and value reflect 'socially necessary labour time' itself implies a remarkable approximation to efficiency.⁵¹

Black remains a contradictory and enigmatic figure. He took further than anyone else a model of equilibrium that treats human beings as bearers of 'human capital' who must maximize their returns. Perry Mehrling explains how he experimented with diet, sex and drugs in pursuit of this idea. He was the prophet of leverage because he believed that only the indebted had the single-minded focus on performance that equilibrium demanded (disconcertingly, this concept functions rather

⁴⁹ Fischer Black, 'Banking and Interest Rates in a World Without Money: The Effects of Uncontrolled Banking', in Black, *Business Cycles and Equilibrium*, Oxford 1987, pp. 1–19.

⁵⁰ Fischer Black, 'Noise', *The Journal of Finance*, vol. 41, no. 3, 1986, pp. 539–43, 533.

⁵¹ See Slavoj Žižek, 'The Parallax View', NLR 25, January–February 2004.

like accumulation in a Marxist account). In the pursuit of diversification he alternated spells in academia with work on Wall Street. But when approached by the Chicago Board with the idea of basing the derivatives market on his option-pricing formula he declined to become involved and observed: 'Options are an exciting way to gamble, and the Chicago Board Options Exchange wants to act as the gambling house, and take its cut. There's nothing wrong with that; but if we are to permit this form of gambling, it seems logical to tax it as heavily as the government taxes betting on horse races.'⁵²

Risks and uncertainties

The quantitative finance pioneered by Black always wanted to know the worst-case scenario—how much would be lost in the case of a protracted collapse of the market? The banks that were knocked for six by the credit crunch all used elaborate measures for their Value at Risk (VaR). These have proved to be beset by flaws—they do not cope with the unexpected, and prompt replication or reinforcement of untoward events. Years of low volatility led to reduced VaR scores. Feeding bad news into these systems prompted sell signals that aggravated the dangers which the measure had initially highlighted.⁵³ The 1987 crash had revealed a similar problem with computerized programme trades.

The afflicted patient is often not the best judge. Regulators with access to a better-constructed VaR could act more rationally than those gripped by a tidal cash ebb. It would not be difficult to bring the visible balance sheet closer to the real balance sheet by requiring published, board-approved levels of VaR and proper disclosure of all liabilities pertaining to associated enterprises. SEC filings show that the VaR implied by trading activity at the major investment banks doubled between May 2006 and November 2007.⁵⁴ In recent years, as we have seen, Wall Street banks

⁵² Quoted in Mehrling, *Fischer Black*, p. 138.

⁵³ See Gillian Tett, 'Volatility Wrecks Financial World's Value at Risk Models', *Financial Times*, 12 October 2007. See also Boris Holzer and Yuval Millo, 'From Risks to Second-Order Dangers in Financial Markets: Unintended Consequences of Risk-Management Systems', *New Political Economy*, vol. 10, no. 2, 2005. The authors give the examples of the 1987 crash and the collapse of LTCM. Jérôme Kerviel, the sadly miscast 'Che Guevara of finance', made a similar point when he claimed that the huge SocGen losses revealed on 24 January reflected the over-hasty liquidation of his positions.

⁵⁴ Greenlaw et al, 'Leveraged Losses', p. 32.

have felt obliged to take greater risks with their own resources because of a contraction in their revenues from corporate finance—itself a reflection of low investment in the US economy. They not only sponsor hedge funds but increasingly come to resemble them as they use their position as prime brokers to leverage up their bets and pursue arbitrage.

The Austrian free-market critique of socialism had insisted on the irrationality of ‘administered prices’, as administrators could never know the host of local possibilities that might unsettle any given set of comparative prices. The practitioners of quantitative finance believed that the Black–Scholes–Merton options valuation model had established a new path to valuation, enabling financial products to be assigned valid prices. The prestige of this device set a precedent for pricing ‘over the counter’—direct, institution to institution—sales of derivative products. As MacKenzie explains:

Many of the instruments traded in this market are highly specialized, and sometimes no liquid market, or easily observable market price, exists for them. However, both the vendors of them (most usually investment banks) and at least the more sophisticated purchasers of them can often calculate theoretical prices, and thus have a benchmark ‘fair’ price.⁵⁵

The theoretical model persuaded the purchasers of CDOs that they had paid the right price, notwithstanding the absence of a market, just as it seemingly reassured the banks that they had no skin in the game.

In ‘grey’ capitalist conditions, the concepts and techniques of the financial engineers begin to undermine and corrupt the market mechanism. Part of the problem is that these techniques are often used to game less well-informed players, escape tax or promote a constant reshuffling of assets. As the current crisis shows, they can even deceive the deceivers. To some extent the fault lies in the abuse of financial techniques, rather than in the techniques themselves. The finance houses’ short-term horizon, their lack of commitment to working collectives, and their susceptibility to insider abuse, are all typical of actually existing capitalism. More broadly, today’s institutional investment—‘grey capitalism’—has tolerated or spawned financial malpractice often dressed up in the latest jargon of the ‘quants’ and engineers.

⁵⁵ MacKenzie, ‘An Equation and its Worlds’, p. 855.

Derivatives and deception

A well-regulated stock exchange is a phenomenal source of information for all market participants. It generates second-by-second data concerning the volume and price of trades, and its settlement system registers the identity of buyers and sellers. The analytic feats of the financial economists were themselves based on such data. Yet the advent of structured finance generated a gigantic volume of direct trades between institutions whose details were only known to the participants. These ‘over-the-counter’ transactions exceeded stock-exchange transactions by the turn of the millennium, and led the exchanges to skimp on procedure in order to remain competitive. Here we have both the cause of the credit crunch and the ultimate irony of the Western crusade to marketize the globe. A great wave of securitization aimed to turn even the most unpromising cash prospect, or intimate personal ambition, into a tradeable. It succeeded in submerging the world’s main capital markets in a deluge of non-performing and unpriced securities. The fog of grey capital descended on the financial districts, shrouding the great banks and clouding the view of investors and regulators alike.

In order to grasp today’s capitalism we need financial analysis, but the phenomenon of financialization sucks oxygen from the atmosphere. It privatizes information that should be public, just as it commercializes everyday life and promotes a pattern of ‘uncreative destruction’ in which enterprises and work teams are continually broken up and re-assembled to take advantage of transient arbitrage gains. In addition to helping financial institutions game their own customers, the techniques of financialization allow big capital—large corporations and wealthy individuals—to escape tax and skim the holdings of small shareholders. Note that most pension funds and charitable endowments, but not US mutual funds, are limited by fiduciary rules from much exposure to hedge funds or exotic derivatives. A further corollary of proliferating financialization is that the regulations governing credit creation were first loosened and then almost entirely ignored. Reckless credit expansion has long been the primrose path to financial crisis and collapse.⁵⁶

⁵⁶ The role of derivatives in generating excess credit and financial failure was well explained by Salih Neftci, ‘FX Short Positions, Balance Sheets and Financial Turbulence’. Note however that Neftci holds that, if properly regulated, derivatives would still have a part to play in a healthy financial system.

The post-1972 take-off of financialization coincided with advances in computing capacity and the discovery of new mathematical techniques for valuing options and constructing derivatives. To begin with, these techniques were used mainly to reduce uncertainty and hedge currency risk. But before long it became clear that derivative swaps could be used to bamboozle tax authorities and shareholders. Financial engineering could convert one type of income stream into another, or an asset into income or the other way round—reducing or avoiding tax. Derivatives could also be used to refine the techniques of fund management and strategies for merger and acquisition. The more responsible pension funds avoid hyper-trading programmes and stick with long-term investment strategies. But they do use derivatives to hedge their positions. While several financial products serve no useful purpose, we should not expect a generalized rejection of all options and derivatives. Instead it will be necessary to distinguish, as the IRS already tries to do, between derivative contracts that really do seek to hedge risks and those whose only rationale is to cheat the tax authority and confuse the unwitting shareholder. There are already calls for proper regulation and registration of these instruments and of the ‘shadow banking system’ as a whole. More and better regulation is indeed needed, but will regulation be enough? It is worth recalling that financialization was born in a quite heavily regulated world, with some of its techniques designed to frustrate and defeat the regulators, just as others aimed at releasing ‘value’.

Lessons of the 1930s

The 1920s share bubble, and the bank runs of 1929 and after, prompted a wave of regulation, including the passage of Glass–Steagall in 1933—repealed by Clinton in 1999. For a long period, roughly 1929 to 1972, the scope for financialization was limited, first because of the sharp financial contraction of the Great Depression and then because of the extensive coordination of the Bretton Woods system and postwar economy more generally.⁵⁷

The centrality of banks, and the role of property bonds in the current crisis, bear an eerie resemblance to the onset of the Great Crash. Joseph Schumpeter stressed how the tumbling of property prices in Florida precipitated the collapse of a speculative bubble centred on property

⁵⁷ Gérard Duménil and Dominique Lévy, ‘La Finance capitaliste’, in Suzanne de Brunhoff et al, *La Finance capitaliste*, Paris 2006, pp. 131–80.

bonds. For Schumpeter the stock-market falls were secondary to the impact on the banks, which in turn reflected the bursting of a credit bubble. He pointed out that the 1929 crash exhibited the classic features of the onset of a 'Juglar cycle'. Named for the economic historian Clément Juglar, this cycle began with a devastating financial crisis and credit famine, which then took its dreadful toll on industry and agriculture. Schumpeter was already aware of the particular role of housing investment in economic turbulence: 'Nothing is so likely to produce cumulative depressive processes as such commitments made by a vast number of households to an overhead financed to a considerable extent by commercial banks.'⁵⁸

This time around, speculative financial instruments based on property mortgages have also collapsed—with Florida again an epicentre. Despite many unknowns it is reasonable to suppose that US GDP will stagnate rather than suffer anything like the crushing decline of the 1930s. Nevertheless, the loss in potential output could be large: Greenlaw and his colleagues estimate a conservative 1–1.5 per cent of GDP, as we have seen. So far both politicians and regulators have sought to tackle the crisis by prompting the banks to come up with their own solutions, rather than by devising new instruments of regulation. The Brown government hovered for six months before taking Northern Rock into public ownership. In the United States neither the Fed nor the Treasury have shown a clear determination to expose losses and recapitalize the affected institutions. Even Herbert Hoover established the Reconstruction Finance Corporation, a public agency designed to resuscitate threatened assets, which eventually made a huge contribution to reviving the US economy.

The New Deal response to the crisis also comprised, in addition to Glass–Steagall, the setting up of the Home-Owners Loan Corporation (HOLC) in 1933, the introduction of the Securities and Exchange Commission in 1934, the passage of the Social Security Act in 1935, and the establishment of a Federal National Mortgage Association, now more familiarly known as Fannie Mae, in 1938. While the HOLC was supposed to head off mounting foreclosures, Fannie Mae was designed to secure and subsidize prime residential mortgages. The HOLC bought mortgages in default from the banks and offered the borrowers lower repayment terms. Within

⁵⁸ J. A. Schumpeter, *Business Cycles* [1939], Philadelphia 1982, Vol. 2, pp. 747–8. Schumpeter attempted to explain the severity of the 1929 crash as the conjunction of Juglar, Kitchen and Kondratiev cycles.

two years the HOLC had received 1.9 million applications from distressed homeowners and successfully re-negotiated one million mortgages. It closed in 1951 after the last 1936 mortgage was paid off.⁵⁹

While the HOLC was dealing with subprime borrowers, Fannie Mae made it easier and cheaper for prime borrowers to get a mortgage, using its Federal guarantee and tax-free status to organize a secondary mortgage market that underwrote any residential mortgage up to a certain value. The guarantee and tax exemption enabled Fannie Mae to borrow at cheap rates which were passed on to the individual borrowers. This partial decommodification of the residential mortgage market subsequently proved a great success. In 1968 Fannie Mae was semi-privatized and allowed to raise capital from investors, but kept its Federal guarantee and remained exempt from taxation. These subsidies enabled it to finance the process whereby, over the subsequent forty years, over 50 million householders acquired ownership of their homes. However the semi-privatization can now be seen as a huge mistake, since it allowed the two government-sponsored enterprises to take on inordinate amounts of debt in a bid to promote securitization and boost earnings.⁶⁰ The more general problem here—also seen in the privatization of so many British building societies—is the hostility to even partially decommodified social forms and an infatuation with the corporate model.

III. MELTDOWN

By August 2007 the malaise caused by the collapse of mortgage-backed instruments had spread to the whole CDO section, and it was this that created the ‘credit crunch’. The penny now dropped that these amazingly complex financial instruments constituted an important part of the assets of a whole string of financial institutions. Hedge funds had also fancied them, being neither squeamish about their quality, nor quizzical

⁵⁹ Alan Blinder, ‘From the New Deal, a Way Out of a Mess’, *New York Times*, 24 February 2008. Such an approach is a bailout for the banks who are culpable for mis-selling, and should be made to pay a price—on which more below.

⁶⁰ Ronald Utt, ‘Time to Reform Fannie Mae and Freddie Mac’, Heritage Foundation, Backgrounder 1861, June 2005. Utt proposed withdrawing the Federal guarantee and tax exemption to allow Fannie and Freddie to ‘concentrate . . . on securitizing residential mortgages in free and open competition with the private sector’. See also Manuel Aalbers, ‘The Financialization of the Home and Mortgage Crisis’, *Competition and Change*, vol. 12, no. 2, June 2008.

cal about structured finance. They knew there was no active market in derivatives, but believed in their model value and in the insurance they carried. In some cases, including those worst hit, the hedge funds were themselves spin-offs from an investment bank, which would extend them credit to make margin calls.

Part of the problem with CDOs is that the salaries paid to bank employees and financial lawyers match a wholesale operation dealing with thousands of mortgages, but not retail inspection of each lowly mortgage.⁶¹ Shortage of deliverable items and practical restrictions on settling CDS contracts, meanwhile, has in some cases led to so-called protocols and cash payments worth less than the hedged amount. In another paper for the Federal Reserve, dated October 2007, Michael Gibson first stressed the benefits of credit derivatives of all types, and then itemized the multiple risks stemming from their complex or intricate sequencing and coordination.⁶²

The collapse of CDO valuations, and the doubts about CDS coverage, reflected mutual distrust among those holding the securities rather than simple incomprehension. The credit crunch was a product of the banks' justified doubts concerning one another, as well as the quality of the underlying assets. The banks knew how to assess the problems of the CDOs, because they had helped package them. Their in-house Finance PhDs had enough information to know—whatever the complexity—just how dubious these assets were, despite their AAA grades. They were aware that fear of contamination would take its toll on securities, including some that, in the fullness of time, might be okay; likewise that the insurance wrappers around these products might disintegrate just when really needed. The credit crunch has taken a toll on all mortgage securities and on the very concept of the CDO and CDS. It will prompt great caution. But it will not wipe out all derivative trades since these are too useful to the financial system, and too widely diffused within it, to be simply abandoned. The nominal total of CDSS is no less than \$48 trillion, or three times the size of US GDP (though many overlap and cancel one another out, making the real total much smaller). CDO issuance over

⁶¹ Satyajit Das, 'How Supposed Risk Hedgers Could Become Risk Creators', *Financial Times*, 6 February 2008. See also Robert Cookson and Gillian Tett, 'Pressure Builds Over CDS Settlements', *Financial Times*, 21 February 2008.

⁶² Michael S. Gibson, 'Credit Derivatives and Risk Management', FEDS Working Paper No. 47, Washington, DC 2007.

the last five years was \$1.6 trillion, while outstanding financial securities total \$10.8 trillion.

The Federal Reserve has offered greater liquidity to the banks but it is very likely that their problem is solvency not liquidity. The paper by Greenlaw and his co-authors explains:

Liquidity injections by the central bank are an invitation to the financial intermediaries to *expand* their balance sheets by borrowing from the central bank for on-lending to other parties. However a leveraged institution suffering a shortage of capital will be unwilling to take up such an invitation. Recognition of this reluctance is the key to understanding the protracted turmoil we have witnessed in the inter-bank market.⁶³

These authors admit that US-style low interest rates help the banks by allowing them to roll over their existing loans at more favourable rates, but they do not lead to new loans.

If the major banks are forced to reduce the book value of their CDOs by 50 cents on the dollar, this will wipe out the equity value of their businesses and make them technically bankrupt. Banks which face this danger include Citigroup, Merrill Lynch, Lehman Brothers and Morgan Stanley, but there are likely to be surprises too. Of course no major bank will be allowed to fail. Instead the authorities will devise rescues, buy-outs and mergers. Rather than the stern treatment meted out to Enron and Worldcom, we shall see 'socialism for bankers' as public money is mobilized to prop up finance houses that are too big to fail. The Bear Stearns rescue was hard on shareholders but not bondholders or counterparties. JP Morgan, the purchaser, is the beneficiary of a Federal Reserve guarantee covering \$29 billion of assets held by Bear. In the weeks following this rescue the Fed lent a broadly similar sum, in confidence, to several other banks, with Level 3 securities as collateral. The main alternative to the injection of public funds would be further input from sovereign wealth funds.

Altogether, at the beginning of 2008, there was as much as \$900 billion in vulnerable CDO bundles including quantities of subprime, Alt A and better debt. These assets do have value but it is difficult to know exactly what this is, because they can only be sold at an absurd discount. Some will make a killing by acquiring undervalued 'distressed assets',

⁶³ Greenlaw et al, 'Leveraged Losses', p. 43.

but how to tell good bets from dead losses? In an attempt to rebalance portfolios some banks have resorted to barter, swapping credit derivatives to achieve a supposedly more advantageous mix.

The losses chalked up by the banks hit their shareholders and some juniors in the stricken sector. Financial stocks have dropped on average by a quarter or more, with some doing much worse. However the senior executives who brought these great losses on their shareholders have still been awarded handsome pay-offs by tame boards of directors. The CEOs of two Wall Street banks left their jobs in 2007 clutching lavish rewards for failure: \$160 million for Stanley O'Neal at Merrill and \$90 million for Charles Prince at Citigroup. At Bear Stearns the rescue left shareholders with \$10 a share compared with \$170 a year earlier. One-third of the bank's shares were held by its employees, many of whom will also lose their jobs. Board members lost heavily on their holdings, but will remain very rich men since during the great CDO bonanza—in which their bank was a lead player—they had earned fees and bonuses of tens, or even hundreds, of millions.

Senior- and medium-level bankers continued to receive lavish compensation despite the dire results. Morgan Stanley announced a \$9.4 billion loss in the last quarter of 2007 but still increased the size of its bonus pool by 18 per cent, arguing that the losses had been concentrated in structured finance and should not blight the rewards of those who continued to be profitable. Employee compensation generally runs at 50 per cent of an investment bank's revenue. In 2007 this rose sharply and in some cases came close to 100 per cent.⁶⁴

The banks' shareholders have undergone severe losses. The largest shareholder in Citigroup is the Saudi investor Prince Alwaleed, whose booming oil assets offset his banking losses. But there are certainly swathes of pension funds and small investors who will feel the pain. They may not have held much in CDOs but, since they have to invest in the whole market in the interests of diversification, they do have stakes in many financial

⁶⁴ Raghuram Rajan, 'Bankers' Pay Is Deeply Flawed', *Financial Times*, 9 January 2008. For CEO and fund manager 'agency problems' see Blackburn, *Age Shock*, pp. 164–5; Michael Useem, *Investor Capitalism*, New York 1996; John Bogle, *The Battle for the Soul of Capitalism*, New Haven 2005; Nomi Prins, *Other People's Money*, New York 2004 and Yally Avrahampour, 'Agency, Networks and Professional Rivalry: the Valuation and Investment of UK Pension Funds (1948–2006)', PhD University of Essex, 2007.

corporations. One report claimed that pension funds lost \$110 billion in the first month of 2008 alone.⁶⁵ In 2007 116 funds filed lawsuits against their managers, for losses ranging from 28 to 84 per cent on supposedly safe investments. State Street, with \$2 trillion of pension funds under management, has already put aside \$618 million to cover legal claims.⁶⁶

The most direct victims of the crisis have been two to three million us mortgage holders—or their tenants—who have lost, or will lose, their homes. Younger women, African Americans and other minorities were over-represented. The credit crunch deepens a recession which shrinks wages and the job market, and will make student loans more difficult and expensive to obtain. It is holding up countless municipal improvements—including the building of social housing. In the longer run there may be some benefit, since it has exposed how insurers and ratings agencies combined to overcharge municipalities for their bond insurance. And the crisis afflicts many outside the us, with the highly financialized UK economy already taking a heavy hit.⁶⁷ The looming danger is some mixture of a protracted recession, like Japan in the 1990s, until bank losses are purged from the system, and a wider dislocation like that of the 1997–98 Asian crisis. Because this is a convulsion brought on by ‘Anglo-Saxon’ finance-driven capitalism it will have a character of its own. Japan did not have hollowed-out industries, a negative savings rate, or an infestation of untested, unpriceable structured finance.

Treasury gambits

Henry Paulson has, from the inception of the crisis, put the main emphasis on urging the banks, bond insurers and other financial concerns to come up with their own solutions. But this has had little impact. Thus the super-siv, which he endorsed in September 2007, had to be abandoned in January 2008. On 28 January Hugo Dixon enquired in the *Wall Street Journal*, ‘Is Anybody in Charge?’⁶⁸ Within days Paulson was assuring

⁶⁵ Andrew Sheen, ‘Funds Lose \$110 billion in a Month’, *Global Pensions*, 1 February 2008.

⁶⁶ Vikas Bajaj, ‘State Street Corp is Sued Over Pension Fund Losses’, *New York Times*, 4 January 2008.

⁶⁷ Alex Frangos, ‘Credit Losses Stall Affordable-Housing Projects’, *Wall Street Journal*, 18 March 2008; Julie Creswell and Vikas Bajaj, ‘States and Cities Start Rebellions on Bond Ratings’, *New York Times*, 3 March 2008; Alistair MacDonald and Mark Whitehouse, ‘London Fog: Credit Crunch Pounds UK Economy’, *Wall Street Journal*, 7 February 2008.

⁶⁸ *Wall Street Journal*, 28 January 2008.

Charlie Rose, the TV interviewer, that he was working on a new and comprehensive regulatory template, to cover mortgage origination, securitization, bank asset ratios, off-balance-sheet entities, disclosure and the construction and sale of derivatives. When it was published in March it became clear that he had not abandoned his faith that the financial community should regulate itself—or at least appear to do so. The plan laid some disclosure requirements on the investment banks and hedge funds, but there were to be no regulatory powers. The credit crunch has created emergencies in which the Treasury and Fed have had to intervene, but so far as possible this has been dressed up as self-help and auto-regulation. Hence even the takeover of Bear Stearns by JP Morgan only proceeded, as we have seen, because the Fed assumed \$29 billion of risk from the former, an arrangement cleared with the Treasury Secretary. The fire sale of Bear Stearns dealt harshly with an outriding and unloved bank, which had itself declined to join the rescue of LTCM in 1998. It left unanswered the capital-adequacy doubts that dogged other Wall Street concerns.

The Federal Reserve has cut short-term interest rates sharply, supposedly as a way to stimulate the US economy. But its overriding concern is with the well-being, or even survival, of core financial institutions. The banks are always slow to pass on lower rates to customers.⁶⁹ With banks able to borrow on the flimsiest collateral at 2.25 per cent interest, they continued to charge over 6 per cent for even the most solid mortgage prospect.

That there is much in life beyond the ken of quantitative finance is no revelation, but that its practitioners so badly miscalculated the odds is strange. Thus Matthew Rothman, a Chicago PhD and head of quantitative equity strategies at Lehman Brothers Holdings, declared after a few bad days in August 2007: ‘Wednesday is the type of day people will remember in Quant Land for a very long time. Events that models only predicted would happen once in 10,000 years happened every day for three days.’⁷⁰ In fact Benoît Mandelbrot had long been sceptical, while Nassim Nicholas Taleb, himself a trader, warned that quantitative finance has a blind spot when it comes to ‘fat tails’ and ‘black swan events’.⁷¹ Fischer

⁶⁹ Floyd Norris, ‘An Effort to Stem Losses at Citigroup Produces a Renewed Focus on Risk’, *New York Times*, 16 January 2008.

⁷⁰ Kaja Whitehouse, ‘“Quant” Expert Sees a Shakeout for the Ages’, *Wall Street Journal*, 14 August 2007.

⁷¹ See Nassim Nicholas Taleb, *Foiled by Randomness*, New York 2004, and *The Black Swan*, New York 2007.

Black wrote an article on ‘The Holes in Black–Scholes’ and another on how to exploit them.⁷² One hole in Black–Scholes is that it assumes a normal distribution and will be wrong-footed by a fat tail. With financial data there is often a problem of a sample size that is not large enough to capture their variance over a significant time period. In a long-term perspective the information available to someone basing themselves on today’s financial data is very limited; by excluding the future, it is impossible to estimate whether the tail is fat or not. While Fischer Black knew that time could play havoc with the theorems of finance theory, the general run of quantitative economists naively believe in a simple numerical discount rate which can be used to calculate the net present value of a future stream of income or payments. This flattening process—also brought on by ‘mark to market’ and ‘fair value’ accounting—robs the future of its most unsettling characteristics: it is at once unpredictable and carries the past within it.

Financialization encourages households to behave like businesses, businesses to behave like banks, and banks to behave like hedge funds. But what, then, is the fate of the hedge funds? How can we know when they are successful? The relative frequency of ‘Taleb distributions’ in financial markets makes it very difficult for even expert institutional or individual investors to assess the performance of hedge funds. In such markets there is, in any one year, a high probability of making a good return and a low probability of huge losses. But over twenty years the low probability rises to levels where perhaps one in ten, or even one in five, such funds will be wiped out. The hedge-fund manager is paid 2 per cent of fund value each year and 20 per cent of the annual capital gain. Even managers of funds that are wiped out after twenty years will walk away very rich. The credit crunch has already taken down several famous hedge funds and inspired radical doubts concerning the hedge-fund formula. Martin Wolf cites a study which shows how difficult it is to devise incentives that are truly aligned with the interests of investors:

Obvious possibilities include rewarding managers on the basis of final returns, forcing them to hold a sizeable equity stake, or levying penalties for under-performance. None of these solutions solves the problem of distinguishing luck from skill. The first also encourages managers to take sizeable risks when they are close to the return at which payouts begin. Managers can evade the effects of the second alternative by taking

⁷² Fischer Black, ‘The Holes in Black–Scholes’, *Risk*, no. 1, March 1988.

positions in derivatives, which may be hard to police. Finally, even under the apparently attractive final alternative it appears that any claw-back contract harsh enough to keep unskilled managers away will also discourage skilled ones.⁷³

There remains the question: when—and to what extent—will the financial crisis become a crisis for the real economy? After six months of financial near-paralysis, the US economy was still growing and the New York Stock Exchange was seemingly in denial. There were signs of a slackening pace but these were aggravated, rather than caused, by the credit crunch. After all it was the housing bust which prompted the crunch, not the other way round. A leitmotif of writing about the US economy in 2001 and after was the low level of domestic investment and the decline in loans made to non-financial concerns by banks. Instead financial institutions lent to, and traded with, one another. Greenlaw, Hatzius and their colleagues have explained how the balance-sheet-levered ‘financial accelerator’ communicates shocks from one interconnected financial sector to another, intensifying the losses.⁷⁴ For a while, what was left of the real economy could limp along since it was not dependent on financial credit, but what of the ‘fat tail’ of heavily leveraged corporations? They might only comprise 5 per cent of the total, but their failure could still set off a new round of write-downs. The April 2008 IMF report politely raised the issue of bankruptcy when it stated that its estimate of \$945 billion of losses ‘suggests potential added stress on bank capital and further write downs . . . combined with losses to non-bank financial institutions . . . the danger is that there may be further reverberations back to the banking system as the de-leveraging continues’.⁷⁵

IV. TACKLING THE CREDIT CRUNCH

The collapse of the mortgage bubble and the damage it has done to both the financial system and real economy reveal the failure of Anglo-Saxon capitalism with its deregulation, privatization and belief in the alchemy of financialization. While parts of the shadow banking system serve no

⁷³ Martin Wolf, ‘Why Today’s Hedge Fund Industry May Not Survive’, *Financial Times*, 19 March 2008. See also Dean Foster and Peyton Young, ‘Hedge Fund Wizards’, *The Economists’ Voice*, vol. 5, no. 2, 2008, and ‘The Hedge Fund Game’, Oxford University Economics Department Discussion Paper No. 378, January 2008.

⁷⁴ Greenlaw et al, ‘Leveraged Losses’.

⁷⁵ IMF, *Global Stability Report*, p. x.

useful purpose and could simply be suppressed, other functions are potentially useful and could be discharged by a responsible public body. The banks are closing their SIVs, but the law which allows them to hide liabilities off-balance sheet remains.

The US and British authorities have both mobilized huge resources to rescue the banks from their own folly, and the bailout may be far from over. For both households and financial concerns, the burden of debt remains, and can bring them down. The banks will need support if they are to 'de-leverage' by reorganizing their business and restoring solvency. The use of public resources to achieve this should carry a price if it is not to encourage a repetition of such behaviour—'moral hazard', as the economists call it. Financial corporations that benefit from public intervention—as did JP Morgan—could also be obliged to issue preferred stock to a public holding fund. In the US this might be the state-level Social Security trust fund network. Alternatively a new social fund regional network could be established in this way. Since all have benefited from the low interest rates, all could be required to contribute. The power to impose a capital levy could also be deployed to prevent new bubbles. If the proceeds were redistributed from those who spend their dividends to a future-oriented fund that re-invested its income, it would help to contain inflationary pressures.

Another area that requires reform is accountancy, dominated by just four large companies, and accounting standards, where the 'mark-to-market' approach has been 'pro-cyclical'—encouraging the boom–bust cycle. A public audit agency, and a diversified set of accounting standards, could tackle the problems of an industry where auditors are too often in cahoots with the auditee.⁷⁶ There is likewise a case for only allowing expert publicly owned bodies to function as hedge funds, and converting 'private equity' into 'public equity' concerns. Another model that might be considered is the Reconstruction Finance Corporation, a public body that operated in the years 1932 to 1946. It invested a total of some \$39.5 billion—in contemporary terms nearly \$4 trillion—to combat recession and, after 1940, to organize war production. It created a swathe of new productive facilities, acquiring an equity stake in return. This enterprise was hastily liquidated in 1946 because it had succeeded too well. It was

⁷⁶ I have more on these approaches in *Age Shock*, pp. 285–92.

portrayed as an un-American institution and several of its best managers were hounded as Soviet spies.⁷⁷

A further example of a bailout mechanism is the Resolution Trust Corporation set up by the US Congress in 1989. This body used Federal money to rescue the stricken Savings and Loan concerns. The RTC assumed ownership of all assets, selling these off once the market had recovered. In this way the RTC accomplished a huge Federal injection of funds but was eventually self-liquidating—the RTC worked, but its successes became an opaque way of subsidizing the banking sector.⁷⁸ It would have been better if both RFC and RTC had remained as public bodies helping to diversify the economic landscape and maintain levels of investment and security. Recapitalization expenditures should be seen as part of the capital budget, not as current expenditures.

Jean-Charles Rochet points to the success of the Norwegian approach to its banking crisis in 1988–92. Three of the country's largest banks were taken into public ownership and their shareholders expropriated. The banks were so successfully rehabilitated that when they were eventually sold back to the private sector the government made a significant profit.⁷⁹ At least some of this was channelled to the country's two public pension funds, one of which is dedicated to investment in the local economy.

More generally, the old Anglo-American formula of the National Debt is inappropriate in a world beset not by individual 'risk' but by large-scale 'common shocks' like climate change, ageing and market turmoil, as has been recognized even by some of the most conservative and cautious states as they build up 'future funds' and sovereign wealth funds. The incoming Labour government in Australia has announced that it will continue to build the country's 'future fund'. Norway, Singapore, South Korea and China are other examples. The Norwegian finance minister insists that his country's government pension fund, with assets of \$350 billion, pursues an 'ethical' agenda and a 'high degree of transparency in all aspects of its operation'. It has 'long-term investment horizons',

⁷⁷ James Olson, *Saving Capitalism: the Reconstruction Finance Corporation and the New Deal, 1933–1940*, Princeton 1988.

⁷⁸ Joseph Stiglitz and Bruce Greenwald, *Towards a New Paradigm in Monetary Economics*, Cambridge 2003.

⁷⁹ Rochet, *Why Are There So Many Banking Crises?*, pp. 29–30.

avoids ‘leverage’ and adds liquidity to the market. The fund rigorously eschews ‘political posturing or politicized investment decisions’:

We promote the ethical foundation by exercising ownership rights and excluding companies from the fund. In cases where it is possible to encourage a company to put in place systems that reduce the risk of ethical infringements, the use of ownership rights is the preferred option.⁸⁰

Nowadays many public-sector and social funds prefer ‘engagement’—putting down motions at AGMs on such issues as dangerous industrial processes, denial of worker rights and exorbitant executive pay—rather than simply boycotting the stock. One should be careful not to exaggerate what is achievable by such means, still less pose them as an alternative to popular campaigns, legislation and trade-union action. This is still state capitalism, and is usually far removed from real accountability. But in the shifting and treacherous sands of financialized capital markets, the sovereign wealth funds have been a factor of stability. Given this potential there is every reason to argue that they should be financed by regular capital levies, with the added advantage that such levies can, as Schumpeter pointed out, counteract bubble economics.⁸¹

The national scale of regulation that emerged in the 1930s, and was globally coordinated by the Bretton Woods system, now needs to be revised and extended at international level. Indeed Keynes and Dexter White always meant the IMF and World Bank to have greater powers—for example to prevent one country from running a lengthy period of surpluses. In the context of the current crisis these institutions, each with a new head, will certainly try to get in on the act. The clauses of Basel II that allow banks to use their own valuation models need to be struck down.

⁸⁰ Kristin Halvorsen, ‘Norway’s Sovereign Fund Sets an Ethical Example’, *Financial Times*, 15 February 2008.

⁸¹ In the early postwar period the Japanese finance ministry successfully adopted Schumpeter’s capital levy to soak up war profits and contain inflation. See Barry Eichengreen, ‘The Capital Levy in Theory and Practice’, in Rudiger Dornbusch and Mario Draghi, eds, *Public Debt Management: Theory and History*, Cambridge 1990, pp. 191–220. In *Age Shock* (pp. 263–310) I argue that the best contemporary form of the capital levy is a milder version, based on the ideas of Rudolf Meidner, which requires all corporations to donate shares each year to a network of regional social funds. See also Blackburn, ‘A Global Pension Plan’, NLR 47, Sept–Oct 2007.

John Eatwell and Lance Taylor have for some time been urging the case for a 'World Financial Authority'.⁸² Their warning that the international financial system was likely to be dangerously volatile has been borne out by events. In associated work Jane D'Arista has urged the case for what she calls a 'macro-prudential framework', which would insure pension deposits rather than financial institutions.⁸³ Elsewhere she has written of the need for a new reserve system which takes account of the spread of financial functions and insists on appropriate reserves being held by all entities that undertake them. D'Arista argues, in terms that might apply to any central bank or to an international authority:

Creating a reserve system that extends the Fed's influence over the financial system as a whole requires that reserves be issued to and held by financial institutions as liabilities to the central bank. Shifting reserves to the liability side of financial institutions' balance sheets would permit the monetary authority to create or extinguish reserves for both bank and non-bank financial firms.⁸⁴

Joseph Stiglitz has also identified critical weaknesses of the current global financial regime.⁸⁵ The time has come to re-examine the helpful checklist of proposals made by Walden Bello and others following the Asian crisis of 1997–98.⁸⁶ It is now widely recognized that offshore financial centres allow wealthy corporations and individuals to make a mockery of taxation and national regulation. The German government's demand to obtain disclosure from Liechtenstein signals a new approach.

⁸² John Eatwell and Lance Taylor, *Global Finance at Risk: The Case for International Regulation*, New York 2000. See also the contributions to Eatwell and Taylor, eds, *International Capital Markets*.

⁸³ Jane D'Arista, 'Including Pension Funds in the Macro-Prudential Framework', presented at Center for Economic Policy Analysis conference, 10–11 September 2004, New School for Social Research, New York.

⁸⁴ D'Arista, 'Broken Systems', p. 14. See also D'Arista, 'Rebuilding the Transmission System for Monetary Policy', Financial Markets Center report, Howardsville, VA, November 2002.

⁸⁵ Joseph Stiglitz, *Globalization and its Discontents*, New York 2002, and *The Roaring Nineties*, New York 2003; Stiglitz and Greenwald, *Towards a New Paradigm in Monetary Economics*.

⁸⁶ Walden Bello, Nicola Bullard and Kamal Malhotra, eds, *Global Finance: New Thinking on Regulating Speculative Capital Markets*, New York 2000. Arguments for capital controls and a financial transaction tax made a few years back are now heard again: see Dani Rodrik and Arvind Subramanian, 'Why We Need to Curb Global Flows of Capital', *Financial Times*, 26 February 2008.

The broader concern must be to embed financial institutions also at the level of states and regions.

The solution to the huge problems outlined above is not to abandon money or finance but to embed them in a properly regulated system; to progressively transform the very nature of the corporations and banks in terms of both ownership and functioning; and to create a global network of social funds, financed in the way envisaged by Meidner, and a global system of financial regulation. The 'shadow' banking system must be brought under control and new principles observed by all those who offer derivatives for sale. The latter are a product of human ingenuity and should not be feared as an alien force. But their workings do need to be rendered visible and responsible. George Soros calls for 'a clearing house or exchange with a sound capital structure and strict margin requirements to which all existing and future contracts would have to be submitted.'⁸⁷ Perhaps a global network of publicly owned Derivatives Boards should be established with a monopoly on derivatives trading.

The actual and potential costs of the credit crunch are already huge, but they must be seen as part of a wider distemper of financialized capitalism, with its yawning inequalities, stagnant wages and loss of social protection. Global imbalances make China, Japan and Germany the world's leading exporters of capital, as the world's poor struggle to deal with rising food and energy prices. This is shaping up to be the worst crisis to hit global capitalism since the interwar years. The prestige of capitalist institutions has already suffered a damaging blow and will suffer further as the crisis hurts those in the real economy. But only practical, radical and transformative actions to tackle the wrenching consequences of the crisis can ward off stiff doses of capitalist medicine, which for many will be worse than the financialized malady they will be designed to cure.

⁸⁷ George Soros, 'The False Belief at the Heart of the Financial Turmoil', *Financial Times*, 3 April 2008.