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Financial Sector and the Future of Capitalism

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THE FINANCIAL SECTOR AND THE FUTURE OF CAPITALISM*

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ABSTRACT

Financial sector innovation and development has been an integral part of the rise of capitalism over the last half millennium. The innovations of the last three decades of the twentieth century were a continuation of the trend; they contributed to an era of global prosperity, but also increased the probability of bank failures as bankers and policymakers inexperienced in the new instruments made mistaken decisions. The likelihood of crises was increased by public policies which increased moral hazard. Governments regulate the financial sector due to asymmetric information between depositors and deposit-taking institutions; restricting entry or the lending activity of financial institutions is inefficient, so the weight is now placed on deposit insurance with moral hazard consequences. The policy challenge is to reduce moral hazard without repressing the financial sector and creating adverse selection in lending practices. Since the mid-1980s cheap money policies have exacerbated moral hazard associated with inadequate financial sector regulation by encouraging highly leveraged investments. The post-2007 financial crisis was one of many crises with idiosyncratic catalysts but with common underlying causes: cheap money available to participants in the integrated but imperfectly regulated global financial market eventually led to loan defaults and bank failures. This is not the end of capitalism, but a reminder of the difficult balancing acts involved in policing the financial sector which is at the heart of capitalist economies.

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The Financial Sector and the Future of Capitalism

The global financial crisis of 2007-8 evinced a chorus of lessons from history, mostly drawn from 1929 and with advice that governments needed to act decisively. The Depression of the 1930s is a poor source because almost any lessons can be drawn and because the economy of eighty years ago was vastly different from today's economy. So many mistakes were made after 1929 in the USA and Europe in monetary policy, fiscal policy, banking policy, trade policy . . . the list seems endless, and with so many policy errors it is difficult to know which were critical and what policy changes would have been sufficient to reduce the severity of the depression. Moreover, today's economy is both more complex, in large part because of financial innovations, and has more institutional diversity than that of 1929, when central banks were instinctively opposed to interventionist measures and international institutions such as the International Monetary Fund not yet existed.[1]

More relevant lessons from history can be taken from the three decades before 2007-8 when financial market liberalization was accompanied by economic prosperity punctuated by frequent crises.[2] Financial liberalization was part of the reform package that underlay the 1986-93 prosperity of Mexico and the 1982-96 boom in Thailand (during this period the fastest growing economy in the world). Despite signs that capital inflows were decelerating, neither government was willing to take action before their economies suffered a hard landing in the 1994 Tequila Crisis and the 1997 Asian Crisis. These, as well as the many other crises of the 1990s, were considered country-specific (e.g. due to the dollar-indexed nature of Mexican debt, unregulated financial institutions in Thailand or the special form of Russian government liabilities in 1998) rather than a concomitant of liberalization. In the high-income countries, the Japanese experience and Scandinavian banking crises were dismissed as special cases, perhaps exacerbated by macroeconomic mismanagement,[3]

[1] Ahamed (2009) provides an entertaining account of the role of central bankers in the 1920s and 1930s.

[2] Eichengreen and Bordo (2002) identify 38 financial crises between 1945 and 1973 and 139 between 1973 and 1997. Caprio and Klingebiel (1997) identified 112 banking crises in 93 countries (and 51 borderline crises in 46 countries) between the late 1970s and 1997, with an average fiscal cost of about 12% of GDP. Laeven and Valencia (2008), excluding 'crises' affecting isolated banks, identify 124 systemic banking crises from 1970 to 2007 and examine 42 of these in detail.

[3] Following financial market deregulation, Finland, Norway and Sweden all experienced equity market and housing bubbles in the 1980s, which were accompanied by procyclical macro policies. Norway's 1988 crisis followed the decline energy prices and depressions in Finland in 1990 and Sweden in 1991 were associated with economic collapse in eastern Europe.

while in the USA the S&L Crisis was dismissed as a special case of poor management and greed and neither the 1987 stock market crash nor the dot-com bubble bursting in 2000 caused sufficient concern to worry about systemic instability.

In this paper I argue that increased vulnerability to financial crises is a consequence of financial development that has been exacerbated by easy monetary policy. Although nobody welcomes crises, it is important to place them in a longer term context of financial reform generally delivering greater prosperity.[4] Financial innovation has accentuated these benefits, whether in Renaissance Florence, eighteenth century England or in many countries in the last quarter of the twentieth century. Today's short-attention-span media coverage focuses on dramatic events (the crises) and not on the longer term context, such as Mexico's economic development over the two decades after 1986.[5] Japan has not lost the fruits of its post-1945 rapid economic growth; despite the magnitude of the asset bubble that burst in the late 1980s and the 'lost decade' of the 1990s, Japan remains the world's second-largest economy.

Financially more developed economies grow faster, but are exposed to sources of instability unknown in less developed economies. The policy dilemma - how to balance the demands of long-term growth and short-term stability – is a typical financial trade-off between return and risk. The business cycles of the last two centuries and Keynesian macroeconomics are consequences of financial intermediation that opens up the possibility of a mismatch between desired saving and desired investment.[6] Governments since 1945 have responded to the challenge with

[4] I ignore egregious exceptions like Albania in 1996-7 where gullible depositors were taken in by pyramid schemes whose deposits, held by two-thirds of the population, reached almost half of GDP before the institutions collapsed, and the huge loss of people's savings contributed to civil disorder in which several thousand people were killed. An economically literate population is a prerequisite for an efficient financial sector. The formerly centrally planned economies were an exceptional case of countries with good education levels but low degree of understanding of market economies.

[5] The real effects of the Tequila Crisis lasted no more than a couple of years, as economic growth resumed in 1996 and had reached 7% per annum in 1999. Economic growth also resumed in Brazil, the main sufferer from contagion from the Tequila Crisis, and was sufficiently firmly based that Brazil would be viewed as one of the leading emerging economies in the 2000s. Rancière, Tornell and Westermann (2008) provide more systematic evidence of a positive relationship between crisis-prone economies and growth, although their time series does not include the post-2007 data points.

[6] The nineteenth century French economist, Clément Juglar, whose best-known aphorism is "The only cause of depression is prosperity", expounded a similar view. For Juglar depressions were only truly possible in a system with credit creation (and hence were a nineteenth century novelty), and it was the abuse of credit rather than the issue of money that led to crises; credit encourages speculation, and overoptimism and herding lead to this getting out of hand. In his emphasis on "animal spirits" Juglar predates Keynes, but whereas Keynes focussed on the depression Juglar focused on prosperity with depression as an unavoidable concomitant. Schumpeter championed this view, where the depression

discretionary macroeconomic policy and by financial regulation. As macropolicy was succeeded in dampening business cycles and fears of unemployment approaching 1930s levels had receded, governments became more willing to loosen financial regulations or permit innovations which undermined the scope of regulations.[7]

In a market-based economy in which prices largely capture social costs and benefits, any impediment to financial intermediaries directing funds to those borrowers willing to pay the most will have economic costs, and because these costs are largely in the form of a suboptimal capital stock they will result in reduced long-term growth. Nevertheless, governments intervene everywhere in the financial sector. First, governments protect small depositors with asymmetric information about banks. Second, governments may think that the state can allocate capital better than private institutions, although this motive became widely discredited in the final decades of the twentieth century. Third, during financial crises governments intervene to prevent systemic failure. The first and last motives are interconnected. An expanded and more complex financial sector is more likely to contain institutions which will go bankrupt, but the degree of risk-taking and risk of failure are endogenous to a deposit-insured system unless the government can devise policies to offset the moral hazard impact of deposit insurance. Inevitably, this balance is hard to attain, and financial crises are a concomitant of financial reform; crises are something to be minimized but not eliminated, because financial liberalization is desirable in order to enable financial intermediation to work as well as possible.[8]

In practice it is difficult to separate out the fundamental relations between financial reform and financial crises from other recent events. The post-2007 crisis was preceded by global macroeconomic imbalances, and previous events from the great inflation of the 1970s to the 2000 dot-com bubble shaped people's decisions. Nevertheless, the common features of so many post-1970s crises suggest that short-term catalysts need to be distinguished from deeper determinants of the risk-taking

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contributes to creative destruction by weeding out inefficient firms, in his *History of Economic Analysis*. See, Dal-Pont Legrand and Hagemann (2005).

[7] Innovations which bypassed regulations can be traced back to the expansion of Eurodollar markets in the 1960s. Despite the stagflation of the 1970s macropolicy remained successful in dampening business cycles, an effect dubbed the Great Moderation (Fogli and Perri, 2006; Galí and Gambetti, 2009).

[8] The balance is about containing rather than eliminating moral hazard, which is inherent in limited liability. The invention of limited liability and emergence of banks with dispersed shareholders was overall beneficial because, despite the limit to downside but not to upside risk, shareholders generally tolerate reasonable but not excessive risk-taking.

that led to recurring crises. The post-2007 crisis is often characterized as a US-originating sub-prime crisis, but it was also driven by poor loans for construction projects in countries other than the USA and by poor risk management unrelated to real estate loans. The crisis in the USA was the most important because of the size of the US economy, but this was not a crisis whose roots were only in the USA and it was not just about poorly judged mortgage lending. It was one of a sequence of crises across the globe since the 1970s, and this paper seeks to identify common roots.[9]

The first section briefly reviews the evidence for a positive relationship between financial development and long-run economic growth, emphasising that more regulated financial sectors are prone to adverse selection in their lending decisions and that less regulated financial intermediaries are more likely to make lending decisions and to promote financial innovations conducive to increased economic well-being. The second section analyses the need for financial regulations to prevent the system from becoming too unstable, the political imperative of protecting individual depositors, and the moral hazard implications of such policies. In a period of rapid innovation, financial regulators inevitably find difficulty in striking an appropriate regulatory balance, and in the final decades of the twentieth century this played out against a background of easy credit, which exacerbated the moral hazard problem by making leveraging and risk-taking less costly. Section 3 analyses the credit-driven boom, and Section 4 deals with the global crisis which began to emerge in 2007. The final section draws conclusions in the context of discussing whether financial crises signal that capitalism is failing

1. The Financial Sector and Economic Growth

A financial sector which intermediates between savers and investors as well as providing financial services to traders and others is a crucial part of any capitalist economy. This is a staple of most economic historians' thinking, although it has been difficult to place finance in formal models of economic growth or development, and the cross-country evidence of finance and growth is inconclusive.[10] One difficulty

[9] The 1970s is an appropriate starting point because it was the decade when financial markets became global, the role of government was reassessed (especially in the UK and USA), and the intellectual foundations for financial innovations based on derivatives were laid by Black, Scholes and Merton.

[10] Lucas (1988, p.6), in a seminal contribution to the new economic growth literature, claimed that "the importance of financial matters is very badly over-stressed in popular and even much professional

with making generalizations about finance and development across all countries is the presence of threshold effects; restricting the sample to high and upper-middle income countries changes the picture, and economic historians have consistently assigned an important role to financial development in today's high-income countries, whether in case studies or cross-section analysis.[11] Berkowitz and DeJong (2009) provide cross-sectional evidence for Russia's republics of a positive relationship between bank credit per head and economic growth 2000-7.

The development literature presents strong negative evidence that finance matters. Countries which repressed their financial sectors during the1950s and 1960s import-substitution era suffered negative consequences for long-term economic growth. When interest rates were kept below the market-clearing level, there was little loss of savings because the interest elasticity of supply of saving is low, but the excess demand for loans at low interest rates was associated with misallocation of capital (Fry, 1988). The explanation of adverse selection in low income countries might be in terms of preferential treatment of the president's relatives, the low quality of loan officers or the conservatism of state-owned banks which preferred low-risk loans regardless of their economic return, but the lessons are broader. When savings are not allocated by the price mechanism, then capital is likely to be misallocated.[12]

International financial markets had opened up in the 1960s and expanded rapidly in the 1970s when banks recycled oil exporters' surpluses to developing country borrowers. Due to inexperience on both sides, that episode led to over-lending (or to too risky lending) culminating in the 1982 Debt Crisis. There followed a hiatus in north-south financial flows, but they resumed in the 1990s as corporations and governments in many low and middle-income countries became active

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discussion" (of economic development). Levine (1997) surveys, the generally positive, empirical evidence on financial development and economic growth in a literature which draws heavily on IMF and Summers-Heston post-1960 data. Favara (2003) provides a more critical review of the evidence, attacking the econometric techniques of Levine, Loayza and Beck (2000).

[11] Rousseau and Wachtel (1998) use historical data from five countries (the USA, UK, Canada, Norway and Sweden) over a long period (1870-1929) in a dynamic setting and find that financial intermediation Granger-caused real output performance with little feedback from real growth to the financial sector.

[12] The inefficient allocation of capital was indicated by increasing incremental capital-output ratios (ICORs) in countries like India or the Soviet Union in the 1970s and 1980s. An ICOR of 3-4 is normal in well-functioning market economies. India's ICOR increased from 4-4.5 in the first half of the 1960s to a peak of 10.5 in 1975 (reported in the Asian Development Bank's *Asian Economic Outlook 1990*, p. 138), i.e. an additional unit of capital made less than half the contribution to output in 1976 than it had made a dozen years earlier. In the Soviet Union the ICOR increased from 3.7 in the period 1950-60, to 5.0 in 1960-75 and 14.8 in 1975-85 (Gregory, 1994, 129); that the USSR required five units of capital to generate an additional unit of output in the 1960-75 period should have been a warning sign, while the ICOR of about 15 in 1975-85 reflected enormous inefficiency in the use of new capital. .

participants in the international financial system. These international financial flows brought mutual benefits, although they were also a source of instability. For many open economies, banking crises were associated with balance of payments crises and exchange rate depreciation, but this aspect is not the focus of the present paper.

In the 1970s and 1980s many countries reduced the level of state ownership in banking and deregulated their financial sectors, as both private ownership and increased competition were acknowledged to increase efficiency. In the USA, financial innovations initially centred on new methods of spreading risk as, following the generalized floating of the major currencies, a currency futures market was launched in Chicago in 1972. The US banking sector was gradually liberalized, and especially in the 1980s the government became disengaged, allowing financial institutions to bypass existing legislation years before it was formally repealed.[13] Big Bangs in the financial markets of New York in 1975 and London in 1986 led to lower transactions costs and heralded further financial developments. The removal of Western European countries' exchange controls (led by the UK in 1979) gave a boost to cross-border investing, which in turn put pressure on anti-competitive practices such as stockbrokers' fixed commissions. As stockbrokers lost fee income and commercial banks sought to break out of their limited business activities, financial conglomerates emerged. In the EU, Australia and elsewhere, financial markets were opened to international competition. Restrictive laws were abolished.[14]

The innovations improved the financial sector's ability to intermediate savings and investment, and allowed informed market participants to select their exposure to risk. Increased financial sector sophistication helped firms to perform well during what was generally a boom era in the 1990s and early 2000s. Many start-up entrepreneurs made fortunes, as venture capitalists were willing to take on the risk of lending to unproven small businesses. Consumers went on a buying binge, driving up

[13] Regulation Q limiting the interest rate on bank deposits to 3% had worked in banks' favour in the 1950s and 1960s because they obtained deposits cheaply. As interest rates rose in the early 1980s, banks competing for deposits sought loopholes, which were formalized by legislation such as the 1982 Garn-St. Germain Act authorising money market deposit accounts. Regulation Q was phased out in 1986. The 1927 McFadden Act prohibiting interstate banking was circumvented by developments such as the establishment of bank holding companies, and was repealed in 1994. The Glass-Steagall Act separating commercial and investment banking was repealed in 1999.

[14] In the UK, for example, after the 1986 Deregulation of the Building Societies Act the largest mortgage lenders demutualized, permitting these formerly specialized mortgage institutions to become for all intents and purposes diversified banks.

house prices as they obtained cheap mortgage loans, and using credit card debt or second mortgages to finance further discretionary expenditures.[15]

In the fifteen years before the 2007 financial crisis the OECD countries with the most deregulated financial sectors and biggest asset bubbles had substantially faster income growth than those with more regulated financial sectors (Table 1). Among the largest countries, nominal GDP in the USA and UK increased by 120% and 150% respectively, while corresponding figures for Germany and France were 60% and 87%. Spain's nominal GDP increased by 133% while Italy's increased only by 67%. Among smaller EU members, the 370% increase in Ireland, with its deregulated financial sector, far outpaced any of the others (e.g. 180% in Greece). Such pairwise comparisons suggest that, even though the countries in the left panel of Table 1 will suffer more severe crises after 2007, they have a big cushion of added prosperity from the financial deregulation era.

Table 1: GDP in Current US Dollars (billions), 1992-2007

	1992	**2007**	**% change**			**1992**	**2007**	**% change**
USA	6,286.8	13,811.2	119.7		Germany	2,062.1	3,297.2	59.9
UK	1,074.0	2,727.8	154.0		France	1,372.8	2,562.3	86.6
Spain	612.6	1,429.2	133.3		Italy	1,265.8	2,107.5	66.5
Ireland	54.3	255.0	369.6		Greece	128.4	360.0	180.4
Australia	320.6	821.7	156.3					
High-income OECD	19,764.1	38,219.0	93.4		World	24,533.6	54,347.0	121.5

Source: World Bank World Development Indicators – accessed on 27 January 2009 at http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers

There were positive spillover effects from the growth and diversification of the real economy in the financial-sector-reforming high-income countries, and these were most likely strongest in third countries with domestic vibrant financial sectors. Around the world billions of people enjoy their mobile phones, and other consumer goods which would have been less abundant and varied in a less integrated global

[15] The gains were not shared equally; income inequality increased in most high-income countries. Among the biggest beneficiaries were the companies in the financial sector and their employees who received ever larger bonuses. More generally, 1981-99 saw a reversal of the long pre-1981 bear market in the major stock markets. The Dow Jones Index stood at 874 at the end of 1964 and at 875 in 1981, despite high inflation in the 1970s. The next eighteen years' bull market took share values to record highs, measured by cyclically adjusted price-earnings ratios. As other financial markets boomed, people with financial and other assets prospered more than those relying on their labour income.

economy.[16] The point is that an innovating and increasingly unregulated financial sector contributed to increased prosperity in many countries.

2. The Need for Regulation

Financial sector regulation has evolved over the last two centuries as retail banks emerged as intermediaries converting large numbers of small deposits into lumpier loans. This financial innovation enabled depositors to obtain security, convenience and perhaps interest on their liquid assets, while the deposits could be lent out for productive investment projects. However, a small depositor has no practical way of assessing the creditworthiness of individual banks, and banking is inherently risky both due to the difficulty of assessing a loan requests and due to mismatch of maturities between assets and liabilities. In the nineteenth century this led to bank runs as people withdrew money from banks perceived to be at risk; herding and the maturity mismatch could make such perceptions self-fulfilling, so that even solvent banks failed due to lack of liquidity. Policy solutions included vetting would-be bank owners, imposing restrictions on the asset side of banks' balance sheets, offering implicit or explicit guarantees to depositors, and creating lenders of last resort. Limiting bank ownership to men of good character became difficult as the impersonal market economy expanded. Reserve requirements were inefficient, because requiring banks to hold government bills or cash reduced their ability to direct deposits into the best uses. As part of the deregulation of the 1980s and 1990s in many countries, reserve requirements were reduced, along with restrictions on the types of business that financial institutions could conduct and discrimination against foreign financial firms. Thus, deposit guarantees and lender of last resort in case of liquidity problems emerged as the core government functions.

Guarantees to depositors are perceived as essential to maintain trust in the retail financial sector, but they can be expensive. In the USA, bankruptcy of Savings

[16] The overall change in global equality is disputed; the pattern was of increased equality across the world's households and fewer people living in poverty (largely because of the performance of large Asian economies), but increased inequality across countries (because the numerous sub-Saharan economies performed relatively poorly). Worst of all in the 1990s was the economic performance of the formerly centrally planed economies of Eastern Europe and the Soviet Union. Many of the transition economies and the subSaharan countries were outside the global financial system in the 1990s and still had repressed domestic financial sectors, so their relatively poor performance was fairly independent of financial developments in the rest of the world.

and Loan institutions, which specialized in lending to homebuyers, led to the insolvency of the Federal Savings and Loan Insurance Corporation at the end of 1986. The Financial Institutions Reform, Recovery and Enforcement Act of 1989 initiated taxpayer involvement. By 1995 over a thousand S&L institutions had failed, at a cost to taxpayers of $153 billion for reimbursing depositors (Curry and Shibut, 2000). The S&L crisis was blamed on the institutions' weaknesses and the cupidity of some owners, and after the bail-out the problem was declared solved. However, the bail-out reinforced beliefs that deposits in the financial sector were safe, while scapegoating and punishment of a few high-profile owners did little to remove moral hazard.

Without oversight by depositors, institutions had an incentive to accumulate high return (even if high risk) assets or, at a minimum, not to pay due diligence to their accumulation of risk.[17] Since the 1980s explicit deposit insurance exists in all OECD countries except Australia, and there it is implicit. When the State Bank of South Australia collapsed in 1991, the state government rolled the bank over into a new BankSA, protecting depositors' funds at an eventual cost of A$3.1 billion (McCarthy, 2002) – a huge amount for a state with just over a million residents.[18] As with the S&Ls a few people were stigmatized (the CEO and the state premier), while the taxpayer paid the tab.

In sum, no government is prepared to stand by while small depositors lose money placed in commercial banks, even if there is no legal obligation to bail out depositors and even if the costs to the taxpayer are very large. However, deposit insurance creates a moral hazard problem which regulatory authorities have to address. This is being done by replacing inefficient prudential policies such as reserve requirements by capital adequacy ratios aimed at ensuring that, in the case of poor lending, the owners of financial institutions stand to lose some of their own money as well as that of their depositors. The slow process of drafting and implementing reforms, however, contrasted with the speed with which financial innovation was taking place in the 1990s and 2000s.[19] Rapid innovation with many new financial

[17] The S&L crisis highlighted the asymmetric information and moral hazard problems. Small local S&Ls should have been, of all financial institutions, those that depositors knew best, and community leaders owning S&Ls should have been relatively careful with their neighbours' money. However, depositors performed less due diligence knowing that their deposits were insured, and the owners worried less about taking risks with their neighbours' money when deposits were insured.

[18] BankSA was privatized in 1995. After a series of ownership changes, it became part of Westpac in 2008.

[19] In the USA, in the 1980s and later, the lag between innovations and appropriate policy responses was exacerbated by lack of funding and ideological opposition to any regulation. "A fragmented regulatory

instruments made it increasingly difficult for regulators to know exactly what a bank's capital ratios were at any moment.

3. The Credit-driven Boom

The final ingredient in the argument developed in this paper is monetary policy. Easy access to credit permitted potential risk-takers to become highly leveraged. This provided the backdrop to aggressive development of financial vehicles such as options and swaps (bond swaps, interest swaps, credit-default swaps), which provided for almost unlimited menus of degree of risk. The opportunities to take advantage of such financial instruments were magnified by the low cost of money.

A long credit-driven boom accompanied by financial innovation was good for economic growth, but had two major drawbacks. First, in a period of rapid financial sector growth and innovation, lenders and regulators had less and less knowledge of institutions' asset position and solvency. Small depositors were, explicitly or implicitly, insured by governments, but financial institutions and large customers were unsure of the riskiness of their holdings, especially as financial instruments became more complex.[20] The complexity impeded appropriate policy responses, which lagged far behind the innovations. The second problem was moral hazard, both on the part of lending institutions who took overly risky positions and of governments that were happy to take credit for prosperity but unwilling to burst bubbles.

The first act in this era was the massive lending to low and middle-income countries by banks awash with petrodollars after 1973. In principle, this was an efficient intermediation, and some borrowers (e.g. South Korea and Taiwan) used the availability of loans at low or negative real interest rates to good advantage. In practice, inexperienced borrowers and lenders contracted loans that were poorly used. The catalyst for the 1982 Debt Crisis came when interest rates were increased in the US and UK in the early 1980s to address internal balance, but the fundamental

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regime suitable for a segmented financial-services industry became increasingly inadequate as the sharp lines between commercial banking, investment banking and other financial institutions were erased" (Eichengreen, 2008, 7).

[20] With ever more complex derivatives, even large investors made foolish decisions in the 1990s apparently based on ignorance of the risk. Orange County, California, declared bankruptcy on 6 December 1994 after losing $1.7 billion in an investment fund betting that interest rates would fall.

problem was that loans had not been used to generate revenue to service the debt. There was a hard landing for both over-indebted countries and over-exposed banks.[21]

The 1986-9 US Savings and Loan crisis signalled that, with inflation under control, credit was again readily available and financial institutions were not adequately assessing risk. The recurrent financial crises of middle-income countries during the 1990s had specific national roots, but also reflected the globalization of financial markets and in several cases similar issues to those that would strike high-income countries in 2007-8. In Mexico before 1994 and in Thailand before 1997 the good times rolled. In both cases economic growth was soundly based after successful economic reforms in the 1980s, and large amounts of capital flowed into the countries. However, some investments were overoptimistic and the scale of capital inflows was not sustainable. In both Mexico and Thailand governments basked in the prosperity, for which they could take some credit, but when signs of trouble emerged (adverse political developments in Mexico and slower export growth in Thailand) governments were unwilling to accept that some of the boom had been cyclical and a slowdown was inevitable. In both countries the strengthening of democracy added to this psychological barrier, as governments preferred not to be blamed for reducing the pace of prosperity in case they would be punished by the voters.[22]

In Thailand rapid financial deregulation created a bubble. The increasingly affluent middle class bought bigger cars, bigger houses and investment properties as their budget constraint expanded faster than most families could keep up with. Increased savings were deposited in financial institutions which lent to speculative building projects. As long as the returns on loans were high, the financial institutions, assuming that the exchange rate was stable, could add to their profits by borrowing offshore at low interest rates. Moral hazard arose because depositors assumed their funds were safe, while the deposit-taking institutions' owners had overoptimistic expectations and assumed that they could walk away from bad loans (Krugman, 1998).

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[21] There is a similarity to the post-2007 crisis in that borrowers and lenders did not appreciate the risks, but resolution post-1982 was easier insofar as lenders and borrowers could negotiate a way out which would share the burden, whereas in 2008 the ultimate lenders and borrowers were so diffused that it was impossible to organize such an agreement.

[22] The Argentinean crisis of December 2001 had some similarities insofar as the central government delayed acting until it took the emergency step of freezing bank accounts. Riots led to a political crisis, and a swift succession of presidents. The crisis took a different form to the recoveries in Mexico and Thailand as the Argentinean government reneged on its debts, abandoned the peso-dollar-parity, and tried to inflate out of trouble. The expansionary monetary policy softened the domestic recession in the short term, but at a cost to the country's future growth prospects.

The government needed to take steps to reduce domestic demand, e.g. by raising interest rates in order to discourage capital outflow and new building projects, but that would have been deeply unpopular among people with floating-rate mortgages on their new apartment or people seeking loans for a new car, not to mention the negative macroeconomic impact on investment and employment. The government vacillated. As foreign investors sough to move their money out, foreign exchange reserves were used to prop up the currency, until they ran out on 2nd. July 1997. Then the baht's value fell by half against the US dollar, the price of imports soared and the economy entered a full-blown depression with negative output growth. Contagion effects turned it into the Asian Crisis.

The 1997-8 Asian Crisis illustrated the moral hazard problem and the costs of governments not responding when circumstances turned sour. It also showed the resilience of soundly based economies. Although there were contagion effects (stemming from increased competitiveness of exports from countries forced to devalue in the crisis, or from reassessment of risk across the region), Asian economies were not equally harmed. Economies with sound financial systems such as Hong Kong, Singapore and Taiwan were relatively little affected. The countries most affected were those whose financial institutions had the most non-performing loans (Thailand, Indonesia, Malaysia and South Korea), and even these economies quickly resumed economic growth. The medium-term costs were political and are difficult to assess; the short-term chaos following the end of the Suharto regime in Indonesia appears to have led to an improved political situation, while the election of a populist prime minister in Thailand led to political conflicts which undermined the country's democratic institutions and political stability.

In the high-income countries, the debt-financed equity boom burst in 2000 with the dot-com crunch, but consumers continued to happily run up debt and governments were happy that people were happy. After the turn of the century the asset bubble shifted to housing markets, especially in the UK, USA, Australia, Spain and Ireland.[23] The phenomenon of negative aggregate saving in the USA, Australia and elsewhere caused only minor concerns, despite aging populations and inadequate public pension funds. Governments, as in Mexico before 1994 or Thailand before

[23] History matters. Lenders were cautious about emerging market debt after the defaults of Russia in 1998 and Argentina in 2001, and about loans to US non-financial corporations since the 2000 dot.com bubble. The countries with the most flexible housing markets and financial sectors enjoyed economic booms as borrowers saw their asset values soar and increased their consumption.

July 1997, were eager to accept the praise for good times and did not want to spoil the party. Governments fuelled leveraging by maintaining low interest rates and subsidized the bubbles by tax codes which gave tax breaks for mortgage payments and favoured corporate borrowing over financing through sale of shares.[24]

Corden (2008) argues that low interest rates were due to a world savings glut that became more pronounced after 2004-5 as oil-exporting countries ran high current account surpluses and China's reserves increased to become the biggest of all by 2007.[25] The savings glut should have resulted in lower world interest rates and lower activity, but to maintain internal balance (i.e. avoid increased unemployment) the Fed and other central banks adopted expansionary monetary policies which drove interest rates still lower.[26] While this analysis is true of 2004-7, that was only the latest episode in an era since the early 1970s during which global real interest rates have, apart from their early 1980s' spike, been kept below their savings / (prudent) investment market equilibrium. As deficit spending became discredited in the 1970s and macropolicy emphasis shifted from fiscal to monetary policy, central banks set monetary policy to maintain a balance between low inflation and full employment without paying adequate regard to the nature of investment that was underpinning aggregate demand.

4. The 2007 Crisis

The sub-prime crisis is conventionally dated from February 2007 when HSBC and New Century Financial declared greater than expected loan loss provisions. New Century went bankrupt a few months later, while HSBC as a large diversified financial institution survived. Subsequently many other financial institutions revealed their exposure to delinquent mortgage payments. In July, with loss of confidence in securitized mortgages, the Federal Reserve injected liquidity into the system.[27] In

[24] In countries where the mortgagee's liability is limited to the value of the house, loans at or close to 100% of a house's value in a situation of expected capital gains offered a perceived one-way bet.
[25] Corden (2008) quotes IMF data that in 2007 21% of the sum of surpluses was accounted for by China, 20% by the major oil exporters, 13% by Japan and 11% by Germany.
[26] In IS-LM terms, the savings glut shifted the IS curve to the left, with lower equilibrium output and interest rates, while monetary policy shifted the LM curve to the right, offsetting the fall in output but augmenting the reduction in interest rates.
[27] The specifics of the sub-prime market, in which loans were approved by local banks, instruments to facilitate risk-spreading were constructed by money-centre institutions and the holders of the instruments were spread worldwide, exacerbated the complexity, non-transparency and moral hazard

August 2007 Countrywide Financial, the largest mortgage lender in the USA, encountered liquidity problems, and was eventually bought by Bank of America. However, in 2007 the magnitude of the US sub-prime crisis was not enough to drive a global crisis.

The international nature of the problem was illustrated by a run on Northern Rock in the UK in September 2007, and the nationalization of the bank in February 2008. Northern Rock's problems were primarily domestic. In September 2008 the nationalized bank had 4,201 repossessions on its books, a tenth of the UK total; borrowers owed on average 105% of the supposed value of the house, and three-quarters of the delinquent loans had been sold as sub-prime "Together" mortgages. When Bradford and Bingley, another major UK mortgage company, went bankrupt and was nationalized in September 2008, its problems stemmed from misjudging the buy-to-rent market in the UK. Another mortgage lender, Alliance & Leicester, presumably with a less distressed asset portfolio was bought by Banco Santander in July 2008. The asset price bubbles and subsequent financial sector problems in the USA and UK were not qualitatively different from many of the 1990s crises.[28]

An even clearer case of the international sub-prime crisis not being driven by US mortgages was Kazakhstan's banking crisis. This crisis was similar to Thailand's insofar as in the mid-2000s Kazakh banks borrowed overseas at lower interest rates than they could charge borrowers in the booming property markets of Almaty and Astana. Exchange risk was assumed to be minimal due to the government policy of targeting the dollar exchange rate, but the economy had been overheating since 2003 as the central bank accumulated foreign exchange reserves, amounting to over twelve months of imports by the end of 2006. Following a move away from *de facto* exchange rate targeting, the exchange rate against the US dollar began to appreciate in 2006. The construction boom started to moderate and non-performing loans began to increase, just as banks' external debt payments were coming due. According to the *Financial Times,* in October 2007 Kazakh banks' international borrowings totalled $40 billion, and conservative estimates put the banks' foreign debt due in 2008 at

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elements seen in other crises (Corden, 2008, 7-8; Bathia, 2007). When the holders of the instruments realized that they did not know the risk of their holdings, the ensuing panic led to a "run" among whose consequences was the collapse and government takeover of the insurer AIG in 2008.

[28] Laeven and Valencia (2008, 26) make the distinction that the rapid expansion of credit in the USA and UK up to 2007 followed financial innovation rather than deregulation, but the two are similar insofar as both innovation and deregulation take segments of the financial sector outside the ambit of existing regulatory mechanisms.

around $12 billion (Pomfret, 2008). In November 2007 the government provided support of around $4 billion, targeted at construction projects in danger of being abandoned, and the central bank raised the official refinancing rate, which had been unchanged at 9% since July 2006, to 11%. The accumulation of reserves during the 2003-8 oil boom facilitated bailouts in 2008, but they represent a misuse of resources which will ultimately be underwritten by the taxpayer.

National variations were not all driven by loans for construction or for mortgages. France's weakest financial institutions were mutuals, whose ownership structure created a bias towards excessive risk-taking. The large numbers of owners of the mutuals could only claim back the initial value of their shares, so that the boards, which were elected from among the members and hence were likely to lack financial expertise, had control over large amounts of residual cash. This system encouraged weak supervision of complex activities, as after 2004 mutual after mutual was tempted to use its funds in high return, but high risk, markets and nobody reined in the traders until the mutual took a big loss. In 2005 Crédit Mutuel lost 320 million euros on equity derivatives, in 2007 Calyon, the investment banking arm of Crédit Agricole lost 250 million euros on credit default swaps, and in 2008 Caisse d'Epargne lost 600 million euros on equity derivatives.[29] The details were often covered up, but, typical of many big trading-loss episodes of the 1990s and 2000s (Table 2), Calyon blamed a rogue trader: "this is an isolated incident and the work of an individual trader who did not respect our risk procedures and who breached our trading limits" stated Calyon spokeswoman Anne Robert. Calyon sacked Richard Bierbaum, who vigorously denied unauthorized trading, claiming that his positions were reported to management every day. Whatever the specifics of Bierbaum's relation with Crédit Agricole's Calyon, the pattern was too common to blame on the individual trader's shortcomings.[30]

Some company failures reflected changes in the structure of financial markets. When perceptions of credit risk made a quantum shift in the USA in the summer of

[29] Also in 2008 Natixis, an investment bank jointly owned by Caisse d'Epargne and Banque Populaire, was forced into a 3.7 billion euros right issue in September 2008 to cover heavy losses.

[30] The case was reported on Bloomberg by Pierre Paulden, Jacqueline Simmons and Hamish Risk – available at http://www.bloomberg.com/apps/news?pid=20601087&refer=home&sid=aNS9FsnCwYco Some outsiders were surprised that an old and previously conservative French bank would entrust investment of such large funds to a 26-year-old American with a history of aggressive and anti-social behaviour, but successful traders tended to be young and aggressive - and successful as long as their luck held out.

2008, the investment banks which relied on wholesale funding were much more exposed than retail banks with their more stable federally insured deposits. Within a few months the five major investment banks had either changed their status to wholesale banks (Goldman Sachs and Morgan Stanley), been taken over by banks (Bear Sterns by JPMorganChase and Merrill Lynch by Bank of America) or gone bankrupt (Lehman Brothers).[31] As with the collapse of any large businesses these events led to job losses, especially in financial centres such as New York City and London, but the simultaneous disappearance of these specialized institutions suggests that the business model had become obsolete and it was time for pure investment banks to disappear.[32]

Observers blamed the crises on a principal-agent problem which arose because employees of financial institutions had an incentive to focus on short-term results which drove their annual bonuses rather than on increasing long-term value. This was, however, nothing new in 2007. Owners were happy to accept risky behaviour as long as short-term returns were high. Senior managers gave free rein to risk-takers who made profits, but entered into denial when the "rogue traders" made losses. Spectacular losses by traders such as Nick Leeson, who lost over a billion dollars for Barings in 1995, Yasuo Hamanaka, who lost $2.6 billion for Sumitomo in copper futures markets in 1996, and Jérôme Kerviel, who generated 1.4 billion euros profit for Société Générale in 2007 and then lost 4.9 billion in three days in January 2008 were routinely ascribed to "rogue traders", but they were not isolated occurrences (Table 2), and undoubtedly many such losses went unreported in the press. "Rogue traders" were sometimes illegally individualist, but often they were valued by senior management, who turned a blind eye when risk-taking traders cut corners as long as the results were good, but spoke of unauthorized activities if things turned sour.

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[31] In Lehman's case the performing assets were bought by other banks (primarily Barclays and Nomura). Citi, which had expanded its activities when CitiGroup was established in the 1990s to allow Citibank to move into investment banking, also ran into trouble, requiring a large government bail-out. In January 2009 the integrated model was abandoned as Citi split into two parts.

[32] The 1933 Glass-Steagall Act banned commercial banks from underwriting securities and investment banks profited from the market segmentation, but as restrictions on commercial banks' activities were loosened the investment banks came under pressure. The 'Four Horsemen', the biggest investment banks outside New York, disappeared in the late 1990s: in 1997 Nations Bank (now part of Bank of America) bought Montgomery Securities and Bankers Trust bought Alex, Brown (now part of Deutsche Bank), Bank of America bought Robertson Stephens in 1998, and Chase Manhattan bought Hambrecht & Quist in 1999. Other takeovers by commercial banks include Dresdner Bank's 1995 purchase of the UK investment bank Kleinwort Benson and 2000 purchase of US investment bank Wasserstein, Perella, and Credit Suisse's 2000 takeover of Donaldson Lufkin & Jenrette.

In sum, many of the financial crises since the 1970s have common features, primarily high leveraging and excessive risk-taking. The crisis that began to unfold in 2007 was the most serious because it affected large institutions in the world's largest economy, as well as having independent roots in other economies. Failures of large multinational financial institutions are more important for the global economy than the failure of British mortgage companies or Kazakh banks, but in all of these cases there was a common cause rather than a contagion effect, and failure was selective. A further common feature was that the unfolding of the crises was associated with governments promising large amounts of taxpayers' money to fix the problems.

The US Treasury's Troubled Asset Relief Program (TARP) announced in October 2008 offered $700 billion to purchase or insure troubled assets, so that banks could reduce their leveraging without shrinking their loans.[33] The Federal Reserve also took on many of these loans, especially mortgages after Fanny Mae, Freddie Mac and Washington Mutual (the largest remaining S&L) were taken over by the US Treasury in September 2008, to the extent that the Fed's balance sheet grew from $900 billion in August to $2,200 billion in November 2008, ultimately financed by newly created reserves. The collapse of asset-backed securities markets prevented banks from securitizing and selling on credit card debt and other small loans in order to obtain resources to make new loans, and again the Treasury moved in, using TARP money, primarily to maintain the flow of consumer credit, again ultimately based on the Fed's ability to created unlimited amounts of money. In sum, the US government's measures aimed to help banks to adjust to a new environment where increased perceptions of credit risk call for less leveraged balance sheets, but they did so by leveraging TARP and other funding with the Fed's unlimited credit line. Moreover, the scope of Treasury assistance went beyond normal definitions of banks as the US Government spent $85 billion in September 2008 to bail out AIG, an insurance company which had provided insurance cover for many banks' more complex assets; AIG obviously had little idea of just how risky these were.

An alternative approach to banking crises is the 'bad bank' approach, where the poorest performing assets are transferred from a troubled bank's balance sheet into a new 'bad bank' (or Asset Management Company, AMC), so that the remaining

[33] The extent of the change in leverage of the investment banks was dramatic. Morgan Stanley reported in October 2008 that they had $16 of assets for each dollar of capital, compared to $33 a year earlier (reported in *The Economist* (London) , 29 November 2008, Briefing section). Capital requirements even of diversified banks began to look inadequate as they downgraded the value of their assets.

'good bank' is viable.[34] This may minimize the cost of a bail-out,[35] but it highlights the source of the problem insofar as the 'bad bank' is the repository of high-risk loans that should not have been made by a prudent bank. The idea is to allow restructurers to specialize in maximizing the value of the bad banks' assets, while bank managers focus on making the good bank work. However, if the bad loans are not sold off quickly and bad banks live on, this option can become costly, as in the Finnish banking crisis of the early 1990s, when it took a decade to wind down all of the bad banks which became known in Finnish as garbage banks (*roskapankki*). The model was also used by the Swiss authorities in 2006 to take $60 billion of bad loans off the UBS balance sheet into a bad bank run by the central bank

Whatever the details of individual countries' crises in 2007-8, they shared the common feature of most financial crises since the 1970s. Financial institutions aggressively sought high returns, even though the level of risk would lead to defaults and a crisis. Depositors and other creditors played along because they did not have to bear the full extent of the risk. Financial deregulation and innovation made this possible, and easy credit facilitated the process. Governments which could have opted for more regulation or tighter monetary polices were unwilling to spoil the party. There were idiosyncratic features that exacerbated crises and there were principal-agent problems, but these can be exaggerated. In the end excessive risk-taking led to failures and large calls on public revenues, and heeding these calls reinforced the moral hazard aspects of the system by reassuring key players that the government would cover a share of the losses.

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5. Is Capitalism Failing?

Financial crises have become more frequent since the 1970s. Easy credit reinforced the propensity for moral hazard which is inherent in financial systems with deposit

[34] A review of seven AMCs by Klingebiel (2000) reveals a mixed record. In two of three cases, AMCs for corporate restructuring failed to achieve their goal of expediting bank or corporate restructuring. AMCs used to dispose of assets rapidly fared somewhat better. Objectives of resolving insolvent and unviable financial institutions were achieved in Spain and the USA; selling off AMCs' assets required an easily liquefiable asset (e.g. real estate), appropriate funding, professional management, skilled resources, good information and management systems, adequate bankruptcy and foreclosure laws, political independence, and transparent operations. In Mexico and the Philippines governments transferred to AMCs politically motivated loans or fraudulent assets, which were difficult for a government agency susceptible to political pressure and lacking independence to resolve or sell off.

[35] The good bank/bad bank model adopted in Sweden's banking crisis in the early 1990s is credited with keeping the cost of bail-out below two percent of GDP.

insurance, and financial sector deregulation and innovation facilitated risk-taking. Policymakers used the interest rate as an instrument to maintain internal balance between inflation and unemployment, ignoring its role as the price of capital and standing by as asset bubbles emerged. The behaviour of the financial sector in the 1990s and 2000s was characterized by excessive risk-taking, and by blaming scapegoats when the risk-taking backfired, rather than seeing it as systemic.

For the post-2007 crisis, the crises of the 1990s offer more relevant lessons than the depression of the 1930s. The Mexican and Thai governments should have acted sooner to limit the expansion of demand, just as governments in the USA, UK and elsewhere should have restrained the pre-2007 asset bubbles. Instead the US and UK authorities held on to the same wishful thinking that the good times were firmly based and did not need remedial action, despite the warnings from the S&L, Long-Term Credit Management and dot.com crises. The political problem is that governments are unwilling to say that belts have to be tightened because voters do not want to hear this until a crisis erupts, and then they want a quick fix.

In 2008 the overwhelming view in the USA and western Europe was that governments needed to do something, but there was confusion over whether the "something" was necessary (a) to prop up financial institutions (or major non-financial corporations) whose failure would have economy-wide negative effects, (b) as a Keynesian stimulus to aggregate demand or (c) to regulate financial sectors in order to prevent further crises. The first two in particular were blurred as many economists advocated fiscal stimuli through, say, spending on infrastructure or education (especially if they were teachers), while policymakers more often responded to demands to bail-out individual firms (especially if they were in politically sensitive locations). In the USA in 2008 the latter approach led to inconsistent polices in terms of who should lose: at AIG only common shareholders suffered, at Fannie Mae and Freddie Mac both common and preferred shareholders lost, and at Washington Mutual all shareholders and senior debt holders lost). This is unfair, and also wrong. Rethinking financial regulation may (or may not) be a justified long-term response and a Keynesian fiscal stimulus may be an appropriate short-term response, but selective bail-outs of banks and other firms in trouble reward those who took unjustified risks or keep in business firms that need to die.

For all of the talk of "meltdown" – a cataclysmic but never defined term[36] – closure of banks is not a disaster. Lessons from events of the 1990s, such as the Asian Crisis, are relevant. Financial institutions that did not manage risk well were the ones that failed. Better-managed (or luckier) banks do not have toxic asset portfolios. In any other industry this would be seen as a violent shake-up, unpleasant for those working in the firms that close down, but with winners as well as losers in the industry, and all part of the reorganizations that make for a dynamic market economy. When Lehman Brothers shut down, other institutions bought the good assets at discounted prices, Lehman shareholders paid for their bank having assumed excessive bad debts, and shareholders in those banks which bought wisely in the firesale should reap returns. Increased interest rates on inter-bank loans reduce the intermediation taking place, but are an appropriate signal of the scarcity of credit and of doubt about the quality of loan portfolios. The real economy will contract – as happened in Mexico in 1994-6 and in Thailand in 1997-9 – but it will emerge stronger as poor banks disappear and good banks are reminded of the need for careful risk management.[37]

Bank bail outs are not just a dubious use of taxpayers' money to support inefficient firms. Moral hazard matters. Financial institutions cannot be shown that big profits and bonuses in a boom do not have to be balanced by loss of income when they get things wrong. The business of financial intermediation is to assess loan quality and when financial institutions fail to do that correctly (and complexity is no excuse for taking on bad debts), their owners and professional staff should pay for it.[38] Nationalization of loss-making banks (the Gordon Brown Plan) is a desperate measure, which is likely only to soften the blow to bank owners and managers. State-owned banks have a poor record worldwide; too often they become wards of the state, requiring taxpayer support.

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[36] Commenting on financial crises since 1987, Michael Lewis, author of *Liar's Poker*, asked "How many times does the end of the world as we know it need to arrive before we realize that it is not the end of the world as we know it?" (quoted in *The Economist* (London) 29 November 2008, Books and Arts section).

[37] Recession post-2008 will also be due to increased savings as households in the countries which experienced the biggest housing booms deleverage, but correction of low and negative savings rates in countries with aging population is desirable

[38] *Caveat emptor* also applies. Bernie Madoff appears to have broken many laws (keeping two sets of books suggest that he was aware of this), but people trusted him unreasonably and agencies failed to enforce the laws. Ronald Cass (2008) argues that this is because Madoff was an insider, who preyed particularly on Jews and others with a shared affinity and who was not pursued by enforcers such as the SEC because he was a well-known member of the financial establishment.

What then is the role for the state? Deposit insurance is essential to maintain the trust of small depositors in deposit-taking institutions and to avoid old-fashioned (or not so old-fashioned in the case of Northern Rock) bank runs. Inevitably deposit insurance introduces an element of moral hazard, and the counterpart has to be prudential regulation to ensure that financial institutions do not take excessive risks with depositors money, secure in the knowledge that if things go sour they can walk away. In a world of complex financial instruments and fast-changing asset portfolios, detailed external oversight of the loan portfolio even by the best-trained regulators is increasingly difficult. Capital adequacy ratios are a way of ensuring that banks' owners have something to lose, but this still requires detailed oversight to ensure that the capital is not withdrawn on the basis of insider information about an imminent collapse. Caps on golden parachutes or other claims by managers who use depositors' money poorly are also appropriate; if a bank goes under, the senior management should be liable and bear a cost (or, at least, not receive a reward). As it stands, with depositor insurance and institutions on the verge of collapse ensuring that any liquid assets are used to recompense owners and employees, creditors and the taxpayer bear most of the cost of a financial institution's failure.

Taxpayers should be concerned about being the fall guys in cases of financial failure. Rather than seeking a white knight promising a return to the high-growth consumption of the past decades, voters must recognize that governments have fuelled an unsustainable credit-driven boom through a cheap money policy, and that the excesses of that boom are past. This does not mean a long-term fall in average living standards, but rather an end to artificially high growth based on unsustainable credit (e.g. credit card debt, second mortgages and so forth). Banks need to be made to bear the cost if they take on poor credit risks, so that they will be tougher in assessing loan applications. Governments should support interest rates based on conditions in the credit market, and not push for artificially low interest rates with the aim of avoiding bankruptcies or reducing short-term unemployment. Voters need to accept these restraints, and not punish current governments for reversing the monetary ease of recent past decades. So much the better that increased interest rates will offer better terms to savers: falling savings rates in countries with aging populations were the dark side of the boom in the USA, UK, Australia and elsewhere.

The messages of this paper are positive. The economies of the major capitalist nations are more resilient than in the past, and the post-2007 crisis will not approach

that of the 1930s in its impact on the real economy. However, the psychological message may be hard for policymakers and consumers to accept: a credit-fuelled boom has to end, and the crisis is not to be averted by cheap money. Just as the prosperity with security of the 1950s and 1960s ultimately had to be corrected by admitting that fiscal policy biased towards budget deficits was not a long term option, governments in the 2000s must accept that growth based on easy credit is not a long-term option. The moral hazard behind the crises of recent decades was facilitated by cheap money that encouraged excessive leveraging all across the economy, and with global financial markets this could result in a crisis in any part of the world. The severity of these crises can be reduced through better financial market regulation to reduce moral hazard and better macroeconomic policies to underpin a sustainable price of credit. This is part of capitalism's evolution, not the end of capitalism.

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Table 2: Rogue Traders' Losses, Fraudulent and Non-fraudulent.

Rogue Trader	Company	Year	Amount lost	USD equivalent*	Source of loss
Jérôme Kerviel	Société Générale	2008	EUR 4.9 bn	$6.5 bn	European Index Futures
Brian Hunter	Amaranth Advisors, Canada	2006	USD 4.6 bn	$4.6 bn	Gas Futures
John Meriwether	Long Term Capital Management	1998	USD 7.1 bn	$7.1 bn	Interest Rate and Equity Derivatives
Yasuo Hamanaka	Sumitomo Corporation	1996	JPY 285 bn	$2.6 bn	Copper Futures
Robert Citron	Orange County	1994	USD 1.7 bn	$1.7 bn	Interest Rate Derivatives
Isac Zaguri, Rafael Sotero	Aracruz, Brazil	2008	BRL 4.62 bn	$2.1 bn	FX Options
Wolfgang Flöttl, Helmut Elsner	BAWAG, Austria,	2000	EUR 1.4 bn	$1.97 bn	Foreign Exchange Trading
Heinz Schimmelbusch	Metallgesellschaft, Germany	1993	DEM 2.63 bn	$1.38 bn	Oil Futures
Leslie Chang	CITIC Pacific	2008	HKD 14.7 bn	$1.9 bn	Foreign Exchange Trading
Nick Leeson	Barings Bank	1995	GBP 0.827 bn	$1.323 bn	Nikkei Futures
Toshihide Iguchi	Daiwa Bank	1995	JPY 103.4 bn	$1.1 bn	Bonds
Boris Picano-Nacci	Caisse d'Epargne, France	2008	EUR 0.75 bn	$0.975 bn	Derivatives
Friedhelm Breuers	WestLB, Germany	2007	EUR 0.60 bn	$0.82 bn	Shares
John Rusnak	Allied Irish Banks	2002	USD 0.691 bn	$0.69 bn	Foreign Exchange Options
Peter Young	Morgan Grenfell, UK	1997	GBP 0.4 bn	$0.7 bn	Shares
David Askin	Askin Capital Management, USA	1994	USD 0.6 bn	$0.6 bn	Mortgage-Backed Securities
Chen Jiulin	China Aviation Oil (Singapore)	2004	USD 0.55 bn	$0.55 bn	Oil Futures and Options
Adriano Ferreira, Álvaro Ballejo	Sadia, Brazil	2008	BRL 0.76 bn	$0.411 bn	FX and Credit Options
Ramy Goldstein	United Bank of Switzerland	1998	CHF 0.63 bn	$0.5bn	Equity Derivatives

Michael Berger	Manhattan Investment Fund, USA	2000	USD 0.4 bn	$0.4 bn	Short IT stocks
	Hypo Group Alpe Adria, Austria	2004	EUR 0.30 bn	$0.4 bn	Foreign Exchange Trading
	Dexia Bank, France-Belgium	2001	EUR 0.30 bn	$0.4 bn	Corporate Bonds
Dany Dattel	Herstatt Bank, Germany	1974	DEM 0.47 bn	$0.36 bn	Foreign Exchange Trading
Joseph Jett	Kidder Peabody, USA	1994	USD 0.35 bn	$0.35 bn	Government Bonds
Richard "Chip" Bierbaum	Calyon	2007	EUR 0.25 bn	$0.35 bn	Credit-default swaps
Luke Duffy	National Australia Bank	2004	AUD 0.36 bn	$0.28 bn	Foreign Exchange Trading
A. James Manchin	State of West Virginia	1987	USD 0.28 bn	$0.28 bn	Fixed Income and Interest Rate Derivatives
Liu Qibing	State Reserves Bureau, China	2005	USD 0.2 bn	$0.2 bn	Copper Futures
Howard A. Rubin	Merrill Lynch, USA	1987	USD 0.28 bn	$0.28 bn	Mortgages Trading
Raymond Mains	Procter & Gamble, USA	1994	USD 0.16 bn	$0.16 bn	Interest Rate Derivatives
Kyriacos Papouis	NatWest, UK	1997	GBP 0.09 bn	$0.2 bn	Interest Rate Options
Evan Dooley	MF Global, USA	2008	USD 0.14 bn	$0.14 bn	Wheat Futures
	Cuyahoga County, Ohio	1994	USD 0.11 bn	$0.11 bn	Leveraged Fixed Income
Aleksandar Adamovic	Carnegie Investment Bank, Sweden	2007	SEK 0.63 bn	$0.1 bn	Equity Derivatives
Eduard Nodilo	Riječka banka, Croatia	2002	USD 0.1 bn	$0.1 bn	Foreign Exchange Trading

Notes: trading losses of USD100 million or higher since the early 1970s
* at time of loss

Source: http://en.wikipedia.org/wiki/List_of_trading_losses -- an incomplete list based on press references.