THE GLOBAL FINANCIAL CRISIS, BEHAVIOURAL FINANCE AND FINANCIAL REGULATION: IN SEARCH OF A NEW ORTHODOXY

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The global financial crisis brought the world banking system to the brink of collapse. The continuing operation of financial markets became possible only after the extensive and costly public rescues of some very big banks. It also brought into sharp focus the inadequacies of the contemporary model of financial regulation both at the national and the global level. This article argues that some of the measures endorsed in the G20 Summit for the revamping of national and global financial regulation, such as increased disclosure and a stronger capital base, and others targeting the enhancement of market discipline will prove less effective than anticipated. The reason for that is that they largely ignore the behavioural elements of the crisis. Instead, what is required is a radical rethinking of the contemporary model of national and global financial regulation. This article suggests a set of far-reaching reforms for the overhaul of the regulatory framework governing the licensing and supervision of banking institutions. It also proposes the establishment of a global licensing and supervisory regime for transnational investment funds with systemic importance, eliminating most shadow banking operators. The catastrophic consequences of the crisis and the findings of behavioural finance provide solid support for these proposals.

A. INTRODUCTION

1. Overview

The global financial crisis reached its peak with the catastrophic events of September and October 2008. The decision of the US Treasury to allow Lehman Brothers, a major Wall Street investment bank, to default, in early September 2008, triggered a global wave of panic selling. This sent the prices of financial assets in a massive downward spiral. Banks' shares were especially badly affected because of the freezing of the inter-bank loan market, inadequate disclosure and massive doubts about the state of the banks' balance sheets. The US, the UK and most of the other EU countries were forced to piece together massive bank rescue packages. The focus of these packages was on bank recapitalisation through state purchase of bank shares, in an effort to restore

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investor confidence. They also included the granting of massive state guarantees of bank assets to stabilise the inter-bank market and reopen this channel of liquidity,¹ and in some cases, especially the US package, outright purchase by the state of bad loan assets.² The packages, to a certain degree, meant the temporary at least part-nationalisation of the banking industry, reversing the deregulatory practices of three decades of neoliberal orthodoxy. Notable also, in this context, was the rush to the safety of the state guarantee of the two biggest US investment banks: Goldman Sachs and Morgan Stanley. These, in the midst of the crisis, decided to become financial holding companies capable of holding deposits, thus becoming subject to supervision by the Federal Reserve. All of the above developments have shown the immense importance of the state guarantee for the orderly operation of the banking system and banks' inability to function without it in a period of crisis.

This period of exceptional financial instability may be divided into two overlapping phases: what started as a global credit (liquidity) crunch in August 2007 was transformed in September 2008 into a global financial crisis, because of panic asset selling and massive deleveraging by global financial institutions.³ The initial phase of the crisis had already led to the first depositors' run in the UK in 150 years and the near collapse of Northern Rock, a medium-sized UK mortgage provider.⁴ In the beginning most of the massive losses posted by very large US and European Banks were associated primarily with their exposure to the collapsing US market for sub-prime mortgages. This also caused the collapse

¹ The UK Treasury's package aimed to ensure the stability of the financial system and to protect ordinary savers, depositors, businesses and borrowers. Apart from providing sufficient liquidity in the short term through the Bank of England's Special Liquidity Scheme, the government provided a guarantee of short- and medium-term bank debt in order to ensure that the banking system had the funds necessary to maintain lending in the medium term. It also forced banks drawing from the rescue scheme to recapitalize, reinforcing their capital base. The Treasury undertook to underwrite the share capital increases of participating institutions and take equity stakes in the banks concerned by means of preference shares. See "The Treasury's Statement on a Bailout for British Banks to Rescue the Financial Sector from the Turmoil of Recent Days", *The Telegraph*, 8 October 2008, available at <http://www.telegraph.co.uk/finance/financetopics/financialcrisis/3156569/Banking-bailout-The-statement-in-full.html> (last accessed 10 November 2008).

² For a detailed account of the global financial crisis during September and October 2008 and a description of the rescue packages, see Bank of England, "Financial Stability Report" (October 2008, issue 24).

³ "Deleveraging, in this context, covers a range of strategies. On the liabilities side of bank balance sheets, these strategies entail raising fresh capital, as well as ensuring diversified, longer-maturity, and durable sources of funding. On the assets side, the strategies are to avoid concentrated exposures to illiquid or risky assets, dispose of noncore assets, and adopt hedging strategies that accurately mirror exposures." IMF Global Financial Stability Report, "Financial Stress and Deleveraging, Macrofinancial Implications and Policy" (October 2008), 19. For the role of deleveraging in the second phase of the global crisis see *idem*, 19–31.

⁴ House of Commons, Treasury Committee, Fifth Report of Session 2007–08, "The Run on the Rock", 24 January 2008.

of the two biggest US mortgage providers—Fannie Mae and Freddie Mac—and their public bail out.⁵

The cost of the crisis is enormous and has greatly exceeded the expectations the IMF, which forecast it to be in the region of US \$1 trillion.⁶ The public cost of the crisis includes both the cost of the public rescues and the cost of providing liquidity support to banking institutions.⁷ The implicit cost of the crisis, through its impact on the economy and the consequences of the developing global recession, is many times bigger.

The global financial crisis brought into sharp and painful focus the inadequacies of the current (virtually) global model of banking regulation. Also, the systemic implications of the very high leverage ratios and uncontrollable risk-taking of big hedge funds and their role in the building up of the crisis have been at the centre of the global debate concerning the regulation global finance.

In the case of banks, the current regulatory model is characterised by its reliance on a set of internationally accepted supervisory standards dealing with institutional safety and soundness, such as the Basle capital adequacy standards and solvency ratios, and limited regulatory interference. It emerged as a result of the liberalisation of banking business models in the 1990s and the international consensus⁸ reached within the Basle Committee on Banking Supervision as regards the acceptable model of prudential supervision of banks.⁹

Enabling banking institutions to merge their investment and commercial banking activities following the abolition of the Glass-Steagall Act restrictions in the US¹⁰ and the implementation of the European Second Banking Coordination Directive¹¹ allowed banks to reap serious economies of scale in

⁵ A Seager and P Inman, "US Steps in to Rescue Failing Home Loan Giants", *The Guardian*, 8 September 2008, available at <http://www.guardian.co.uk/business/2008/sep/08/freddiemacandfanniemae.useconomy> (accessed 18 November 2008).

⁶ Robert Winnett, "Effort to Halt Financial Crisis Costs Governments Two Trillion Pounds", *The Telegraph*, 15 October 2008, available at <http://www.telegraph.co.uk/news/3198470/Effort-to-halt-financial-crisis-costs-governments-two-trillion-pounds.html> (accessed 24 November 2008); IMF Global Financial Stability Report, "Containing Systemic Risks and Restoring Financial Soundness" (April 2008).

⁷ The Bank of England, "Special Liquidity Scheme: Market Notice", 21 April 2008.

⁸ This consensus was first perceptively described in JJ Norton, CJ Cheng and I Fletcher, *International Banking Regulation and Supervision: Change and Transformation in the 1990s* (The Hague, Kluwer Law International, 1994) and JJ Norton, *Devising International Bank Supervisory Standards* (The Hague, Martinus-Nijhoff, 1995).

⁹ Basle Committee on Banking Supervision, "Core Principles for Effective Banking Supervision" (September 1997, revised in October 2006) and "International Convergence of Capital Measurement and Capital Standards, A Revised Framework" (updated November 2005).

¹⁰ Gramm-Leach-Bliley Financial Services Modernization Act, Pub L No 106-102, 113 Stat 1338 (1999).

¹¹ Directive 89/646/EEC [1989] OJ L386/1, replaced by Directive 2006/48/EC [2006] OJ L177. The Second Banking Directive allowed deposit-taking European Banks to also engage in the kind of investment market activities that were usually reserved, at least outside of Germany, for securities firms and non-deposit taking investment banks.

their operations. These efficiencies significantly raised their profitability. At the same time, liberalisation allowed global banks to exploit their safe funding (deposits) base and the implicit guarantee they enjoy from their national central banks in order to speculate at a vast scale.

Essentially, commercial and investment banks utilised the prevailing conditions of excessive liquidity and financial innovation to acquire huge, largely impossible to value exposures in the global credit markets. Also, through the use of elaborate alternative investment schemes and complex credit derivatives, they moved a gigantic amount of assets and liabilities off balance sheet, creating so-called *shadow banking*. The risks attached to those positions were on an unprecedented scale, yet the banking institutions, which enjoyed an implicit government guarantee, adopted a very casual attitude to risk controls. The global financial crisis is to a large extent the result of this attitude. Consequently, most of the public rescue packages in the EU and Switzerland have been directed at universal banks.¹²

On the other hand, the vast expansion of international investment funds has been the result of the abolition of restrictions on capital flows in the 1990s and of the investment opportunities created by the rapid development of global capital markets. International investment funds, especially highly leveraged institutions such as hedge funds, were frequently established in tax heavens, escaping, to a significant extent, regulatory oversight. However, the growth in their number and size was followed by their active participation in global credit markets. Thus, largely unregulated international investment funds borrowed and invested hundreds of billions of dollars, piling up, in the process, systemic risk of colossal proportions contributing to the massive growth of the shadow banking sector. Arguably, the opacity and unregulated nature of shadow banking operations were among the central causes of the global financial crisis.

Accordingly, the contamination of the savings sector by shadow banking operations and the absence of a global regulatory framework for international investment funds have played a massive role in the building up and amplification of the crisis that brought the global financial system into near collapse and must be effectively addressed.

¹² Reuters, "Key Parliament Committee Backs UBS Rescue Package", 21 November 2008, available at <http://www.reuters.com/article/rbssFinancialServicesAndRealEstateNews/idUSLL50399520081121> UBS (accessed 24 November 2008); Spiegel.com, "Rescue Package Approved—German Cabinet Agrees on Conditions for Bank Bailouts", 20 October 2008, available at <http://www.spiegel.de/international/business/0,1518,585156,00.html> (accessed 24 November 2008).

2. The Washington Financial Summit's Proposals for the Reform of Financial Regulation and the Behavioural Critique

National regulators, such as the US Treasury¹³ and the UK Tripartite Authorities,¹⁴ global regulatory fora such as the Financial Stability Forum (FSF)¹⁵ and policy-making bodies such as the Presidents' Working Group on Financial Markets (PWGFM)¹⁶ have provided very perceptive analyses of the causes of the global financial crisis. They also mapped out a number of important steps that have to be taken for the revamping of regulatory systems dealing with financial institutions.¹⁷ Many of these suggestions were taken up and, in fact, substantially expanded and improved by the European proposals¹⁸ submitted to the Washington Financial Summit of 15 November 2008. In this summit, the G20 members eventually reached a consensus, which provides a framework for the reform of global financial architecture, the revamping of national and global financial regulation, and the consequent elimination of shadow banking.¹⁹ The G20 Summit in London on 2 April 2009 is expected to provide a more radical agenda for regulatory reform but no concrete suggestions have been published yet.

A significant number of the Washington Summit's high-level measures for the reform of the national and global financial regulatory framework show misguided reliance on the persuasive power of market discipline. The idea

¹³ US Department of Treasury, "Blueprint for a Modernized Financial Regulatory Structure" (March 2008).

¹⁴ Tripartite Authorities (HM Treasury, FSA, BoE), "Financial Stability and Depositor Protection: Further Consultation" (Cm 7436, July 2008); FSA, "Review of the Liquidity Requirements for Banks and Building Societies" (December 2007).

¹⁵ FSF, "Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience", 7 April 2008 (hereinafter, FSF, "Enhancing Market Resilience") and "Interim Report to the G7 Finance Ministers and Central Bank Governors", 5 February 2008 (hereinafter, FSF, "Interim Report"); Basle Committee on Banking Supervision, "Liquidity Risk: Management and Supervisory Challenges" (February 2008).

¹⁶ The President's Working Group on Financial Markets, "Policy Statement on Financial Market Developments" (March 2008).

¹⁷ For a critical overview of regulatory responses to the global credit crisis see C Goodhart, "The Regulatory Responses to the Financial Crisis", mimeo, LSE-FMG (March 2008).

¹⁸ PFUE, "Informal Meeting of the Heads of State and Government of the European Union on 7 November", 7 November 2008.

¹⁹ The framework agreed by the G 20 leaders includes, inter alia, a commitment to:

"improvements to financial market transparency and ensuring complete and accurate disclosure by firms of their financial conditions—making sure banks and financial institutions' incentives 'prevent excessive risk taking'—asking finance ministers to draw-up a list of financial institutions whose collapse would endanger the global economic system—strengthening countries' financial regulatory regimes—taking a 'fresh look' at rules that govern market manipulation and fraud."

The Declaration of the Summit on Financial Markets and the World Economy containing all agreed policy initiatives can be found at <http://www.whitehouse.gov/news/releases/2008/11/20081115-1.html> (accessed 16 November 2008).

underpinning this approach is that rational market actors would have acted to resolve the crisis, if they had been presented with a different set of economic incentives, market structures and disclosure regulations. Thus, the suggested measures implicitly endorse the modern finance theory (rational choice) view of the markets. The fundamental assumption of modern finance theory is that markets move only on the basis of rational expectations; that is, asset prices are set by rational investors.²⁰ As a result, most of the said explanations of the crisis—perceptive and accurate as they are in many ways—and the suggested reforms emanating from them are also mono-dimensional. They focus on market failure in areas such as use of credit ratings, lender and investor monitoring incentives, and flawed regulations, without any mention of the behavioural perspective.

However, this view of the markets as an agglomeration of rational investors, who make optimal resource allocation and wealth maximisation decisions, when provided with sufficient information, appropriately structured economic incentives and sensible regulations, is refuted by recent empirical and experimental research. The picture arising from this research, mostly conducted by behavioural finance scholars, shows financial markets to be complex evolutionary and dynamic systems encompassing both rational and irrational behaviour.²¹

Utilising the findings of behavioural finance, this article argues that most of the causes of the global credit crisis, as described by the aforementioned bodies, are closely linked to behavioural factors. Therefore, the neglect or underestimation of the behavioural aspects of the global financial crisis is arguably the biggest shortcoming of the otherwise very valuable policy reforms endorsed in the Washington Financial Summit. This defect becomes even more serious when endogenous risk²² is considered. This risk is exacerbated in modern financial markets by the widespread tendency of market players to move all in the same direction at once. This phenomenon is called homogenisation.²³ Its roots are largely to be found in the impact of the universal banking model and “strategic”

²⁰ M Friedman, “The Methodology of Positive Economics” in M Friedman, *Essays in Positive Economics* (University of Chicago Press, 1953), 3.

²¹ C Hommes and F Wagener, “Complex Evolutionary Systems in Behavioral Finance” in T Hens and KR Schenk-Hopp (eds), *Handbook of Financial Markets: Dynamics and Evolution* (Amsterdam, Elsevier Science & Technology, 2009).

²² In the specific context,

“Endogenous risk means that any financial assets fluctuations are . . . explained only by the very behavior of the participant or the participants that prize that financial asset, and not by exogenous factors . . . [such as] . . . changes in the economic environment, changes in the profitability of the company, changes in cash flows . . . [i]t’s simply . . . [market actors’] own behavior that creates this . . . risk” (L Fischer, ‘Major Risks of International Banking’ in P Nobel and M Gets (eds), *Law and Economics of Risk in Finance* (Zürich, Schulthess, 2007), 124).

²³ See, eg K Alexander, J Eatwell *et al.*, “Financial Supervision and Crisis Management in the EU”, prepared for the European Parliament’s Committee on Economic and Monetary Affairs, IP/A/ECON/IC/2007-069 (December 2007), 3–7.

market behaviour, partly attributable to social (peer pressure) and psychological factors, which leads to herding.²⁴ The consequent lack of pluralism in the direction of trading activity and insufficient diversification of investment portfolios has deprived the global financial system from many of its market stabilisers.²⁵

The behavioural aspects of the global financial crisis and the role played in it by universal banks and international investment funds make a very strong case for adoption of a radical approach to regulatory reform. Moreover, the discussed near collapse of gigantic banking institutions and the massive public rescue packages proved that the continuing operation of the banking system is impossible without a state guarantee in times of crisis. Accordingly, this article proposes the establishment of a pluralistic system of bank licensing and supervision with separation of business activities along institutional lines. The suggested reform aims at the containment of the adverse impact of socio-psychological factors on banking institutions and of excessive speculation. Also, its implementation would eliminate the ability of banking institutions to free ride over the state guarantee, limiting the public cost of unavoidable bank collapses.

This article further suggests that, unlike the piecemeal approach adopted in the G20 Summit, the most effective means of eliminating shadow banking operators is the establishment of a global licensing and supervisory regime for internationally active and systemically important investment funds (IIFs). The establishment of a global regulatory regime for IIFs is possibly the only practical means to contain their role as free-riding generators of systemic risk at a global level.²⁶

The rest of this article is structured as follows. Section B provides a brief analysis of the findings of behavioural finance that are most pertinent to the present discussion. Section C discusses the causes of the global financial crisis. Section D discusses the regulatory reform proposals set out in the G20 Summit. Section E sets out the recommendations of this article. Section F brings the different strands of the article to a comprehensive conclusion.

B. MODERN FINANCE THEORY, BEHAVIOURAL FINANCE AND MARKET “ANOMALIES”

1. Overview

One of the main arguments advanced in this article is that the analysis of the global financial crisis and the policy remedies that were agreed in the G20

²⁴ *Ibid.*, 6–7.

²⁵ *Ibid.*, 3.

²⁶ See S Schwarcz, “Systemic Risk”, Duke Law School, Research Paper No 163, March 2008.

Summit are not sufficiently cognisant of the behavioural aspects of the crisis, overemphasising the role of market discipline. Therefore, a discussion of the contrasting views of modern finance theory, which largely informs the market discipline approach, and of behavioural finance must precede any discussion of the causes of the global financial crisis. Arguably, the efficient markets hypothesis (EMH),²⁷ which constitutes the centrepiece of modern finance theory, has limited application in the case of credit markets. A big segment of the secondary market for structured credit securities is nearly illiquid, while the EMH assumes liquid markets. However, the contrast is still useful for facilitating the present discussion and by reference to the liquid part of secondary credit markets.

The EMH assumes that market prices reflect (equal) fundamental value and change on the basis of new information. Thus, in an efficient market, no investment strategy can yield average returns higher than the risk assumed and no trader can consistently outperform the market or accurately predict future price levels, as new information is instantly absorbed by market prices.²⁸ Another EMH assumption is that, when markets are information efficient and transaction costs are relatively low, “professionally informed traders” quickly observe and exploit through arbitrage trading any price deviations from fundamental value, as such price deviations create an opportunity for profitable trading. The result of arbitrage activity is that prices reach a new equilibrium, which reflects more accurately the traded asset’s value and corrects any mispricings.²⁹ Accordingly, inefficient markets are exclusively due to information asymmetries, lack of competition, high transaction costs and various forms of conflict of interests in the principal agent relationships that arise in market contexts.

Behavioural finance challenges most of the assumptions of EMH.³⁰ The main tenets of behavioural finance are that³¹: (i) certain market phenomena called *anomalies* or *puzzles* cannot be explained by the EMH; and (ii) the corrective influence of arbitrage trading is limited due to a number of restrictions. Behavioural finance scholars use the findings of so-called psychology of choice

²⁷ See P Samuelson, “Proof that Properly Anticipated Prices Fluctuate Randomly” (1965) 6 *Industrial Management Review* 41; B Mandelbrot, “Forecasts of Future Prices, Unbiased Markets, and Martingale Models” (1966) 39 *Journal of Business* 242.

²⁸ EF Fama, “Efficient Capital Markets: A Review of Theory and Empirical Work” (1970) 25 *Journal of Finance* 383; EF Fama, “Efficient Capital Markets II” (1991) 46 *Journal of Finance* 1575.

²⁹ RJ Gilson and RH Kraakman, “The Mechanisms of Market Efficiency” (1984) 70 *Virginia Law Review* 549, 560 and 565; “The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias” (2003) 28 *Journal of Corporation Law* 715, 723.

³⁰ GM Frankfurter and EG McGoun, “Market Efficiency or Behavioral Finance: The Nature of the Debate” (2000) 1 *Journal of Psychology and Financial Markets* 200; RJ Shiller, “From Efficient Markets Theory to Behavioral Finance” (2003) 17 *Journal of Economic Perspectives* 83, 96–101.

³¹ See, in general, N Barberis and R Thaler, “A Survey of Behavioral Finance”, National Bureau of Economic Research, Working Paper No 9222 (September 2002), 4 and 13; D Hirschliefer, “Investor Psychology and Asset Pricing” (2001) 56 *Journal of Finance* 1533; EF Fama, “Market Efficiency, Long-term Returns, and Behavioral Finance” (1998) 49 *Journal Financial Economics* 283.

and judgement, the first pillar of behavioural decision theory (BDT),³² in order to explain market puzzles or anomalies.³³

2. Heuristics and Puzzles

One of the most important findings of the psychology of choice and judgement is that individuals' judgements originate in impressions as well as in deliberate reasoning. Intuition processes are called *heuristics* or *rules of thumb*.³⁴ Heuristics may result in a cognitive bias, when they lead to (i) "systematic errors in estimates of known quantities and statistical facts" and (ii) systematic departures of intuitive judgements from the principles of probability theory. Some of the most discussed heuristics are *representativeness*, *availability* and *anchoring*.

The representativeness heuristic is utilised by individuals to evaluate probability. Much of the time, representativeness is a helpful heuristic, but it can generate some severe biases.³⁵ The availability heuristic controls estimates of the frequency or probability of events, which are judged by the ease with which instances of such events come to mind.³⁶ In other words, the availability heuristic is an assessment of accessibility. The anchoring heuristic refers to the process by which an individual decision maker gravitates to a reference point that she subsequently uses as an initial condition for arriving at a final decision. Experimental evidence shows that people anchor too much on the initial value, eg on prevailing current interest rates or stock prices, and subsequent adjustment is often insufficient.

As explained in the next section, the adverse influence of the aforementioned neuro-psychological situations can be traced in most of the identified causes of the global financial crisis. Furthermore, the absence of arbitrageurs throughout the crisis, even though there were several opportunities to make profit from distressed assets that banks were willing to dispose at fire-sale prices, has been striking. Both the impact of heuristics and cognitive biases on market actors and the behavioural reasons limiting the corrective power of arbitrage may not be properly understood without a discussion of the so-called Royal Dutch Shell³⁷ and closed-end puzzles, and the phenomenon of asset bubbles.

³² The other pillar of BDT is experimental economics.

³³ See Barberis and Thaler, *supra* n 31.

³⁴ D Kahneman and A Tversky, "Judgment under Uncertainty: Heuristics and Biases" (1974) 185 *Science* 1124. See also JT Harvey, "Heuristic Judgement Theory" (1998) 32 *Journal of Economic Issues* 47.

³⁵ A Tversky and D Kahneman, "Extensional vs Intuitive Reasoning: The Conjunction Fallacy in Probability Judgment" (1983) 90 *Psychological Review* 293.

³⁶ See A Tversky and D Kahneman, "Availability: A Heuristic for Judging Frequency and Probability" (1973) 5 *Cognitive Psychology* 207.

³⁷ See L Rosenthal and C Young, "The Seemingly Anomalous Price Behavior of Royal Dutch/Shell and Unilever NV/PLC" (1990) 26 *Journal of Financial Economics* 123; KA Froot and EM Dabora, "How are Stock Prices Affected by the Location of Trade?" (1999) 53 *Journal of Financial Economics* 189. This paradox was also examined in A Shleifer and R Vishny, 'Limits of Arbitrage' (1997) 52 *Journal of Finance* 35.

(a) *Royal Dutch Shell*

Royal Dutch Shell is the result of the 1907 merger of Royal Dutch Petroleum and Shell Transport, which were independently incorporated in, respectively, the Netherlands and England. The merger of the two companies' assets was agreed on a 60–40 basis. This ratio remained the basis for the division of cash flows between the two segments of Royal Dutch Shell until 2005. The legacy companies maintained separate listings and Royal Dutch traded primarily in the US (where it was part of the S&P 500 Index) and the Netherlands, and Shell has traded primarily in London, where it has been a major constituent of the Financial Times Stock Exchange Index (FTSE 100). According to the EMH model, the shares of the two components of this company should have traded at a 60–40 ratio, following exchange rate adjustments. However, the history of the price movement of the stocks shows a consistent deviation of over 35% from the expected ratio. Even when explanations, such as taxes and transaction costs, are taken into account, this very wide disparity cannot be explained other than by reference to noise trading, clearly illustrating the limits of arbitrage.

(b) *Closed-end Funds*

Unlike open-end funds, closed-end funds issue a fixed number of shares/units. Thus, the rational way to find a price for their shares is to divide the net value of the fund's total assets (NAV) by the number of shares outstanding. Yet the average closed-end fund seems to trade at 10% discount or premium over NAV.³⁸ Lee *et al* suggested that some of the individual investors who are owners of closed-end fund units/shares are noise traders, exhibiting irrational swings in their expectations about future fund returns.³⁹ Sometimes they are too optimistic, while at other times they are too pessimistic. Sentiment changes affect fund share prices, thus explaining the difference between share prices and NAV. This view has been received with serious skepticism by EMH scholars, who have offered a number of rational choice explanations to this puzzle. These include arguments relating to the impact of transaction costs (redemption expenses), expectations about future fund manager performance (agency costs) and tax liabilities.

While these arguments may explain why funds usually sell at discount, they do not say why funds sometimes sell at substantial premiums or why discounts tend to vary on a weekly basis.⁴⁰ Furthermore, the noise trader argument provides a powerful explanation of why it is possible to sell new closed-end funds at a premium, encouraging the establishment of closed-end funds at times of investor

³⁸ Barberis and Thaler, *supra* n 31, 41.

³⁹ MCC Lee, A Shleifer and RH Thaler, "Investor Sentiment and the Closed-end Fund Puzzle" (1991) 46 *Journal of Finance* 75; N Chopra, MCC Lee, A Shleifer and R Thaler, "Yes, Discounts on Closed-end Funds Are a Sentiment Index" (1993) 48 *Journal of Finance* 801.

⁴⁰ See Barberis and Thaler, *supra* n 31, 41.

exuberance, and why, when a closed-end fund is liquidated, the share price converges towards NAV. In the latter case, investors no longer have to worry about shifts in noise trader sentiment and cease demanding discounted prices over NAV to compensate for this risk.⁴¹

(c) *Asset Bubbles and Investor Herding*

Convincing explanations about asset bubbles⁴² may be derived from the psychology of judgement and choice, especially when considering the operation of the availability heuristic and the impact of cognitive biases such as overconfidence.⁴³ Empirical research has shown that individuals frequently exhibit a deep-seated bias towards optimism in predicting future events.⁴⁴ In a rising stock market or any other asset market (including housing), individuals embrace unsustainable beliefs that the price rises will continue indefinitely.⁴⁵

Institutional investors also seem susceptible to overconfidence. Thus, they also join the “momentum” game, expecting to get out before the bubble bursts. In addition, as explained in Section C.5 below, fund managers’ concerns about their short-term performance and its repercussions on their job security, compensation and professional reputation contribute strongly to institutional investors’ herding. Moreover, market actors’ herding, due to socio-psychological factors, may also trigger irrational downward price spirals, such as those observed in the period between September and October 2008, and exacerbate endogenous risk.⁴⁶

Finally, a number of other market puzzles such as (i) the equity premium,⁴⁷ (ii) excessive volatility,⁴⁸ (iii) assumptions of trading volume higher than could be justified by rational choice⁴⁹ (which is plausibly attributed to overconfidence), and (iv) the payment of dividends when there are better forms of rewarding a

⁴¹ In fact, Lee, Shleifer and Thaler found that there is a strong co-movement in the prices of closed-end funds, which is a powerful indication that noise trader risk is systematic. See *supra* n 39.

⁴² See on stock market overreaction WFM DeBondt and R Thaler, “Does the Stock Market Overreact?” (1985) 40 *Journal of Finance* 793 and “Further Evidence on Investor Overreaction and Stock Market Seasonality” (1997) 42 *Journal of Finance* 557.

⁴³ RJ Shiller, “Measuring Bubble Expectations and Investor Confidence” (2000) 1 *Journal of Psychology and Financial Markets* 49.

⁴⁴ ND Weinstein, “Unrealistic Optimism about Future Life Events” (1980) 39 *Journal of Personality and Social Psychology* 806.

⁴⁵ See Shiller, *supra* n 43.

⁴⁶ See *supra* nn 22 and 23.

⁴⁷ R Mehra and E Prescott, “The Equity Premium: A Puzzle” (1985) 15 *Journal of Monetary Economics* 145; NR Kocherlakota, “The Equity Premium: It’s Still a Puzzle” (1996) 34 *Journal of Economic Literature* 42. For a behavioural analysis see S Benartzi and RH Thaler, “Myopic Loss Aversion and the Equity Premium Puzzle” (1995) 110 *Quarterly Journal of Economics* 73.

⁴⁸ R Shiller, “Do Stock Prices Move Too Much to Be Justified by Subsequent Changes in Dividends?” (1981) 71 *American Economic Review* 421. SF LeRoy and RD Porter, “The Present-value Relation: Tests based on Implied Variance Bounds” (1981) 49 *Econometrica* 555.

⁴⁹ T Odean and B Barber, “Trading is Hazardous to Your Wealth: The Common Stock Investment Performance of Individual Investors” (2000) 55 *Journal of Finance* 773.

company's shareholders may all be convincingly explained by reference to the role of heuristics and cognitive biases.

Although behavioural finance suffers from an intrinsic inability to be a useful forecasting tool, it remains a very powerful interpretative tool. In fact, the evolutionary nature of financial markets and the impact of neuropsychological factors are held, even by non-behaviouralists, to be the main explanation of market phenomena that both conform with and refute the assumptions of EMH.⁵⁰ Furthermore, behavioural finance appears to be an even stronger and more convincing interpretative tool when used to explain market phenomena that are not representative of regular market conditions. As a result, it provides very convincing explanations of the causes of the global financial crisis. In fact, the biggest proof of the strong influence of behavioural factors and of massive institutional investor herding on the amplification of the global financial crisis is the weeks of panic selling that followed the collapse of Lehman Brothers in mid-September 2008.

C. THE CAUSES OF THE GLOBAL FINANCIAL CRISIS AND THE BEHAVIOURAL CRITIQUE

1. The Causes of the Crisis

From 1998 to 2007 global credit markets experienced a period of rapid expansion and widespread euphoria. The main reason for this credit expansion, which led the global financial system to unsustainable levels of gearing, was a combination of: (i) benign macroeconomic conditions and monetary policies favouring low and relatively stable long-term interest rates, (ii) financial innovation and (iii) the significant increase of institutional investors participating in global financial markets. Excessive liquidity and unrestrained availability of credit led to the creation of a bubble in almost every asset market in the globe, starting with the US housing market,⁵¹ and also, as is the case in most periods of financial euphoria, to serious deterioration of risk controls for extension of credit.

Furthermore, the global abolition of capital restrictions and the benign macroeconomic and monetary environment allowed a large number of international investment funds, mostly hedge funds, to enter global credit markets in various guises and, in many ways, simulate the function of major

⁵⁰ Andrew Lo, a leading financial economist, calls this fusing approach the "Adaptive Markets Hypothesis". A Lo, "Reconciling Efficient Markets with Behavioral Finance: The Adaptive Markets Hypothesis" (2005) 7 *Journal of Investment Consulting* 21.

⁵¹ See, inter alia, S Jagger, "Sub-prime and Banking Crisis: Who Caused this Nightmare? The Blame Spreads", *The Times*, 19 March 2008, available at http://business.timesonline.co.uk/tol/business/industry_sectors/banking_and_finance/article3579171.ece (accessed 10 May 2008).

banks, boosting the shadow banking sector. These highly geared institutions acquired a massive exposure in credit markets through both (i) their capital market activities: borrowing funds in order to purchase structured credit securities or credit derivatives; and (ii) their more straightforward credit activities: borrowing funds at low interest rates in order to on-lend them. The use of novel techniques for the laying off of credit risk and the active involvement of investment funds in the relevant market meant that credit risk spread much more widely to the global investment community, but it did not disappear.

The roots of the credit crunch, which was the first phase of the global financial crisis, have been examined by several regulatory bodies and international fora,⁵² which more or less concurred in their findings, subsequently endorsed in the Washington Summit Declaration⁵³ as being:

- a breakdown in underwriting standards for sub-prime mortgages;
- flaws in the originate-to-distribute model adopted in modern structured finance, which were manifested in a significant erosion of market discipline in the securitisation process;
- flaws in credit rating agencies' assessments of sub-prime residential mortgage-backed securities and other complex structured credit products;
- risk management weaknesses at major US and European financial institutions; and
- regulatory policies, including capital and disclosure requirements, that failed to mitigate risk management weaknesses.

The next few paragraphs offer a critical analysis of the causes of the global financial crisis highlighting both their rational choice and behavioural aspects.⁵⁴

2. Excessive Liquidity, Financial Innovation and the Credit Crunch

(a) Excessive Liquidity and Overconfidence

It is widely acknowledged that excessive liquidity was one of the main causes of the massive credit expansion, which led to the present crisis. Arguably, one of the main reasons for the credit expansion was that market actors, having a short memory and being in a state of financial euphoria, became increasingly, and

⁵² See the FSF, "Interim Report", *supra* n 15; PWGFM, *supra* n 16; IMF, *supra* n 6; M Carney, Governor of the Bank of Canada, "Addressing Financial Market Turbulence", Remarks to the Toronto Board of Trade, 13 March 2008, 3. See also BS Bernanke, "Addressing Weaknesses in the Global Financial Markets: The Report of the President's Working Group on Financial Markets", speech made at the World Affairs Council, 10 April 2008.

⁵³ See *supra* n 19.

⁵⁴ For behavioural explanations of the meltdown of the US sub-prime market see SL Schwarcz, "Protecting Financial Markets: Lessons from the Subprime Mortgage Meltdown" Duke Law School, Research Paper No 175 (November 2007).

irrationally, overconfident that liquid markets would continue indefinitely. Market overconfidence was further refuelled by financial innovation.

Keeping with tradition during periods of market overconfidence, borrowers' credit record became a matter of secondary importance. As a result, "underwriting standards for U.S. adjustable-rate sub-prime mortgages weakened dramatically between late 2004 and early 2007"⁵⁵ and mortgages were extended to borrowers with dubious credit histories. At the same time, mortgage borrowers in the Western world, anchored to the prevailing environment of low interest rates and overconfident that rising house prices would last forever, rushed to jump on the property bandwagon.

(b) The Impact of Financial Innovation on the Credit Crunch

The US and international banks did not retain the loans advanced to US sub-prime and other housing market borrowers on their balance sheets. Most of those loans were re-packaged, utilising the originate-to-distribute model, and sold to interested investors in the capital markets.⁵⁶

The originate-to-distribute model is a method used to break down the process of credit extension from origination to ultimate financing. Starting from origination—the granting of the actual bank loan—the asset created (the borrower's obligation) is normally sold by the originator to another financial institution (the "packager"). This is subsequently merged with other similar assets ("repackaged") to create a marketable security. The most straightforward cases involved combining many mortgages to create mortgage-backed securities or residential mortgage-backed securities. The owners of these securities have a claim on the cash flows arising from the underlying mortgages. Furthermore, much more complex securities can also be created, normally called collateralised debt obligations (CDOs) or collateralised loan obligations (CLOs), which are backed by a mix of different types of bonds, loans or other assets, and may be covered by various guarantees or hedges.

In recent years the issuance of such structured credit products experienced a very significant increase.⁵⁷ Structured securities may be broken into pieces, called tranches, of varying seniority and credit quality. Each tranche is rated separately by one or more credit rating agency (CRA). Most of them obtained the highest rating of triple A.⁵⁸

Furthermore, this process normally involves the creation of a separate legal entity, which is a special purpose vehicle or special investment vehicle (SIV). The sole function of this entity is to hold the underlying mortgages (as collateral) or purchase the CDOs or the CLOs and issue claims (bonds) against itself.

⁵⁵ PWGFM, *supra* n 16, 8.

⁵⁶ *Ibid.*

⁵⁷ Bernanke, *supra* n 52.

⁵⁸ IMF, *supra* n 6, 56–59, Boxes 2.1 and 2.2.

Thus, at the end of the originate-to-distribute chain stood investors, such as hedge funds, banks, pension funds or other financial institutions, which provided the ultimate funding of the loans. The bank that advanced the original high-risk or sub-prime loans in the end had transferred most of this risk to the buyers of asset-backed securities.

Institutional investors, who bought asset-backed and other structured credit securities in order to diversify their portfolios or (more often) speculate, normally did so using money borrowed from the banks. The banks were very willing lenders because of the prevailing conditions of excessive liquidity, and the funds used their holdings of credit securities as collateral against those loans. Thus, the risk of the securitised loans returned to the banks instead of moving away from them, as it would first appear. This practice not only increased the overall leverage of the financial system, but also created the conditions for the intensification of financial instability in the course of the crisis.

Of course, as long as house prices were rising, sub-prime and other borrowers saw the value of their home equity increase. However, when house prices began to fall, default rates soared, particularly on sub-prime mortgages with adjustable rates.⁵⁹ Because sub-prime mortgages were part of the complex structured credit products sold to capital market investors, the losses associated with mortgage defaults spread throughout the financial system.

The losses from the decline of the US housing market and defaults in sub-prime mortgages also meant massive losses for hedge funds, banks and other capital market investors. This development necessitated funding calls on behalf of the banks that kept those securities as collateral for loans advanced to the funds. Hedge funds then had to sell a bigger proportion of their holdings in credit securities in a declining and illiquid market, further fuelling the downward price spiral.⁶⁰

(c) Loss Aversion, the Credit Crunch and the Global Financial Crisis

Following the collapse of the market and the realisation of the unreliability and unsuitable use of credit ratings—discussed in the next paragraph—a large number of market participants stopped trading. The resulting lack of liquidity made price discovery in the markets for structured credit products much more difficult. At the same time, a large number of financial institutions discovered that they were unable to determine the size of their exposures to structured credit products and resulting losses, as they could not accurately value those exposures. The models financial firms used for valuation were very reliant on market prices and credit ratings. They had thus not been adequately stress-tested

⁵⁹ PWGFM, *supra* n 16, 8.

⁶⁰ IMF, *supra* n 6, 11.

or were not appropriate to value complex credit securities in the absence of reliable market prices.⁶¹

What happened next was that financial institutions became concerned about the adequacy of their capital and the size of their balance sheets. In the process, they lost confidence in their assessments of the credit risk posed by other market participants that were known or suspected to hold sub-prime and other structured credit securities. This loss of confidence also spread to their assessment of counterparties' valuation practices and information about their holdings of credit securities that was not publicly available.⁶² As banks came to suffer from a combination of liquidity and balance sheet pressures and were plagued by concerns about counterparties' solvency, they became reluctant to provide other banks with term funding. Thus, the inter-bank loans market either became very expensive or dried up.⁶³ The same phenomenon appeared in markets for securitised debt.

Arguably, the disappearance of liquidity in wholesale markets was a clear manifestation of the loss-aversion bias, since the high interest rates (in the inter-bank market) and fire-sale prices offered a calculated gamble that a rational arbitrageur would have taken placing money in the markets instead of hoarding cash. Namely, banks' unwillingness to lend to each other and the disappearance of willing buyers of steeply discounted structured credits meant either that all banks were virtually bankrupt and all securitised paper worthless, thus potential lenders and buyers assumed that they would never see their money back, or that credit markets were gripped by irrational panic.

The fact that even the promise of higher than normal returns meant nothing to loss-averse market actors despite their high level of financial sophistication means that the assumption that professional investors' decisions are relatively immune to cognitive distortions is of limited value. Arguably, despite the different contexts, the disappearance of liquidity-bearing arbitrageurs from the global markets for structured credits, even on a temporary basis, constitutes as powerful an indication of the limits of arbitrage as the Royal Dutch Shell and the closed-end funds examples.

An even greater manifestation of the impact of the loss-aversion bias and herding on the escalation of the global financial crisis is the panic selling that followed the collapse of Lehman Brothers. While having grave concerns about the solvency of certain banking institutions and selling their stock was a rational reaction following the frustration of the implicit belief that governments would never allow a big financial institution to fail, indiscriminate selling was not. The markets being a zero-sum game, it was certain that, among the many losers, there were bound to be several winners. Therefore, the indiscriminate downward

⁶¹ PWGFM, *supra* n 16, 9–10.

⁶² *Ibid.*

⁶³ *Ibid.*

price spiral experienced by all financial assets was irrational, being mainly the result of the socio-psychological situations described above.

3. Financial Innovation, Shadow Banking Operations and the Global Financial Crisis

(a) Misaligned Incentives in the Originate-to-distribute Model

In principle, the originate-to-distribute model spreads risk and reduces financing costs as it affords greater access to capital to small and medium-sized borrowers.⁶⁴ However, one of the most widely cited causes of the current crisis relates to weak incentives to operate strict credit controls and provide initial and ongoing information on the quality and performance of the assets (loans) that were repackaged through the originate-to-distribute chain.

Normally, the original lender (the originator) is also responsible for carrying out due diligence regarding borrowers' creditworthiness and ensuring that the terms of the mortgage appropriately reflect the risks of the transaction. However, at the point of origination, credit controls gradually became increasingly compromised. The best-known and most serious case is that of US sub-prime mortgages. To a degree that increased over time, these mortgages were often poorly documented and extended with insufficient attention to the borrower's ability to repay.

In addition, relevant incentive structures often tied originator revenue to loan volume rather than to the quality of the loans being passed through the chain.⁶⁵ Specifically, originators were paid by reference to the amount of loans generated regardless of the repayment rate of those loans. As a result, they had every incentive to maximise the volume of loans granted independently of controls on borrower creditworthiness. However, the rate of repayment is an unmistakable indication not only of the borrower's creditworthiness but also of the value of the loan. Therefore, the end investors were deprived of any credible signs (other than credit ratings) about the real value of the (collateralised) pool of loans backing the credit securities in their portfolios.

The misaligned incentives explanation seems to have solid rational choice foundations: the system failed to provide rational actors with suitable incentives to conduct appropriate credit controls and disclose borrower information. However, it may also be readily explained by reference to behavioural factors and bounded rationality.⁶⁶ First, in the prevailing conditions of market

⁶⁴ Bernanke, *supra* n 52.

⁶⁵ Carney, *supra* n 52.

⁶⁶ This concept describes individuals' limited ability to process information because they possess "limited computational skills and seriously flawed memories". Bounded rationality was first discussed as a potential determining factor in decision-making by Herbert Simon. See HA Simon, "A Behavioral Model of Rational Choice" (1955) 69 *Quarterly Journal of Economics* 99 and "Rational

euphoria and overconfidence, falling risk premiums, a traditional measure of risk, were taken to mean actual reduction of credit risk.⁶⁷ Secondly, bounded rationality meant that, as securitisation markets grew and products became more complex, expert investors showed limited capacity for understanding structured credit products and developing tools to value them. Instead, influenced by the availability and representativeness heuristics, investors replaced rigorous credit controls and valuation mechanisms with an overreliance on credit ratings.

(b) Shadow Banking Operations (SIVs and Credit Derivatives) and the Rational Banker/Regulator Model under Conditions of Complexity

The internal and external controls of bank books that followed the eruption of the crisis in 2007 made a striking revelation about the size of banks' shadow banking operations, which strongly underscore the limitations of the rational banker and regulator model in conditions of increased complexity. First, relevant controls uncovered the vast expansion of well-concealed shadow banking operations, mainly consisting of obligations undertaken by means of credit derivatives⁶⁸ or off-balance-sheet entities (OBSEs), such as SIVs, and commercial paper conduits.⁶⁹ Secondly, while credit derivatives were a good way to offload and diversify credit risk, they did not insulate banks from it. Banking institutions often stood on both sides of massive transactions in credit derivatives through their proprietary trading desks. Therefore, the successive downgrades of structured credit securities that followed the eruption of the crisis in July 2007 meant that credit risk returned to bank books through their prior speculative transactions in credit derivatives.

Paradoxically, the very painful truth uncovered was that liability through OBSEs and credit derivatives was invisible not only to most banking supervisors and investors (bank shareholders), but also to the banks' management, who did not have a clear idea about the true value of OBSEs or the level of their exposure to them.⁷⁰

Furthermore, and with the approval of most bank regulators, most of the risk that was diversified away by means of CDS stayed very much at the heart of the global financial system, sowing the seeds of its massive destabilisation in

Choice in the Structure of the Environment" in HA Simon, *Models of Man: Social and Rational* (New York, Wiley & Sons, 1957), 261, 271.

⁶⁷ Carney, *supra* n 52.

⁶⁸ The most common credit derivatives used for this purpose are credit default swaps (CDS). These are financial contracts in which two parties agree that one party pays the other a fixed periodic coupon for the specified life of the agreement. The other party makes no payments unless a specified "credit event" occurs. Credit events are typically defined as including a material default, bankruptcy or debt restructuring for a specified reference asset.

⁶⁹ IMF, *supra* n 6, 69.

⁷⁰ *Ibid.*, 70–72.

September and October 2008. Credit risk was transferred to big insurance companies, which sold, during the period of market euphoria, CDSs of notional value that was over US \$65 trillion.⁷¹ When downgrades and defaults started at a massive level, the insurers could not cover the payouts generated by their CDS obligations, undermining further market confidence and leading the global financial system to near meltdown. This necessitated the public rescue of several big insurance companies, the nationalisation of the American International Group (AIG), the world's largest insurer, being the most prominent example.⁷²

The most striking aspect of this situation is that the transfer of credit risk to insurers was done with the approval of regulators, who did nothing to control these blind spots in global banking, relying on an irrational belief in market self-discipline. This belief should arguably be attributed to the impact of socio-psychological factors. First, market euphoria (overconfidence) and the peer pressure that this creates clearly had an impact on regulator attitudes. Regulators were reluctant to be seen as being overcautious and going against the tide of deregulation that was bringing massive profits to the bankers at the expense of systemic stability. This, of course, was exactly what they should have done to properly discharge their duties as guardians of public interest and market supervisors. Secondly, because their limited ability to effectively supervise the banking industry under conditions of high complexity due to bounded rationality, they were in no position to understand the systemic implications of CDS trading.

4. Flawed Credit Ratings

Another major cause of the global credit crisis was that the market lost confidence in credit ratings. In the decade preceding the crisis CRAs were seen as the cornerstone of the effective operation of credit markets and of the capital market activities relating to them. Investors used credit ratings in the valuation of structured credit products and in pricing them when reliable price quotations were unavailable,⁷³ which in the case of CDOs was not unusual. As a result, credit ratings came to play a key role in the "valuation of customized or illiquid structured credit products".⁷⁴

When it became apparent that even triple A tranches of some asset-backed securities and other structured credit products could face large write-downs, investors largely lost faith in credit ratings. Thus, as investors were no longer

⁷¹ S Gilani, "The Real Reason for the Global Financial Crisis . . . the Story No One's Talking About", *Money Morning*, 18 September 2008, available at <http://www.moneymorning.com/2008/09/18/credit-default-swaps> (accessed 26 November 2008).

⁷² S Foley, "US Fed Rides to the Rescue of AIG with \$85bn Bail-out", *The Independent*, 18 September 2008, available at <http://www.independent.co.uk/news/business/news/us-fed-rides-to-the-rescue-of-aig-with-85bn-bailout-934252.html> (accessed 17 November 2008).

⁷³ IMF, *supra* n 6, 55.

⁷⁴ *Ibid.*

willing to rely on ratings and unable to perform their own credit analyses, they withdrew from a wide range of structured product markets. This meant that the recycling of bank assets through securitisations to fund business expansion became almost impossible, resulting in a serious liquidity crunch.

The mega-paradox that was subsequently revealed was that all the supposedly hyper-rational and certainly highly sophisticated market participants knew very well that the ratings produced by the major CRAs suffered many shortcomings, but they did nothing to address them. First, the insatiable appetite of global markets for credit ratings and the fact that the relevant market was (and still is) highly oligopolistic, with three major agencies—Standard & Poor's, Fitch and Moodys—traditionally dominating the market, meant that the industry suffered from a serious lack of incentives to significantly stress test ratings. Secondly, the CRAs can often be subject to significant conflicts of interest, as the buyers of their ratings are, mainly, the issuers whose products they rate.⁷⁵ Over the course of the last decade, CRAs evaded several attempts to bring their operations under a formal regulatory framework, being subject to a largely voluntary code of conduct.⁷⁶ Thirdly, their methodologies were insufficiently scrutinised, because of their complexity and the lack of a designated regulator specifically assigned to the task of stress-testing the CRA ratings. Finally, asset value in the case of securities is often intrinsically linked to the marketability/liquidity of a financial product, and that factor is not measured by the CRAs.

5. Institutional Failures, Risk Management Controls and Compensation Structures

A recurrent theme in every regulatory report on the causes of the global financial crisis is the role of lax risk management controls within financial institutions. This is also an area that the G20 Summit Declaration has sought to address.

As discussed in previous paragraphs, the failures of internal risk management controls were concentrated in five areas: (i) failing credit control and borrower vetting standards; (ii) inability to properly value positions in structured credit securities; (iii) excessive reliance on credit ratings in spite of their widely known shortcomings; (iv) inadequate use of information when this was provided; and (v) ignorance of senior bank management of the true function of SIVs and thus of their institution's actual exposure to them.⁷⁷

⁷⁵ For an excellent analysis of the CRAs' paradox see SL Schwarcz, "Private Ordering of Public Markets: The Rating Agency Paradox" (2002) *University of Illinois Law Review* 1; see also HE Jackson, "The Role of Credit Rating Agencies in the Establishment of Capital Standards for Financial Institutions in a Global Economy" in E Ferran and CAE Goodhart (eds), *The Challenges Facing Financial Regulation* (Oxford, Hart Publishers, 2001).

⁷⁶ International Organisation of Securities Commissions (IOSCO), "Code of Conduct Fundamental for Credit Rating Agencies" (December 2004).

⁷⁷ PWGFM, *supra* n 16, 15.

It has already been argued here that, in spite of there being several rational choice explanations of why flawed incentives did not allow market actors to redress the discussed anomalies, several of these phenomena may also be attributed to the influence of behavioural factors. This argument is further reinforced by the flaws identified in bankers' compensation structures, which exacerbated risk-taking and institutional focus on short-term profits.

The problems with the employee–employer incentive alignment identified in a large number of global financial institutions pertained mostly to mismatches between the timing of trader compensation and the realisation of profits from their trades. The misaligned incentives extended further to insufficient recognition and compensation of risk-management professionals, and the provision of funding at risk-free rates to trading desks that placed risky bets. As a result, the structure of the compensation schemes in financial institutions encouraged excessive risk-taking without giving sufficient attention to long-term risks.⁷⁸

It is thus worth investigating whether flawed compensation structures have a behavioural explanation. Bank shareholders' and fund investors' money is managed by experts, who allocate, as agents, the money of their principals. Their interests, as in most principal–agent relationships, are not perfectly aligned and sometimes diverge considerably. While shareholders and fund investors desire, under the rational choice model, an optimal mixture of risk and return that ensures sustained profitability, bankers' and fund managers' concerns are markedly different. They have to show that their performance is equal to or better than the rest of the market.⁷⁹ Performance affects bonus payments and the bankers' and fund managers' tenure in the job.⁸⁰ Individuals who work for institutional investors are in the market in order to make money and save their jobs, not to "correct" prices. Thus, they are very likely to follow the herd,⁸¹ choosing to play the "momentum game",⁸² and conveniently forget the value of painstaking risk-management controls and the possibility of long-term market reversals. As a result, they concentrate on trades and investment techniques that

⁷⁸ FSF, "Interim Report", *supra* n 15, 4.

⁷⁹ For an analysis of the impact of the principal-agent relationship (within financial institutions) on the failure of disclosure in the market for structured credit securities see SL Schwarcz, "Disclosure's Failure in the Subprime Mortgage Crisis" Duke Law School, Research Paper No 203 (March 2008), 8–9.

⁸⁰ See J Chevalier and G Ellison, "Career Concerns of Mutual Fund Managers" (1999) 114 *Quarterly Journal of Economics* 389.

⁸¹ P Gompers and A Metrick, "Institutional Investors and Equity Prices" (2001) 116 *Quarterly Journal of Economics* 229; R Wermers, "Mutual Fund Herding and the Impact on Stock Prices" (1999) 54 *Journal of Finance* 58; see also DS Scharfstein and J Stein, "Herd Behavior and Investment" (1990) 80 *American Economic Review* 465.

⁸² DC Langevoort, "Taming the Animal Spirits of the Stock Markets: A Behavioral Approach to Securities Regulation" (2002) 97 *Northwestern University Law Review* 135, 158–59.

enable bankers and fund managers not to lag behind the market, saving their jobs and securing large compensation packages.⁸³

6. Inadequate Disclosure and Product Transparency

Inadequate disclosure has been held to be a significant contributory factor to the creation of the crisis in three contexts: (i) inadequate disclosure of risks to sub-prime borrowers; (ii) opacity of highly structured financial products, which, in turn, means two things: (1) the products incorporated very complex pricing formulas and (2) obfuscation by financial institutions of the risks associated with such products; and (iii) inadequate disclosure by financial institutions of their on and off-balance sheet exposures. The Washington Summit Declaration has underlined the commitment of the G20 members to fashion a regulatory framework that will provide for increased disclosure, enhancing the transparency of the global financial system.⁸⁴

In the context of structured credit products, inadequate disclosure and lack of standardisation meant that the market had considerable difficulty filling the gaps and properly price-structured credit products, and evaluating their risks. This built uncertainty that eventually gripped the markets, following the trigger of the credit crisis. The same uncertainty has also prevented new entrants from entering the structured products market.

However, even the inadequate disclosure explanation presents considerable behavioural elements. First, it is unlikely that sub-prime borrowers would have been able to accurately value the risks of the loans even in the event of full and accurate disclosure, due to their significant lack of financial sophistication. Secondly, the huge discounts with which structured credit products were offered to new buyers without much success means that widespread loss-aversion, rather than incomplete information, was at the root of the disappearance of liquidity. Thirdly, due to bounded rationality, it is not very likely that the risks involved in complex credit securities and OBSEs will be fully understood by investors and regulators even in the event of full disclosure.⁸⁵

7. Flawed Regulations

According to the Washington Summit Declaration, and credible policy analyses offered by the regulatory fora mentioned in Section A, flawed regulations also played a major role in the building up of the crisis. Apart from its pronounced pro-cyclicality and lack of liquidity requirements, Basle II encouraged banks to securitise low-risk assets and, importantly, to support securitisation of high-risk

⁸³ PM Healy and K Palepu, "Governance and Intermediation Problems in Capital Markets: Evidence from the Fall of Enron" (2003) 17 *Journal of Economic Perspectives* 3.

⁸⁴ See *supra* n 19.

⁸⁵ For the limited impact of disclosure on structured credit markets see Schwarcz, *supra* n 79.

assets through instruments with lower regulatory capital charges. This had two consequences. First, bank balance sheets were deprived of high-quality, low-risk assets that would provide counterparties with comfort during the crisis. For instance, this was the case with Northern Rock, which had transferred most of its high-quality loans to a repackaging vehicle called “the Granite Fund”. As a result of this transfer, the UK Treasury may never fully recover the whole of its exposure, through loans and investment, to the nationalised bank.⁸⁶ Secondly, banks resorted to excessive use of bank-sponsored SIVs, which were inadequately capitalised and lacked sufficient liquidity support mechanisms. This situation meant that liability for their funding during the crisis returned to the banks, which had to expend considerable resources on the task.

Furthermore, regulations forcing banks and institutional investors to invest only in triple A-rated assets also meant that the downgrades that followed the eruption of the crisis led to massive sales. Investors had to sell the downgraded credit products in a declining market because they had a legal mandate to invest only in credit products attracting the highest rating. However, the “crowded trades” that ensued proved very destabilising for the market because they led to a full-blown downward price spiral for structured credit securities.⁸⁷

D. REGULATORY REFORMS AGREED IN THE G20 SUMMIT

1. Overview and the Regulation of CRAs

Before and after the Washington Summit Declaration, the policy recommendations aimed at remedying the impact of the crisis and preventing its reoccurrence were very diverse. In fact, the International Institute of Finance,⁸⁸ the global representative of the investment banking industry, has suggested improved self-regulation.

However, suggestions calling for improved self-regulation have largely attracted derision, because of both the financial services industry’s failure in this area and the practical problems associated with collective action. Even middle-of-the-road suggestions for the regulation of CRAs, put forward by the Committee of European Securities Regulators (CESR), which proposed the formation of an international “standard setting and monitoring body”,⁸⁹ have

⁸⁶ P Webster, G Hurst and S Kennedy, “Northern Rock Nationalisation Runs into £49bn Granite Barrier”, *The Times*, 21 February 2008, available at <http://www.timesonline.co.uk/tol/news/politics/article3406368.ece> (accessed 10 May 2008).

⁸⁷ Carney, *supra* n 52, 4.

⁸⁸ Institute of International Finance, “Interim Report of the IIF Committee on Best Market Practices”, 9 April 2008.

⁸⁹ CESR, “Second Report to the European Commission on the Compliance of Credit Rating Agencies with the IOSCO Code and the Role of Credit Rating Agencies in Structured Finance”, CESR/08-277 (May 2008), 3–4.

been replaced by an EU Proposal Regulation. This will place the operation of CRAs in the EU on a statutory footing.⁹⁰ The Proposal requires CRAs to register with a competent regulatory authority in the EU provided that they are a legal person established in Europe. Registered CRAs will be required to appoint at least three independent directors to the board and disclose the methodologies used to produce their ratings and key rating assumptions, the historical default rates of rating categories and the general nature of their compensation policy. The Proposal also provides a framework for the prevention/management of conflict of interests, including the prohibition of registered CRAs from offering consultancy/advisory services, which create serious conflicts of interests. One innovation introduced by the Proposal Regulation is that eventual registration automatically has pan-European application. As a result, the registered CRA becomes able to operate on a pan-European basis without having to submit any further notifications.

Furthermore, the Washington Summit Declaration proposed the reform of national and international financial regulation in a number of problem areas. These proposals are analytically discussed and critically evaluated in the rest of this section.

2. International Supervision of Global Financial Institutions

The G20 Summit has endorsed FSF's proposal for the creation of a "college of supervisors" from different countries to oversee each of the largest global financial institutions.⁹¹ However, the relevant proposals present a marked lack of detail.

Moreover, suggestions have been made at various times that hedge funds should provide regulators with a list of their exposures.⁹² Each of these measures, if implemented, would be a significant improvement in terms of international supervision of global financial institutions. However, such improvement will prove insufficient to prevent those institutions from building very risky positions that may lead to a systemic crisis unless: (i) the current model of banking regulation is subjected to radical rethinking; and (ii) an international regime is established that is designed to deal with the systemic risks posed by the investment activities of international investment funds.

⁹⁰ "Proposal for a Regulation of the European Parliament and of the Council on Credit Rating Agencies", COM(2008) 704 final, 12 November 2008.

⁹¹ Washington Declaration, *supra* n 19; FSF, "Enhancing Market Resilience", *supra* n 15, 42.

⁹² For the merits and complications of such a proposal see BS Bernanke, "Hedge Funds and Systemic Risk", speech at the Federal Reserve Bank of Atlanta 2006 Financial Markets Conference, 16 May 2006. On the systemic risk implications created by hedge fund activity and possible regulatory responses see PWGFM, "Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management", Report-3097, 15 April 1999.

Furthermore, suggestions to subject hedge funds to some kind of regulation at the EU level would prove a significant improvement over the current situation.⁹³ However, such measures are also bound to prove insufficient. The hedge fund industry is a global industry and the investment mandate of most sovereign wealth funds (SWFs) is similarly global. Therefore, in the absence of a global regime for the licensing and supervision of systemically important investment funds, regional regulations would leave ample room for regulatory arbitrage that would undermine their monitoring efforts.

3. Realignment of Incentives and Improved Corporate Governance

According to most policy recommendations aimed at remedying the credit crisis and preventing its reoccurrence, one of the biggest areas of priority is the proper alignment of principal-agent incentives in the originate-to-distribute model and the pay structure of financial institutions. Suggested measures include making originators and distributors liable for first loss within the securitised pool of credits or otherwise retain exposure through reputational risk. They also implicitly ask investors to take the lead in demanding compensation structures that are more aligned with their interests.⁹⁴

The implementation of both recommendations would constitute a substantial redressing of the incentive and monitoring deficiencies that plagued financial markets in the last decade. However, as they are deeply rooted to the assumption that rational investors would act to prevent its reoccurrence following a change in incentive structures and the improvement of monitoring mechanisms, they will not prove sufficient.

One factor that could seriously undermine the actual effectiveness of the above measures is, of course, greed.⁹⁵ Banks in the era of financial innovation will inevitably invent new techniques to lay off risk and increase profit margins. Another factor is the unlimited use of securitisation. Arguably, regulators of banking institutions, which take deposits from the public and are subject to the implicit public guarantee of their liabilities, should be very concerned about the quality of banks' balance sheets. The Northern Rock case has made it clear that excessive use of securitisation can lead to a substantial weakening in the quality of the bank balance sheet, and it is hard to envisage how a realignment of

⁹³ On 23 September 2008, the European Parliament adopted the Rasmussen Report on Hedge funds and Private Equity and called the European Commission to submit to Parliament, "a legislative proposal or proposals on the transparency of hedge funds and private equity". The Rasmussen Report, inter alia, calls for capital requirements to be imposed on hedge funds. See "Resolution of 23 September 2008 with Recommendations to the Commission on Hedge funds and Private Equity", EP 2007/2238(INI).

⁹⁴ Carney, *supra* n 52, 7.

⁹⁵ The individual and collective culture of greed within financial institutions is also held to be the main cause for the failure of regulatory and institutional risk controls to prevent rogue traders. See KD Krawiec, "Accounting for Greed: Unraveling the Rogue Trader Mystery" (2000) 79 *Oregon Law Review* 301.

incentives will address this concern. Only the introduction of a mandatory limit to the percentage of bank assets that can be securitised could redress concerns over bank balance sheet health. Therefore, it is suggested in Section E that limiting the amount of assets that Tier I (loans and savings) institutions are allowed to securitise would enhance bank stability.

Moreover, due to investors' cognitive limitations, focus on short-term profit and the limited impact of learning on remedying cognitive biases, a proper realignment of compensation structures by virtue of shareholders' sustained pressure on highly aggressive/highly competitive financial institutions' management is bound to remain wishful thinking. Strong support for the assertion that improved corporate governance is not an effective solution offers the fact that many of the institutions at the centre of the present crisis maintained a US listing. As a result, they were already subject to the strictest, and most expensive, corporate governance regulation ever experienced in the modern world, because of the impact of the Sarbanes-Oxley Act.⁹⁶ Yet they still failed to have in place sound compensation structures. At the same time, regulatory intervention in bankers' pay, which is part of most public rescue packages, may only be viewed as a short-term solution. Such intervention in the longer term is plausibly viewed as a highly questionable remedy.⁹⁷ Accordingly, only a radical restructuring of the banking industry's business model may lead to a serious correction of misaligned incentives.

4. Streamlining of Supervisory and Liquidity Support Processes

The US Treasury and the UK Tripartite authorities have suggested, as a means of alleviating the credit crisis and preventing its reoccurrence, the streamlining of their very convoluted bank rescue and liquidity support processes.⁹⁸ Some of the proposals of the FSF also followed the same line. Moreover, the UK Authorities have revamped the depositor protection scheme in order to avoid another banking run such as that witnessed in September 2007.⁹⁹

Most of the above proposals constitute significant improvements over the previous regimes. However, they present a very significant weakness: they do nothing to address the issue of market homogenisation, which exacerbates endogenous risk. Arguably, only a suitable system of institutional segregation along business lines could effectively address this problem.¹⁰⁰

⁹⁶ Sarbanes-Oxley Act 2002, 15 USC §§ 7201–7266 (2002).

⁹⁷ Cf M Wolf, "Why Regulators Should Intervene in Bankers' Pay," *Financial Times*, 16 January 2008, 11.

⁹⁸ See *supra* nn 13–14.

⁹⁹ See HM Treasury, "Financial Stability and Depositor Protection: Special Resolution Regime", Cm 7459 (July 2008).

¹⁰⁰ "Conglomeration is clearly a major homogenising force too. As conglomeration proceeds risk management procedures acquire common characteristics throughout the financial sector, whether in banking, securities, fund management or insurance." Alexander *et al*, *supra* n 23, 5.

5. Enhanced Capital Adequacy, Capital Increases and Liquidity Buffers

Endorsing the FSF's proposal, the G20 Summit has called for changes to the Basle framework to make capital requirements more counter-cyclical, forcing banks to set aside larger cushions of capital in good times.¹⁰¹ The implementation of this proposal would undoubtedly improve the Basle framework and help to reduce financial institutions' leverage, which, according to the IMF, was one of the most important reasons for the crisis.¹⁰² However, this measure may also prove to be not very effective. Unless the current business model of the banking industry is altered in favour of the institutional segregation along business lines suggested below, a higher capital ratio alone will not prevent a reoccurrence of the crisis.¹⁰³

6. Improving Risk Controls and Product Transparency and Standardisation

As a means to remedying the crisis and preventing its reoccurrence in the future, the G20 Summit has called for measures to improve the transparency of financial markets, mainly by means of better and more extensive disclosure. Some of the practical measures discussed in this area include: (i) improvement in the quality of customer and trading counterparty disclosure in the mortgage markets and the imposition of safeguards for responsible mortgage selling; and (ii) overhauling disclosure in relation to structured credit products and the securitisation process. The Summit also decided to improve the market infrastructure for the trading of credit derivatives and standardisation of credit products, endorsing relevant proposals of the FSF.¹⁰⁴ The implementation of these very important measures—especially product standardisation and the operational infrastructure for credit derivatives traded over the counter—would remedy a number of infrastructural defects of global credit markets, making them safer and more efficient.

However, placing too much emphasis on disclosure will not produce the desired results due to the aforementioned behavioural factors and the increasing complexity of transactions and markets. First, the effectiveness of increased disclosure in mortgage markets may prove short-lived. Market actors' attention to what is disclosed will diminish as soon as financial euphoria returns and "behaviourally challenged" customers and bankers again start behaving in a

¹⁰¹ FSF, "Enhancing Market Resilience", *supra* n 15, 12–18.

¹⁰² IMF, *supra* n 6.

¹⁰³ It has been suggested that, in the absence of other regulatory safeguards, capital adequacy requirements cannot ensure bank stability. See JR Barth, G Caprio Jr and R Levine, "Bank Regulation and Supervision: What Works Best?", NBER Working Paper No W9323 (November 2002), 34.

¹⁰⁴ FSF, "Enhancing Market Resilience", *supra* n 15, 19–31.

reckless way. Secondly, as mentioned in section D.3(b) above, in the case of investment strategies utilising complex derivatives, sophisticated investors and regulators are not capable of fully appreciating the risks involved, even under conditions of full disclosure. Finally, disclosure is an insufficient tool when regulation targets systemic risk reduction.¹⁰⁵

E. A NEW MODEL FOR THE REGULATION OF BANKS AND INTERNATIONAL INVESTMENT FUNDS

1. The Proposal

The objectives of financial regulation in the field of credit markets are clear¹⁰⁶: minimising systemic instability and safeguarding the protection of deposits. To these, most commentators add a third: minimisation of public costs.

As discussed above, the current regulatory model proved totally inadequate to prevent the global financial crisis. Also, the forms of regulatory intervention endorsed in the G20 Summit with respect to enhanced disclosure and market transparency and the overhauling of current regulatory and risk management processes, while constituting substantial improvement, do not address the impact of the socio-psychological aspects of market behaviour, as discussed above. Therefore, more radical proposals must be considered that should also take into account the cognitive limitations of market actors. In this mode, the following subsections provide a model for the radical reform of banking regulation and the establishment of a global regime for the prudential regulation of IIFs.

(a) Redrawing the Boundaries of Banking Regulation

The proposal described in Table 1 provides a first roadmap to future regulatory initiatives that will seek to radically redraw the boundaries of banking supervision. Naturally, the appropriate bodies to decide the final shape of any future reforms endorsing the view expressed here are the G20 country authorities, with the assistance of the Basle Committee and the FSF. Arguably, if a global consensus is not reached, any policy recommendations in this field will be of limited value, as national implementation will not work for what is essentially a global industry, because of regulatory arbitrage. Therefore, the true value of the present proposal is that it provides a clear framework for the

¹⁰⁵ Schwarcz, *supra* n 26, *supra* n 28, 34–35 and 63.

¹⁰⁶ For an exposition of the market failures, such as information asymmetries, and other policy concerns, such as banking runs and the risk of contagion, which underpin banking regulation see R Cranston, *Principles of Banking Law* (Oxford University Press, 2nd edn, 2002), ch 3; R Dale, *The Regulation of International Banking* (London, Prentice Hall, 1984), ch 3.

Table 1: A New Model for Bank Authorisation and Supervision

Permitted activities	Type of license	Deposit insurance	Capital adequacy	Liquidity insurance	Prohibited activities
Deposit taking Consumer lending Mortgage lending Corporate lending Leasing Treasury & FX operations <i>Funding basis</i> (1) Deposits (2) Shareholders' equity (3) Bond issues (4) Wholesale banking markets up to a ratio over other funding sources (eg 30% of total deposits or 300% of shareholders' equity) (5) Securitisations up to a ratio over total assets (eg 30% of total assets)	Tier I savings and loans institution	Up to a limit that covers all small and medium-sized deposits Pre-funded/co-insurance scheme ^a	Basle II	Lender of last resort (inevitably at subsidised rates) but pre-funded scheme	Balance sheet securitisation not exceeding a set ratio (eg 30%) of total assets Treasury & FX operations only in connection to balance sheet management Lending to the inter-bank market up to a ratio of total deposits (eg 50% of deposits) All other regulatory restrictions in respect of large exposures etc remain applicable
Issuing of short-term bills and long-term bonds to the public Mortgage lending Corporate lending Leasing Treasury & FX operations Asset management Retail client broking services Limited ability to underwrite securities issues or take proprietary positions in the capital markets <i>Funding basis</i> (1) Short-term bills and long-term bonds issued to public savers (2) Shareholders' equity (3) Bond issues targeting the wholesale capital markets (4) Wholesale banking markets up to 100% of shareholders' equity and long-term debt (5) Securitisations up to a ratio over total assets (eg 60% of total assets)	Tier II lending bank	50% of total short-term debt issued to each saver and up to a certain numerical limit Pre-funded scheme	Basle II	Lender of last resort (inevitably at subsidised rates) but pre-funded scheme	No under-writing of securities or proprietary trading exceeding a ratio over (eg 300%) shareholders' equity All other regulatory restrictions in respect of large exposures etc remain applicable

Table 1 (continued)

Permitted activities	Type of license	Deposit insurance	Capital adequacy	Liquidity insurance	Prohibited activities
Full range of capital market activities, including: Underwriting of securities issues Trading (proprietary) in derivatives Trading (proprietary) in securities Underwriting brokerage services for retail and wholesale customers <i>Funding basis</i> Shares or bonds that may be offered to the public under the applicable public offer of securities regime or issued to the wholesale capital markets Wholesale banking markets (no restriction) Securitisation of assets (no restriction)	Tier III firm (investment bank, or investment (securities firm))	None	Basle II	Liquidity insurance from central bank or private provider at market rates	No deposit taking No short-term debt issued to the public

^aThe preference for this instead of a 100% insurance scheme regardless of size of deposits is very convincingly argued by Charles Goodhart, *supra* n 17.

establishment of pluralistic and multi-tiered regimes for the regulation of banking institutions, although the exact content of this framework is largely to be determined by the aforementioned bodies.

Cross-shareholdings between the institutions of each Tier should not exceed 20% and the same should be the highest stake held by licensed securities firms that engage into proprietary trading or underwriting activities, or international investment funds (licensed under the regime discussed below) to the share-capital of any Tier I bank. These restrictions ensure that systemic risk does not return to the savings and loans industry by virtue of substantial cross-shareholdings (ownership participations).

Finally, while the pluralistic system for the licensing and supervision of banking institutions illustrated above is a powerful mechanism for the containment of systemic risk and the avoidance of depositor runs, it remains neutral regarding the nature of the competent regulatory authority.

(b) *A Global Licensing Regime for Systemically Important Investment Funds*

The systemic importance of global hedge funds and their widespread involvement in credit markets, as well as their role in exacerbating the present crisis, has highlighted the need to design a suitable regulatory regime to deal with these highly leveraged investors. Arguably, the relevant regime may only prove successful if it has a global reach. Therefore, it is suggested that a World Investment Funds Authority (WIFA) must be established that would deal with the licensing and supervision of certain prudential aspects of the operation of systemically important international investment funds.¹⁰⁷ The same authority should supervise the investment conduct of such funds on the basis of a mandatory global code of investment conduct.¹⁰⁸ The criteria for bringing within the WIFA scheme funds engaging in investment and trading activities with an international focus should relate to the size of the fund's balance sheet and gearing ratios. Admittedly, such a scheme would prove totally ineffective if SWFs, some of which operate with substantial borrowings (leverage), were not also brought within the regulatory reach of the WIFA, despite the fact that such a suggestion could create serious political opposition and controversy.

The scheme should work on the basis of a global common passport and any funds that opt to stay outside the scheme could be legally disbarred from undertaking significant (above a specified threshold) trading and/or investment activities on markets supervised by the authorities of participating states. This would place non-member funds at a considerable competitive disadvantage over licensed funds. In keeping with suggestions for reinventing and restructuring the mission and activities of the IMF, the Fund could provide all necessary research and surveillance facilities to the new entity for a fee. The IMF could also set up a pre-funded liquidity insurance scheme for international investment funds interested in entering the WIFA scheme.

Both the long-term capital management debacle and the global credit crisis have shown that the systemic implications arising from hedge fund trading are attributable to their high leverage and the illiquidity, even if only temporary, of their positions. Therefore, given their proven systemic importance and the common admission that systemic risk¹⁰⁹ may not be diversified away, IIFs should be allowed to register with the scheme under two conditions: (i) they provide the

¹⁰⁷ This proposal should not be confused with the insightful literature and policy recommendations, developed under the tutelage of Lord Eatwell, regarding the need to establish a World Financial Authority with systemic stability responsibilities. Inter alia, see J Eatwell and L Taylor (eds), *International Capital Markets, Systems in Transition* (Oxford University Press, 2002), chs 2 and 5.

¹⁰⁸ See IMF Press Release No 08/97, "International Working Group of Sovereign Wealth Funds is Established to Facilitate Work on Voluntary Principles", 1 May 2008.

¹⁰⁹ Systemic risk is defined here as the likelihood that a series of defaults of bank counterparties can lead, within a short period of time, to banks' inability to pay their obligations to each other causing a series of institutional collapses and a possible depositors' run. See GG Kaufman, "Bank Failures, Systemic Risk, and Bank Regulation" (1996) 16 *The Cato Journal* 17, 20.

WIFA with full access to information regarding the composition and structure of their balance sheets (but not to the composition of their membership, which is a sensitive issue, especially for SWFs); and (ii) they prove that they have (1) subscribed with a new (pre-funded) global liquidity/systemic risk insurance scheme for IIFs, administered by the IMF or (2) entered into pre-funded liquidity support/systemic risk insurance arrangements provided by central banks from a G25 country or by a credible private organisation. The more leveraged the positions that the funds would wish to take, the higher the systemic risk premium that the suggested liquidity insurance scheme would consider charging them.

2. In Defense of a New Approach to Financial Regulation

The global financial crisis has exposed the catastrophic consequences of shadow banking, which, for a sustained period in 2008, threatened to bring down the international financial system and cause a global economic meltdown. In addition, the problem of homogenisation, currently observed in the global financial system, means a marked lack of pluralism in trading strategies and investment diversification, significantly increasing endogenous risk. As a result, if a similar crisis were to arise in the future, the global financial system would still be in danger of symmetrical action within itself, since the issue of homogenisation was not addressed at all in the Washington Summit.

The collapse of the global financial system was avoided this time at the very last minute and at a massive public cost. As an alternative, private funds for bank recapitalisation could have been raised by cash-rich oil-producing countries and big exporting countries such as China, which needed to invest their excessive trade surpluses through their SWFs. However, none of the above remedies might be available the next time—especially if the crisis is not preceded by a decade of strong global growth, as this one was. Therefore, unless drastic measures are taken, the next crisis of similar magnitude suffered by the global financial system may well be its last.

The policy measures endorsed in the Washington Summit will eventually lead to better risk management, disclosure, liquidity insurance and bank rescue regimes; however, for the reasons cited above, they will not be able to prevent the reoccurrence of a crisis of similar or larger severity.

Systemic instability is a very dangerous development that can cripple a country's economic life and threaten the health of the global financial system, including the surcease of payments and other transnational flows of funds, if it has international dimensions. It may also adversely affect global growth.

Moreover, hedge funds seem to cause systemic problems during any kind of market turmoil and often require the same kind of liquidity support as that offered to banks. Hedge funds proved, in the course of the crisis, particularly vulnerable to mutually enforcing funding and market liquidity spirals. In the first phase of the global crisis, hedge funds' sales to meet margin and other funding

requirements fuelled severe price declines,¹¹⁰ which in turn reinforced investors' loss of confidence, prompting further sales and thus further increasing funding pressures. The IMF maintained in April that a far-from-unprecedented increase in margins to 10%, from an initial 3%, would force the average hedge "fund to sell nearly 70 percent of its holdings",¹¹¹ even if there were no change in the fund's value and investors did not redeem the fund units or the securities they held. This calculation strongly materialised during the second phase of the global crisis, leading to severe and sudden deleveraging.¹¹²

Given the value of the public goods of global systemic stability,¹¹³ the orderly functioning of the national and global financial system, and steady economic growth, the passing of new and more radical regulations, as suggested in this paper, could have been justified on the basis of a precautionary principle.¹¹⁴ Yet this is no longer necessary. The cost of the global financial crisis is so incalculable that the approximate cost of hedge fund licensing and the approximate cost of abolition of universal banking would appear comparatively small sums.

The most serious objection to a proposal of organisational segregation of the banking business comes from empirical studies suggesting that restrictions on bank activities are not conducive to bank stability and development.¹¹⁵ It is argued that permitting banks to conduct securities and insurance activities presents several advantages¹¹⁶: (i) exploitation of economies of scale and scope in gathering and processing information about firms; (ii) risk diversification; (iii) building a diversified base of activities leads to a more stable source of income and thus more stable banks; (iv) building reputation capital with clients; and (v) increasing the franchise value of banks, thereby augmenting incentives for banks to behave prudently. It is also suggested that restricting the kinds of activity a bank may undertake hinders bank development¹¹⁷ and thus economic growth, since bank development has been found to have a positive influence on economic growth.¹¹⁸

¹¹⁰ IMF, *supra* n 6, 32–33.

¹¹¹ *Ibid.*, 22.

¹¹² IMF, *Financial Stress and Deleveraging*, *supra* n 3, 20–21.

¹¹³ For a first approach to providing a metric of systemic stability see C Goodhart and DP Tsomokos, "Analysis of Financial Stability", mimeo, LSE-FMG, 2008.

¹¹⁴ As a moral and political principle, the precautionary principle is used to support (health and safety/environmental) regulation even in the absence of scientific evidence, when there is a threat (an action or policy) that could cause very serious or irreversible harm to the public. Thus, it may justify, in certain cases, the cost of protective regulation, regardless of a cost benefit analysis. Schwarcz, *supra* n 28, 63–66 has stressed the role of the precautionary principle in justifying regulation that protects the financial system from systemic risk.

¹¹⁵ Barth *et al*, *supra* n 103.

¹¹⁶ See JR Barth, RD Brumbaugh and JA Wilcox, "The Repeal of Glass-Steagall and the Advent of Broad Banking" (2000) 14 *Journal of Economic Perspectives* 191; S Claessens and D Klingebiel, "Competition and Scope of Activities in Financial Services", mimeo, World Bank, April 2000.

¹¹⁷ Barth *et al*, *supra* n 103, 31–32.

¹¹⁸ R Levine, N Loayza and T Beck, "Financial Intermediation and Growth: Causality and Causes" (2000) 46 *Journal of Monetary Economics* 77.

Nonetheless, the above arguments/findings disregard the problem of homogenisation created by the universal banking model, which, combined with “strategic behaviour” (herding), has largely deprived the global financial system from the balance provided by investment and financial activity diversification.¹¹⁹ Arguably, effective market decoupling may only be achieved through the institutional segregation of business activity in the financial sector.

Furthermore, the arguments of Barth *et al*¹²⁰ present a number of weaknesses. First, the argument that banks which are allowed to participate in securities markets have more diversified sources of income, thereby creating financial stability, did not prove to hold significant force during the global financial crisis. Both European universal banking behemoths and Citigroup, the most diversified of the US financial services groups, faced near demise because of their credit securities market business, leading to high-profile public rescues of gigantic global financial institutions.¹²¹ Secondly, the argument that bank development positively affects growth and a restriction of bank activities affects bank development has to be weighed against the prolonged period in the second half of 2008 when, in the absence of public guarantee packages, banks either did not lend money to individuals and corporations or granted loans with very-high-interest premiums. Certainly, a liquidity crunch or a global systemic crisis can have a much stronger negative impact on growth than the positive impact of any measure that possibly facilitates bank development. In addition, a number of other arguments underline the social benefits of the suggested transformation of the banking industry’s business model, lending strong support to the present regulatory reform proposal.

First, creating banks that specialise in certain areas of business lending might mean better services for customers as well better returns to shareholders, because of the economies of scale that specialisation brings. Secondly, it has been convincingly argued and empirically tested that, while access to finance is an essential ingredient of economic growth, there does not seem to be any preference in favour of bank-based funding over market-based funding.¹²² Therefore, the size of banks may not be as important as their ability to efficiently offer intermediation services to interested users of finance. Thirdly, breaking down financial conglomerates means greater competition and lower barriers to entry. A weakened domestic financial services industry would be less able to restrict the arrival of foreign banks (though, admittedly, foreign entry into

¹¹⁹ Alexander *et al*, *supra* n 23, 5, 7.

¹²⁰ *Supra* n 103.

¹²¹ E Dash and J Creswell, “The Reckoning—Citigroup Saw No Red Flags Even as It Made Bolder Bets”, *New York Times*, 23 November 2008, A1.

¹²² T Beck, A Demircuc-Kunt, R Levine and V Maksimovic, “Financial Structure and Economic Development: Firm, Industry, and Country Evidence” World Bank Policy Research Working Paper 2423 (June 2000); RG Rajan and L Zingales, “Financial Systems, Industrial Structure, and Growth” (2001) 17 *Oxford Review of Economic Policy* 467.

domestic banking markets does enhance bank stability).¹²³ Fourthly, the abolition of universal banking would lead to fewer conflicts of interest, a situation that currently plagues the financial services industry and its reputation. Thus, it would allow banks to offer better services to their clients, thus building stronger reputations for their franchise. Finally, the policy recommendations made in this paper present several other advantages:

1. *Containing homogenisation*: segregation seems to be the only available policy tool that can lead the global financial services to decoupling and diversification of activity rather than the current homogenisation, lowering the destructive potency of endogenous risk.
2. *Choice of suitable policy tools*: containing liquidity risk is at least as crucial for the health of the financial system as avoiding bank bankruptcies.¹²⁴ The segregation suggested here makes a number of provisions for maintaining the liquidity of Tier I and Tier II banks. At the same time, the public guarantee remains in place, providing comfort to consumers, given strong doubts as to whether a private liquidity provider could meet demand under conditions of crisis.¹²⁵
3. *Deposit insurance and moral hazard*: under the suggested scheme, deposits are guaranteed. It has been suggested that all other forms of insuring bank obligations apart from a deposit insurance scheme, which normally entails an implicit public guarantee, would make the banking business unviable as it would trigger frequent crises of confidence.¹²⁶ This risk is avoided, while at the same time, the co-insurance nature of the scheme would mean that the system of publicly guaranteed deposits did not become overgenerous, causing moral hazard.
4. *Protection of public funds/prevention of free riding on the public guarantee*: segregation drastically limits the ability of banking institutions to free ride on the public guarantee, uncontrollably piling up risk as a result of the discussed above excessive speculation. Ring-fencing the loans and savings sector from excessive speculation, whether behaviourally or rationally induced, is very important. The sectors' activities play major roles: first, in providing liquidity on demand¹²⁷; secondly, in amortising financial

¹²³ Barth *et al*, *supra* n 105, 34–35. Barth *et al* conclude that “[c]ountries that do not impose severe limits on foreign bank entry enjoy greater banking-sector stability” (*idem*, 38).

¹²⁴ See DW Diamond and RG Rajan, “Liquidity Shortages and Banking Crises” (2005) 60 *Journal of Finance* 615.

¹²⁵ B Holmström and J Tirole, “Private and Public Supply of Liquidity” (1998) 106 *Journal of Political Economy* 1.

¹²⁶ DW Diamond and PH Dybvig, “Banking Theory, Deposit Insurance, and Bank Regulation” (1986) 59 *Journal of Business* 55.

¹²⁷ AK Kashyap, R Rajan, and JC Stein, “Banks as Liquidity Provider: An Explanation for the Coexistence of Lending and Deposit-Taking” (2002) 57 *Journal of Finance* 33.

burdens for individuals and businesses; and thirdly, in reducing financial risks. Access to credit is also crucial for economic growth.

5. *Complexity reduction/effective supervision*: the limits placed by the present proposal on the ability of savings and lending institutions to securitise their assets and engage in derivatives trading would drastically reduce the complexity of their operations and their ability to conduct shadow banking activities. As a result, the effectiveness of regulatory supervision would improve to a significant degree.
6. *A transparent and workable global regime for fund supervision*: the objective of the suggested regime for IIFs is not to curb the innovative instincts of the market. It just targets the social costs of IIF activities forcing them to internalise these costs. An obligation to buy liquidity insurance, for instance, would curb their ability to free ride on the implicit public guarantee enjoyed by their lender banks. At the same time, choice is not restricted. Hedge funds could still choose to trade in financial instruments with any risk profile.
7. *Lower leverage*: gearing would be lowered considerably for both banks and investment funds, because they would both need to find funds to finance, in advance and on a continuous basis, liquidity insurance schemes, as a regulatory condition for authorisation and continuous operation. Reducing the ability of financial institutions to leverage their balance sheets also limits the otherwise uncontrollable behavioural tendency of bankers and of fund managers to focus on short-term profit.
8. *Market discipline*: while regulation often creates moral hazard, as it gives the impression that market discipline is replaced by regulatory oversight, this is not a significant risk under the proposed scheme, which recognises its importance, however limited. Thus, the present proposal targets the reinforcement of market discipline incentives. For instance, the public would know that placing their savings with Tier II banks attracted only limited safety, since such savings would be insured only up to 50%. In addition, counterparties of Tier II and Tier III banks would not be able to assume that any of those institutions were too big to fail. In the same mode, the systemic risk/liquidity insurance schemes that IIFs would have to subscribe to would be no substitute for bankruptcy risk controls. Such funds could still default on their positions, increasing the importance of counterparty risk controls.
9. *Cost of capital*: while objections may be raised regarding the cost of capital and market efficiency in respect of the above proposals, they are essentially unfounded. First, investment banks do not really provide capital to corporate issuers, they just act as intermediaries, and would keep discharging that role. Secondly, in the case of universal banks, what is currently done internally would be done on the basis of external

contracting, raising slightly transaction costs. For instance, in the case of underwriting they would need to borrow funds at the market rate, instead of free riding on the low-cost funds ensured by their big deposit base.

F. CONCLUSION

The global financial crisis has shown that the systemic threats posed by irresponsible practices within the financial services industry can cause the collapse of the international financial system. However, the reform proposals endorsed in the Washington Financial Summit are not far reaching enough. Because of the behavioural factors discussed above, many of the Washington Summit's reforms will prove insufficient to prevent excessive risk taking. This will especially be the case during the next period of market euphoria, when market actors will be paying little attention to levels of market transparency, product comparability and disclosure.

This article has argued for a new global regulatory consensus with respect to the radical redrawing of the current model of national and international financial regulation. It has proposed mandatory institutional segregation for the banking industry along business lines. Under the suggested model, the high-risk/high-return investment activities would remain outside the ambit of the implicit government guarantee, enjoyed by the savings and loans industry, limiting the scope for free riding on it. Banking institutions engaging in higher risk activities would be obliged to buy expensive liquidity insurance and would have limited access to the cheap funding basis that deposits provide. These measures would curb their speculative instincts and lower leverage. Arguably, the combined outcome of the suggested measures would be a safer banking industry, better consumer service and a higher degree of systemic stability.

The current crisis has also focused regulators' and policy-makers' minds on the systemic importance of international investment funds. The article has suggested the establishment of a global licensing and supervisory scheme for IIFs. The rule-making and supervisory functions of this scheme should be discharged by a new global financial authority.

The debilitating consequences of the financial crisis on the global economy and the extreme fragility of the global financial system have proved beyond doubt that doing much of the same is a gamble that western governments can ill afford to take! Therefore, this is the right time to advance an agenda of radical regulatory reform, seeking to replace the failed model of financial regulation with a new orthodoxy that will both liberate the creative forces of the market and contain social costs.