SUBMISSION DRAFT:

Redesigning Financial Regulation to Achieve Macro-prudential Objectives:

A commentary on some of the regulatory challenges

Essay

Kern Alexander

Introduction

The origins of the financial crisis of 2007-2009 has attracted a great deal of academic and policymaker commentary with most observers agreeing that the crisis was triggered by a liquidity crisis in the wholesale securities debt markets which later intensified with the collapse of Lehman Brothers and other banks, resulting in costly regulatory interventions and taxpayer bailouts.[1] International regulatory reform efforts have identified macro-prudential regulatory and supervisory weaknesses that allowed financial institutions to expand their balance sheets, along with their leverage, without regard to risks that were building up across the financial system.[2] Central bankers failed to understand the linkages between monetary policy and prudential financial regulation and in particular how accommodative interest rate policies can cause asset price bubbles and high levels of leverage in the financial system which can result in a severe economic downturn.[3] The prevailing approach to prudential regulation was essentially micro-prudential, that is, it was concerned mainly with the stability of individual financial institutions, and the management of risks on bank balance sheets, whilst ignoring structural risks across the financial system, such as asset price correlations, aggregate levels of leverage, and counter-party credit and liquidity risks in wholesale

[1] M. Brunnermeier, A. Crockett, C. Goodhart, A. Persaud, and H. Shin (2009), *The Fundamental Principles of Financial Regulation*, Geneva Reports on the World Economy 11, (Geneva: International Centre for Banking and Monetary Studies) p. 18. See K. Alexander, J. Eatwell, A. Persaud and R. Reoch (2007) 'Financial Supervision and Crisis Management in the EU' (Brussels: European Parliament). See also *Financial Crisis Inquiry Report*.

[2] See generally 'The Quest for International Law in Financial Regulation and Monetary Affairs', *Journal of International Economic Law*, Vol. 13, no. 3 (Sept. 2010) pp. 525-955,

[3] See Transcripts of the Meeting of the Federal Open Market Committee of the Board of Governors of the Federal Reserve System, (7 Aug 2007). The minutes reveal that the members of the Open Market Committee did not understand the nature of the systemic risks that had built-up in the financial system and the impact on the macro-economy. For example, Committee Vice Chairman, Donald Kohn, stated that '[m]y forecast for the most likely outcome for output over the next few years is. . . growth a little below potential for a few quarters, held down by the housing correction, and the unemployment rate rising a little further.' He further added '[t]he most likely outcome (of the financial crisis) is that it will be limited in duration and effect.' Ibid

securities and derivatives markets, and the role of interest rates and exchange rates in propagating these risks across markets and countries[4]. The main focus of macro-prudential regulation, in contrast, is to mitigate systemic risks across the financial system, which involves recognising the linkages between institutions and investors across markets and the risks embedded in complex financial instruments and the infrastructure of the financial system. Macro-prudential supervision could include, for example, monitoring cross-border capital movements and exchange rates, interest rates, and the rate of growth of credit and the money supply relative to the rate of the growth in the broader economy. The design of macro-prudential regulation will have important implications for the prudential regulation of financial markets and whether regulators and supervisors can meet their financial stability objectives in the post-crisis international financial system.

The crisis and the need for macro-prudential regulation

The global credit and financial crisis that began in 2007, intensified in 2008 with the collapse of Lehman Brothers, and became a sovereign debt crisis in 2010, has been the subject of much debate and analysis. The causes of the crisis have been attributed to over-expansive monetary policies in developed countries which led to a property and share price bubble in the United States, the United Kingdom and many other developed countries. Other factors which induced the crisis include bank pay structures which rewarded speculative trading and the design of complex investment instruments which were based on high levels of leverage. Most large banks and financial institutions failed to measure and manage the risks to which their highly-leveraged balance sheets were exposed. Regulators and supervisors also played a role by failing to require that banks hold adequate levels of capital while also failing to detect the serious liquidity exposures of financial institutions in the wholesale funding markets and the dramatic build-up of leverage in the financial system. Financial innovation took the form of securitisation, special purpose vehicles, structured investment vehicles, and other financing conduits which were used to avoid regulatory requirements and to drive up leverage in the financial system. The limited liability ownership structure of banking and other financial companies created incentives for shareholders to demand higher risk-adjusted returns which led to dangerously high levels of risk in the financial system. Also, credit rating agencies underestimated and under-priced the risks of structured finance

[4] Brunnermeier *et al*. *The Fundamental Principles of Financial Regulation*, pp 19-20..

products, and individuals were allowed by regulators and banks to take on excessive levels of indebtedness to purchase homes.

Few observers paid attention to systemic risks which had arisen from global structural imbalances and short-term foreign exchange risks arising from the carry trade. A synchronised economic boom led to excessive liquidity. This was exacerbated by perverse regulatory incentives created by international soft law standards such as Basel I. Although Basel II enhanced regulatory capital requirements for certain financial instruments, it was pro-cyclical and its credit and market risk models failed to take account adequately of correlations between different asset classes and liquidity risks.[5] Inter-connected financial agents and institutions in the capital markets trading in collateralised debt obligations and credit default swaps contributed significantly to systemic risk. Moreover, accounting standards impeded adequate provisions and valuation of assets when wholesale markets suddenly collapsed.

In addition, the crisis management measures of the G10 regulators and central banks failed to manage the fall-out from the crisis. Central banks, including the Bank of England and the Board of Governors of the Federal Reserve, were slow to recognise dangers from the collapse of confidence in interbank markets in late 2007.[6] Developed countries failed to learn from the 1990s Asian crisis and the Scandinavian and Japanese crises of the early 1990s that losses must be recognised early and bad assets on bank balance sheet must be separated from

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[5] The Basel II regulatory framework allowed banks to devise models that relied on their own internal default data and statistical value-at-risk models to determine regulatory capital. Banks were already using these models before Basel II was adopted to calculate their economic capital. The financial crisis demonstrates how these models failed to take account of the liquidity risks and counter-party credit risks in the wholesale debt markets while underestimating correlations across asset classes in the mortgage-backed securities market.[5] These factors contributed significantly to an undercapitalisation of the banking system which weakened its ability to absorb losses when the crisis began. See K. Alexander, 'Rebuilding International Financial Regulation', *Journal of Banking Law* 23 (5) (2011) pp. 337-344

[6] In March 2007, At a time when US mortgage loan defaults were increasing sharply and when mortgage lenders were going out of business, Federal Reserve Chairman Ben Bernanke testified before the US Congress that '[t]he impact on the broader economy and financial markets of the problems in the subprime market seems likely to be contained.' See also Federal Open Market Committee of the Board of Governors of the Federal Reserve System, above n 3, Transcript of Minutes of Meeting of 7 August 2007, with Ben Bernanke stating after the crisis had begun '[m]y own feeling is that we should try to resist a rate cut until it is really very clear from economic data and other information that it is needed,' and he went on 'I'd really prefer to avoid giving any impression of a bailout or a put, if we can'. See also William Poole, President of the Federal Reserve Bank of St Louis, stating '[m]y own bet is the financial market upset is not going to change fundamentally what's going on in the real economy'. Based on these comments, it is apparent that US central bankers had no understanding of the risks afflicting the financial system nor how to respond to the crisis once it began.

viable assets through the use of 'bad' banks.[7] Market panic and the collapse of confidence in counterparties should have triggered faster official guarantees.[8] US authorities failed to control the fall-out from the Lehman Brothers collapse and most European states had inadequate resolution regimes and were unable to restructure the balance sheets of their largest and most systemically important banks. The fallout from the financial crisis has raised issues concerning the scope and role of international economic law in financial regulation.[9]

Micro-prudential supervision and international financial regulation

Before the crisis, micro-prudential regulation and supervision mainly involved a focus on individual financial institutions and their investors and how they managed balance sheet risks in a liberalised financial system where capital movements, interest rates and exchange rates were (and remain) deregulated. Although micro-prudential regulation had been utilised by many national regulators prior to the 1970s, it became a primary focus of bank supervisors in the 1970s after countries began to dismantle macro-prudential controls that had been used to maintain the Bretton Woods fixed exchange rate regime.[10] Micro-prudential regulation was premised on the notion that if bank supervisors could ensure that banks and other financial firms were managing their risks well on an individual basis they would not only be profitable and stable but that systemic risks across the financial system would be negligible.

During the Bretton Woods era, it was necessary for national authorities to maintain macroeconomic controls, such as limits on cross-border portfolio capital movements and on foreign exchange rate convertibility and operational restrictions on the banking business. These controls were deemed necessary to ensure that credit growth and other financial market activities did not undermine or put at risk the government's management of exchange rate

[7] See Mariko Fujii and Masahiro Kawai (2012), 'Lessons from Japan's Banking Crisis – 1991-2005' in K. Alexander and R. Dhumale, *Research Handbook on International Financial Regulation,* pp. 259-284 (Cheltenham: Edward Elgar).
[8] It was not until December 2007 after the crisis had intensified that the US government established the Term Auction Loan Facility, the first in a series of government subsidised loans to the financial sector.
[9] See C. Tietje and M. Lehmann, 'The Role and Prospects of International Law in Financial Regulation and Supervision', *Journal of International Economic* Law, Vol. 13, no. 3, pp. 663-682.
[10] The International Monetary Fund had administered the exchange rates of the major reserve currencies by pegging their value to the US dollar and in turn pegging the US dollar's value to the price of an ounce of gold. During this period, the IMF also used its powers of surveillance to ensure that IMF member countries were complying with their obligations under the fixed exchange rate regime and used its power of conditionality to require (mainly) developed countries who were experiencing economic imbalances and who sought short-term financial relief to make adjustments to rebalance their economies, including in some cases to change the par value of their exchange rates. See K. Alexander, R. Dhumale and J. Eatwell (2005), *Global Governance of Financial Systems,*(Oxford Univ Press) pp. 41-42.

and interest rate policies to serve broader economic growth. In contrast, the micro-prudential regulatory rules and supervisory practices that emerged after the Bretton Woods period focused on how individual firms managed their balance sheet risks, but failed to appreciate the effects of their risk-taking on the broader financial system and economy and how the structure of the financial system – the interconnectedness of banks and other financial firms and correlations in asset prices and investor behaviour - could propagate systemic risks across the financial system.

The lifting of macro-prudential controls in the post-Bretton Woods system was a dramatic shift of financial policy and regulatory attitudes away from the notion that the financial system was to be tightly regulated and utilised as an auxiliary to serve broader economic policy objectives to a liberalised model of financial governance in which it was presumed that banks and their investors could do more to support economic growth by following their own self-interests of greater revenues and profits unrestrained by macro-prudential controls. Bankers and investors were presumed to understand the risks they were taking on through increased leverage and transferring risks away from regulated institutions to off balance sheet entities that were not subject to prudential controls and that the systemic risks of any miscalculation would be minimal.

Throughout the 1970s and 1980s the IMF and OECD pressured countries to lift macro-prudential controls by liberalising their current accounts in order to attract increased foreign capital portfolio investment. The IMF used conditionality to pressure both developed[11] and developing countries to reduce inflation by limiting the money supply and increasing interest rates to control inflation and to reduce government budget deficits, even if it resulted in lower unemployment and lower economic growth. IMF conditionality grew substantially in scope and usage in the 1980s and 1990s as it became a major policy instrument to pressure countries into deregulating their financial systems and liberalising macro-prudential controls, such as capital account convertibility.[12] The increasing openness of global capital markets – especially debt markets – allowed large US, European and

[11] The IMF used the 1976 sterling crisis to pressure the United Kingdom to undertake internal economic adjustments that prioritised controlling inflation over economic growth policies, reducing government deficits and accepting higher unemployment and reducing corporate taxes. Kevin Hickson, *The IMF Crisis of 1976 and British Politics* (2005)(London: I.B. Taurus) pp. 132-36.

[12] See Randall Stone, 'The Scope of IMF Conditionality' *International Organizations* 62 (4) (Fall, 2008), pp. 589-620. The IMF further used conditionality to pressure sovereign debtors in less developed countries to cure arrears on their debts to private banks based mainly in the United States and Europe. The IMF refused to provide more loans to countries who had not undertaken macro-prudential austerity measures (ie., tax increases and government spending reductions).

Japanese banks to grow dramatically in size and in the scope of their operations and interconnectedness across financial markets. Moreover, the value of foreign financial assets as a percentage of GDP increased substantially for a large number of countries from 36% in 1980 to over 110% in 2004,[13] whilst the value of foreign exchange trading exceeded the value of foreign exchange reserves for all governments.[14] Finally, it should be noted that the post-Bretton Woods era has been accompanied by a large increase in the number of banking, currency and sovereign debt crises in comparison with the number of such crises that occurred during the Bretton Woods period.[15]

The changing philosophy of financial regulation: micro-prudential to macro-prudential

The micro-prudential approach to regulation and supervision has been predominantly concerned with the stability of individual financial institutions and their responses to exogenous risks.[16] However, by focusing on individual institutions, such forms of regulation tend to ignore the impact of financial institutions' risk-taking on the broader financial system. For example, the micro-prudential approach often failed to incorporate into regulatory assessments the impact of a bank's size, degree of leverage and interconnectedness with the rest of the financial system. Moreover, bank supervisors generally assumed that banks were primarily exposed to exogenous risks, that is, risks that are generated externally to the bank's operations, and that any change, for example, in their credit or market risk exposures would require them to make balance sheet adjustments (ie., by buying or selling assets) in a more or less similar manner. Although each bank individually might be adjusting their balance sheet risk in a prudent manner, the cumulative effect of all banks acting in the same manner would be to increase system-wide risks across the financial sector. This could have the effect of exacerbating a market upturn or downturn. Indeed, *the Turner Review* (2009),[17] published in the aftermath of the crisis, argued that this sort of regulation mistakenly and fatally relied on an underlying philosophy and ill-placed faith in market prices as accurate indicators of risk,

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[13] See Andrew Glynn, *Capitalism Unleashed,*(2008, Oxford: Oxford Univ Press) p. 66.

[14] See Mark Mazower, *Governing the World: the History of an Idea* (2012) (New York: Allen Lame) p. 350.

[15] See Barry Eichengreen and Michael Bordo, 'Crises Then and Now' asserting that between 1945 and 1971 there were just 38 banking or currency crises in the world economy, whereas between 1971 and 1997 (post-Bretton Woods) there were 139 crises.

[16] See Brunnermeier, Crockett, Goodhart, Persaud, and Shin (2009), *supra note* 1, *The Fundamental Principles of Financial Regulation*, pp. 31-33.

[17] UK Financial Services Authority, *The Turner Review: A Regulatory Response to the Global Banking Crisis* (UK Financial Services Authority, March 2009) <http://www.fsa.gov.uk/pubs/other/turner_review.pdf> accessed 7 August 2013.

while financial innovation was viewed to be wholly beneficial. In seeking to regulate at the level of the individual institution, regulators failed to take account of a number of internal amplifying processes which perpetuate the failure of one financial institution through affecting other institutions' balance sheets.

The financial crisis demonstrates the need to enhance the micro-prudential regulatory approach to include broader oversight of risks across the financial system and a concern for taking supervisory measures that support the stability of the financial system as a whole and account for the interconnectivity of financial institutions and their effects on the global economy in times of crisis.[18] Macro-prudential regulation consists of three main areas: 1) adjusting the application of regulatory rules to institutions according to developments in the broader economy (ie., countercyclical capital requirements)[19]; imposing economy-wide controls on the financial sector to limit aggregate risk-taking (ie., capital controls to limit foreign exchange risk or system-wide leverage limits); and prudential requirements for financial infrastructure or firms providing infrastructure services (ie., capital requirements for derivative clearing houses). An extensive literature has arisen analysing these different areas of macro-prudential regulation. However, the implications of macro-prudential regulation and supervision for international economic law and international financial regulation have not been analysed. What is clear in the macro-prudential regulatory literature thus far is the need to strike a balance between macro-prudential regulation and micro-prudential regulation: both are necessary for maintaining financial stability and the conditions for sustainable economic growth.[20]

Despite the enthusiasm for macro-prudential regulation, it is certainly not a panacea, as it does not eliminate credit cycles in an economy. Nor does it address regulatory failure and government subsidies for banks and financial firms which create moral hazard and can induce unsustainable risk-taking. Moreover, there is an inadequate appreciation of how

[18] See 'Report of the High Level Group on Financial Supervision in the EU', chaired by Jacques De Larosiere (Brussels: EU Commission)(25 Feb. 2009). See also 'The Turner Review' (Mar. 2009), supra note 25, (London: UK Financial Services Authority).

[19] Under the Basel III "Pillar 2" system, states have discretion to impose a range of measures, including additional capital requirements, on individual institutions or groups of institutions in order to address higher-than-normal risk. Therefore, theoretically, national supervisors should be able to impose higher requirements if they so wish. Experts have observed that countercyclical buffers could be difficult to implement. See M. Brunnermeier, A. Crockett, C. Goodhart, A. Persaud, and H. Shin (2009), *The Fundamental Principles of Financial Regulation*, Geneva Reports on the World Economy 11, (Geneva: International Centre for Banking and Monetary Studies), chap 4 (discussing design of counter-cyclical regulation).

[20] For instance, Stefan Ingves (2011) writes that they should reinforce, rather than conflict, with one another, and Brunnermeier *et al* argue that the two areas of regulation should interact more. See Brunnermeier et al., (2009), p. 33.

monetary policy and financial regulation should interact to prevent unsustainable credit cycles.

In the end, whereas the macro-prudential approach focuses on risks across the financial system as a whole, regulatory and policy measures must be introduced at the level of individual banks. The micro-prudential approach is focused on the individual bank and is largely rules-based and back-ward looking; it involves regulators asking themselves how best to handle a single bank if it falls into serious trouble.[21] In contrast, the macro-prudential approach is largely forward–looking and involves the regulator monitoring risks in the market and forecasting how they might evolve in the future; it requires discretionary authority to take measures that address risks that may not threaten the market today but which may lead to substantial risks in the future.[22] Despite these different approaches, micro-prudential regulation and supervision *and* macro-prudential regulation and supervision are not mutually exclusive.[23] Indeed, by recognising the links between micro-prudential and macro-prudential regulation, a more coherent and effective framework can be developed for mitigating excessive risk-taking in financial regulation.

Shadow banking

Macro-prudential regulation should also focus on the 'shadow banking' system where financial intermediation occurs outside the formal banking sector by non-bank financial firms which engage in maturity transformation and take on leverage by issuing debt-linked instruments to generate capital to invest in longer-term assets. Of particular concern are intermediaries involved in the money and credit creation process. Regulatory instruments should aim to affect the balance sheets of financial institutions by limiting the aggregate level

[21] Prudential Regulation Authority, *The Prudential Regulation Authority's Approach to Banking Supervision* (Prudential Regulation Authority, April 2013), p. 5 <http://www.bankofengland.co.uk/publications/Documents/praapproach/bankingappr1304.pdf> accessed 7 August 2013. See also: Paul Tucker, ` Macro and Microprudential Supervision` (Speech at British Bankers' Association Annual International Banking Conference, London, 29 June 2011), pp. 4-5 <www.bankofengland.co.uk/publications/Documents/speeches/2011/speech506.pdf> accessed 7 August 2013.

[22] As Goodhart has noted, it involves the regulator '[asking] themselves how to protect the system of banks, conditional on another bank, perhaps one of the biggest and most inter-connected, having already failed.' See CAE Goodhart (2013), 'Bank Resolution in Comparative Perspective: What Lessons for Europe?' *unpublished paper* p.10.

[23] Financial regulation is generally defined as the promulgation and development of rules, standards and guidelines that govern behaviour in financial markets (ie., the adoption of bank capital rules), whereas financial supervision refers to the discretionary function of monitoring and assessing risks in financial markets, including whether to authorise or de-authorise firms or individuals, or to investigate breaches of regulation and if necessary to bring enforcement actions including imposing sanctions.

of leverage and maturity mismatch in the financial system as a whole. These controls could be tightened during periods when there are asset price bubbles (when asset prices exceed trend economic growth) and relaxed when the economy or financial sector slumps.

The existence of other, non-bank financial institutions therefore imposes a constraint on the ability to place requirements on banks, as there is a danger of risky activities moving into non-regulated sectors. However, this also suggests that it may make sense to consider reforms across the sector as a whole, rather than focusing too much on particular types of institutions. Indeed, Goodhart takes the view that there should be a degree of harmonisation of "margin controls" such as capital ratios, saying that:

> "*There is a 'level-playing-field' argument between institutional arrangements within countries, as well as between countries. The imposition of (asymmetric) penalties (taxes) on the most visible, largest and probably the most efficient intermediaries (i.e. the banks) may have an increasing effect in diverting such intermediation towards less visible, and possibly less efficient channels*." [24]

International Regulatory Reforms and the Financial Stability Board

The financial crisis has triggered intense efforts internationally, regionally and nationally to enhance the monitoring of systemic stability and to strengthen the links between macro- and micro-prudential oversight, supervision and regulation.[25] The design and implementation of macro-prudential oversight and regulation at the international level concerns practical policy and legal issues involving the operation of the newly created Financial Stability Board and the need for it to adopt effective standards of macro-prudential regulation.[26] The creation of the Financial Stability Board has not yet demonstrated that it is a meaningful institution for enhancing the macro-prudential focus of international financial regulation. Although the FSB has been engaged with micro-prudential reform issues, its efforts so far do not inspire confidence that more adequate macro-prudential measures are being adopted at the international level.

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[24] Ibid

[25] Note, however, the *de Larosière Report*, para 230 suggesting that, over the medium term, thought should be given to establishing a full international standard-setting authority, established by treaty, with binding legal powers.

[26] The most recent embodiment of an international financial soft law institution is the Financial Stability Board (FSB). The FSB consists of twenty six member countries, the European Central bank and the International Monetary Fund. The representatives of FSB member countries are the same as that of the Basel Committee. http://www.financialstabilityboard.org/about/overview.htm (last accessed 15 Jan 2012).

The Financial Stability Board[27] is the international body that has been given the responsibility by the G20 to develop international financial standards that control systemic risk and provide more effective oversight of the global financial system.[28] The FSB has adopted twelve key standards for sound financial systems, all of which are legally non-binding soft law but nevertheless are expected to be incorporated into the national regulatory regimes of all countries.[29] Since its establishment, the FSB has been addressing a diverse range of regulatory issues. For example, it has taken some of the work of the Financial Stability Forum forward by overseeing reviews of the system of supervisory colleges to monitor each of the largest international financial services firms.[30] It has developed guidance notes and draft bank recovery and resolution plans to assist with its advice to national authorities for implementing the FSB Principles for Cross-Border Cooperation on Crisis Management.[31] It has established Principles for Sound Compensation Practices,[32] and has coordinated with other international financial bodies such as IOSCO to develop a consistent regulatory framework for the oversight of hedge funds.[33] It is also overseeing the emergence of national and regional frameworks for the registration, regulation and oversight of credit rating agencies and encouraging countries to engage in bilateral dialogues to resolve home-host country issues, involving inconsistencies and disagreements that may arise because of different regulatory approaches.

Reforming and Restructuring Financial Supervision along Macro-prudential lines

The crisis has led to significant changes in regulatory standards, stricter supervisory practices, and institutional restructuring of financial regulation. Nevertheless, weaknesses

[27] The Financial Stability Board is an institutional continuation of the FSF and has continued more or less to follow similar financial policies and regulatory approaches that are market-based and sensitive to the needs of the major international banks.

[28] The FSB was formally created in April 2009 by the G20 Heads of State, See G20, 'London Statement' (2 April 2009) para. 15. The G20 Washington Action Plan and the London & Pittsburgh Summit Statements on strengthening the financial system reaffirm the policy recommendations of the Financial Stability Forum's (FSF) April 2008 and 2009 Reports that provided a roadmap on financial supervision and regulation, and set forth principles for a more robust supervisory and regulatory framework based on new rules not only for financial institutions but also other actors, markets and supervisors.

[29] The list is published at http://www.financialstabilityboard.org/cos/key_standards.htm

[30] See G-20/FSB protocol to establish colleges of supervisors for all major cross-border financial institutions.; Reports of the Financial Stability Board to G20 Finance Ministers and Governors, *Overview of Progress in Implementing the London Summit Recommendations for Strengthening Financial Stability* (FSB September Report 2009) 2-3 and (FSB November Report 2009), 13, Other FSB initiatives include its principles for cross-border cooperation on crisis management (2009). The Basel Committee and FSB have also established a task force to review the practices of colleges.

[31] FSB November Report, 14.

[32] FSB Principles for Sound Compensation Practices: Implementation Standards (September 2009).

[33] FSB November 2009 Report, 11-12.

remain. Basel III continues to allow global banking groups to use risk-weighted internal models to calculate credit, market, and liquidity risks that rely on historic data and risk parameters that are based on individual bank risk exposures and not to systemic risk across the financial system. [34] Although Basel III contains higher core tier one and tier one capital requirements, liquidity requirements and a leverage ratio, it remains essentially dependent on risk-weighted models that were proven to be unreliable prior to the crisis because of their disproportionate focus on risk management at the level of the individual firm. As discussed above, the G20 and the Financial Stability Board have adopted the overall objective of reconstructing financial regulation along macro-prudential lines. This requires not only stricter capital and liquidity requirements for individual institutions, but also monitoring risk exposures across the financial system, including the transfer of credit risk to off-balance sheet entities and the general level of risk across the financial system. For example, the G20/FSB objective of requiring systemically significant financial instruments (ie., OTC derivatives) to be traded on exchanges and centrally cleared with central counterparties is an important regulatory innovation to control systemic risk in wholesale securities markets. Also, systemically important financial institutions will be subjected to more intensive prudential regulatory requirements, including higher capital requirements and more scrutiny of their cross-border operations.

In addition, the wide scope of macro-prudential regulation will require a broader definition of prudential supervision to include both *ex ante* supervisory powers, such as licensing, authorisation and compliance with regulatory standards, and *ex post* crisis management measures, such as recovery and resolution plans, deposit insurance and lender of last resort. Indeed, the objectives of macro-prudential regulation – to monitor and control systemic risks and related risks across the financial system – will require greater regulatory and supervisory intensity that will necessitate increased intervention in the operations of cross-border banking and financial groups and a wider assessment of the risks they pose. The broad area of recovery and resolution will necessarily involve authorities in restructuring and disposing of banking assets and using taxpayer funds to bailout and provide temporary

[34] Basel III requires an increased level of Tier One regulatory capital to 7.0% (including a capital conservation buffer), a tighter definition of tier one capital to include only ordinary common shares, an additional 2.5% countercyclical capital ratio (yet to be determined for implementation); and liquidity requirements that include a ratio for stable wholesale funding, liquidity coverage ratios, and an overall leverage ratio. Recent the Basel Committee has agreed on an additional capital charge of up to 2.5% regulatory capital for large and inter-connected systemically important financial institutions (SIFIs).

support for ailing financial institutions. Indeed, the Financial Stability Board has stated in its *Key Attributes of Effective Resolution Regimes* that:

> *"[t]o improve a firm's resolvability, supervisory authorities or resolution authorities should have powers to require, where necessary, the adoption of appropriate measures, such as changes to a firm's business practices, structure or organisation […] To enable the continued operations of systemically important functions, authorities should evaluate whether to require that these functions be segregated in legally and operationally independent entities that are shielded from group problems."*[35]

The exercise of macro-supervision and regulation along with overseeing recovery and resolution programmes will require a greater role for host country authorities to ensure that the risk-taking of cross-border financial groups complies with the host country's macro-prudential objectives. Most host countries will be able to achieve macro-prudential objectives in part by utilising traditional tools of macro-economic policy – exchange rates, interest rates and fiscal policy – and by applying traditional tools of micro-prudential supervision. However, under the FSB/G20 proposals, countries will be expected to intervene in a bank's or financial firm's business practices at an early stage to require prompt corrective action to comply with regulatory requirements and if necessary to alter the organisational structure of the institution by requiring, for instance, that the local operations of a cross-border bank be placed in a separately capitalised subsidiary or independent legal entity so that the local operations of a large systemically important institution could be compelled to undergo a restructuring and/or recapitalisation by local authorities. Indeed, a key element of any bank resolution regime is that the local authority can have tools at its disposal to intervene in bank management (ie., restrict dividends), restructure creditor claims or use taxpayer funds to recapitalise a systemically important institution or facilitate the transfer of assets to a private purchaser in a bank insolvency.

In addition, to enhance prudential oversight of cross-border financial groups, the Financial Stability Board has encouraged host state supervisors to participate in supervisory colleges to oversee the cross-border operations of financial groups. The main function of

[35] FSB Key Attribute 10.5.

colleges will be to exchange information between supervisors, coordinate communication between supervisors of the financial group, voluntary sharing and/or delegation of tasks, joint decision on model validation (eg., Basel II/III). The colleges will also be involved in joint risk assessment and joint decision on the adequacy of risk-based capital requirements. The planning and coordination of supervisory activities for the financial group and in preparation of and during emergency situations (ie., crisis management).

The use of supervisory colleges is expected to modify the existing principle of home country control with limited host country intervention of a bank's cross-border operations by recognising that host authorities should play a greater role in approving the risk models and engaging in other supervisory practices of cross-border banking groups. This is a departure from existing principles of home–host coordination under the Basel Concordat and the Basel Accord which places most of the responsibility for supervising the cross-border operations of a banking group with the group's home country supervisory authority.[36] For example, the global banking group's risk models are ordinarily assessed and approved by the home country supervisory authority and applied on a global basis without much adjustment by host country authorities regarding cross-border risk exposures. By contrast, international regulatory regimes should encourage host country regulatory authorities to exercise greater powers to implement macro-prudential tools to control excessive risk-taking by global banking groups. For instance, national regulatory authorities should require cross-border banking groups to maintain subsidiaries in every jurisdiction where they have significant operations and to hold minimum capital in these subsidiaries. This would have the effect of subjecting the global bank's risk management practice to a local assessment by the host supervisor that would require the bank to show how its local operations are holding adequate capital and liquidity that are appropriate for the host country's macro-prudential objectives. This would result in global banking groups moving away from a centralised approach to risk management at the global level to a decentralised approach for measuring and managing risks at the national or host state levels. This would have important implications for Basel III's present approach to cross-border supervision that encourages and rewards global banking

[36] Essentially, Basel II and Basel III are based on a home country regulatory control model that encourages cross-border banks to adopt centralised risk models based on data calculated and assessed by risk managers at the level of the banking group to be applied (without much adjustment) on a global basis for measuring and managing the banking group's risk-taking. Although not legally binding, these principles support limiting a host country supervisory authority's discretion to apply prudential regulatory controls to a foreign bank's operations in the host country. See discussion in K. Alexander, R. Dhumale and J. Eatwell (2006) *Global Governance of Financial Systems: the International Regulation of Systemic Risk* (OUP) pp. 27-38.

groups with more favourable capital and liquidity requirements for centralising and consolidating risk management and measurement in the jurisdiction (or the jurisdictions) where the banking group is based.

Moreover, macro-prudential regulation will necessarily involve the application of regulatory requirements to fit the particular attributes of the local economy where the banking group operates. There is no one size fits all macro-prudential regulatory approach. Moreover, macro-prudential regulation is not well defined in practice and there needs to be a period of experimentation by national authorities before tested approaches are adopted by international standard setters. Countries must be given discretion to experiment with different macro-prudential tools whose effectiveness will vary from country to country based on differences in economic and financial systems. Host country authorities will need a wider array of regulatory tools to address the particular risks that different banking groups and conglomerates pose to their financial system. Effective macro-prudential regulation therefore will require that host countries intervene and challenge risk management and measurement models that global banks use and which have been approved by their home regulatory authorities, but which may be inappropriate in a macro-prudential regulatory sense for some host countries.

Summing up and Conclusion

To return to the aphorism that policymakers should not let a good crisis go to waste, there might be a new paradigm in global regulation in theory but how close this is mirrored in policy is another matter as macro-prudential policy is undoubtedly still in its infancy. The financial crisis has triggered intense regulatory reform efforts to enhance bank risk management and the use of micro-prudential and macro-prudential regulation to achieve financial stability objectives. The essay analyses some of the main concepts of macro-prudential regulation and supervision and its relationship with micro-prudential regulation and supervision. It suggests that international financial regulation and international economic law must be reconceptualised and redesigned to take account of the need for national regulators to adopt and apply macro-prudential regulatory frameworks. This will have important implications for the fields of international monetary and trade law. For example, the WTO General Agreement on Trade in Services (GATS) will need to be interpreted with a view to allowing member countries adequate regulatory discretion to adopt supervisory practices and regulatory structures that allow them to achieve macro-prudential objectives. It is now necessary that financial regulation be redesigned on a more holistic approach that involves linking micro-prudential supervision of individual banks with broader oversight of the financial system and to macroeconomic policy. Not only should regulation focus more on macro-economic factors, such as liquidity risks, but it should also develop capital adequacy standards that have linkages and reference points in the broader macro economy, such as countercyclical capital ratios. National authorities should be encouraged to experiment with different macro-prudential approaches that utilised different tools to control systemic risk.

In addition, it is clear that macro-prudential regulation will have important implications for economic policy. This is why democratic safeguards should accompany the decision to use macro-prudential controls. This has important implications regarding the democratic accountability of bank supervisors and central banks involved in bank regulation and supervision. Moreover, macro-prudential regulation will have to be coordinated at the international level, but host country authorities should have the ultimate say in ensuring that these tools are applied effectively and adequately address the risks facing that country's markets. The redesign of international financial regulation to achieve these objectives should be the subject of further research and policy attention.