

3-5-2013

# The Macroprudential Turn: From Institutional “Safety and Soundness” to “Systemic Stability” in Financial Supervision

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## Recommended Citation

Hockett, Robert C., "The Macroprudential Turn: From Institutional “Safety and Soundness” to “Systemic Stability” in Financial Supervision" (2013). *Cornell Law Faculty Working Papers*. Paper 108.  
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## **The Macroprudential Turn: From Institutional “Safety and Soundness” to “Systemic Stability” in Financial Supervision**

**Robert Hockett**

*Since the global financial dramas of 2008-09, authorities on financial regulation have come increasingly to counsel the inclusion of macroprudential policy instruments in the standard ‘toolkit’ of finance-regulatory measures employed by financial supervisors. The hallmark of this perspective is its focus not simply on the safety and soundness of individual financial institutions, as is characteristic of the traditional ‘microprudential’ perspective, but also on certain structural features of financial systems that can imperil such systems as wholes. Systemic ‘financial stability’ thus comes to supplement, though not to supplant, institutional ‘safety and soundness’ as a regulatory desideratum.*

*The move from primarily micro- to combined micro- and macroprudential finance-regulatory regimes is surely to be welcomed, for reasons that this author has offered in earlier articles. The old ‘lean versus clean’ debate is resolved once again now in favor of leaning. The victory does, however, raise certain new legal challenges to which predominantly microprudential finance-regulatory regimes are not typically subject – challenges of which regulators and other financially-oriented lawyers will wish to stay mindful. This Article aims to assist that endeavor by exhaustively cataloguing and provisionally addressing the mentioned challenges, in order that interested parties might thereby be able to find comprehensive treatment of the subject in one place.*

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Robert Hockett\*

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I. INTRODUCTION

Since the mid-1990s, and particularly since the global financial dramas of 2008-09, authorities on financial regulation have come increasingly to counsel the inclusion of macroprudential policy instruments in the standard ‘toolkit’ of finance-regulatory measures employed by financial regulators. The hallmark of this perspective is its focus not simply on the safety and soundness of individual financial institutions, as is characteristic of the traditional ‘microprudential’ perspective, but also on certain structural features of financial systems that can imperil such systems as wholes. Systemic ‘financial stability’ thus comes to supplement, though not to supplant, institutional ‘safety and soundness’ as a regulatory desideratum. Indeed it comes to be recognized as prerequisite to the same.

Evidence of this shift from a once primarily microprudential to a now macroprudential-inclusive focus can be found not only in many scholarly and policy papers – including a great deal of work produced by the Bank for International Settlements (BIS), the Financial Stability Board (FSB), the International Monetary Fund (IMF, ‘Fund’), and sundry central banks worldwide over the past decade and a half – but also in many new treaty-based, statutory, and administrative provisions agreed or enacted in multiple jurisdictions worldwide over the past several years.<sup>1</sup> In fact, one recent Fund paper reports that some 50 jurisdictions, including all of the world’s most developed economies, have formally adopted macroprudential finance-regulatory measures since early 2009.<sup>2</sup>

The move from primarily micro- to combined micro- and macroprudential finance-regulatory regimes is surely to be welcomed, for reasons both that this author has adduced in

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<sup>1</sup> See, e.g., Bank for International Settlements, *Models and Tools for Macroprudential Analysis*, discussion paper, May 2012, available at [http://www.bis.org/publ/bcbs\\_wp21.pdf](http://www.bis.org/publ/bcbs_wp21.pdf); Financial Stability Board, *Overview of Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability*, report, June 2012, available at [http://www.financialstabilityboard.org/publications/r\\_120619a.pdf](http://www.financialstabilityboard.org/publications/r_120619a.pdf); International Monetary Fund, *Policies for Macrofinancial Stability*, discussion paper, June 2012, available at [www.imf.org/external/pubs/ft/sdn/2012/sdn1206.pdf](http://www.imf.org/external/pubs/ft/sdn/2012/sdn1206.pdf); European Central Bank, *Monetary and Macroprudential Policies*, discussion paper, July 2012, available at [www.ecb.int/pub/scpwps/ecbwp1449.pdf](http://www.ecb.int/pub/scpwps/ecbwp1449.pdf); Bank of England, *Instruments of Macroprudential Policy*, discussion paper, December 2011, available at <http://www.bankofengland.co.uk/publications/Documents/other/financialstability/discussionpaper111220.pdf>. This is a very small sampling. A simple web search on such terms as ‘macroprudential,’ ‘financial stability,’ or ‘systemic risk’ will immediately turn up web-available working papers from nearly all of the world’s central banks, finance ministries, financially oriented IGOs and NGOs. As for legal provisions, see International Monetary Fund, *infra*, note 2.

<sup>2</sup> See International Monetary Fund, *Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences*, discussion paper, October 2011, available at [www.imf.org/external/pubs/ft/wp/2011/wp11238.pdf](http://www.imf.org/external/pubs/ft/wp/2011/wp11238.pdf).

earlier articles and that will be briefly rehearsed below.<sup>3</sup> It also, however, raises a number of new legal challenges to which predominantly microprudential finance-regulatory regimes are not typically subject – challenges of which regulators and other lawyers will wish to remain mindful. This Article aims to assist that endeavor by exhaustively cataloguing and provisionally addressing the mentioned challenges, in order that all interested parties might thereby be able to find comprehensive treatment of the subject in one place.

The structure of the Article is as follows. Part II briefly rehearses what distinguishes the macroprudential finance-regulatory perspective from the more traditional microprudential approach to financial regulation, briefly explaining in passing why the shift has occurred. The aim is thereby to render the specifically legal discussion in subsequent parts of the Article more readily appreciable. Part III then elaborates the principal legal issues and tradeoffs that are implicated by this change of perspective from mere micro- to combined micro- and macroprudential regulation, while also delineating and provisionally assessing the options that look to be available for addressing them.

Part IV provides a representative sampling of macroprudential finance-regulatory regimes now either in place or in the process of enactment in a number of representative jurisdictions. In so doing it highlights how these regimes address and resolve the particular issues and tradeoff questions elaborated in Part III. The aim is to afford some measure of concrete appreciation of the options available to jurisdictions that seek to supplement their microprudentially oriented finance-regulatory regimes with macroprudential policy instruments.

Part V then concludes and looks forward, highlighting in particular certain still unresolved finance-theoretic issues whose resolution will likely invite revisitation of issues provisionally resolved in this Article.

## II. MACROPRUDENTIAL REGULATION – WHAT, WHY, HOW AND WHO

Full appreciation of the legal issues and tradeoffs implicated by macroprudential finance-regulatory policy will be facilitated by a brief review of what is distinctive about the macroprudential perspective – that is to say, of what specific *changes* this perspective brings to the formulation and conduct of financial regulation. The latter in turn can be quickly

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<sup>3</sup> See, e.g., Robert Hockett, *A Fixer-Upper for Finance*, 87 WASH. U. L. REV. 1 (2010), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1367278](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1367278); Robert Hockett, *Bailouts, Buy-Ins, and Ballyhoo*, 52 CHALLENGE 39 (2009), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1276285](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1276285); Robert Hockett, *Bubbles, Busts, and Blame*, 32 CORNELL LAW FORUM 1 (2010), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1805930](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1805930); and Robert Hockett, *Recursive Collective Action Problems*, 5 J. APP. ECON. 1 (2013) (forthcoming).

conveyed by (a) contrasting the macroprudential with the once-dominant microprudential perspective that it has come to supplement, (b) noting why such supplementation has been found necessary, (c) cataloguing the tools with which macroprudential regulation is now typically effected, and (d) specifying who the macroprudential regulators deploying those tools tend to be or are likely in future to be.

#### A. *What: Distinction from Microprudential Regulation*

##### 1. Systemic Rather Than Individual Firm Focus

The shift from primarily microprudential to combined micro- and macroprudential finance-regulatory policy is, before anything else, a shift of attention or focus. Specifically, it is a shift from exclusive attention paid the safety and soundness of individual financial institutions to a focus upon the health and stability of the financial system as a whole. The ultimate aim is to safeguard the financial system's capacity to allocate resources and risks efficiently throughout the 'real' economy over time. This of course does not mean that individual firms and their practices are no longer monitored – they are, after all, critical components of the financial system. It simply means that in addition to firms and their practices, *structural* features of the financial system in which these firms jointly participate – including market and other transactional infrastructures, interactions between and among persons and firms, and systemic proneness to volatility-heightening self-amplification or 'feedback' mechanisms – also become objects of regulatory attention.<sup>4</sup>

Were a financial system none but the sum of its parts, there would be no need to distinguish between micro- and macroprudential *foci*. Microprudential supervision of all parts of the system would sum up to supervision of the system itself. A financial system, however, is more than the sum of its parts. It also embraces relations *among* parts, as mediated through transactional infrastructures and various species of financial claim that institutions and individuals issue to one another.<sup>5</sup> On some occasions, moreover, these market infrastructures and claim-types support transactions among actors that bear certain price-volatility-heightening 'feedback' characteristics – the makings of 'bubbles' and

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<sup>4</sup> See Hockett, sources cite supra, note 3. The critical role played by structure in distinguishing wholes from mere sums of their parts is not only practically, but also theoretically important, notwithstanding its tendency to go overlooked by some legal, economic, and policy thinkers. See Robert Hockett, *Pareto versus Welfare*, working paper, available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1309699](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1309699); Robert Hockett, *Taking Distribution Seriously*, working paper, available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1108217](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1108217); and Robert Hockett, *Why Paretians Can't Prescribe: Preferences, Principles, and Imperatives in Law and Policy*, 18 CORNELL J. L. & PUB. POL'Y 1 (2010), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1266270](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1266270).

<sup>5</sup> See, e.g., Hockett, *A Fixer-Upper for Finance*, supra note 3; Hockett, *Bubbles, Busts and Blame*, supra note 3.

‘busts.’<sup>6</sup> We can group all of these additional elements of the financial system together as ‘structural’ features of that system, and characterize the macroprudential perspective as that which attends to these structural features of the system while microprudential regulation attends more narrowly to the institutions that participate in the system.

What ‘structure’ of this sort adds to the sum of the parts of a financial system can be neatly – and for subsequent purposes suggestively – drawn out by reference to a particular vulnerability alluded to just above, to which financial systems historically appear to be particularly prone. The vulnerability in question is a recursive rendition of what social scientists will recognize as the classic ‘collective action problem.’<sup>7</sup> A collective action problem afflicts a group of actors whenever they find themselves in a situation in which multiple individually rational decisions can aggregate into a collectively self-defeating – even calamitous – outcome. Arms races, ‘bums’ rushes,’ and commons tragedies are familiar examples. More to the present purpose, so are price inflations, deflations, bubbles and busts.<sup>8</sup>

Probably the most familiar instance of a finance-related recursive collective action problem in the minds of laypersons is the ‘bank run.’ The sense in which a bank run is a collective action problem is this: Given fractional reserve banking and a plausible rumor of looming insolvency, it can be rational for each depositor in a given bank, absent deposit insurance, to seek to be first in the queue of anticipated withdrawers of funds. To hold off, after all, is simply to risk losing everything, since no one abstainer can stop the run by refusing to participate any more than she could single-handedly stop a consumer price inflation by refraining from purchasing. Yet every depositor’s acting thus rationally can itself bring about the very event that is feared – *even when the information that sets off the run proves in the end to have been groundless*. Mere fears of a solvency crisis can in this sense prove self-fulfilling, morphing into a liquidity crisis that morphs into a bona fide solvency crisis that harms virtually everyone notwithstanding the prudence of their individual decisions to withdraw.<sup>9</sup>

It is structural vulnerabilities of this sort – vulnerabilities rooted, in the bank run example, both in the transactional relations among banks and depositors and in the legal characteristics of demand deposit claims – that the institutional focus of traditional microprudential regulation tends especially to miss. For to monitor the practices of individual financial institutions alone for their safety and soundness, with no attention paid the harms that can be wrought by *interacting* decisions or practices in aggregate even when

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<sup>6</sup> See Hockett, sources cite supra, note 3

<sup>7</sup> See Hockett, *Recursive Collective Action Problems*, supra note 3. Also Robert Hockett, *Bretton Woods 1.0: An Essay in Constructive Retrieval*, 27 N.Y.U. J. LEGIS. 1 (2013) (forthcoming), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1805962](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1805962).

<sup>8</sup> See again Hockett, *Recursive Collective Action Problems*, supra note 3.

<sup>9</sup> See again Hockett, *Recursive Collective Action Problems*, supra note 3.

individually prudent or rational, is akin to exclusively monitoring the decisions of individual bank depositors for their rationality during a run. The prudence or rationality of the individual decisions in such situations is itself part of the problem – it is the mechanism through which the problem is propagated. Hence fully addressing the problem requires more than ensuring that individual actors act rationally.<sup>10</sup>

## 2. Particular Attention Paid Cross-Institutional and -Sectoral Linkages, Market Infrastructures, and Inter-Substitutabilities

The macroprudential perspective accordingly supplements microprudential supervision of individual institutions by attending specifically to cross-institutional and cross-sectoral linkages and interactions across the financial system. It attends, that is, to the specific relations among parts of the system – including transactions between counterparties, the ‘platforms’ or infrastructures on which they transact, and the specific legal rights and obligations associated with particular financial instruments – in order better to monitor the health and stability of the financial system as a whole. It also attends, by way of corollary, to functional convergences among what were once more radically distinct kinds of financial institution and instrument, in order that expertise developed in the regulation of one kind of institution or transaction – for example, a bank deposit – can be more readily brought to bear in regulating other kinds of institution or transaction – for example, money market fund investments – when they come to resemble the first kind.

In doing these things, it should be noted, macroprudential regulation better safeguards individuals and institutions themselves, whose financial health itself rides on the longterm health of the system. This is the sense in which macroprudential regulation supplements, rather than supplants, more traditional microprudential regulation – and is indeed a prerequisite to effective such regulation. It is also helpful to note that there are at least *three* related yet subtly distinct reasons for regulators to attend to linkages and convergences among, and forms of financial claim transacted between, parties throughout the financial system in the interest of maintaining the stable functionality of that system. Two of these reasons are familiar, the other perhaps less so.

The familiar reasons for systemic focus have received lip service since at least ten years prior to the calamities of 2008.<sup>11</sup> One is balance-sheet-mediated ‘financial contagion’ of the sort that has gone often remarked since the ‘Asian Financial Crisis’ of the late 1990s.<sup>12</sup> The other is ‘functional convergence’ of the sort noted a moment ago, which has been

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<sup>10</sup> This is a ‘key takeaway’ from Hockett, sources cited supra note 3.

<sup>11</sup> See Robert Hockett, *From Macro to Micro to Mission-Creep*, 93 COLUMBIA J. TRANSNAT’L L. 93 (2002), and sources cited therein.

<sup>12</sup> *Id.*

observed to be underway among once very distinct kinds of financial institution since the 1980s.<sup>13</sup>

‘Contagion’ of the mentioned sort refers to the perils faced by one or more institutions in virtue of their dependencies on the specific performances of other institutions.<sup>14</sup> Where institution A owes institution B on a financial contract, for example, institution A’s insolvency can increase the likelihood of B’s insolvency. If B in turn owes C, A’s failure can ultimately harm C as well. And so on. A balance-sheet-mediated ‘chain reaction’ can occur, pursuant to which multiple institutions – and hence individuals as well – are brought to the brink of insolvency by the failure of but one individual or firm.

‘Convergence’ of the mentioned variety refers to the ways in which many once-distinct kinds of financial institution increasingly have come to offer inter-substitutable products and services – a process that has been much facilitated by the development of derivative instruments and other forms of financial innovation. Money market mutual fund ( MMMF) investments, for example, have in recent decades come to function more and more like traditional bank demand deposit accounts, such that MMMFs have become partial bank substitutes. Life insurance policies, for their part, have steadily taken on attributes not unlike those of traditional savings deposit accounts, while hedging instruments purchasable on derivatives markets of course bear the characteristics of insurance policies. And so on.

In theory, the dangers posed by cross-institutional linkages and inter-substitutabilities of these sorts can be addressed simply by more thoroughgoing microprudential regulation. Such is the principal point behind lending limits and cognate portfolio-diversification requirements in the microprudential regulation of depository institutions and insurance companies, for example, as well as behind rules requiring that MMMFs maintain share prices of one currency unit per share. It also is one of the multiple reasons behind capital requirements imposed upon most nominally distinct kinds of financial institution – banks, broker-dealers, and insurance companies alike.

On the other hand, the proliferation and ‘complexification’ of interdependencies and inter-substitutabilities of these sorts among multiple financial institutions in recent decades – much of it, too, facilitated by complex derivative financial instruments and other forms of financial innovation – undoubtedly has brought about a state of affairs in which oversight of the financial system as a whole, with all of its market infrastructures and cross-institutional linkages and convergences, can at least enhance the knowledge base from which traditional microprudential regulation operates.<sup>15</sup> That is part of the point behind ‘stress-testing’ of large

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<sup>13</sup> See, e.g., ROBERT HOCKETT, *CASES AND MATERIALS ON FINANCE AND ITS REGULATION* 5-21 (West, 2013) (forthcoming).

<sup>14</sup> See, e.g., Hockett, *From Macro to Micro to Mission-Creep*, supra note 11, and sources cited therein.

<sup>15</sup> See Hockett, *A Fixer-Upper for Finance*, supra note 3 at 97.

interconnected financial institutions of all sorts, such as has become popular in regulatory circles since the crisis of 2008-09.

These ‘interconnectedness’ and ‘inter-substitutability’ rationales for a macroprudential supplementation of traditional microprudential regulatory policy are especially strong when transactional linkages and convergences are not only cross-institutional, but also cross-sectoral in character – particularly in jurisdictions like the U.S., where evermore frequently cross-sectorally transacting and mimicking depository institutions, broker-dealers, and insurance companies continue to be regulated by distinct regulators operating under distinct mandates. Under such circumstances, each distinct sectoral regulator can benefit significantly by the expertise of the other sectoral regulators. The establishment of fora that facilitate information-exchange and other forms of collaboration among such regulators – such as the Financial Stability Oversight Council (FSOC) instituted by the 2010 Dodd-Frank Act in the U.S. – can accordingly be viewed as macroprudentially oriented supplementations of the traditional microprudential finance-regulatory regime.<sup>16</sup>

Much the same can be said of the designation of particularly large financial firms and conglomerates, with particularly far flung and intricate webs of transactional relations throughout the financial system, as ‘systemically important financial institutions’ (‘SIFIs’) upon which augmented microprudential regulatory requirements such as capital surcharges are levied.<sup>17</sup> Likewise the heightened attention paid market utilities and trading infrastructures, many of them not high speed electronic, under macroprudential regulatory regimes.<sup>18</sup> In all of these cases, forms and means of interlinkage or inter-substitutability among institutions, and the cross-institutional liabilities facilitated thereby, become objects of regulatory attention in hopes of ensuring longterm financial stability and thereby maintaining the safety and soundness of the individual institutions and persons that participate in the financial system.

### 3. Particular Attention Paid ‘Feedback’ Mechanisms and Procyclicality

While cross-sectoral convergence and the traditional market infrastructure and balance sheet mechanisms by which cross-institutional and trans-sectoral linkages can propagate financial contagion are both familiar and addressable in principle, if not always efficiently in practice, by traditional microprudential regulatory means, the other such mechanism is less so. This is the mechanism pursuant to which actions by one institution

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<sup>16</sup> Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010) (codified in scattered sections of 12 U.S.C.A. (West Supp. 2011)). For more on the FSOC, see *id.*, Titles I and II. See also *infra*, Part IV.

<sup>17</sup> *Id.*, Titles I and II.

<sup>18</sup> *Id.*, Title VIII.

affect other institutions not by suddenly depriving them of specific performance on the part of assets they thought that they had, but via their effects upon *asset prices market-wide*. This mechanism bears certain recursive – or ‘feedback loop’ – properties that traditional microprudential oversight misses not only in practice, but even in principle.<sup>19</sup> Of particular concern here are stability-imperiling self-amplification processes of the ‘bank run’ variety that often characterize the mutually influencing actions of distinct financial actors.

The counterpart to a bank run in a market for some financial asset such as mortgage backed securities (MBS), for example, is a ‘run’ from the asset itself. Such runs are mediated by rational responses on the part of some actors to the actions of other actors – just as the bank depositor joins the queue of withdrawers upon noticing that this queue is already forming.<sup>20</sup> An institution that holds a large portfolio of MBS, for example, will see the value of its portfolio rapidly dropping should other large holders of MBS suddenly begin selling their holdings – quite irrespective of what this institution itself is doing. Confronted by that threat, the institution might prudently determine to sell its own holdings, even at a significant loss, simply to avoid greater loss should the run continue. Other MBS holders might follow this institution in turn, thereby pushing down prices yet further. This might induce earlier sellers into selling yet more... and so on, with widespread insolvency system-wide as the ultimate result.<sup>21</sup>

The same mechanism can operate ‘in reverse,’ of course, in which case the ‘run’ is not from, but *to* the asset in question. Such is precisely what happens under ‘bubble’ or ‘mania’ conditions, of course, where the mania in question characterizes the markets as wholes rather than individual participants in those markets. It can, after all, be altogether individually rational to borrow at cheap rates to purchase assets whose prices are rising at rapid rates, so as to profit on the widening spread – indeed, some financial advisers are arguably fiduciarily obligated to do this for clients. Hence a regulatory perspective from which institutional practices are evaluated only for their short-term financial soundness is a perspective from which bubbles, which massively misallocate resources and risks and tend all too often to end in calamitous busts and protracted debt deflations, is a perspective from which financial regulators will be unable even in principle to do what the ‘real’ economy needs from them most.<sup>22</sup>

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<sup>19</sup> See Hockett, *Recursive Collective Action Problems*, supra note 3; also Hockett, *Bretton Woods 1.0: An Essay in Constructive Retrieval*, 17 N.Y.U. J. LEGIS. & PUB. POL’Y \_\_ (2012) (forthcoming).

<sup>20</sup> See Hockett, sources cited supra, note 3.

<sup>21</sup> See Hockett, sources cited supra, note 3.

<sup>22</sup> See Hockett, sources cited supra, note 3.

‘Spirals’ or ‘feedback loops’ of this mentioned variety, downward and upward alike, are of course hardy perennials of financial history.<sup>23</sup> Indeed they have often occurred with sufficient frequency as to be viewed by many as constituting, at least retrospectively, more or less tractable ‘cycles.’<sup>24</sup> A – if not the – key policy objective of macroprudential supervision is accordingly to counteract, where possible, these potentially catastrophic self-amplification mechanisms and thereby act ‘countercyclically.’<sup>25</sup> The point in so doing is to diminish the amplitudes of each cycle’s peaks and troughs, thereby modulating the ‘swings,’ diminishing volatility, and thus assuring a better allocation of resource and risk through the ‘real’ economy over time. Such is the very meaning of ‘financial stability’ on most understandings.<sup>26</sup>

This countercyclical form of supervisory action, it bears emphasis, cannot be effected by traditional microprudential regulatory means alone – either in practice or even in principle. Neither the traditional tools nor, especially, the traditional focus are up to the task; for they seek and address a categorically distinct kind of vulnerability. In this sense, attention to recursive self-amplification processes, along with countercyclical policy tools aimed at modulating such processes, are in a sense what is *most* distinctive of macroprudential financial supervision and regulation. They are the principal value that this perspective adds to financial regulation.

#### B. *Why: Reasons for Widening the Regulatory Lens*

The principal reasons for supplementing the microprudential with a macroprudential finance-regulatory perspective are implicit in the preliminary characterization of the latter perspective above. It will help nonetheless both to render these reasons explicit and to note several additional reasons now prompting the move to a macroprudential perspective on financial supervision worldwide.

##### 1. Cross-Sectoral Functional Convergence and Regulatory Arbitrage, Including ‘Shadow Banking,’ Challenge Fragmented Regulators

One reason for supplementing microprudential with macroprudential financial regulation stems from the cross-sectoral functional convergence in the financial services industry noted above. Pursuant to this dynamic, once very distinct kinds of financial institution increasingly come to resemble each other in the products and services they offer and the functions that they perform.

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<sup>23</sup> See Hockett, sources cited *supra*, note 3. See also ROBERT ALIBER AND CHARLES KINDLEBERGER, *MANIAS, PANICS, AND CRASHES* (5<sup>th</sup> ed. 2010).

<sup>24</sup> See Hockett, sources cited *supra*, note 3. See also ALIBER AND KINDLEBERGER, *id.*

<sup>25</sup> See Hockett, sources cited *supra*, note 3.

<sup>26</sup> See Hockett, sources cited *supra*, note 3.

Prior to the 1980s, for example, demand deposits held at commercial banks and thrift organizations in the U.S. constituted nearly the sole means by which individuals could both save in and spend from the same asset accounts.<sup>27</sup> Such deposits accordingly came to constitute the backbone of the wider economy's payments system, meaning in turn that they took on some attributes of public utilities.<sup>28</sup> That in turn meant that they had to be viewed as 'special' by regulators, since failures on the part of institutions that offered them – depository institutions – would impose significant externalities even on non-depositors who benefitted by the accelerated transacting activity that a payments system facilitated. 'Special' for these purposes meant both federally deposit-insured and especially carefully regulated.<sup>29</sup>

Over the course of the 1980s and 1990s, however, American investment companies increasingly came to offer MMMFs bearing many of the attributes of bank deposits, with the added feature of offering higher returns – a capacity rooted in MMMFs' freedom to invest in higher risk, higher return assets that the bank-regulatory regime permitted depository institutions to do.<sup>30</sup> The consequence was that more and more Americans came to use MMMFs as bank accounts in which they invested and from which they made payments.<sup>31</sup> This meant in turn that widespread failures of MMMFs could impose social costs much like those that widespread bank failure would have imposed in the past. Yet MMMFs were neither deposit-insured nor especially carefully regulated as banks were. In effect, MMMFs had engaged in so-called 'regulatory arbitrage' – offering less regulated, very close substitutes for heavily regulated ones, thereby peeling away customers from the more regulated sector and reinstating risks to the financial system that the evaded body of regulation had been instituted to eliminate.

Evolution of this sort is of course very common in the financial services industry, meaning that an institutional or even sectoral focus on the part of financial regulation will tend to miss an important source of risk over time. The tendency was of course on dramatic display during the crisis of 2008-09, when in the U.S. the Federal Deposit Insurance Corporation (FDIC) was forced to offer temporary deposit insurance to MMMFs in order to stave off an old fashioned 'bank run' on the same, while the Federal Reserve ('Fed') for its part had to step in to act as discounter and market maker of last resort in other markets that had come to function much like bank substitutes – notably the triparty repo market.<sup>32</sup>

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<sup>27</sup> See ROBERT HOCKETT, *CASES AND MATERIALS ON FINANCE AND ITS REGULATION* 5-21 (West, 2013) (forthcoming); also WILLIAM LOVETT & ROBERT HOCKETT, *BANKING AND FINANCIAL INSTITUTIONS LAW IN A NUTSHELL* (8<sup>th</sup> ed., 2013) (forthcoming).

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> See, e.g., GARY GORTON, *SLAPPED BY THE INVISIBLE HAND* (2010).

While the emergency measures taken by the Fed and FDIC in the U.S., and by counterpart authorities in other jurisdictions, were innovative, expeditious, and impressively effective, one lesson of the crisis appears to be that things would have been better had these measures been prevented from having to become necessary in first place – by having bank-regulatory-like provisions in place in advance so as to regulate these nonbank institutions more as we regulate banks insofar as they performed classic bank functions. But spotting such needs is much more likely when a macroprudential approach to financial regulation, attentive to cross-sectoral changes and functional convergences, supplements the more traditional microprudential perspective.

## 2. Worst Crises are Cross-Sectoral and System-Wide

A related reason for supplementing traditional microprudential financial regulation with a macroprudential component is that the worst episodes of radical financial instability – that is, the most devastating financial crises – are typically themselves cross-sectoral in character.<sup>33</sup> This in turn stems both from convergences of the sort noted above, and relatedly from cross-sectoral transacting of the kind noted yet further above. Once again, salient features of the recent 2008-09 crisis are illustrative.

Two of the higher profile institutional failures of 2008, for example, were those of Lehman Brothers – a broker-dealer firm – and American International Group (AIG) – an insurance firm.<sup>34</sup> But these failures, notwithstanding their afflicting distinct kinds of financial institution, were anything but unrelated. The reason was that AIG had insured various claims held by various financial institutions on Lehman Brothers, in the form of credit default swap (CDS) instruments it had sold to the institutions in question.<sup>35</sup> The upshot was that Lehman's failure triggered massive liability on the part of AIG, which AIG then turned out not to be good for. That in turn shook the solvency of yet further financial institutions that were relying, via their CDS holdings, on the solvency of AIG.<sup>36</sup>

There was, then, in 2008, a massive balance-sheet-mediated cascade of the sort noted above in Part II.A.2. Like remarks hold of previous high profile systemic financial crises, in which financial contagion ignores sectoral boundaries precisely because prior transactions' ignoring of those same boundaries have played critical roles in enabling systemwide crisis via cross-sectoral linkage in the first place.<sup>37</sup> It would seem to follow that the worst financial crises are much more apt to be detected in the brewing by regulators who themselves look past sectoral boundaries – that is, who themselves survey webs of transactional connection

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<sup>33</sup> See Hockett, sources cited *supra*, note 3; also Aliber & Kindleberger, *supra* note 21 at \_\_\_.

<sup>34</sup> Cite news reports.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> See sources cited *supra*, note 26.

system-wide. And those are of course simply regulators who think as macroprudentially as they do microprudentially.

### 3. Worst Crises are Self-Worsening via Feedback Mechanisms

Just as it is unsurprising that the worst financial crises tend to be cross-sectoral and system-wide in character, precisely because system-wide, cross-sectoral transacting itself propagates the contagion, so is it unsurprising that the worst financial crises also bear recursive collective action problem characteristics of the sort described above.<sup>38</sup> For these characteristics, too, are of precisely the sort that *render* crises particularly calamitous. The reason is that the presence of self-amplification mechanisms of this sort deprives financial systems of natural resting points, or equilibria.

This is easy to see by reference to the ‘run on assets’ example considered above in Part II.A.3. Where an institution holds a portfolio of some asset that suddenly comes to be sold off in mass quantities on a market, it will see the value of its own portfolio rapidly dropping. It will then find the prospect of sale of its own holdings that much more prudent, and act accordingly. Other institutions, acting rationally upon the same considerations, will be apt to do likewise. This will induce further drops in the price of the asset, leading to yet more decisions to dump the asset in question – including by institutions that already have dumped some of their holdings.

In such cases there is no obvious endpoint save that at which the asset in question is devoid of all or nearly all value – is indeed widely perceived to be ‘toxic.’ The end result is that all institutions in all sectors that have held significant portfolios of the asset have experienced near total losses on the asset. It is as if a single very large institution that has massively owed multiple other institutions has defaulted in respect of all of them. The asset in this sense acts as a sort of virus, infecting all that have held it. And of course if there are multiple such assets, matters are so much the worse. Naturally, then, crises involving the ‘feedback’ dynamic tend to be most destructive.<sup>39</sup>

The recent crisis of 2008-09 is of course illustrative here just as it was in the previous subsection. In this case, multiple instrument types played the ‘viral’ role. The first wave of runs concerned perceivedly toxic MBS. The next wave concerned CDS and other derivative instruments whose values were tied to the values, first, of MBS, and second of firms that issued them as had AIG. Yet further waves then involved other claims on institutions whose fortunes waxed or waned with the values of MBS or CDS or issuers of the same themselves.<sup>40</sup> Once again, then, a regulatory regime that would avoid crises of this

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<sup>38</sup> Id.

<sup>39</sup> Id.

<sup>40</sup> Id.

magnitude is one that will be on the lookout for feedback mechanisms of the described kind as fully as – if not indeed more fully than – it is on the lookout for cross-sectoral transactional linkages as described just above.

### *C. How: The Emerging Macprudential ‘Tool Kit’*

The set of measures that financial regulators have been assembling for purposes of macroprudential regulation has come to be known in regulatory circles as ‘the toolkit.’<sup>41</sup> The toolkit so-called is in a certain sense incomplete, in that it does not include changes to the agency structure discussed in the next subpart – II.D, on ‘Who.’ Supplemented by the latter, however, the ‘kit’ is surprisingly resourceful. It also bears noting that, while the administrative reorganizational measures described in the next subpart appear to be directed toward the cross-institutional and -sectoral linkage and convergence rationales for macroprudential regulation discussed above in Parts II.A.2 and II.B.1, the ‘tools’ in the ‘kit’ described here all are aimed at the recursive collective action problem rationale discussed above in Parts II.A.3 and II.B.3.

#### 1. Cross-Sectoral Leverage Ceilings – LTV, DTI, and Margin Requirements

The first two tools in the kit aim to close spreads between borrowing costs (broadly construed to include collateral requirements and interest charges) and capital gains appreciation rates of the sort noted above to make participation in asset price bubbles financially rational for individuals. The idea is to make it more difficult to borrow to buy for speculative purposes, a practice which, as the lead up to 2008-09 brought home yet again, lies at the very heart of the credit-fueled asset price bubble dynamic. One way to do this is to limit the amount of leverage that a borrowing buyer can take on, by insisting that more in the way of collateral and/or down payment or margin be supplied by borrowers in lending transactions. Maximum loan-to-value (LTV) or debt-service-to-income (DTI) ratios are a straightforward means of doing this, as are margin requirements in securities transactions.

Low – in some cases, even negative – down payment requirements imposed upon home-buyers in the U.S. during the housing bubble, for example, appear to have played a particularly significant role in fueling the U.S. housing price bubble. Partly for this reason, the Dodd-Frank legislation imposes more stringent LTV requirements upon would-be home buyers in the U.S. Other jurisdictions, as discussed below in Part IV, have taken similar measures, while imposing maximal DTI requirements as well. It is easy to appreciate why, as the U.S. was far from the only jurisdiction to suffer a credit-fueled housing price bubble in recent years. Finally, many jurisdictions are imposing counterpart requirements in the realm of securities transactions, in the form of tighter margin requirements.

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<sup>41</sup> Cite.

As the reference to securities transactions in addition to real estate transactions suggests, leverage ceilings used as a macroprudential policy tool are apt to be most effective when applied cross-sectorally, system-wide. There are at least two related reasons, both of them rooted in observations made above in Parts II.A and II.B.

One reason is that, as noted above, cross-sectoral linkages have become much more dense in recent decades relative to before, such that institutions in one sector in which leverage is well regulated might nevertheless end up more vulnerable than they once were to failures on the part of other institutions in other sectors where leverage is less well regulated. The other reason is that the earlier mentioned functional convergence and product inter-substitutability developments of recent decades make it much easier than it once was to evade regulations in one sector by taking functionally equivalent actions in another sector.

For these reasons this tool, like those elaborated below, is couched in ‘cross-sectoral’ terms. For other reasons to be cited below, this tool can also be ‘dynamically’ – in particular, countercyclically – applied, as can be most of the other tools in the ‘kit.’ In such cases one simply calibrates the requirements in question so as to render them more onerous as a ‘boom’ phase of the cycle is approached, while rendering them less onerous as conditions approach those of a ‘bust.’

## 2. Cross-Sectoral Credit and Credit-Growth Ceilings

Another way to narrow the spread between low borrowing costs – again broadly construed – and high capital gains appreciation rates, of course, is to place more direct limits on permissible credit-extension or credit growth rates themselves. Capital buffer and reserve requirements, discussed just below, are of course means of doing this, but one can also simply impose upper bounds on lending – both to particular borrowers and in aggregate – independently of capital or reserve conditions. As recent empirical survey literature points out, most jurisdictions that limit leverage along the lines described immediately above also impose limits on credit or credit-growth, having found that use of both tools in tandem strengthens the effectiveness of each.

It should also be noted that the same reasons given immediately above for couching leverage regulation in cross-sectoral terms also militate in favor of couching credit-growth regulation in cross-sectoral terms. The same holds of dynamic – in particular, countercyclical – application of such requirements. The idea would again be progressively to discourage credit-extension as the financial cycle entered into a ‘boom’ phase, while doing the contrary as conditions entered ‘bust’ territory.

## 3. Cross-Sectoral Reserve and Capital Buffer Requirements

Two of the more venerable policy levers well suited to trimming the spread between borrowing costs and capital gains are reserve and capital requirements. Both are typically explained and justified as ‘buffers’ that individual firms are required to maintain in order to prevent liquidity shocks of the sort that can morph into solvency crises in the event of counterparty failure. In that sense they are microprudential tools. Yet these same tools, as applied to multiple institutions, also work much as do systemwide macroprudential leverage and credit ceilings.

How? In essence, a regulator simply requires that financial institutions hold larger portions of their investable funds in the form of money, in the case of required reserves, or a mix of investor-supplied money, tier 1 capital (principally shareholder equity), and tier 2 capital (largely subordinated debt) in the case of required capital buffers. The requirements then naturally limit the amount of credit extension in which institutions are able to engage. For funds that would otherwise flow outward in the form of more lending are instead either retained internally, in the form of money reserves, or naturally limited by how much in the way of unsecured at-risk capital can be raised from equity and subordinated debt holders, in the cases of tier 1 and tier 2 capital.

It should also be noted that reserve requirements and required capital buffers can be employed countercyclically, simply by boosting required amounts during ‘boom’ phases of the cycle and relaxing them during ‘bust’ phases. The People’s Bank of China, for example, adjusted reserve requirements with great frequency in 2010 and 2011 in order – successfully, as it turned out – to tamp down emerging price inflation in the real estate sector. And the Basle Committee, followed by the G20, agreed in the same period upon inclusion of a recommended countercyclical buffer in the latest, Basle 3, capital accords.

A final point worth making in this connection, to be further elaborated below, is that reserve and capital requirements can work in tandem with, hence can be supplemented – or even replaced – by, reserve and deposit insurance systems for depository institutions. Indeed the central reserves and insurance pools, respectively, maintained by such programs are functionally equivalent to systemically maintained buffers, which not only serve to protect individual institutions (in the case of reserves) and depositors (in the case of deposit insurance), but also can be countercyclically adjusted to alter the quantum of available credit in the financial system. There will be a bit more to say on this below in connection with dynamic provisioning.

#### 4. Cross-Sectoral Liquidity Minima and Maturity Mismatch Maxima

One function of reserve requirements and capital buffers as described just above is to prevent liquidity crises that can morph into solvency crises. That danger is in turn rooted in the maturity transformation function discharged by many financial institutions. In essence, such institutions ‘borrow short’ and ‘lend long’ in order to profit on the spread between the

low rates they need pay for short term borrowing and the higher rates they can charge for longer term investing. In so doing they often perform a valuable function in the real economy by pooling more funds than would be available absent withdrawal-on-demand accounts in which investors with liquidity and other flexibility needs can invest, and then channeling funds from those larger pools to issuers who require longer term uses of funds in order to bring projects to fruition.

So long as the term structure of the asset pool comprising these issuers' obligations is well managed and new short term funds are forthcoming at a rate more or less matching the rate of demand withdrawals, this maturity transformation function played by many financial institutions is a salutary one. It channels more capital into productive activity in the 'real' economy. The problem, however, is that sometimes certain adverse shocks or other sudden blows to investor confidence – such as an unanticipated volume of delinquencies or defaults on the asset side of the financial institution's balance sheet – can induce, justifiably or otherwise, excess withdrawal activity or inadequate rollover willingness on the part the shorter term investors.

This is essentially what a 'run' of the sort noted above in Parts II.A and II.B amounts to. And such runs, again as noted before, are the sort of fare pursuant to which liquidity crises can morph into full-blown solvency crises. The latter in turn often can grow, via interlinkage, psychological, and 'feedback'-induced contagion, from individual institution-affecting to full-blown systemic liquidity and solvency crises – as happened in much of the world during the autumn of 2008.

For these reasons another familiar microprudential policy lever that is increasingly used as a macroprudential lever as well is the imposition of certain liquidity minima and maturity mismatch maxima upon particular financial institutions – particularly depository institutions. The idea here is to limit the vulnerability just highlighted from either or both of 'both ends,' as it were. The regulator requires either (a) that some portion of the institution's assets be kept in either liquid (e.g., money) or readily liquidated (e.g., Treasury securities) form, (b) that the degree of maturity mismatch between assets and liabilities be kept sufficiently low as not to occasion liquidity needs, or (c) some combination of both – e.g., in the form of calibrating required liquidity to maturity mismatch. Imposing such requirements system-wide can do much to prevent otherwise containable shocks to individual institutions from morphing, via the aforementioned feedback effects, into full-on solvency crises faced by the institution – or, via the earlier mentioned contagion channels, by the financial system more generally.

Several additional observations bear noting in the present connection. One is that this form of regulation is clearly complementary to reserve and capital buffer requirements as these have just been described. Indeed the justifications given are nearly identical. Second is

that this form of regulation, like all of those discussed up to now, amounts to a microprudential lever that is readily employed as a macroprudential one.

Thirdly worth noting is that, also like the aforementioned policy levers, this one too is apt to work best when employed across sectors throughout the financial system. The reason is maturity-mismatch-rooted liquidity crises of the kind just elaborated are anything but limited to depository institutions alone. One of the key lessons of the crisis of 2008-09, for example, is that such commercial-bank-substitutes as the MMMF, derivative, and triparty repo markets – as well as, through them, even the investment banking and insurance industries – are just as subject to system-threatening ‘runs’ on the part of short-term investors as were commercial banks and thrift institutions before the advent of deposit insurance. Hence an effective macroprudential regulatory regime that would make use of liquidity minima and maturity mismatch maxima, just like any that employs leverage and credit ceilings or reserve and capital requirements, will do best to apply the tool cross-sectorally.

Finally, fourthly worth noting is that this lever too, again like those noted before it, can be applied dynamically and indeed countercyclically. As boom phases of the cycle begin to emerge, for example, the temptation to borrow yet shorter in order to invest yet longer grows ever stronger, in order to stave off the time at which highly demanded credit’s price rises to close the spread between itself and prevailing capital gains appreciation rates. Intervening in maturity transformation economy-wide early on in the emergence of a boom can accordingly serve to preempt the same’s entry into full-on bubble territory.

##### 5. Cross-Sectoral Dynamic and Countercyclical Provisioning

As suggested in connection with each of the tools elaborated just above, each one is on the one hand a microprudential tool, while on the other hand also convertible into a macroprudential tool when applied system-wide. An additional means by which to adapt these tools to macroprudential purposes, as also noted, is by employing them not only system-wide, but also *countercyclically* system-wide. Hence, in order to ‘lean against the wind’ or ‘take away the punchbowl just as the party is getting good,’ as former U.S. Fed Chair William McChesney Martin would have put it, the regulator can lower leverage and/or credit-extension ceilings, and/or boost reserve and/or capital buffer requirements, and/or raise liquidity minima and/or lower maturity mismatch maxima during boom phases, while doing the contrary during slump phases. In so doing, the regulator would be applying the tools ‘dynamically,’ in order to employ them countercyclically.

Where the measures thus employed involve the accumulation of reserves or buffers, they are sometimes amalgamated together in the literature under the rubric of ‘dynamic provisioning.’ The idea suggested is that of setting aside during ‘fat’ years in order to provide for the subsequent ‘lean’ years. Once matters are viewed in this manner, another form of dynamic, countercyclical provisioning, complementary to or even substitutable for

the others, springs also to mind. That is the form of provisioning popularly known as deposit insurance. Although deposit insurance was developed first as a risk-pooling device such as could instill confidence in bank depositors that they would not lose their assets in the event of a bank run, thereby lessening the likelihood of such runs themselves, it is also readily adapted to macroprudential use. All that need be done is to require financial institutions to fund the insurance pool more heavily during booms, and less heavily during busts. In such case the pool operates as a system-wide countercyclical buffer, which either can supplement or even, if need be, in some circumstances replace, individual firm buffers.

That some jurisdictions have begun to view deposit insurance this way is suggested by recent changes to some of those jurisdictions' insurance regimes. In the U.S., for example, prior to 2005 the Federal Deposit Insurance (FDI) scheme actually functioned *procyclically*, with 'assessments' assessed (i.e., premia paid) only when the pool dropped below some stipulated minimum, which of course tended to happen precisely when unusually large numbers of banks were failing – hence when system-wide difficulties tended to be occurring. Since 2005, however, the U.S. FDI system has been incrementally reformed in a manner that renders it countercyclical in character, via changes both to the timing of premia assessment and to the way in which pricing is managed, which is now risk-based after a long period of 'one size fits all' pricing.

## 6. Cross-Sectoral Surveillance and Data Collection

Just as the tools catalogued above all have been noted to be usable dynamically and countercyclically in the interest of macroprudential regulation, so have they all been noted to be best used cross-sectorally to the same end. But this highlights one additional need opened up by the emerging macroprudential 'toolkit.' That is the need for robust cross-sectoral data collection and surveillance. If distinct sectoral regulators are effectively to coordinate policies in the interest of managing the financial system as a whole, it would seem that they will require access to the same bodies of information, in order the better to recognize when apparent stability in one sector is in the process of being offset by mounting threats to the stability of another sector.

This suggests that even in regulatory systems that divide responsibility over multiple regulators, some information centralization is in order so as to facilitate that attention to systemic factors that is the hallmark of the macroprudential perspective. Recognition of the wisdom of such policies is perhaps registered in some recent legislation's – notably the Dodd-Frank reforms in the U.S. – establishment of centralized financial information gathering offices to assist councils of sectoral regulators. Of course, in systems that do not divide responsibility over distinct sectoral regulators, this information gathering function is apt already to be centralized within the offices of the overall regulator. This takes U.S. on the matter of differing possible divisions of macroprudential regulatory labor.

## 7. Size-Mitigation

The perception that some financial institutions during the recent crisis were too big to permit to fail led both to hurried public efforts, in some cases, to ‘bail out’ those institutions, and to heightened public panic, in other cases, when such institutions were not bailed out. For this reason the macroprudential toolkit also includes measures intended specifically to mitigate or eliminate the ‘too big to fail’ problem. One such measure is simply to ‘downsize’ such institutions and/or to prevent the emergence of new such institutions. Another such measure is to provide in advance for the ‘orderly liquidation’ of such institutions in the event that they become insolvent in future. Finally, yet another such measure is to subject the relevant institutions, typically under some such regulatory designation as ‘systemically important financial institutions’ (SIFIs), to heightened renditions of the regulatory requirements that figure into tools 1 through 6 above.

### D. *Who: Institutional Division(s) of Labor*

The decision to add a macroprudential component to a finance-regulatory regime opens another question additional to that of ‘how,’ or ‘what tools.’ It also raises the question of what government agency. Various options are available, as will be seen in detail in Part IV below. But several of these options tend to be selected more often than others, for reasons that are not difficult to discern.

#### 1. Central Banks and Monetary Authorities

Probably the best situated preexisting authority to conduct macroprudential oversight and regulation in most jurisdictions is either (a) the central bank or monetary authority, or (b) some pairing or partnership that combines the central bank or monetary authority with either (i) the treasury department or finance ministry, or (ii) some larger grouping that includes both the latter and the former. There are several reasons.

The two principal reasons that the central bank or monetary authority is well situated to play a macroprudential finance-regulatory role are (a) that these authorities already play macroprudential *money*-modulatory roles, while (b) money-modulation for its part is quite cognate with, and a necessary complement to, finance-regulation. Condition (b) holds true, in turn, in virtue of (i) money’s centrality to financial systems as reserve asset and liquidity standard, and (ii) many financial instruments’ – e.g., treasury securities’ – operating as close substitutes for money.

To start with condition (b), ‘financial stability,’ understood as the absence of volatile swings on the part of asset prices, is both structurally akin to and a close complement of ‘price stability,’ understood as the absence of wild swings on the part of consumer goods and

services prices. So closely akin are these phenomena, in fact, that it is difficult to see how either financial stability *or* price stability could be maintained in the long run absent the other. We shall accordingly return to this subject below in Part IV.C, when we turn to the matter of macroprudential finance-regulatory policy's interactions with adjacent and overlapping policy fields. The principal point for present purposes is that interdependence between financial and price stability requires that central banks or monetary authorities be heard in connection with the first if they are to discharge their critical functions in connection with the second.

While the reason just noted sounds in necessity, the other reason for central bank or monetary authority involvement in macroprudential regulation sounds in expertise stemming from condition (a). The simple fact is that maintaining financial stability is much like maintaining price stability – as central banks already do – because financial stability just *is* price stability, albeit of a particular kind. All that differs between the two cases is the class of assets in question. Financial stability concerns the prices of financial assets, while 'price' stability concerns the prices of nonfinancial goods and services. For this reason, moreover, the principal challenge to both faces of stability is essentially the same – it is the recursive collective action problem of the sort discussed earlier in Part II.A.

To see this, one need only note the structural identity between a consumer price inflation on the one hand, and an asset price bubble – a species of hyperinflation – on the other hand. What is common to both cases is that it is rational in each of them for individuals to take part in and thereby reinforce the price rise because in neither case can the individual single-handedly prevent it while in both cases not to take part is to lose money. To hold off from buying during a consumer price inflation that one cannot stop, for example, is simply to ensure that one will have to pay more for the item in question in the near future. To hold off from buying on credit during a financial asset price inflation that one cannot stop, for its part, is simply to 'leave money on the table' in the form of the spread between cheap credit and high capital gains.

The significance of this structural identity is that the solution to the problem in both cases also takes the same form. Solution to a collective action problem requires a collective agent empowered to act in the name of all. That agent then acts on the requisite market as a whole by tightening the money supply in the consumer price inflation, and by tightening the credit supply in the asset price inflation. Because money and credit themselves overlap, in turn – with credit constituting part of the money supply broadly construed – it is not hard to see the sense in which central banks with consumer price inflation fighting mandates are well situated to take on asset price hyperinflation fighting mandates.

In short, then, owing to the close conceptual and practical links between consumer price instability and financial price instability, central banks and monetary authorities both

have most need of involvement in macroprudential finance-regulatory policy, and most experience with the kinds of policy tools necessary to conduct such policy.

## 2. Treasury Departments and Finance Ministries

After the central bank or monetary authority, that government agency best situated to play a role in maintaining financial stability macroprudentially is jurisdiction's treasury department or finance ministry. Again there are several principal reasons.

One reason is that a nation's treasury or finance ministry is of course charged with managing the financing of government operations, a function that is much more readily discharged under conditions of financial stability than otherwise. The treasury or finance ministry therefore has a significant interest in the maintenance of financial stability just as the central bank or monetary authority has an interest in the conduct of financial-stability-maintenance.

A related reason is that the treasury or finance ministry, as an agent of the executive of most governments, is much more directly a hand on the financial system directed by the popular will than is the independent central bank or monetary authority – at least in polities whose executives are democratically elected. Hence the treasury or finance ministry can constitute a democratic counterweight, in the conduct of macroprudential finance-regulatory policy, to the politically insulated central bank or monetary authority. Although discord between these two nodes of power could lead to dysfunction, cooperative action by both can usefully combine independent judgment with democratic responsiveness.

The final reason that a nation's treasury or finance ministry will tend generally to be involved in the financial-stability-maintenance function is that it will tend, in virtue of its role as financial agent of the government, to maintain a comprehensive view of the financial system as a whole. A surview of that kind, after all, gleaned in the course of seeking and exploiting all of the best opportunities available for the financing of public operations, lends itself to systemic oversight. Hence the treasury or finance ministry's ordinary tasks and operations, like those of the central bank or monetary authority, simply well situate it to play a macroprudential finance-regulatory role.

## 3. Piecemeal Sectoral Regulators

Another way in which to conduct macroprudential financial regulation is simply to divide tasks and assign them to distinct sectoral regulators, sometimes misleadingly labeled 'functional' regulators. A nation might assign regulation of the full banking system to one regulator, for another, and regulation of the securities industry to another. Insurance regulation might be assigned to yet another regulator, and so on. Were it not for the Fed's role in preserving price stability and the Treasury's sporadic interest in financial system

stability in the U.S., macroprudential regulation such as it has existed in the U.S. over the past century or so would have followed this model. And as it happens, during periods, such as the early years of the 21<sup>st</sup> century, in which neither the Fed nor the Treasury took the macroprudential role particularly seriously, this has indeed been the way of things in the U.S.

The problem with this model, however, is that it tends to lend itself to sector-specific macroprudential regulation at best, and dysfunctionally fragmented microprudential regulation at worst. For in the absence of significant coordination and collaboration by sectoral regulators, the arbitrage-driven inter-sectoral linkage and convergence phenomena described above in Part II.B will tend to outrun the adaptive capacities of the distinct sectoral regulators.

In such cases securities regulators with no expertise in bank regulation will then find themselves faced with bank-like MMMFs that they don't know quite what to do with, while insurance regulators will be faced with de facto derivatives issuers that they are not adequately equipped to regulate, and so on. That will in turn mean that the finance-regulatory regime will be prone to significant gaps over time, through which systemic risks works its way into and throughout the financial system. Indeed, something much like this appears to have occurred with the growth of the so-called 'shadow banking' sector in the U.S., over a course of years during which neither the Greenspan Fed nor the Treasury seem to have conceived their roles in robustly macroprudential finance-regulatory terms.

It is presumably for reasons such as these that the U.S. and other jurisdictions have in recent years begun making serious efforts to bring distinct functional regulators together on macroprudential finance-regulatory councils, to more on which we now turn.

#### 4. Unitary, 'Twin Peaks,' 'Risk Council' and Other Pluralist Models

The final model pursuant to which macroprudential financial regulation might be conducted involves bringing distinct sectoral regulators together in one way or another, often with the central bank or monetary authority, and the treasury or finance ministry, involved as well. The U.K. and Japan, for example, combined their sectoral regulators together into unitary Financial Services Authorities (FSAs) in 1999, which then gradually came to work in conjunction with the nations' central banks to conduct something like macroprudential regulation in subsequent years. They accordingly moved from fragmented, to unitary, to 'twin peaks' models of macroprudential finance-regulator.

The U.S., for its part, established a semiformal President's Working Group (PWG) in the 1990s to do much the same that the British and Japanese 'twin peaks' models did, then formalized the arrangement in the form of a Financial Stability Oversight Council (FSOC) with the Dodd-Frank legislation of 2010. The European Union, as we shall see in more detail below, also has moved toward something like this 'risk council' model. And in a sense, the

Fund itself, along with the BIS, can be seen as a species *global* ‘risk council.’ What all of these variations have in common is that they seek explicitly to avoid the dangers associated with regulatory fragmentation, in order in turn to ensure that the financial system is monitored and regulated in its entirety, all in the name of financial stability. They are accordingly consolidative measures aimed at supplementing traditional microprudential finance-regulation with a significant macroprudential component.

### III. MACROPRUDENTIAL REGULATION – LEGAL ISSUES AND TRADEOFFS

#### A. *Legal Issues and Tradeoffs Common to Macroprudential and Microprudential Regulation*

Not all legal issues and tradeoffs implicated by macroprudential finance-regulatory policies are unique to those policies. Some are implicated by financial regulation irrespective of its micro- or macro-orientation. It will accordingly be helpful first briefly to catalogue the latter, then to isolate and more fully discuss the issues and tradeoffs implicated by the shift to a macroprudential regulatory perspective in particular. The legal issues and tradeoffs implicated by financial regulation in general, irrespective of its micro- or macro-orientation, are apt to be more or less familiar to many. It will accordingly suffice to note them but briefly in passing.

##### 1. Nondelegation Norms vs. Necessary Expertise, Discretion, and Political Independence

One tradeoff necessitated by all forms of financial regulation appears to be likewise necessitated by other forms of regulation, and has accordingly been familiar since the rise of the ‘administrative state’ early in the twentieth century. This is the tradeoff between nondelegation norms on the one hand, and necessary administrative expertise, discretion, and political independence on the other hand.

The idea of ‘nondelegation’ stems from the ideals of democratic governance and separation of powers that gained currency in the early decades of the modern era. Pursuant to these norms, legislation on the one hand, and execution of the laws on the other hand, were to be strictly separated, with the former determined by careful democratic deliberation responsive to the popular will, and the latter conducted by popularly elected executors.

The need proactively to regulate increasingly risky, externality-imposing economic activities that emerged in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, however, raised challenges to the comfortable democratic governance and separation of powers images of a century earlier. Many regulatory tasks required more expertise, and more flexible means of norm-generation and -enforcement, than could be reasonably expected of democratically elected legislatures. Certain quasi-legislative functions accordingly began to devolve upon agencies of the

executive organs of government, with legislatures simply conferring broadly articulated mandates upon regulators who then supplied finer-grained rules meant to further the broad legislative purpose.

Because this change sat uncomfortably with the earlier mentioned constitutional norms, however, it became necessary for some legislatures and courts to attempt to draw limits on just how much rule-making and -enforcing discretion could be ‘delegated’ by legislation to executive instrumentalities. These lines of demarcation have, ever since, been anything but clear. Indeed they have tended to shift back and forth over time in the form of changed legislation and changed court-elaborated doctrine. Hence the limits on delegation are ever-contested and ever-shifting.

In the realm of finance and other high stakes spheres of endeavor – e.g., public health and nuclear energy – the balance between nondelegation and discretion-conferral has tended in general to be drawn in favor of the latter. The thought is that finance is a highly technical subject demanding significant expertise of those who would understand it, hence regulate it, while the average legislator is lacking in that expertise. Finance-regulatory regimes accordingly tend to confer broad spheres of discretion upon regulators.

A distinct but related reason for such conferrals of discretion is that finance and its regulation tend to bear quite directly, in the short term, upon the fortunes of the citizenry, such as to render the manipulation of finance-regulatory norms tempting to political figures hoping to induce fleeting senses of wellbeing among populations in the months leading up to elections. Because such actions can be economically harmful in the longer term – after elections have been held – it is thought that some measure of independence from the political process on the part of financial regulators makes for prudent policy.

The idea is more or less identical to its counterparts in familiar arguments in favor of central bank independence and even judicial independence, even if somewhat less compelling in the one case than in the others. In any event, the fact that the argument is accepted and financial regulators accordingly endowed with considerable discretion should not obscure the fact that a tradeoff is made. Any jurisdiction that adopts macroprudential finance-regulatory measures will accordingly have to take a position along these lines, determining how much in the way of democratic accountability and separation of powers it is willing to sacrifice in the name of discretion and political independence on the part of financial regulators.

It bears noting, however, that this nearly as true of microprudential as it is of macroprudential financial regulation. Such additional difficulties as macroprudential regulation occasions are treated further below.

## 2. Transparency and Accountability Norms vs. Necessary Expertise, Discretion, and Institutional Independence

Much of what was said in the foregoing subsection carries over to the matter of regulatory transparency and accountability. Many of the same considerations that lay behind the movement to democratic governance and separated powers in the early modern era brought not only nondelegation concerns, but also transparency and accountability concerns to the fore as more and more erstwhile legislative functions devolved upon executive agencies. The worry was that insofar as executive agencies, in contrast to executives themselves, were not monitored and elected by the general public, a ‘democratic deficit’ could come to characterize certain governmental actions. One response to this growing perception was the imposition of auditing and related requirements upon administrative agencies by legislatures.

A potential problem raised by this development, however, is that some such transparency and accountability requirements can compromise regulatory discretion and political independence much as can nondelegation norms. There is accordingly a tradeoff here just as there is there, with various degrees of discretion and independence coming at the expense of transparency and accountability, and vice versa. In some cases, this tradeoff can become quite acute. A financial regulator might, for example, find it much easier to acquire necessary information from a regulated entity insofar as it can credibly commit to that entity not to share the information with its competitors. A transparency requirement pursuant to which the regulator is required to make public such information can accordingly compromise its mission in a serious way. Like remarks hold more acutely still of much that central banks and monetary authorities due pursuant to their mandates.

As before with nondelegation, so here, the tradeoff in question is not unique to macroprudential finance-regulatory regimes. It is present in all forms of financial regulation. Also once again, however, this should not obscure the fact that the adoption of new macroprudential finance-regulatory measures involves taking a position in respect of these classic tradeoff questions. Nor should it obscure the fact that macroprudential measures can in some cases render these familiar tradeoffs yet more acute, as we shall see in the following subsections.

### *B. Legal Issues and Trade-offs Raised by Macroprudential Regulation’s Inherently Systemic and Cross-Sectoral Character*

We turn now to legal issues and tradeoffs raised by macroprudential finance-regulatory policies in virtue of their specifically macro-orientation. These issues are, not surprisingly, best understood by reference to those attributes of macroprudential regulation that were noted above to be distinctive of this orientation. The first such attribute in

connection with which legal challenges are raised is macroprudential regulation's attention to cross-institutional and -sectoral linkages and inter-substitutabilities.

### 1. Divisions of Regulatory Authority and Inter-Regulatory Cooperation

Because the macroprudential approach to financial regulation is inherently not only cross-institutional, but also cross-sectoral in character, effecting it can be difficult in jurisdictions in which distinct financial institution types are subject to distinct regulators with distinct statutory mandates. Such is the case, among other jurisdictions, in the U.S., which has one of the world's more fragmented finance-regulatory regimes.

Separate banking, broker-dealer, and insurance regulators, for example, when they exist, gather distinct bodies of data and regulate distinct clusters of institutions pursuant to distinct bodies of substantive rules. Yet where transactional linkages and consequent interdependencies occur among institutions of distinct types, the effectiveness of one regulator will tend to depend upon the effectiveness of, along with information-sharing and other forms of cooperation and collaboration with, another regulator possessed of distinct jurisdictional authority. And where functional convergences occur between nominally distinct financial institution types, such that Type B institutions increasingly afford products and services akin to those traditionally offered by Type A institutions, Type B regulators' success is more apt to be secured insofar as they are able to learn from the prior experience of Type A regulators.

System-wide regulatory efficacy under such circumstances will thus tend to ride on the specific division of regulatory authority, the effectiveness of each distinct regulator, and the degree to which regulators are able and willing to cooperate. The first and third of these factors are of course significantly determined by statute. The legislature must decide both how many, if any, distinct sectoral regulators there will be, and how cooperation and collaboration among them is to be secured in the event that there is more than one. A number of options, each discussed below, are available on this score.

### 2. Interactions with Overlapping and Adjacent Policy Spaces – e.g., Credit-Allocation and Monetary Policies

Beyond matters of cooperation between distinct regulators within the financial system, there is the separate but related matter of interactions between macroprudential finance-regulatory policy on the one hand, and adjacent policy spaces on the other hand.

Owing to the money-like properties of many financial instruments and transaction-types, for example, much in the way of cross-sectoral finance-regulatory policy of the sort characteristic of the macroprudential perspective cannot but affect the 'money supply' broadly construed, hence the effectiveness of the monetary authority in the event it is distinct

from the macroprudential finance-regulatory authority. Similarly, much in the way of monetary policy can be expected to affect the success of macroprudential finance-regulatory policy in these circumstances.

But this means in turn that if a nation's monetary authority on the one hand and financial regulator(s) on the other are distinct, they will be faced with a challenge much like that faced by distinct finance-sectoral regulators as noted in the previous subsection. Effective cooperation will be requisite to each authority's success, as will be means of determining how best to 'balance' distinct policy objectives in the event they conflict as they sometimes might.

The legislature of the jurisdiction in question must accordingly take at least one and possibly more than one measure. First, it must either determine, or delegate to some office the authority to determine, how best to reconcile conflicts of objective; this must be done even if the monetary and macroprudential finance-regulatory authorities are one and the same agency – e.g., the central bank. And second, it must determine, in the event that the monetary authority and macroprudential finance-regulatory authority are distinct, how best to ensure cooperation between these authorities – just as it must do in the case of distinct sectoral regulators within the finance-regulatory system itself.

Similar remarks hold in connection with other policy spaces from within which public action can collaterally affect the effectiveness of macroprudential financial regulation and vice versa. Many nations adopt policies meant to allocate credit on particularly favorable terms to certain sectors deemed worthy of special solicitude for cultural, historical, or other reasons. Most nations have policies of this sort in respect of certain traditional and culturally resonant agricultural subsectors, for example – e.g., rice in Japan, cheeses and wines in much of Europe, and 'small family farms' in the U.S. Many also have policies of this sort in respect of higher education, home finance, and small business enterprises.

In all such cases, the centrality of credit to the financial system entails that macroprudential finance-regulatory policies will bear upon the success of particular authorities charged with favorable credit-allocation in the adjacent spaces. Depending upon the sizes of those spaces, in turn, effects will run in the other direction as well. In the U.S., for example, home finance represents a very large portion indeed of financial flows – as do, to a lesser extent, higher education and small business finance. But this means that the U.S. has had to develop means by which the aims of the central bank and financial regulators are to be reconciled with those of the Federal Housing Administration and the secondary mortgage market makers Fannie Mae and Freddie Mac, the Department of Education, and the Small Business Administration, as will be discussed more fully below.

### 3. Accountability and Difficulties in Measuring 'Success'

Another legal challenge uniquely raised by the shift to a macroprudential finance-regulatory orientation links up with the accountability norms to which many jurisdictions hold regulators. To be held accountable, regulators must be evaluable in relation to goals that are statutorily set for them. ‘Success’ then can be understood by reference to the objectives in question and how effective the regulators are in achieving them.

Insofar as regulators act in keeping with microprudential regulatory goals, the measure of ‘success’ is relatively simple and straightforward. After all, the safety and soundness of particular institutions and their practices can generally be ascertained by reference to those institutions’ profitability and continuing viability over time. And even when some institutions get into trouble or fail, if the number of such institutions represents a relatively small fraction of all institutions in the sector in question, a regulator can plausibly be deemed to have carried out its mandate with relative success.

When the scope of regulatory concern broadens to encompass a more diffusely described goal such as ‘systemic risk reduction’ or ‘financial stability,’ on the other hand, the measure of regulatory success can become somewhat more slippery. A certain degree of ‘cycling’ in the valuation of particular classes of financial asset would seem to be inevitable in any secondary-market-inclusive financial system, and it is not immediately apparent what range of possible peak and trough amplitudes is the ‘correct’ or ‘optimal’ one.

This would be the case even were financial instruments limited to a small number of types that remained invariant over time. It is accordingly all the more true in a system, such as that with which we actually live, in which new classes of asset are invented all of the time. For in respect of new asset classes, greater swings between peak and trough can be reasonably expected and tolerated early on in their ‘lives’ than after they have established themselves.

While this problem, as just characterized, might strike U.S. as a practical one, it is critical to note that it’s also a legal one. For again, real accountability requires real measures of success, and difficulties in ascertaining what should count as success accordingly translate into difficulties in holding regulators to account. This might indeed constitute the most significant legal challenge facing the move to macroprudential finance-regulatory policy.

The problem should not be overstated, however. For open-ended desiderata such as ‘systemic risk reduction’ or ‘financial stability’ need not constitute the canonical articulations of regulatory aims in a macroprudential finance-regulatory regime. The regime might instead stipulate that specific average cross-sectoral leverage rates, credit-growth rates, maturity mismatch maxima, capital buffer and countercyclical provisioning amounts as regulatory goals – goals set in the interest of systemic risk reduction or financial stability. Then regulators can be held to account according as they succeed in maintaining those rates and amounts.

Of course, this solution to the problem might be viewed as simply shifting it to another sphere – namely, that in which we determine how much deference to pay technocratic expertise in its determination of what rates and amounts are ‘best,’ as discussed in the previous subsection. But this simply means that we’ll have converted a legal challenge unique to macroprudential financial regulation back into a challenge which always has afflicted financial – and other forms of expertise-requiring – regulation more generally.

*C. Legal Issues and Trade-Offs Raised by Macroprudential Regulation’s Inherently Countercyclical, Hence ‘Dynamic,’ Character*

While some legal issues uniquely raised by macroprudential financial regulation stem from its inherently systemic and cross-sectoral character, others stem from its inherently countercyclical hence dynamic character. Because these latter characteristics, moreover, are probably those most uniquely distinctive of macroprudential in contrast to microprudential regulation as noted in Part II, the legal issues they raise are correspondingly distinctive.

1. Procedural Requirements on Rulemaking and Enforcement vs. the Need for Rapid Response

Because credit and leverage growth in a financial system typically can proceed in ‘fits and starts’ fashion, with sudden changes of rate, the determination and enforcement of specific LTV, DTI, credit outstanding, liquidity, maturity mismatch, capital, and countercyclical buffer provisioning measures in the name of financial stability must sometimes be done very quickly, with little time for public deliberation or comment. At least that is so if macroprudential financial regulation is to be finely tuned and responsive in the way that the justifications for this change of regulatory focus would suggest.

The problem, of course, is that this need for ‘rapid response’ style regulatory flexibility, so characteristic of the macroprudential approach to financial regulation, conflicts very starkly with the constitutional norms to which many jurisdictions hold administrative agencies accountable. The principal point behind these norms is of course to ensure an opportunity for all parties that stand to be affected by a regulatory provision to contribute to the regulator’s deliberations in formulating and implementing it. But wide-scale deliberation of course rests in tension with dispatch. A jurisdiction that would put macroprudential finance-regulatory regimes in place is accordingly faced with a straightforward tradeoff. Deliberation entails an expense in the form of dispatch, and dispatch entails an expense in the form of deliberation.

Once again, however, the problem should not be overstated. A decision hastily made can presumably likewise be hastily unmade, should the regulator in question prove to have erred on the side of caution in responding rapidly to a sudden change in credit or leverage

growth rates within the financial system. Moreover, insofar as all financial regulation, micro- and macroprudential alike, requires expertise and accordingly involves broad conferrals of discretion upon most financial regulators worldwide, the conferral of ‘rapid response’ authority upon macroprudential regulators can itself be considered not all that unusual. Questions concerning the timing of regulatory impositions, after all, would seem to be as much matters of expertise as are questions concerning the substance of those impositions.

## 2. Procedural Limitations on Enforcement Authority and the Need of Regulatorily Relevant Information

Many of the observations just made on the tradeoff between rapid regulatory response capability on the one hand and procedural limitations on regulators on the other hand carry over, albeit in somewhat attenuated form, to the information-gathering functions of regulators.

In order to apply macroprudential finance-regulatory tools of the kind catalogued in Part II.C, regulators must be able to track measures of credit growth, leverage growth, liquidity and capital measures, and like variables not only within specific sectors of the financial system, but across such sectors as well. In order to respond to excesses in the measures in question with optimal celerity, moreover, they must be empowered to gather the requisite information with great frequency. Hence once again, expedition is critical to the regulatory task.

The same norms pursuant to which many jurisdictions aim to slow the regulatory process in order to ensure deliberation, however, to some extent also militate against excessive intrusion on the part of regulators into the daily operations of private actors. Hence the ‘time element’ added to financial regulation by the macroprudential perspective might in some cases carry financial regulation farther in the direction of ‘command and control’ style regulation than some political cultures might find acceptable.

This problem, too, however, can be overstated. After all, a jurisdiction that elects to include ‘rapid response’ authority among the powers conferred upon regulators in the name of macroprudential supervision would appear to be operating at crossed-purposes were it in the same breath to deny the regulator authority to gather information with the frequency requisite to carrying out the rapid response mandate. It is probably best, therefore, to handle this difficulty in the same enactment as resolves the tradeoff question addressed in the previous subsection.

## IV. MACROPRUDENTIAL REGULATION ON THE BOOKS – SOME REPRESENTATIVE INSTITUTIONAL ARRANGEMENTS AND STATUTORY LEVERS

We now turn to some sample macroprudential financial oversight and regulatory measures adopted by several leading jurisdictions since the global financial turmoil of 2008 and 2009 – the U.S., the U.K., and the E.U. In some cases, some of the measures discussed were initiated shortly prior to 2008 – for example, in 2005 in the U.S. In other cases, some of the measures discussed were initiated even earlier – for example, in 1998 in the U.K. and 1999 in the U.S. Because they were initiated partly in anticipation of worsening financial conditions that already had shown themselves to be dangerous by the turn of the new century or midway through the last decade, however, and because subsequently adopted measures partly built upon them, they too figure at least marginally into the discussion below.

#### *A. Two Kinds of Measure: Institutional and Behavioral Standard-Setting*

The measures here discussed also can be helpfully considered under two distinct categories. One is the category of what we shall call ‘institutional’ measures. The other is that of what we shall call ‘behavioral standard-setting’ measures. Measures of the former kind are rules or directives to which private market actors are subject, put into place by legislatures and/or finance-regulatory bodies in order to modulate procyclicalities, cross-sectoral linkages, and associated buildups of systemic risk in financial markets.

##### 1. Institutional Measures

Institutional measures are administrative reorganizations or cognate changes meant to render the project of governmental finance-regulatory oversight more efficient and effective. These correspond ‘Who?’ question considered above in Part II.D. As we shall see, a variety of arrangements have been decided upon in recent years.

##### 2. Standard-Setting Measures

Standard-setting measures are rules or directives to which private market actors are subject, put into place by legislatures and/or finance-regulatory bodies in order to modulate procyclicalities, cross-sectoral linkages, and associated buildups of systemic risk in financial markets. Most of those we consider here figure as ‘tools’ in the ‘macroprudential toolkit’ elaborated in response to the ‘How?’ question addressed above in Part II.C.

#### *B. The United States*

The U.S. has in recent years adopted institutional and standard-setting reforms alike. As more fully elaborated below, it has adopted limited versions of macroprudential policy tools (3), (4) and (5) – reserve and capital buffer requirements, dynamic provisioning, and liquidity minima and maturity mismatch maxima – listed above. It has also adopted more robust versions of tools (6) and (7) – cross-sectoral surveillance and data collection on the one hand, and mitigating the TBTF problem on the other.

In connection with the latter, in turn, it has also adopted institutional reforms that complement them. Finally, the U.S. long has had tools of types (1) and (2) – credit and leverage regulation – though it has not thus far employed them with macroprudential aims forthrightly in mind. It should also be noted that in all of these cases, the U.S. regime is more proactively macroprudential in character where commercial banks are concerned than where other financial institution types are concerned, meaning in turn that its tools thus far are less cross-sectoral in character than they could be.

## 1. Institutional Measures

With respect to institutional features of U.S. macroprudential finance-regulation, the Dodd-Frank Act takes particularly significant strides in the direction of unifying the erstwhile separate functioning of distinct so-called ‘functional’ regulators. Many American commentators attributed the buildup of system risk in the lead up to 2008 at least partly in the fact that the U.S.’s several bank regulators, its securities and investment company regulators, and its state insurance regulators all focused on particular subsectors of the financial system, thereby missing the systemic risk forest for the institutional trees. This was the case notwithstanding the partial consolidation of once even more diffuse financial regulators brought by the Gramm-Leach-Bliley Financial Services Modernization Act of 1999.

Dodd-Frank accordingly establishes a central council with two critical attributes. The first such is its bringing all of the functional regulators, together with the Treasury Department and the central bank – the Fed – into regular shared deliberation. The second such is its empowering the Council qua council with particular powers – notably the SIFI-designation power as mentioned above, which is paired with authority to promulgate heightened behavioral standards applicable to the same.

## 2. Standard-Setting Measures

As noted before, the U.S. also has adopted reforms in the realm of behavioral standard-setting, in the form of ‘tools’ that the macroprudential ‘toolkit’ discuss above in Part II.C includes.

With respect to tools (3), (4) and (5) – reserve and capital buffer requirements, dynamic provisioning, and liquidity minima and maturity mismatch maxima – the U.S. has long had less explicitly macroprudential versions of such requirements in its finance regulatory regimes. Reserve requirements have been imposed upon commercial banks under Federal Reserve Regulation D since many decades ago, and capital regulation has been a prominent feature of U.S. banking law under the aegis of the Federal Deposit Insurance Corporation (FDIC) for nearly as long.

The Net Capital Rule as administered by the U.S. Securities and Exchange Commission (SEC) subjects securities firms to (lighter forms of) capital regulation as well; and the SEC imposes similar rules, varying with the kind of fund in question, upon mutual funds and other investment companies. Finally, capital regulation also figures among the core regulatory tools employed by the fifty U.S. state insurance regulators, who are the primary regulators of the U.S. insurance industry under the McCarran Ferguson Act of 1946. In all of these cases, moreover, ready liquidity on the part of an institution, and/or low degrees of maturity mismatch as between assets and liabilities, have entitled financial institutions to hold smaller capital buffers.

What has *changed* in the U.S. with respect to tools (3), (4) and (5) since the recent financial turmoil, however, is both the explicit embrace of macroprudential purposes in their use and the consequent embrace of ‘dynamic’ renditions of them. Whereas reserve and capital buffer requirements and their periodic adjustment were viewed and employed prior to the crisis primarily for microprudential aims sounding in institutional safety and soundness, since the crisis they have come to be recognized as helpful in the cause of limiting systemic risk and financial instability as well. This is particularly so where banks are concerned, and it is particularly evident in the explicit embrace by the U.S. Federal Reserve of Basel III’s recommended ‘countercyclical buffer’ requirement. Of course, for so long as the U.S., like most of the Fund’s Member Countries with large economies, remains mired in macroeconomic slump, there will be little if any occasion to test regulators’ willingness to use these tools to ‘lean against the wind’ during boom times. But the fact that a readiness to do so is now explicitly embraced constitutes an important shift in U.S. policy toward macroprudential financial oversight.

It should also be noted here that, at least with respect to commercial banks, the U.S. has had a de facto macroprudentially oriented, dynamic countercyclical provisioning regime in place since 2005-06 in the guise of its Federal Deposit Insurance system. The reference here is to the Federal Deposit Insurance Reform Act of 2005 and the Federal Deposit Insurance Conforming Amendments Act of 2005 (enacted in 2006). These reforms to the U.S. deposit insurance system both (1) converted what had been a procyclical funding mechanism, pursuant to which premia were assessed only when the insurance pool fell below certain threshold levels, to a countercyclical mechanism pursuant to which premia were collected in ‘boom’ times; and (2) explicitly tied premia amounts to bank asset characteristics pursuant to a system of forthright ‘risk-pricing.’ Both changes of course converted the deposit insurance system into a sort of pooled dynamic provisioning system.

Turning next to tools (6) and (7) – cross-sectoral surveillance and data collection on the one hand, and mitigating the TBTF problem on the other – it is here that the U.S. has introduced the greatest degree of change in a macroprudential direction since the crisis of 2008-09. With respect to the first of those, the Dodd-Frank Act of 2010 shifts regulatory focus directly toward system-wide risk in several ways. Two of these ways are institutional

in nature, hence are discussed more fully below. The short-playing version worth providing here is that Title I of the Act establishes a Financial Stability Oversight Council (FSOC) and associated Office of Financial Research (OFR). The first of these organs explicitly combines presently distinct sector-specific regulators so as facilitate oversight of the financial system as a whole, while the second of them is charged with collecting data system-wide that can helpfully inform the Council's deliberations.

The other ways in which Dodd-Frank shifts regulatory focus to the financial system as a whole are by bringing under federal oversight and regulatory authority a sizable number of sectors and transactions that previously went unregulated either at the federal level or even at any level at all. Title IV, for example, covers hedge fund advisors. Title V establishes a new national insurance overseer who, although s/he is not yet authorized to regulate, is authorized to collect data and charged with commencing deliberation on the relative advantages and disadvantages of federalizing insurance regulation. Finally, Title VIII brings many payment, clearing, and settlement systems – including those used in derivative transactions – under federal regulatory authority. Through all of these means Dodd-Frank aims to expand coverage of federal oversight and regulatory authority to subsectors of the financial services industry that had previously escaped systematic scrutiny.

On dealing with the TBTF problem, here too the U.S. has introduced fundamental changes since the recent crisis. While it has not thus far elected to break up TBTF institutions or prevent their coming into existence, it has adopted the other two canonical means of addressing the special risks that they pose – viz. providing ex ante for their orderly liquidation, and imposing more stringent versions of the other macroprudential tools to them. With respect to the first of these, Title II of Dodd-Frank requires that the FSOC designate certain financial institutions as 'systemically significant' ('SIFIs') on the basis of certain criteria, then require that those institutions draw up so-called 'living wills' that can assist the FDIC in liquidating them in an orderly way, patterned after the FDIC bank resolution scheme, should they fail. The Act also vests the FDIC with the liquidation authority there referenced. Finally, any institution's being designated a SIFI by the FSOC under Title I also triggers heightened liquidity and capital regulatory standards meant to offset the added element of systemic risk brought by large size and interconnectedness.

Turning now to tools (1) and (2) in the toolkit – credit and leverage regulation – as mentioned before the U.S. has long had versions of these tools available, but has not until recently viewed them as macroprudential in nature. That is now beginning to change, partly in owing to changes of attitude toward macroprudential regulation at the U.S. Federal Reserve, and partly in owing to Title XIV of Dodd-Frank.

With respect to credit regulation, mandatory portfolio diversification requirements have long been a part of U.S. commercial bank regulation, while reserve requirements along with capital buffer requirements, as mentioned before, long have limited total credit

exposures on the part of U.S. banks. Less stringent counterparts have long applied to U.S. securities firms, investment companies, and insurance companies. Until the recent crisis, however, these were viewed mainly as microprudential regulatory tools, geared toward ensuring the safety and soundness of individual institutions. One way in which this has changed since 2010 takes the form of the aforementioned prospect of SIFI designation by the FSOC under Dodd-Franks, as the scope and nature of a financial institution's counterparty relations figures into determinations of interconnectedness which in turn partly determine systemic importance.

With respect to leverage regulation, the U.S. Federal Reserve had authority, even prior to the real estate boom and bust that triggered the recent financial turmoils, to regulate mortgage origination and, with it, LTVs and DTIs. In late 1990s and early 2000s, however, the Fed did not avail itself of that authority – perhaps partly because here too the tools were viewed mainly in microprudential terms. Title IV of Dodd-Frank, however, changes the regulatory terrain both by requiring use of these tools in determining – and enforcing – mortgage loan standards and by vesting rule-making and enforcement authority under these requirements in a new regulatory agency – viz. the Consumer Financial Protection Bureau (CFPB), established by Title X of Dodd-Frank as a semi-autonomous agency housed within the Fed. Standards with respect to LTV and DTI figure into Subtitles A and B, on mortgage loan and loan origination standards, in particular.

### *C. The United Kingdom*

The U.K. has in many ways been ahead of the proverbial 'curve' where the shift to a macroprudential-inclusive finance-regulatory focus is concerned. Its Financial Services Act (FS Act) of 1998 appears to be the first piece of legislation in a globally significant financial jurisdiction to embrace macroprudential policy explicitly. It also was first in simplifying the finance-regulatory division of labor, by vesting macroprudential oversight authority in the Bank of England (BoE) and cross-sectoral microprudential finance-regulatory authority in a Financial Services Authority (FSA) which the Act itself instituted. (The U.K. Treasury also took a role, where public funds needed for lender of last resort functions were at stake.) Because these measures antedated the development of the earlier mentioned 'macroprudential toolkit,' however, the FS Act did not expressly lay out behavioral standard-setting measures couched in the terms enumerated above as measures (1) through (7).

Since the financial turmoil of 2008-09, a number of governmental or quasi-governmental authorities and inquiry commissions in the U.K., notably the Vickers Commission and the Bank of England, have actively reassessed the financial oversight system put into place in the wake of the FS Act of 1998. The ultimate upshot of these studies is the Financial Services Bill (FS Bill) of 2012, introduced in January of 2012 and expected to reach final approval early in 2013. The FS Bill includes both institutional changes and the

adoption of several ‘tools’ from the macroprudential toolkit enumerated above. It will be convenient to summarize these changes in the order just given.

## 1. Institutional Measures

Institutionally, then, the FS bill first both sharpens the BoE’s previous macroprudential mandate and transfers to the BoE the erstwhile FSA’s microprudential mandate. It effects the first of those changes by establishing a macroprudential authority – the ‘Financial Policy Committee’ (FPC) – within the BoE to monitor systemic risk in the financial economy. It effects the second of those changes by establishing a microprudential authority – the ‘Prudential Regulation Authority’ (PRA) within the BoE to monitor individual financial firms for their institutional safety and soundness.

The FS Bill also establishes a new ‘Financial Conduct Authority’ (FCA) outside of the BoE, which is to monitor the behavior of financial firms with a view to consumer and investor interests. (The FCA can in this sense be analogized to the Consumer Financial Protection Bureau (CFPB) established by the U.S.’s Dodd-Frank Act in 2010, more on which below.) Finally, the FS Bill closes the FSA established by the FS Act of 1998, since all of its erstwhile functions (and more) are assigned to the aforementioned three entities.

## 2. Standard-Setting Measures

Turning from institutional to behavioral standard changes, the FS Bill expressly adopts multiple variants of most of the tools found in the ‘toolkit’ elaborated above. What is more, as the concentration of all macro- and all micro-prudential oversight functions in singular agencies would suggest, the Bill adopts these measures in cross-sectoral form. With respect to leverage regulation – tool (1) – for example, the Bill vests the FPC with the authority and responsibility to impose loan to value (LTV) and loan to income (LTI) restrictions on mortgage lending, and minimum margin requirements applicable to secured financing and derivative transactions. With respect to dynamic reserve, capital, and liquidity requirements – tools (3), (4) and (5) – the Bill vests the FPC with authority and responsibility to impose both risk-weighted and leverage-based capital requirements, as well as time-varying loss-provisioning and liquidity requirements, on a cross-sectoral basis. The Bill also expressly adopts the countercyclical capital buffer strategy recommended by the Basle III accord.

Where cross-sectoral surveillance and TBTF mitigation – tools (6) and (7) – are concerned, the FS Bill also provides apposite measures. With respect to surveillance, the Bill by its terms charges the newly established FPC with monitoring systemic-risk-relevant practices trans-sectorally through the financial system. It also specifies disclosure requirements, incumbent upon all financial firms, with that cross-sectoral monitoring function in view. As for TBTF, the Bill both imposes more restrictive versions of the

aforementioned standards upon certain designated systemically important firms , and continues the earlier FS Act’s policy of strategic ambiguity in respect of the lender of last resort (LOLR) function, in order to mitigate ‘moral hazard’ concerns that would be raised by forthright commitment to ‘bail out’ large firms in trouble. The Bill also clarifies authority held by Treasury with respect to BoE resolution functions, in the event of financial turmoil and consequent firm failure, where public funds might be put at risk.

#### D. *The European Union*

The most far-reaching reforms thus far proposed in the E.U., none of which has yet had time to be actually legislated, find articulation in the recent Liikanen Commission Report (‘Liikanen,’ ‘Report’). The Report does not make recommendations where institutional arrangements are concerned, but it does have a good deal to say about standard-setting.

##### 1. Institutional Measures

As just noted, the E.U. has not yet undertaken regulatory-institutional reform. The reasons are many, but chief among them is that the members are still very much divided over a number of fundamental matters. One is precisely what form the European Central Bank (ECB) should take, and what powers it should wield, in the wake of the recent and perhaps still festering ‘Euro Crisis.’<sup>42</sup> Another is whether, and how, Europe should go about regulating banks – for example, whether there should be a single European banking compact and regulator, or whether bank regulation should continue to be a primarily member state matter. These and cognate questions are sufficiently fundamental and thorny – much more so even than questions concerning how best to regulate macroprudentially – as to warrant passing over them here. We accordingly proceed straight on to standard-setting measures such as Liikanen recommends to all E.U. member states.

##### 2. Standard-Setting Measures

Most of the attention that Liikanen has received thus far has been grabbed by its ring-fencing-like proposal – a variation on Vickers in the U.K. and Volcker in the U.S. The principal and by now quite familiar concern animating such structural reform proposals is that depositors’ funds not be used -- and don’t find their way – into financing or funding that kind of activity. An allied concern is to make clear that there is no explicit or implicit government guarantee of the risk-taking entity simply by dint of its loose connection to a deposit-taking entity within some financial group.

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<sup>42</sup> For more on this, see, e.g., Robert Hockett, *Contracts, Currencies, and Legal Change*, 30 U. PA. J. INT’L L. \_\_\_ (2013) (forthcoming); and Robert Hockett, ‘Save Europe’s Marriage with a Trial Separation,’ *Bloomberg View*, June 12, 2012, available at <http://www.bloomberg.com/news/2012-06-12/save-europe-s-marriage-with-a-trial-separation.html>.

Liikanen's proposed structural reform is of course not a 'tool' in the macroprudential toolkit elaborated above in Part II.C, any more than are Vickers-style ringfencing or Volcker style account-segregation. It is important to note, however, that Liikanen is not just a ring fencing proposal. There are at least five distinct proposals made by Liikanen. And what is most striking about these is how many similarities there are between them on the one hand and what the U.S. and U.K. are now doing after counterpart official inquiries of their own, as discussed just above, on the other hand.

The second salient proposal found in Liikanen, then, after ringfencing, is an orderly liquidation authority (OLA) arrangement much like that which you find in Dodd-Frank – tool (7) in the kit elaborated in II.C above. The OLA recommendation connects up with the ring fencing pillar as well in Liikanen, in that the Report recommends that this pillar is necessary for the purposes of arriving at a plausible liquidation, or living will plan, for a European institution. Jurisdictions that follow Liikanen's recommendation might even require yet stricter separation, between the proprietary risk-taking activities on the one hand and deposit-taking activities on the other hand, of institutions that are large or interconnected enough to require living wills. So there is a link up in the sense that you might require even more than the garden variety separation offered by ring fencing in the case of an institution that you require to compose a plausible living will.

Liikanen's third recommendation is that institutions rely more heavily on various kinds of so-called 'bail-in' lending or debt – a variation on tool (3) concerning capital buffers. There are two reasons. The first is to enhance the capital buffer. In addition to having the equity buffer that ordinary capital regulation would require, for example, E.U. member jurisdictions would make more granular prescriptions with respect to the kind of Tier 2 capital or the kinds of debt capitalization or financing of which firms would avail themselves.

The second reason for encouraging 'bail in' is to make the incentives on the part of those creditors a bit more dramatic. The hope would be that those creditors would prevail upon institutions to be a bit more careful and take less risk. This justification of course relies upon certain assumptions concerning the practical governance of financial institutions that might and might not be plausible in particular jurisdictions. In any event, the focus on governance is not part of the macroprudential toolkit as such, however well advised or otherwise it might be. In fact, it has long been recommended as a *microprudential* measure.

Liikanen's fourth proposal is a grab-bag of recommendations that all have analogs in both the U.S. and the U.K. as discussed above. For example, more robust risk-weighting standards – another instance of the perennial effort to head-off gaming of capital standards. In addition, attention to leverage, leverage ratios, maturity mismatch, and reliance on short-term funding figure prominently – the kinds of concerns that have been discussed

increasingly here in the States under the rubric of so-called ‘shadow banking.’ In essence, then, these are tool (1) through (4) recommendations.

Finally, Liikanen’s fifth recommendation is that corporate governance provisions be looked at more carefully in the case of financial institutions. In particular, the Report suggests that there should be more powerful and more attentive risk management functions within institutions, as well as more power on the part of the boards to prevail on management not to take excessive risks.

As noted above, these are not, strictly speaking, tools in the emergent macroprudential toolkit, important though they might be. Indeed they are at least as microprudential in orientation as they are macroprudential. Hence readers are referred to the vast literature, most of the recent such associated with John Bogle’s spirited arguments here in the U.S., on the importance of internal governance to internal risk-taking by financial institutions and indeed firms more broadly.

## V. CONCLUSION

We've covered a good bit of ground here, and had best close before we grow tedious. Suffice it to say that the project of macroprudential finance-oversight, puzzlingly controversial as it was prior to 2008, is well underway at long last. This is much to be welcomed. Much more remains to be done, however. Regulators and, indeed, legislatures must address and resolve the multiple legal challenges raised by the project as elaborated above.

They must also, ultimately, do the same at the global jurisdictional level. For all of the domestic spillovers that warrant macroprudential oversight within national jurisdictions operate also across borders. Transnational macroprudential cooperation, moreover, will implicate new constitutional and international-legal issues and tradeoffs of its own, even if many of these be already familiar ever since the days of the first Basle Capital Accords reached in 1988.

I shall trust, however, that the domestic aspects of macroprudential finance-regulation just elaborated suffice for the time being. Fuller elaboration of the cross-border piece of the story, some of it already covered in prior work by the author,<sup>43</sup> will await the sequel.

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<sup>43</sup> See Hockett, *Macro to Micro to 'Mission-Creep,'* supra note \_\_; and Hockett, *Bretton Woods 1.0,* supra note \_\_.