

# The New Financial Stability Regulation

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## Abstract

Financial stability has been one of the more technical and controversial aspects of the post-Financial Crisis regulatory debate. Although much scholarly attention has been devoted to descriptive accounts of particular sources of systemic risk, less attention has been given to developing a normative account of financial stability regulation derived from economic or finance theory. To join that debate, this Article proposes a principles-based framework for identifying the essential functional capabilities and accountability structures of financial stability regulation. This framework is derived from post-Keynesian economic theories which attribute the endogenous instability of the financial system to the fundamental uncertainty associated with the financial contracting process. When viewed against this framework, the U.S. financial stability architecture deserves three cheers for advancing important functional capabilities but critical skepticism of its formal accountability structures. For the specialist, this analysis highlights both the institutional design imperatives of *financial stability exceptionalism* and the dangers of relying on extant financial regulatory paradigms as models for systemic risk regulation. For the non-specialist, adopting a disequilibrium theory of economic performance raises broader questions relating to the efficacy of market discipline, the coherence of administrative delegation and the normative content of economic regulation more generally.

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- I. Introduction ..... 48
- II. Finance, Financial Systems and Financial Stability ..... 54
  - A. What is Finance? ..... 55
  - B. What is Financial Instability? ..... 56
  - C. The Rationale for Pursuing Financial Stability ..... 60
    - 1. Benefits ..... 60
    - 2. Costs ..... 61
    - 3. Trade-Offs..... 63
- III. Theories of Financial Instability ..... 63
  - A. Financial Fragilization ..... 65
  - B. Economic Change ..... 70
  - C. Supporting Evidence ..... 71
- IV. The Structure of Financial Stability Regulation ..... 73
  - A. Functional Capabilities..... 74
    - 1. Anti-*Laissez Faire* Capabilities..... 74
    - 2. Search Capabilities..... 76
    - 3. Coordination Capabilities..... 77
      - a. Prudential Coordination..... 78
      - b. Central Bank Coordination ..... 79
      - c. International Coordination ..... 80
  - B. Accountability Structures ..... 80
    - 1. Prudential Models ..... 82
      - a. Cost-Benefit Analysis..... 82
      - b. Banking Supervision and Technocratic Trust..... 84
    - 2. Central Banking Models ..... 85
- V. The U.S. Financial Stability Architecture ..... 87
  - A. Functional Capabilities..... 87
    - 1. Market Discipline and Anti-*Laissez Faire* Sensibilities ..... 87
    - 2. Systemic Risk Identification and Analysis ..... 90
    - 3. Multi-Level Coordination..... 91
      - a. Domestic Stability Coordination ..... 91
      - b. International Stability Coordination ..... 94
        - i. International Financial Regulators ..... 94
        - ii. International Coordination by Domestic Fiat..... 97
  - B. Accountability Structures ..... 99
    - 1. Mandates and Formal Authority ..... 99
    - 2. Independence and Review ..... 100
    - 3. Transparency, Disclosure and Coordination ..... 102

VI. Conclusion and Extensions..... 107

“[T]he international economy is far too important to be left to the economists.”

– Jeffrey D. Sachs<sup>1</sup>

I. Introduction

Financial stability has been one of the more technical and controversial aspects of the post-Financial Crisis regulatory debate. Notoriously wary of ceding the field to the economists, lawyers have waded into this debate with rich, descriptive accounts of legal and regulatory factors which may have contributed to financial fragility or contagion.<sup>2</sup> Likewise, legal scholars have offered a range of proposals for reducing systemic risk – and thereby enhancing financial stability – including new financial

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1. Jeffrey D. Sachs, Dir. of The Earth Inst., Quetelet Professor of Sustainable Dev., and Professor of Health Pol’y and Mgmt. at Columbia Univ., Address at Yale Law School: Globalization and the Rule of Law (Oct. 16, 1998) (transcript available at <http://earth.columbia.edu/sitefiles/file/about/director/pubs/YaleLawSchool1098.pdf>).

2. See, e.g., Steven L. Schwarcz, *Protecting Financial Markets: Lessons from the Subprime Mortgage Meltdown*, 93 MINN. L. REV. 373 (2008) (examining “anomalies” in the regulation of subprime securitizations including, e.g., why sophisticated investors made poor decisions regarding CDOs and ABS CDOs notwithstanding complete disclosure, why rating agencies failed to fully appreciate correlations in performance of subprime mortgages, etc.); Thomas Lee Hazen, *Filling a Regulatory Gap: It Is Time To Regulate Over-The-Counter Derivatives*, 13 N.C. BANKING INST. 123 (2009) (arguing that the lack of regulation over credit default swaps contributed to the Financial Crisis); Patricia A. McCoy, Andrey D. Pavlov & Susan M. Wachter, *Systemic Risk Through Securitization: The Result of Deregulation and Regulatory Failure*, 41 CONN. L. REV. 1327 (2009) (analyzing impact of deregulation in the residential mortgage and capital markets on the growth in securitization and transmission of systemic risk); Brian J.M. Quinn, *The Failure of Private Ordering and the Financial Crisis of 2008*, 5 N.Y.U. J.L. & BUS. 549 (2009) (addressing wide ranging “regulatory weakness” that contributed to the Financial Crisis); Oren Bar-Gill, *The Law, Economics and Psychology of Subprime Mortgage Contracts*, 94 CORNELL L. REV. 1073 (2009) (analyzing contractual design features of subprime mortgage loans and arguing that borrower irrationality may contribute to such loans not being welfare maximizing); Frank Partnoy & David A. Skeel, Jr., *The Promise and Perils of Credit Derivatives*, 75 U. CIN. L. REV. 1019 (2007) (providing detailed analysis of credit derivatives, including economic benefits and risks).

product approval and licensing,<sup>3</sup> contingent capital requirements for banks,<sup>4</sup> mandatory systemic risk surcharges,<sup>5</sup> restrictions on executive compensation to reduce managerial risk taking,<sup>6</sup> restructuring the regulation of the derivatives markets,<sup>7</sup> elective shareholder liability structures for systemically important financial institutions (SIFIs),<sup>8</sup> and ex post stabilization programs that take a deeply pessimistic view of the potential for ex ante financial stability interventions to avoid systemic shocks.<sup>9</sup> Others have forwarded more theoretical accounts of systemic risk

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3. See, e.g., Saule T. Omarova, *License to Deal: Mandatory Approval of Complex Financial Products*, 90 WASH. U. L. REV. 63, 65 (2012) (arguing that pre-market government licensing of complex financial instruments is necessary to address “the unprecedented degree of complexity and interconnectedness in modern financial markets, and the woeful inability of both private market actors and public authorities to understand and manage the risks these factors posed to systemic financial stability”); Eric A. Posner & E. Glen Weyl, *A Proposal for Limiting Speculation on Derivatives: An FDA for Financial Innovation* (Chi. Inst. for L. and Econ., Working Paper No. 594, 2012) (arguing that financial institutions should be forbidden from marketing new financial products until they satisfy a test for social utility), <http://www.ssrn.com/abstract=1995077>.
  4. John C. Coffee, Jr., *Systemic Risk After Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies Beyond Oversight*, 111 COLUM. L. REV. 795 (2011).
  5. Jeffrey N. Gordon & Christopher Muller, *Confronting Financial Crisis: Dodd-Frank’s Dangers and the Case for a Systemic Emergency Insurance Fund*, 28 YALE J. ON REG. 151 (2011).
  6. See, e.g., Sanjai Bhagat & Roberta Romano, *Reforming Executive Compensation: Focusing and Committing to the Long-Term*, 26 YALE J. ON REG. 359, 359 (2009) (arguing that executives of financial firms receiving federal rescue funds after the Crisis should be required to participate in long-term equity incentive plans with restricted stock and stock options); Frederick Tung, *Pay for Banker Performance: Structuring Executive Compensation for Risk Regulation*, 105 NW. U. L. REV. 1205, 1207 (2011) (recommending inclusion of subordinated debt in executive compensation plans to better align profit and risk management incentives); Lucian A. Bebchuk & Holger Spamann, *Regulating Bankers’ Pay*, 98 GEO. L.J. 247 (2010) (explaining how banker compensation structures may contribute to socially-inefficient risk taking).
  7. See, e.g., Lynn A. Stout, *Derivatives and the Legal Origin of the 2008 Credit Crisis*, 1 HARV. BUS. L. REV. 1, 23 nn.92–93 (2011); Colleen M. Baker, *Regulating the Invisible: The Case of Over-the-Counter Derivatives*, 85 NOTRE DAME L. REV. 1287 (2010); Jonathan Urban, *Regulation of Over-the-Counter Derivatives: The Ultimate Lesson of Regulatory Reform*, 29 REV. BANKING & FIN. L. 49, 51 (2009).
  8. Peter Conti-Brown, *Elective Shareholder Liability*, 64 STAN. L. REV. 409 (2012).
  9. See, e.g., Steven L. Schwarcz, *Controlling Financial Chaos: The Power and Limits of Law*, 2012 WIS. L. REV. 815, 829–838 (2012) (proposing measures to ensure liquidity to firms and markets during crisis scenarios and to enhance the internal robustness of systemically important firms through capital reserves, living wills, ring-fencing and the like). For purposes of this Article, I will not seek to further develop conceptions of financial crisis containment. Several scholars have offered institutional accounts of financial crisis response. For example, Eric Posner and Adrian Vermuele offer an executive-centric view of institutional choice in times of crisis, focusing on the superiority of the executive to act with the speed and legitimacy that are necessary to respond in a crisis situation. ERIC A. POSNER & ADRIAN VERMUELE, *THE EXECUTIVE UNBOUND: AFTER THE MADISONIAN REPUBLIC* 34-61 (2010). By contrast, David Skeel has offered a more dynamic take on institutional choice during economic crisis focusing on majoritarian “preference shift.” David A. Skeel, Jr., *Institutional Choice in an Economic Crisis*, 2013 WIS. L. REV. 629 (2012). Anna Gelpern,

management, identifying the importance of including risk transmission mechanisms within the ambit of financial stability architecture.<sup>10</sup>

Relatively less attention has been given, however, to developing a normative account of the structure and institutional characteristics of financial stability regulation.<sup>11</sup> As a result, conceptual confusion remains over the aims of financial stability, the efficacy of the tools and institutions employed in furtherance of stability objectives, and the grounds for assessing the strengths and weaknesses of the U.S. financial stability architecture. Some commentators approach financial stability through the lens of bank-centric resiliency measures, such as capital and liquidity requirements.<sup>12</sup> Others understand financial instability as a type of market failure, and thus susceptible to classic forms of market failure regulation, such as disclosure, transparency, or anti-fraud rules.<sup>13</sup> Alternatively, the aims of financial stability are addressed obliquely under the rubric of “financial regulation,” without distinguishing between the discrete regulatory challenges and approaches that characterize capital markets regulation and bank supervision.<sup>14</sup>

This Article contributes to this debate by defining the distinctive attributes of financial stability regulation – what I refer to as *financial stability exceptionalism* – through the application of a principles-based framework that is grounded in a theory of financial system instability. Economic theory, of course, matters a great deal to

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however, has made a compelling argument that crisis containment, financial regulation, crisis prevention and crisis resolution are discrete tasks which require different institutional capabilities and responses. See Anna Gelpern, *Financial Crisis Containment*, 41 CONN. L. REV. 1051 (2009). This Article proceeds in that vein.

10. Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349 (2011).
11. For a notable exception, see Iman Anabtawi & Steven L. Schwarcz, *Regulating Ex Post: How Law Can Address the Inevitability of Financial Failure*, 92 TEX. L. REV. 75, 93–102 (2013) (applying a systems analysis to argue that the optimal design of systemic risk regulation should attempt to balance ex ante (preemptive interventions) and ex post (financial safety nets and disrupting the transmission of systemic risk) regulation).
12. See, e.g., Charles K. Whitehead, *The Goldilocks Approach: Financial Risk and Staged Regulation*, 97 CORNELL L. REV. 1267, 1277–1283 (2012) (discussing risk-based capital requirements, including requirements proposed in connection with Basel III).
13. See, e.g., Schwarcz, *supra* note 9, at 817 (arguing that four types of market failure can contribute to systemic failure: information failure, rationality failure, principal-agent failure, and incentive failure).
14. See, e.g., John C. Coates IV, *Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications* (European Corp. Governance Inst., Working Paper No. 234, 2014) (broadly considering the use of cost-benefit analysis in connection with “financial regulation,” including Sarbanes-Oxley, mutual fund regulation, bank capital requirements, the Volcker Rule and cross-border swaps regulation).

financial regulation.<sup>15</sup> The way in which the economic characteristics of a regulatory problem are identified – i.e., specification of the mechanisms that contribute to its enhancement or mitigation – influences how regulators and policymakers think about potential solutions. For example, the notions of informational and fundamental efficiency expressed in the efficient capital markets hypothesis have provided an enduring foundation for corporate governance and capital markets regulation,<sup>16</sup> notwithstanding well-substantiated critiques of the efficient capital markets hypothesis's underlying assumptions.<sup>17</sup> Likewise, general equilibrium models of macroeconomic performance – which assume that decentralized markets set the economy at full employment – have long guided the formulation and implementation of monetary policy.<sup>18</sup>

Orthodox finance and economic theory have suffered in the wake of the Financial Crisis, with even law and economic acolytes declaring that such theories failed to provide a sound basis for financial regulation.<sup>19</sup> But, as Nobel Laureate Myron Scholes observed: “To say something has failed you have to have something to replace it, and so far we don’t have a new paradigm to replace efficient markets.”<sup>20</sup>

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15. Katharina Pistor, *On the Theoretical Foundations for Regulating Financial Markets* (Columbia Pub. Law Research Paper, No. 12-304, 2012).
  16. See, e.g., Ronald J. Gilson & Reinier H. Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 550 (1984) (describing the efficient markets hypothesis as “the context in which serious discussion of the regulation of financial markets takes place”) (emphasis in original); Henry T.C. Hu, *Efficient Markets and the Law: A Predictable Past and an Uncertain Future*, 4 ANN. REV. FIN. ECON. 179, 207 (2012) (“The [efficient markets hypothesis] has played a surprisingly pervasive role in the law.”). For the origins of the theory itself, see Paul A. Samuelson, *Proof That Properly Anticipated Prices Fluctuate Randomly*, 6 INDUS. MGMT. REV. 41 (1965); Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970).
  17. See, e.g., Donald C. Langevoort, *Theories, Assumptions, and Securities Regulation: Market Efficiency Revisited*, 140 U. PA. L. REV. 851, 857 (1992) (questioning the foundations of EMH); Lynn A. Stout, *How Efficient Markets Undervalue Stocks: CAPM and ECMH Under Conditions of Uncertainty and Disagreement*, 19 CARDOZO L. REV. 475, 477-84 (1997) (arguing that market price does not necessarily reflect the best estimate of a stock’s value).
  18. For example, the Federal Reserve, the European Central Bank, the Norge Bank (Norwegian Central Bank), and the Swedish Central Bank each employ dynamic stochastic general equilibrium (DSGE) models in setting monetary policy. See, e.g., Marco Del Negro & Frank Schorfheide, *DSGE Model-Based Forecasting*, FED. RES. BANK N.Y. STAFF REP. NO. 554 (2012); Frank Smets et al., *DSGE Models and Their Use at the ECB*, J. SPANISH ECON. ASS’N 51 (2010); Lief Brubakk & Tommy Sveen, *NEMO – A New Macro Model for Forecasting and Policy Analysis*, 80 NORGES BANK ECON. BULL. 39 (2009).
  19. See, e.g., RICHARD A. POSNER, *A FAILURE OF CAPITALISM: THE CRISIS OF ‘08 AND THE DESCENT INTO DEPRESSION* (2009). For an argument defending the continued vibrancy of the efficient markets hypothesis, see Ronald J. Gilson & Reinier Kraakman, *Market Efficiency After the Financial Crisis: It’s Still a Matter of Information Costs*, 100 VA. L. REV. 313 (2014).
  20. *Efficiency and Beyond*, THE ECONOMIST, July 16, 2009.

To take up that charge, this Article relies on a line of heterodox economic theory, traceable from John Maynard Keynes<sup>21</sup> to Hyman Minsky<sup>22</sup> to Charles Kindleberger<sup>23</sup>, that describes modern financial systems as endogenously unstable. The financial instability hypothesis (FIH) begins from the observation that capitalist economies experience asset inflations and deflations from time to time, which have the potential to cause broader deteriorations in the financial system.<sup>24</sup> In simple terms, FIH holds that stability in the financial system is ultimately destabilizing. In contrast to equilibrium-based theories, which attribute instability to exogenous factors (i.e., external shocks or flawed policies),<sup>25</sup> FIH predicts that instability emerges endogenously in the financial system as a result of the normal profit-seeking activities of financial institutions.<sup>26</sup> FIH thus challenges the classic conception of capitalist economies as self-sustaining and equilibrium-seeking.<sup>27</sup> Because it assumes that markets will not remain in equilibrium if left to their own devices, FIH reverses the *laissez faire* implications of orthodox theory.<sup>28</sup> An economic theory which supports a presumption in favor of market intervention has profound implications for how we think about financial regulation, both in terms of the functional capabilities required to counter instability and in terms of the structures that promote regulatory accountability.

The structure of financial stability regulation implied by FIH is reminiscent of not only traditional banking and capital markets regulation, but also of central banking. For example, many tools for enhancing financial system resilience operate through familiar bank regulatory mechanisms, such as capital and liquidity requirements.

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21. See JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST AND MONEY* (1936).
  22. See, e.g., HYMAN P. MINSKY, *STABILIZING AN UNSTABLE ECONOMY* (1986); Hyman P. Minsky, *Financial Crises: Systemic or Idiosyncratic* (Levy Econ. Inst. of Bard C., Working Paper No. 51, 1991); Hyman P. Minsky, *The Financial Instability Hypothesis* (Levy Econ. Inst. of Bard Coll., Working Paper No. 74, 1992).
  23. CHARLES P. KINDLEBERGER, *MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES* (4th ed. 2000).
  24. See MINSKY, *STABILIZING AN UNSTABLE ECONOMY*, *supra* note 22, at 103–106.
  25. Minsky, *Financial Crises: Systemic or Idiosyncratic*, *supra* note 22, at 5 (“The [Adam] Smithian view leads to the proposition that financial crises and deep depressions arise from one of the following: non-essential institutional flaws which prevent the market from working its wonders, the system of intervention contains openings which allow some dirty rotten scoundrels to operate or external shocks dislodge the economy.”).
  26. MINSKY, *STABILIZING AN UNSTABLE ECONOMY*, *supra* note 22, at 11.
  27. *Id.* at 127 (“Perhaps the fundamental difference between [the neoclassical] viewpoint and the financial instability hypothesis . . . centers on the notion of disequilibria and how they are generated.”).
  28. Minsky, *Financial Crises: Systemic or Idiosyncratic*, *supra* note 22, at 4–5.

Likewise, market-oriented regulation designed to enhance price transparency in asset markets can advance stability objectives by making market and counterparty risks more apparent to market participants and regulators alike. And, because financial stability implicates issues related to the macroeconomy<sup>29</sup> and may require unpopular interventions into rising markets, stability regulation requires levels of independence and regulatory discretion that are often more associated with central banking than prudential regulation.<sup>30</sup>

Notwithstanding these similarities, FIH supports a distinctive approach to the functional capabilities and accountability frameworks required for financial stability regulation. Financial stability regulation presents enormous methodological and, perhaps more important, legitimacy challenges. Financial crises are notoriously difficult to predict, leading many prominent commentators to view proactive stability policy as a fool's errand.<sup>31</sup> Moreover, financial stability is intended to "lean against the wind" by mitigating exuberance, pro-cyclical leverage, and excessive risk taking before they produce systemic consequences. The institutional consequences of implementing risk-mitigating policies during rising markets place a premium not only on regulatory capabilities – such as systemic risk identification capabilities, and domestic and international coordination – but also on the associated accountability structures.

This Article proceeds in five parts. Section I reviews the basic concepts of finance and the financing process within a well-functioning financial system. Particular attention is paid to the benefits of financial stability (and the costs of instability) to support the normative case that stability should be an objective of public policy. Section II considers heterodox economic theories – principally the FIH – which predict that instability emerges endogenously from the normal functioning of the financial system. Because it assumes that financial markets do not naturally remain in equilibrium, FIH challenges the *laissez faire* presumptions that underlie much of modern financial regulation.

Utilizing FIH as an alternative economic theory of financial regulation, Section III identifies several principles for the structure of financial stability institutions. I classify these principles under two broad categories: (1) *functional capabilities*, which describe

29. See Margaret M. Blair, *Financial Innovation, Leverage, Bubbles and the Distribution of Income*, 30 REV. BANKING & FIN. L. 225 (2010) (observing that increases in leverage can enlarge the effective money supply); Erik F. Gerding, *Credit Derivatives, Leverage, and Financial Regulation's Missing Macroeconomic Dimension*, 8 BERKELEY BUS. L.J., 2011, at 29, 35. (identifying "linkages between financial regulation and macroeconomic/monetary policy").

30. See Arthur W. S. Duff, *Central Bank Independence and Macroprudential Policy: A Critical Assessment of the U.S. Financial Stability Framework*, 11 BERKELEY BUS. L.J. 183, 205-208 (2014).

31. For a pessimistic view of financial stability intervention under FIH, see Schwarcz, *supra* note 9, at 826 ("Ideal regulation would act ex ante, eliminating the triggers of systemic risk. Realistically, however, we cannot eliminate those triggers."); Coffee, *supra* note 4, at 818 ("In light of this tendency for regulators to recognize and react to an approaching crisis only belatedly, public policy needs measures that respond earlier based on objective criteria and that do not depend on the subjective judgments of regulators as to when a crisis requires governmental intervention.").



the capabilities required for prudential or macroprudential regulators to achieve the technical task of identifying and maintaining an optimal level of financial stability; and (2) *accountability structures*, which describe the processes and structures through which financial stability policy is implemented. In addition to highlighting the structural imperatives of stability regulation, this discussion addresses the limitations of employing existing financial regulatory paradigms as models for stability regulation.

Section IV uses this framework as a basis for assessing the U.S. financial stability architecture. In the main, Dodd-Frank deserves three cheers for cobbling together many critical components of a financial stability architecture, including designating a systemic risk regulator and implementing a comprehensive resiliency framework which covers both static (i.e., capital and liquidity requirements) and dynamic (i.e., enhanced supervision for systemically important financial institutions) programs. In other respects, however, this analysis highlights significant institutional design challenges, particularly with respect to the accountability and transparency frameworks required to support financial stability policy.

Section V concludes by suggesting the broader implications of heterodox economic theory and future research directions for law and *macroeconomics*, corporate governance and administrative decision making under conditions of uncertainty. Among other things, FIH suggests that market-oriented governance mechanisms, including shareholder monitoring, may erode systematically over the course of the credit cycle. Viewing the financial cycle as a key variable in assessment of “good governance” regimes may help deepen our understanding of the firm-level mechanisms of financial instability. Likewise, financial stability regulation provides an excellent case study for assessing administrative discretion under conditions of complexity and uncertainty. Finally, this study of financial stability regulation under FIH joins more theoretical debates in the law relating to regulatory incrementalism, functional regulation, and entity-centrism.

## II. Finance, Financial Systems and Financial Stability

Before developing a principles-based framework for financial stability regulation, this Article addresses two antecedent questions: *first*, why should financial stability be pursued as a policy objective; and, *second*, how does financial instability emerge from the normal functioning of the financial system? Part A defines financial stability and, relatedly, the boundaries on the scope of any financial stability regulatory regime. In support of the normative claim that financial stability should be pursued as an objective of public policy, Part B outlines the benefits of financial stability and the costs of its absence.

### A. What is Finance?

It is important to begin the discussion of financial stability with a brief word on the financing process itself. Finance involves the provision of funding or liquidity to individuals or enterprises to pursue projects or investments.<sup>32</sup> This process involves an *ex ante* assessment by the lender or investor of the anticipated future cash flows generated by investment and pricing of the anticipated risk of non-payment. By exchanging liquidity today for a promise of a premium return in the future, lender-investors are compensated for the risk that future cash flows will be less than anticipated.

In modern capitalist economies, the financing process occurs within the context of a financial system which includes both formal (that is, regulated) and informal (unregulated) components. As a practical matter, financial systems are comprised of: (1) *financial intermediaries*, including not only banks but broker-dealers, pension plans, insurance companies and other non-bank institutions, which facilitate maturity transformation and the creation of liquidity; (2) *financial markets*, which facilitate the matching of saver and investor preferences; and (3) *financial infrastructure*, such as payment, settlement and clearing facilities. In addition, financial systems also include private market gatekeepers – such as credit rating agencies,<sup>33</sup> lawyers,<sup>34</sup> and accountants<sup>35</sup> – who provide important verification services related to the assessment of risk and creditworthiness.

Although they may share basic components, not all financial systems are configured the same way. For example, the relative importance of financial intermediaries and markets differs significantly from country to country. Some financial systems, such as Germany, are characterized as bank-dominated, in that financing and liquidity provisions are largely arranged through bank intermediaries.<sup>36</sup> Other financial systems, such as the United States, are increasingly dominated by market-based lending.<sup>37</sup> Countries such as France and Japan are somewhere in

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32. See FREDERIC S. MISHKIN, *THE ECONOMICS OF MONEY, BANKING, AND FINANCIAL MARKETS* 102 (9th ed. 2009).

33. See Frank Partnoy, *How and Why Credit Rating Agencies Are Not Like Other Gatekeepers*, in *FINANCIAL GATEKEEPERS: CAN THEY PROTECT INVESTORS?* 59 (Yasuyuki Fuchita and Robert E. Litan, eds., 2006) (arguing that “credit rating agencies clearly belong within the broad classification of financial market gatekeepers”).

34. See John C. Coffee, Jr., *The Attorney as Gatekeeper: An Agenda for the SEC*, 103 *COLUM. L. REV.* 1293 (2003).

35. See James D. Cox, *The Oligopolistic Gatekeeper: The U.S. Accounting Profession*, in *AFTER ENRON: IMPROVING CORPORATE LAW AND MODERNIZING SECURITIES REGULATION IN EUROPE AND THE U.S.* 295–342 (John Armour and Joseph A. McCahery eds., 2006).

36. See, e.g., Franklin Allen & Douglas Gale, *A Welfare Comparison of German and U.S. Financial Systems*, 39 *EUR. ECON. REV.* 179, 189–198 (1994) (observing that bank-dominated financial systems provide more efficient risk integration, whereas market-based financial systems provide more efficient cross-sectional risk sharing).

37. *Id.* at 185–187.

between.<sup>38</sup> Commentators have observed that variations in the financial architecture, including the design and regulation of financial institutions and markets, are associated with relative degrees of financial stability.<sup>39</sup>

In a stable financial system, economic agents have confidence in the financial system's ability to efficiently allocate resources, provide access to financial services – such as payments, lending, deposits and hedging – and absorb shocks that would otherwise have a disruptive effect on the real economy or on other financial systems. Although there is no singular definition, financial stability generally implies that: (1) *significant institutions* in the financial system are operating without significant difficulty and are able to meet their contractual obligations without interruption and (2) *significant markets* are generally functioning well, in that market participants can transact at prices that reflect fundamental values and do not fluctuate significantly over short periods of time when there are no corresponding changes in fundamentals.<sup>40</sup>

## B. What is Financial Instability?

Commentators attempting to define financial *instability* have focused on similar criterion regarding the functioning of significant financial institutions and markets. For example, Federal Reserve Governor Roger Ferguson has observed that financial instability occurs when: “(i) some important set of financial asset prices seem to have diverged sharply from fundamentals; and/or (ii) market functioning and credit availability, domestically and perhaps internationally, have been significantly distorted; with the result that (iii) aggregate spending deviates (or is likely to deviate) significantly, either above or below, from the economy's ability to produce.”<sup>41</sup> Likewise, “systemic risk” – a companion concept invoked to describe potential sources of instability with the financial system – generally refers to a risk of disruption to

38. *Id.* at 180.

39. See generally CHARLES W. CALOMIRIS & STEPHEN H. HABER, *FRAGILE BY DESIGN: THE POLITICAL ORIGINS OF BANKING CRISES AND SCARCE CREDIT* (2014) (observing that financial crises occur non-randomly around the world and developing a political economy account of this variation).

40. Michael Foot, The Financial Services Authority, The Roy Bridge Memorial Lecture: What is Financial Stability and How Do We Get It? (Apr. 3, 2003) (transcript available at: <http://www.fsa.gov.uk/library/communication/speeches/2003/sp122.shtml>); Gary J. Schinasi, *Defining Financial Stability* (Int'l Monetary Fund, Working Paper No. 04-187, October 2014); Andrew Crockett, *Why Is Financial Stability A Goal of Public Policy?*, *ECON. REV.* 6–7 (1997).

41. Roger Ferguson, *Should Financial Stability Be An Explicit Central Bank Objective?* in *CHALLENGES TO CENTRAL BANKING FROM GLOBALIZED FINANCIAL SYSTEMS*, Conference at the International Monetary Fund, Washington D.C., (Sept. 16–17, 2002); Frederick Mishkin, *Global Financial Instability: Framework, Events, Issues*, 13 *J. ECON. PERSP.* 15 (1999).

financial services that is caused by an impairment of all or parts of the financial system and has the potential to have serious negative consequences for the real economy.<sup>42</sup> At present, there is no widely-accepted measure of systemic risk, although the discipline of macrofinance has begun to wrestle with the thorny task of developing effective predictive models for measuring such risk.<sup>43</sup>

By focusing on the functioning of *significant* financial institutions and markets, this definition limits the domain of financial stability – and thus the domain of any proposed financial stability regulation – to financial distresses that have the potential to cause harm in the real economy beyond a limited group of institutions and counterparties. The periodic failure or distress of less significant financial institutions should not be considered a threat to financial stability but rather a natural consequence of normal market functions which allocates capital to its most productive use.<sup>44</sup>

Bank runs are the classic example of financial instability. Banks act as intermediaries between borrowers and savers: they accept deposits (liabilities) from savers and use those deposits to make loans (assets) to other customers.<sup>45</sup> Since long-term interest rates are typically higher than short-term interest rates, banks can earn profits by “borrowing” from short-term depositors to make long-term loans. Maturity mismatch is generally not a problem in normal conditions. If conditions change, however, such that confidence in the bank is disturbed, depositors may perceive that their individual interests are best served by rushing to withdraw their funds from the institution.<sup>46</sup> No bank retains sufficient liquid assets to repay all of its depositors if they seek to withdraw their funds simultaneously.<sup>47</sup> Depositors who delay will find the bank’s capital assets eroded as the bank liquidates assets – perhaps at “fire sale” prices into a declining market – to meet depositor demand.

The interconnectedness of banks within the financial system exacerbates the potential systemic impact of a run on an individual bank. Banks play a unique role in the operation of the payment system, the basic infrastructure responsible for money exchange, which means that the difficulties in one institution may be quickly transmitted to other institutions. Likewise, banks – and large complex banking institutions in particular<sup>48</sup> – have significant inter-firm commitments. A run at one

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42. Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 204 (2008).

43. Dimitrios Bisias et al., *A Survey of Systemic Risk Analytics*, (U.S. Treasury Dep’t, Office of Fin. Research, Working Paper No. 0001, 2012); Lars Peter Hansen, *Challenges in Identifying and Measuring Systemic Risk*, (Univ. of Chi. & Nat’l Bureau of Econ. Research, Working Paper No. 1, 2013); David Aikman et al., *Taking Uncertainty Seriously: Simplicity versus Complexity in Financial Regulation*, (Bank of Eng. Fin. Stability, Paper No. 28, 2014).

44. Gary J. Schinasi, *SAFEGUARDING FINANCIAL STABILITY: THEORY AND PRACTICE* § 127 (2006). Hyman P. Minsky, *STABILIZING AN UNSTABLE ECONOMY* §112 (1986).

45. Richard Scott Carnell et al., *THE LAW OF BANKING AND FINANCIAL INSTITUTIONS* § 34-39 (4th ed. 2009).

46. Douglas W. Diamond & Phillip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983).

47. Carnell et al., *supra* note 45, at 46.

48. Kathryn Judge, *Interbank Discipline*, 60 UCLA L. REV. 1262, 1283 (2013).

bank may cause depositors of other institutions to withdraw their deposits out of fear that whatever malady afflicted the neighboring bank could reach theirs as well. A liquidity problem at one bank may quickly spread across the financial system through a combination of depositor fear and counterparty exposure.

As a result of these features, the difficulties of one institution may propagate through the financial system either through (a) *direct contagion*, that is interlocking claims and counterparty exposure to other financial institutions,<sup>49</sup> or (b) *indirect contagion*, where the difficulties at one institution provoke a loss of confidence in other institutions thought to be similarly situated and thus cause a loss of depositors from or unwillingness to enter into transactions with apparently vulnerable firms.<sup>50</sup> As this dynamic suggests, normal banking activities potentially give rise to systemic risks.<sup>51</sup> The propensity of individual banks to destabilize, and the direct and indirect mechanisms through which individual crises may spark systemic contagion, provides an important rationale for bank supervision and deposit insurance.<sup>52</sup>

The risks that historically have supported direct regulation of the banking sector now support a similar approach to the non-bank sectors of the financial system. This is because the financial system as a whole has become more “bank-like” as many of the basic maturity transformation and liquidity functions historically provided by banks are now offered through various financial contracting innovations in the capital markets.<sup>53</sup>

Financial contracts can be a close (but imperfect) substitute for fiat (government-issued) money – both provide stores of value and mediums of exchange which help to facilitate economic transactions. As an alternative store of value to fiat money, financial contracts provide the economy with additional sources of liquidity for funding investments. This mechanism enables the economy to grow and develop more quickly than a system in which liquidity is limited by the amount of fiat money.<sup>54</sup>

The money-like characteristic of financial contracts can be deceiving. While fiat money is “informationally insensitive” in virtually all market conditions – that is, agents transacting in fiat money typically do not invest any effort in verifying the value of the currency – the informational sensitivity of financial contracts may rise

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49. *Id.*

50. See Andrew Crockett, *supra* note 40, at 16-17 (1997).

51. Franklin Allen & Richard Herring, *Banking Regulation versus Securities Market Regulation* (July 11, 2001) (available with Wharton Financial Institutions Center).

52. Gary Gorton & George Pennacchi, *Financial Intermediaries and Liquidity Creation*, 45 J. FIN. 49 (1990); Robert Merton, *An Analytical Derivation of the Cost of Deposit Insurance and Loan Guarantees*, 1 J. BANKING & FIN. 3 (1977).

53. Zoltan Pozsaret et al., *Shadow Banking* (Fed. Reserve Bank of N.Y., Staff Report No. 458, Feb. 2012), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1645337](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1645337).

54. Schinasi, *supra* note 44, at 36.

significantly in times of market stress, draining liquidity from the financial system.<sup>55</sup> Business operations that are heavily reliant on short-term funding based on “low risk” financial contracts are, therefore, highly sensitive to any changes in money market conditions which reduce the liquidity of those financial contracts.

Consider the example of repurchase agreements (“repos”). Repos are contractual agreements in which one party (the bank or borrower) agrees to provide collateral (typically securities) to another party (the depositor or lender) in exchange for cash and, in the same transaction, agrees to repurchase the collateral for a specified price at a later date.<sup>56</sup> The collateral pledged by the bank or borrower is typically subject to a “haircut,” which compensates the dealer for collateral risk – the riskier the collateral, the higher the haircut.<sup>57</sup> These transactions are essentially collateralized loans, the economic effect of which is to provide short-term liquidity – i.e., “money” – from the depositor or lender to the bank or borrower. Liquidity creation can be multiplied if the depositor re-hypothecates – that is, re-pledges or re-posts – the collateral in another transaction.<sup>58</sup> Economists have estimated the total assets in the U.S. repo market as high as \$10 trillion – or roughly the same size as the U.S. commercial banking market.<sup>59</sup>

Gary Gorton and Andrew Metrick have argued that the seizing of the multi-trillion-dollar, short-term repo markets through which many financial institutions funded their operations contributed greatly to the liquidity crisis of many major financial institutions and the outright failure of others during the height of the Financial Crisis.<sup>60</sup> In the run up to the Financial Crisis, financial market participants increasingly relied on mortgage-backed securities (MBS) and, in particular, subprime MBS as collateral for repo agreements. The “informational insensitivity” of repo market participants to MBS collateral was driven, in part, by the belief that such securities were low-risk as confirmed by the ratings supplied by credit rating agencies. As the value of collateral with subprime exposure came into question, informational sensitivity increased. Repo depositors/lenders responded by increasing haircuts and/or demanding higher grade collateral. The resulting liquidity crunch reduced the aggregate funds available for borrowers in the repo market with disastrous consequences for highly leveraged intermediaries – such as Bear Stearns and Lehman – with short-term cash flow obligation and declining access to high quality collateral.<sup>61</sup>

As the repo example suggests, the possibility of runs and contagion is no longer limited to banks but rather extends across the financial system, including the capital markets.

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55. Gary B. Gorton et al., *The Safe-Asset Share*, AM. ECON. REV. 102 (2012).

56. Gary Gorton & Andrew Metrick, *Regulating the Shadow Banking System*, BROOKINGS PAPERS ON ECON. ACTIVITY 263–264 (Fall 2010).

57. *Id.* at 2.

58. *Id.* at 13.

59. Manmohan Singh & James Aitken, *Counterparty Risk, Impact on Collateral Flows and Role for Central Counterparties* (Int’l Monetary Fund, Working Paper No. 09/173, 2009).

60. See Gary Gorton & Andrew Metrick, *Securitized Banking and the Run on the Repo* (Nat’l Bureau of Econ. Research, Working Paper No.15223, 2009).

61. *Id.* at 23–24.

## C. The Rationale for Pursuing Financial Stability

### 1. Benefits

Financial stability regulation can be recommended as an objective of public policy on grounds that it generates benefits for the real economy while helping to mitigate potentially significant social losses. For starters, financial stability enhances economic efficiency and growth in the real economy by providing a favorable environment for inter-temporal financial contracting.<sup>62</sup> In a stable financial system, savers can be confident that their deposits are safe and entrepreneurs have access to investment capital if they meet creditworthiness requirements.<sup>63</sup> By helping to match the preferences of savers (who have less present utility for liquidity and thus are willing to postpone consumption) and investors (who seek liquidity to develop current projects), financial contracts help to maximize the deployment of assets to long-term productive use. Financial intermediation facilitates efficiency-enhancing exchanges through screening and monitoring. For example, bank screening of borrowers and projects encourages the allocation of investment capital to high value projects,<sup>64</sup> particularly with respect to intangible assets (such as intellectual property) which may be difficult to value.<sup>65</sup>

The financing process can also help to facilitate risk identification and risk spreading by enabling contracting parties to segregate, price and sell discrete aspects of transaction risk (*e.g.*, counterparty, market, operations, interest rate, etc.).<sup>66</sup> As with lender screening, innovation in risk sharing can help to create greater “informational sensitivity” in financial products, and thus provide incentives for market participants

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62. Robert G. King & Ross Levine, *Finance and Growth: Schumpeter Might Be Right*, 108 Q.J. ECON. 717 (1993); Schinasi, *supra* note 44, at 43; Ross Levine et al., *Financial Intermediation and Growth: Causality and Causes*, 46 J. MONETARY ECON. 31 (2000); Robert G. King & Ross Levine, *Financial Intermediation and Economic Development in FINANCIAL INTERMEDIATION IN THE CONSTRUCTION OF EUROPE 156–189* (Colin Mayer and Xavier Virers, eds., 1995); Pierre Monnin & Terhi Jokipii, *The Impact of Banking Sector Stability on the Real Economy*, 32 J. INT’L MONEY & FIN. 1 (2013).

63. Robert G. King & Ross Levine, *Finance, Entrepreneurship & Growth: Theory and Evidence*, 32 J. MONETARY ECON. 32, 513 (1993).

64. John H. Boyd & Edward C. Prescott, *Financial Intermediary Coalitions*, 38 J. ECON. THEORY 211 (1986); Douglas W. Diamond, *Financial Intermediation and Delegated Monitoring*, 51 (3) REV. ECON. STUD. 393(1984); Hayne E. Leland & David H. Pyle, *Informational Asymmetries, Financial Structure, and Financial Intermediation*, 32 J. FIN. 371, 382–84 (1977).

65. King & Levine, *supra* note 62.

66. Tri Vi Dang et al. *The Information Sensitivity of a Security* (Columbia Univ., Working Paper, 2015).

to make greater investment in information acquisition.<sup>67</sup> By creating opportunities for private insurance against market and financial risk, financing expands the availability of productive capital.<sup>68</sup> In this sense, financial stability has the characteristics of a public good<sup>69</sup> in that a well-functioning financial system supports the broader aims of economic efficiency, and users of the financial system do not deplete the resource for use by others.<sup>70</sup>

## 2. Costs

In addition to these benefits, the rationale for financial stability regulation rests equally on avoiding the potentially negative externalities and spillover costs of financial instability on the real economy.<sup>71</sup> Rising interest rates, higher credit spreads and lower equity prices, often associated with financial instability and crises, increase funding costs in the real economy and reduce investment. Tighter financial conditions reduce the willingness of financial institutions to lend, which further constrains new projects. Falling equity and property prices reduce individuals' net worth, which negatively impacts creditworthiness and makes borrowing more difficult. Consumer, business and investor confidence falls which leads to a curtailing of investment and innovation. In combination, these factors result in lost economic productivity, resolution costs, changes in household wealth and loss of confidence.<sup>72</sup>

The costs of instability can be staggering. For example, the resolution costs related to the Savings and Loan Crisis of the 1980s have been estimated between 2-4% of U.S. Gross Domestic Product (GDP).<sup>73</sup> Likewise, one recent Federal Reserve study estimated that the Financial Crisis cost 40 to 90 percent of 2007 U.S. output or between \$6 trillion and \$14 trillion in 2012 dollars. This includes lost output, changes in household wealth, increased public debt and "psychological trauma."<sup>74</sup> Another study estimated the median direct fiscal costs associated with financial sector restructuring for the Financial Crisis at almost 5 percent of GDP.<sup>75</sup>

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67. Arnoud W. A. Boot & Anjan V. Thakur, *Security Design*, 48(4) J. FIN. 1349 (1993); Matthew C. Stephenson, *Information Acquisition and Institutional Design*, 124 HARV. L. REV. 1422 (2011).

68. Darrell Duffie, *Innovations in Credit Risk Transfer: Implications for Financial Stability* 1-2 (Bank for Int'l Settlements, Working Paper No. 255, 2008).

69. Paul A. Samuelson, *The Pure Theory of Public Expenditure*, 36 REV. ECON. & STAT. 387, 387 (1954); Garret Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244-45 (1968).

70. Schinasi, *supra* note 44, at 58.

71. Schwarcz, *supra* note 42, at 206.

72. Stephen G. Cecchetti et al., *Financial Crises and Economic Activity* (Nat'l Bureau of Econ. Research, Working Paper No. 15379, 2009).

73. Glenn Hoggarth et al. *Costs of banking system instability: some empirical evidence*, EFA 2001 Barcelona Meetings (Bank of Eng., Working Paper No. 144, 2001).

74. Tyler Atkinson et al., *How Bad Was It?: The Costs and Consequences of the 2007-09 Financial Crisis*, (Fed. Reserve Bank of Dall., Staff Paper No. 20, 2013).

75. Luc Laeven & Fabian Valencia, *Resolution of Banking Crises: The Good, the Bad, and the Ugly*, (Int'l Monetary Fund, Working Paper No. 10/146, 2010).



The total potential exposure of the real economy to financial instability has increased over the years as a result of the evolution of the global financial system. Among other things, the growth in aggregate volume of financial transactions and the “financialization” of the global economy has resulted in greater financial sector interdependencies and fragility.<sup>76</sup> Structurally, the increasing complexity of financial products, transactions and institutions has made supervision, corporate governance and market discipline more costly.<sup>77</sup> Perhaps most significant, the exponential growth of the so-called shadow banking system has expanded the availability of non-bank sources of liquidity in markets that are not always subject to effective oversight, public support or market discipline.<sup>78</sup> Although definitions vary, shadow banking generally refers to the web of financial institutions that channel funding from savers to investors through securitization and secured funding techniques.<sup>79</sup> According to U.S. Flow of Funds data, traditional forms of financial intermediation (that is, financial intermediation by banks) fell from around 94 percent in the 1940s to 40 percent in 2007, the eve of the Financial Crisis.<sup>80</sup> Over the same period, non-traditional financial intermediation, including money market mutual funds ( MMMF), commercial paper, repo and corporate/secured debt increased by nearly 34%.<sup>81</sup>

The credit and maturity transformation performed by shadow banks is similar to that provided by traditional banks but without the direct and explicit sources of public insurance provided by the Federal Deposit Insurance Corporation (public insurance for depositors)<sup>82</sup> and the discount window of the Federal Reserve System (lender of last resort for liquidity-constrained banks).<sup>83</sup> Shadow banks are, therefore, “inherently

76. Robin Greenwood & David Scharfstein, *The Growth of Finance*, 27(2) J. ECON. PERSP., 3 (Spring 2013).

77. Saule T. Omarova, *License to Deal: Mandatory Approval of Complex Financial Products*, 90 WASH. U. L. REV. 63, 65 (2012); Dan Awrey, *Complexity, Innovation and the Regulation of the Modern Financial Markets*, 2012 HARV. BUS. L. REV. 235 (2011); Kathryn Judge, *Fragmentation Nodes: A Study in Financial Innovation, Complexity, and Systemic Risk*, 64 STAN. L. REV. 657 (2012); Steven L. Schwarcz, *Regulating Complexity in Financial Markets*, 87 WASH. U. L. REV. 211 (2009).

78. Zoltan Pozsar et al. *Shadow Banking* (Fed. Reserve Bank of N.Y., Staff Report No. 4582010), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1645337](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1645337); Nicola Gennaioli et al., *A Model of Shadow Banking*, 68 (4) J. FIN. 1331, (2013); Steven L. Schwarcz, *Regulating Shadow Banking*, REV. BANK. FIN. L. 619 (2012); Morgan Ricks, *Shadow Banking and Financial Regulation*, (Columbia Law & Econ., Working Paper No. 370, 2010).

79. See generally Tobias Adrian & Adam Ashcraft, *Shadow Banking: A Review of the Literature* (Fed. Reserve Bank of N.Y. Staff Reports, No. 580, 2012).

80. *Id.* at 4–5.

81. *Id.*

82. 12 U.S.C. § 1811 (2010).

83. See Mark A. Carlson & David C. Wheelock, *The Lender of Last Resort: Lessons from the Fed's First 100 Years*, (Fed. Reserve Bank of St. Louis, Working Paper 2012-056B, 2013) (tracing

fragile, not unlike the commercial banking system prior to the creation of the public safety net.”<sup>84</sup> Indeed, several sectors of the shadow banking system experienced runs or credit crunches during the Financial Crisis, including the asset-backed commercial paper (ABCP) market,<sup>85</sup> the repo market,<sup>86</sup> and MMMFs,<sup>87</sup> among others.

### 3. Trade-Offs

Notwithstanding the benefits of stability and potential costs of instability, it is important to note that there are potential trade-offs of any stability policy. Franklin Allen and Douglas Gale have shown that greater competition in the banking industry might be good for efficiency and economic output but detrimental for financial stability to the extent competition encourages innovation and risk taking contributes to systemic fragility.<sup>88</sup> Perfect stability, therefore, may be detrimental to economic growth, innovation and development to the extent it discourages liquidity creation for risky new ventures. Presumptively, then, stability regulation should contemplate something less than a 100% reserve requirement for financial intermediaries, but how much less remains a normative question.<sup>89</sup>

## III. Theories of Financial Instability

The benefits of financial stability perhaps appear more precious in light of the recurring instability of financial systems. While the Financial Crisis of 2008-2009 was the most significant and most global disruption in the financial system since the Great Depression, it is only the most recent in a string of financial instability events that dates

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history of central bank use of the discount window and other tools to mitigate the impact of liquidity crises). The Dodd-Frank Act limited the Fed’s authority to lend to specific institutions, directly or indirectly, in order to prevent the future “bail out” of insolvent institutions. See 12 U.S.C. § 343 (2010); see also 12 U.S.C. §233(3)(A) (1913).

84. See Adrian & Ashcraft, *supra* note 79, at 2.

85. See Daniel M. Covitz, Nellie Liang & Gustavo A. Suarez, *The Evolution of a Financial Crisis: Panic in the Asset-Backed Commercial Paper Market*, (Fed. Reserve Bd., Fin. and Econ. Discussion Series, Working Paper No. 2009-36, 2012), <https://www.federalreserve.gov/pubs/feds/2009/200936/200936pap.pdf> (documenting an investor run on more than 100 ABCP programs, over one-third of the total ABCP, following the bankruptcy of American Home, a single-seller mortgage conduit).

86. See Gorton & Metrick, *supra* note 60.

87. In September 2008, the day after the Lehman Brothers bankruptcy, the Reserve Primary Fund “broke the buck” (i.e., its net asset value (NAV) fell below one dollar), triggering a run on MMMFs. See Russ Wermers, *Runs on Money Market Mutual Funds* (Working Paper, 2012), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2024282](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2024282).

88. Franklin Allen & Douglas Gale, *Competition and Financial Stability*, 36 J. MONEY, CREDIT & BANKING, 453 (2004).

89. This debate is reminiscent of the “narrow banking” proposals that have been debated since the 1930s. For a modern extension of the principles of narrow banking in furtherance of financial stability, see Zachary J. Gubler, *Regulating in the Shadows: Systemic Moral Hazard and the Problem of the Twenty-First Century Bank Run*, 63 ALA. L. REV. 221 (2012).

back hundreds of years.<sup>90</sup> History suggests, then, that the favored state of stability is not one that persists naturally in financial systems.

But what accounts for financial instability? Classical economic theories begin with the assumption that market prices tend toward equilibrium through the aggregation of supply and demand.<sup>91</sup> These theories generally do not acknowledge the existence of instability in the financial system,<sup>92</sup> but rather attribute disequilibrium or crashes to exogenous forces.<sup>93</sup> As a general matter, these theories favor *laissez faire* approaches to financial regulation. Because government interventions are viewed as potentially destabilizing, classical economic and finance theory limits the domain of stability policy to ex-post measures designed to mitigate the impact of crashes and crises once they occur.

Heterodox economic theory, by contrast, views financial systems as endogenously unstable. Among these theories, American economist Hyman Minsky's financial instability hypothesis (FIH) has attracted perhaps the most attention as an alternative narrative for understanding the causes of the Financial Crisis.<sup>94</sup> FIH posits that

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90. CARMEN M. REINHART & KENNETH S. ROGOFF, *THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY* 110–118 (2009).
91. ADAM SMITH, *THE WEALTH OF NATIONS*, Vol. I, vii. 15 (1776).
92. That said, market crashes can be viewed – somewhat awkwardly – through the lens of the efficient market hypothesis as sudden adjustments in price in response to new information or low probability events that are difficult or impossible for market participants to price ex ante. See Frank Partnoy, *Why Markets Crash and What Law Can Do About It*, 61 U. PITT. L. REV. 741, 765–66 (2000) (identifying the weak empirical evidence in support of the first theory and characterizing the second as an “admission that the EMH does not apply to market crashes”).
93. Accounts of the Financial Crisis identify a number of contributing factors, including accommodative monetary policy, excess savings in the Asian economies through the mid-2000s and the active deregulation of the U.S. financial markets beginning in the 1980s. See, e.g., Kenneth E. Scott, *The Financial Crisis: Causes and Lessons*, 22 J. APPLIED CORP. FIN. 22 (2010) (arguing that the root cause of the recent crisis was a housing bubble whose origins can be traced to loose monetary policy and a government housing policy that continually pushed for lower lending standards to increase home ownership); Ben S. Bernanke, Governor, Remarks at the Sandridge Lecture before Virginia Association of Economists: *The Global Saving Glut and the U.S. Current Account Deficit* (March 10, 2005), <https://www.federalreserve.gov/boarddocs/speeches/2005/200503102/>; Brooksley Born, *Deregulation: A Major Cause of the Financial Crisis*, 5 HARV. L. & POL'Y REV. 231 (2011).
94. Minsky, *supra* note 22, at 197; see generally Lynn E. Dallas, *Short-Termism, the Financial Crisis, and Corporate Governance*, 37 J. CORP. L. 265 (2012) (arguing that increased investment bank leverage ratios and reliance on short-term debt financing by investment banks, hedge funds and special purpose vehicles is indicative of destructive short-termism, consistent with Minsky); Kim de Glossop, *The Inherent Instability of the Financial System*, 4 J. BUS. ENTREPRENEURSHIP & L. 483 (2011) (restating FIH and arguing that market instability can be countered through restrictive monetary policy, counter-cyclical capital requirements and expanding the Federal Reserve's price stability mandate to include

financing structures in modern economics “evolve from being robust to being fragile over a period in which the economy does well.”<sup>95</sup> In contrast to orthodox economic theories, FIH predicts that instability emerges endogenously when profit-seeking financial institutions promote the extension of credit and growth of leverage through financial innovation.<sup>96</sup>

Minsky’s account of financial instability is both elegant and intuitive. As margins shrink, financial institutions seek out riskier opportunities or expand leverage to enhance returns. Leverage increases through the economic expansion as credit conditions ease. Credit-driven price increases spur additional lending as equity growth reduces leverage. This, in turn, encourages further lending by financial institutions eager to maintain market position. Financial innovation contributes to the supply-side expansion by encouraging additional risk taking and leverage in new products and markets.

When investment expectations – Keynesian “animal spirits” – eventually change, these arrangements unravel just as quickly. Borrowers sell assets to meet margin requirements as credit conditions deteriorate, causing downward pressure on asset values, which triggers additional liquidity rationing. Fundamental uncertainty causes lenders to demand additional “margins of safety,” which causes further contraction and liquidity strains. Eventually, in absence of government-sponsored liquidity, the system will collapse. Under FIH, this natural tendency of the financial system toward disequilibrium requires active intervention – Minsky’s “anti-Laissez Faire” Theorem.<sup>97</sup>

#### A. Financial Fragilization

For Minsky, financing is the fundamental source of economic instability.<sup>98</sup> As Minsky explained: “Capitalism is essentially a financial system, and the peculiar behavioral attributes of a capitalist economy center around the impact of finance on system behavior.”<sup>99</sup> The financing process translates current estimates of future cash

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asset price inflation); Robert Hockett, *A Fixer-Upper for Finance*, 87 WASH. U. L. REV. 1213 (2010) (explaining the credit leverage cycle by reference to Minsky).

95. Minsky, *supra* note 22, at 5.

96. Legal scholars have offered descriptive accounts of financial innovations which are consistent with the insights of FIH. See, e.g., Henry T.C. Hu, *Misunderstood Derivatives: The Causes of Informational Failure and the Promise of Regulatory Incrementalism*, 102 YALE L. J. 1457, 1479 (1993) (“To stay competitive, banks constantly introduce new financial products because margins on products decline quickly.”).

97. Piero Ferri & Hyman P. Minsky, *Market Processes and Thwarting Systems*, 3 STRUCTURAL CHANGES & ECON. DYNAMICS 79 (1992).

98. Edgardo Bucciarelli & Marcelo Silvestri, *Hyman P. Minsky’s Unorthodox Approach: Recent Advances in Simulation Techniques to Develop His Theoretical Assumptions*, 36 J. POST KEYNESIAN ECON. 299, 303 (2014).

99. Hyman P. Minsky, *Financial Intermediation in the Money and Capital Market in ISSUES IN BANKING AND MONETARY ANALYSIS* 33 (Giulio Pontecorvo et al. eds., 1976).

flows – which are made under conditions of uncertainty – into future obligations that may or may not correspond to eventual reality.<sup>100</sup>

This all may seem quite intuitive, but classical and heterodox theories regard the role of money or finance in the economy very differently. The classical economic theory begins with the assumption that markets “contain[] neither enterprises nor money.”<sup>101</sup> In this view, money merely serves as “a means of facilitating exchange,”<sup>102</sup> and does not bear directly on economic performance.<sup>103</sup> Under the money-view of capitalism,<sup>104</sup> by contrast, “[c]apitalism is essentially a financial system, and the peculiar behavioral attributes of a capitalist economy center around the impact of finance on system behavior,”<sup>105</sup> and financing is the fundamental source of economic instability.<sup>106</sup> Under the money-view, the financing process generates fragility by translating current estimates of future cash flows – which are made under conditions of uncertainty – into future obligations which may or may not correspond to eventual reality.<sup>107</sup> Because decisions to invest are made under conditions of uncertainty, the way in which investments are financed depends a great deal on expectations – banks lend more when they hold favorable views about the future and less when they are pessimistic.<sup>108</sup> The financing process “hard wires” these subjective beliefs into financing arrangements.

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100. Bucciarelli & Silvestri, *supra* note 98, at 314.

101. See MILTON FRIEDMAN, *CAPITALISM AND FREEDOM* 14 (1962).

102. *Id.*

103. See Angel Asensio, *The Achilles’ Heel of the Mainstream Explanations of the Crisis and a Post Keynesian Alternative*, 36 J. POST KEYNESIAN ECON. 355 (2013) (“[Neoclassical economics] basically thinks of a competitive economy in terms of a complete (or nearly complete) set of markets, where agents are allowed to realize inter-temporal choices that are both optimal and covered against risks by means of adequate insurance/contingent contracts. [In this view, money is] only required to make transactions easier.”).

104. See PERRY MEHRLING, *THE NEW LOMBARD STREET: HOW THE FED BECAME DEALER OF LAST RESORT* 18 (2011).

105. Minsky, *supra* note 99.

106. Bucciarelli & Silvestri, *supra* note 98, at 303 (“The funding process represents the core of Minsky’s analysis. On the one hand, firms have to resort to bank financing to start their production processes and to purchase capital assets. On the other hand, the normal procedures of the banking system involve the use of short term deposits to finance investments in the medium and long term. This activity is based on the exchange of promises of payment made by customers on a more delayed term through the payment of relative interest. Banks have to evaluate the future probability of firms such that firms are able to honor their debts.”).

107. *Id.* at 314.

108. *Id.* at 312.

For Minsky, conventions are the solution to the problem of uncertainty and therefore hold the seeds of financial instability.<sup>109</sup> Rational agents use conventions – rather than mathematical probabilities – to guide financing and investment decisions under conditions of fundamental uncertainty.<sup>110</sup> These speculative elements ultimately create fragility in the financial system.<sup>111</sup> On the one hand, conventions may enhance stability by generating an “illusion of continuity” when conditions are conducive to investment and profits.<sup>112</sup> Agents place greater confidence in convention-determined expectations that produce good outcomes (i.e., positive investment returns) – that is to say, conventions are reinforced pro-cyclically and this pro-cyclicality supports rising optimism about the future direction of the economy.<sup>113</sup> The validation of convention-led expectations over an investment cycle reduces uncertainties about the future, spurring additional investment demand. As long as conventions “maintain the allegiance of the majority of agents, they will help provide continuity and predictability to economic life.”<sup>114</sup>

A wave of optimism is sometimes accompanied by sentiments that the economy has entered a “new era” in which the current boom conditions come to be viewed as permanent.<sup>115</sup> “New era” optimism may be inspired by economic or technological changes that support the narrative of fundamental transformations – if such transformations result in unusual growth.<sup>116</sup> A reduction in uncertainty, resulting from an increase in confidence about future conditions, may lead to increasing optimism or

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109. James Crotty, *Are Keynesian Uncertainty and Macroeconomic Theory Incompatible? Conventional Decision Making, Institutional Structures and Conditional Stability in Keynesian Macromodels*, in *NEW PERSPECTIVES IN MONETARY MACROECONOMICS: EXPLORATIONS IN THE TRADITION OF HYMAN P. MINSKY* 105, 121 (Gary Dymski & Robert Pollin, eds., 1994) (“In the place of complete information . . . Keynes substitutes an expectations formation and decision-making process based on custom, habit, tradition, instinct and other socially constituted practices that make sense only in a model of human agency in an environment of genuine uncertainty.”).
110. Although their work largely predated the behavioral economics movement, the Keynes-Minsky concept of “conventions” is consistent with the heuristics invoked in cognitive psychology and behavioral economics literature. See, e.g., Amos Tversky & Daniel Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, 185 *SCIENCE* 1123 (1974); ROBERT H. SHILLER, *IRRATIONAL EXUBERANCE* 175-192 (3d ed. 2015) (describing the impact of herd behavior on market prices).
111. Bucciarelli & Silvestri, *supra* note 98, at 300.
112. Crotty, *supra* note 109, at 124.
113. James Crotty, *The Realism of Assumptions Does Matter*, in *THE HANDBOOK OF THE POLITICAL ECONOMY OF FINANCIAL CRISES* 133, 147 (Martin Wolfson, Gerald Epstein, eds., 2013) (“When a financial boom lasts for some time, agents begin to project its continuance. Given optimistic expectations of future prices, buying securities previously seen as risky will seem like a reasonable decision . . . When risky behavior is being highly rewarded, fear of risk declines.”).
114. Crotty, *supra* note 109, at 123.
115. Robert H. Shiller, *IRRATIONAL EXUBERANCE* 96 (2d ed. 2005).
116. See KINDLEBERGER, *supra* note 23, at 38–41 (4th ed. 2000) (discussing relationship between asset bubbles and market expansions and technology advancements); ROGOFF & REINHART, *supra* note 90, at 218.

willingness to invest.<sup>117</sup> Minsky labeled increasing investment and belief in perpetual expansion a “euphoric” economy.<sup>118</sup>

A change in long-term expectations impacts capital availability.<sup>119</sup> Liquidity rises endogenously throughout a boom period as asset purchasers can sell assets for more than they paid for them.<sup>120</sup> Leverage also rises as both borrowers and lenders come to believe that leverage is not as risky as it was previously. Credit becomes available to agents who were previously believed to be credit risks (i.e., underwriting standards relax).<sup>121</sup> These trends perpetuate a feedback loop between credit and asset price increases.

The pursuit of euphoric expectations leads to the creation of fragile financing structures.<sup>122</sup> In the early stages of a growth cycle, memories of the most recent financial crisis or downturn weigh heavily on the expectations of bankers and borrowers alike. External financing, to the extent it exists, is highly conservative and extended only to those projects with predictable cash flows and high margins of safety.<sup>123</sup> This phase of the credit cycle is dominated by what Minsky calls *hedge financing* – robust financing arrangements in which the cash flows from operating capital assets or financial contracts are expected to exceed contractual payment obligations both now and in the future.<sup>124</sup>

Time passes. Profit-seeking financial institutions begin to search for higher returns, which they find by funding riskier projects, taking increasingly speculative positions (for example, financing long-term assets with short-term liabilities) and developing new financial products for new classes of investors or borrowers. A pro-

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117. Bucciarelli & Silvestri, *supra* note 98, at 305.

118. HYMAN P. MINSKY, FINANCIAL INSTABILITY REVISITED: THE ECONOMICS OF DISASTER 7 (1966).

119. *Id.* at 8 (“The willingness to assume liability structures that are less defensive and to take, what would have been considered in earlier times undesirable, chance in order to finance the acquisition of additional capital goods means that this shortage of capital will be transformed into demand for financial resources.”).

120. Crotty, *supra* note 113, at 120.

121. *Id.*

122. Ana Rosa Ribeiro de Mendonça & Simone Deos, *Crises in the Financial Regulation of the Finance-led Capitalism: a Minskyan Analysis*, 6 REVUE DE LA REGULATION 9 (2009) (Fr.), <http://regulation.revues.org/7620> (“As a consequence of these developments in the financial markets, a new macroeconomic financial framework is set up, with a higher degree of fragility. This is so because debtors and creditors, by adopting more ‘aggressive’ – but *rational* – structures, reduced the previously adopted safety margins, allowing for a progressive deterioration of the liabilities of non-financial agents as well as of the assets of the financial agents. This growing financial fragility casts the seeds of the next downturn.”).

123. Minsky, *supra* note 22, at 234.

124. *Id.*

cyclical leverage boom ensues, and riskier liability structures emerge. *Speculative financing*<sup>125</sup> occurs when cash flows from operating assets or financial contracts are less than payment obligations in some, typically near-term, periods – although cash flows are expected to exceed payment obligations in every period. *Ponzi financing*, like speculative financing, occurs when commitments exceed the expected cash receipts, but by such a margin that the face amount of outstanding debt increases when the debt is rolled over.<sup>126</sup>

The pursuit of risky financing strategies is encouraged through the cycle as credit-fueled asset price increases validate investment strategies. The longer people make money by taking the risk, the more imprudent they become in risk taking. Rising asset values encourage additional leverage. The “margins of safety” demanded on financing arrangements decrease and the economy as a whole slips toward more speculative liability structures that are sensitive to reversals in expectations. As Minsky explains, “[p]rofit opportunities within a robust financial structure make the shift from robustness to fragility an endogenous phenomenon.”<sup>127</sup>

Once expectations change – and market participants realize the system is liquidity-constrained – the system unravels through the same feedback mechanisms. Lenders constrain credit to increase margins of safety in light of rising uncertainty over future economic conditions. Borrowers unable to refinance on more onerous terms are forced to liquidate assets to cover their obligations, which places downward pressure on prices, which further constrains lending and forces additional asset sales. Because balance sheets are interdependent – a “maze of cash flows”<sup>128</sup> – this turnaround can spark systemic deterioration in the absence of government intervention.

Expectations as to whether the “new era” has been achieved may come into question, causing hedging of portfolios and pulling back in some lending. This may occur much more rapidly than the growth of optimistic expectations during the preceding euphoric phase,<sup>129</sup> particularly if financial intermediaries come under stress. But liability structures are fixed in euphoric era – “the result is a combination of cash flow commitments[,] [debt] inherited from the burst of euphoria and of cash flows receipts [investment income] based upon lower-than-expected income.”<sup>130</sup>

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125. Hedge financing units can become speculative units if there is a shortfall in income, and a speculative unit may become a hedge unit if there is a surge in income, or debts are funded (such as in bankruptcy). *Id.* at 230–231.

126. *Id.* at 231.

127. *Id.* at 234.

128. Domenico Dell Gatti, Mauro Gallegati & Hyman P. Minsky, *Financial Institutions, Economic Policy and the Dynamic Behavior of the Economy*, (Prepared for Int'l. J. A. Schumpeter Soc'y Fifth Conference at Munster Ger., Working Paper No. 126, Oct. 1994).

129. Minsky, *supra* note 118, at 27 (“If risk-averters are dominant then it is likely that an increase in uncertainty can be a rapid phenomenon, whereas a decrease will require a slow accretion of confidence. There is no need for a loss in confidence to proceed at the same pace as a gain in confidence.”).

130. *Id.* at 13.



“Any increase in uncertainty shifts the liquidity preference function, and this shift can be quite marked and sudden.”<sup>131</sup> In a world where the future is uncertain, individuals prefer to retain money and defer investments and consumption. Money is different from other assets in that (1) the elasticity of money production is zero (money is not produced by labor in the private sector), and (2) no other asset functions as a store of value, units of account and medium of exchange. In a monetary economy, money provides security against uncertainty, and thereby links the past, present and future, and coordinates economic activity. Fluctuations in effective demand are related to the liquidity preference of individuals seeking safeguards against uncertainty. The “fragility of social conventions” that determine the marginal efficiency of capital are subject to “sudden and violent changes.”<sup>132</sup> “The concept of a rupture in the conventions that guide expectations and confidence formation is a central component of Keynes’s theory of ‘the crisis’ – the fact that the substitution of downward for upward tendency takes place suddenly and violently.”<sup>133</sup>

## B. Economic Change

Minsky’s theory of the leverage cycle recognizes the importance of innovation on the structure of the financial system itself and, thus, the characteristics of each new credit boom. For Minsky, the sources of financial instability vary depending on the stage of capitalism – such that instability emerges uniquely depending on the stage of evolution.<sup>134</sup> Thus, financial system fragility is impacted not only by financial techniques and product innovations but also by innovations in financial institutions and custom. As a practical matter, this means that policy interventions must conform to the idiosyncrasies of each new credit cycle.

For Minsky, the form and trajectory of financial innovation is guided by institutional context. The pursuit of profits encourages market participants to develop close substitutes to regulated products and services outside of formal regulatory

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131. *Id.* at 27.

132. Crotty, *supra* note 109, at 125.

133. *Id.* at 127.

134. Hyman P. Minsky & Charles J. Whalen, *Economic Insecurity and the Institutional Prerequisites for Successful Capitalism*, 19 J. POST KEYNESIAN ECON. 155, 156 (1997) (“Capitalism is a dynamic, evolving system that comes in many forms. Nowhere is this dynamism more evident than in its financial structure.”). To understand the transformational role of innovation and entrepreneurship on the financial system, Minsky looked to Schumpeter, his graduate advisor at Harvard. As Minsky explained, “[N]owhere is evolution, change and Schumpeterian entrepreneurship more evident than in banking and finance and nowhere is the drive for profits more clearly the factor making for change.” See Hyman P. Minsky, *Schumpeter and Finance*, MARKET AND INSTITUTIONS IN ECONOMIC DEVELOPMENT: ESSAY IN HONOUR OF PAULO SYLOS LABINI 103, 106 (Salvatore Biasco et al. eds., 1993).

purview. This movement of innovation outside of the formal system encourages regulated market participants to seek the relaxation of regulatory barriers to allow them to compete more effectively with the insurgents. As a result, the innovation process – which brought an increasingly large portion of financial transactions outside of regulatory oversight – exerts hydraulic force on the regulatory regime itself by motivating regulated agents to lobby for change.<sup>135</sup>

### C. Supporting Evidence

FIH has been criticized by policymakers and academics as both poorly specified from a methodology perspective and unsusceptible to empirical validation. The basic quibble is with Minsky's narrative approach, which contrasts sharply with the more mathematically dominated discipline of neoclassical macroeconomics. As one economist put it: "Minsky I find enormously attractive. I think that Minsky's view on the dynamics of an asset-cycle is absolutely right. Minsky's difficulty again was that he was unable to formalize the models that he had into a sufficiently rigorous mathematical format to persuade the rest of the profession."<sup>136</sup> Other commentators have leveled similar charges.<sup>137</sup>

As a practical matter, however, the basic intuitions of Minsky's FIH have been endorsed in the post-mortem on the Financial Crisis. For example, consistent with Minsky's account of the fragilization process, Karen Dynan has demonstrated the destabilizing effects of consumer financial product innovation.<sup>138</sup> Similarly, in their investigation of the impact of monetary policy on housing prices, Federal Reserve economists Jane Dokko et al. find evidence of a debt-fueled asset bubble and related feedback loop that is broadly consistent with FIH. The authors specifically align their supply-side explanation of the financial crisis with the boom-bust cycles developed by Hyman Minsky and Charles Kindleberger.<sup>139</sup>

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135. See ERIK F. GERDING, LAW, BUBBLES AND FINANCIAL REGULATION 20–22 (2014) (introducing a "regulatory instability hypothesis," reminiscent of Minsky, which identifies "regulatory decay" as an endogenous feature of the credit cycle).

136. Charles Goodhart, *Minsky I Find Enormously Attractive but His Issues Are Very Difficult to Model in Any Rigorous Way*, 6 EUR. J. ECON. & ECON. POL'Y. 1, 8 (2009); Markus K. Brunnermeier & Martin Oehmke, *Bubbles, Financial Crises, and Systemic Risk*, in 2 HANDBOOK OF THE ECONOMICS OF FINANCE 1221, 1230 (George M. Constantinides et al. eds., 2013) ("Much of the theoretical literature on financial bubbles can be seen as an attempt to formalize [Minsky's] narrative.").

137. Bucciarelli & Silvestri, *supra* note 98, at 300 ("In terms of dynamic instability . . . the framework's structural implications have been obscured.").

138. See generally Karen E. Dynan, *Changing Household Financial Opportunities and Economic Security*, 23 J. ECON. PERSP. 49 (2009).

139. KINDLEBERGER, *supra* note 23, at 78.

More recently, economists have developed dynamic<sup>140</sup> and agent-based<sup>141</sup> models which replicate the pro-cyclical fragilization process.<sup>142</sup> Other commentators have attributed the financial crisis to widely-shared views of market efficiency and *laissez faire* regulation which ignored the fragility dynamics underlying the FIH.<sup>143</sup> In short, FIH – and heterodox macroeconomic theories more broadly – has gained salience along with more sophisticated modeling techniques for analyzing dislocations within modern financial systems.

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140. For a macroeconomic account of procyclical fragilization of the shadow banking sector that is consistent with Minsky's FIH, see Alan Moreira & Alexi Savov, *The Macroeconomics of Shadow Banking* 3 (Nat'l Bureau of Econ. Res., Working Paper No. 20335, 2014). For other studies documenting a similar link between liquidity transformation and economic fragility, see Tobias Adrian, Emanuel Moench & Hyun Song Shin, *Financial Intermediation, Asset Prices and Macroeconomic Dynamics* (Fed. Reserve Board Bank of New York, Staff Report No. 422, 2010); see also Jennie Bai, Arvind Krishnamurthy & Charles-Henri Weymuller, *Measuring the Liquidity Mismatch in the Banking Sector* (Nat'l Bureau of Econ. Res., Working Paper No. 22729, 2016); see also Matthew Baron & Wei Xiong, *Credit Expansion and Neglected Crash Risk* (Nat'l Bureau of Econ. Res., Working Paper No. 22695, 2016). For empirical studies that document increases in credit during the run-up to financial crises, see Carmen M. Reinhart & Kenneth Rogoff, *From Financial Crash to Debt Crisis*, 101 AM. ECON. REV. 1676 (2011); see also Moritz Schularick & Alan M. Taylor, *Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870-2008*, 102 AM. ECON. REV. 1029 (2012).
  141. These studies aim to demonstrate how economic systems evolve over time. See Carl Chiarella & Corrado Di Guilmi, *The Financial Instability Hypothesis: A Stochastic Microfoundation Framework*, (Quantitative Finance Research Centre Research Paper No. 273, 2010), <https://www.uts.edu.au/sites/default/files/qfr-archive-03/QFR-rp273.pdf> (providing a micro-foundation for FIH by modeling investors' expectations to identify the conditions under which the system generates speculative bubbles and the manner in which these bubbles burst); Richard Bookstaber, *Using Agent-Based Models for Analyzing Threats to Financial Stability* (U.S. Dep't of the Treasury, Office of Fin. Research, Working Paper No. 3, 2012).
  142. Bucciarelli & Silvestri, *supra* note 98, at 309.
  143. Angel Asensio, *The Achilles' Heel of the Mainstream Explanations of the Crisis and A Post Keynesian Alternative*, 36 J. POST KEYNESIAN ECON. 355, 376 (2013) ("[T]he mistake of the public authorities is their firm belief in the markets' capacity to self-regulate. Therefore, the crisis is first of all a crisis of the mainstream way of thinking about the economy."); Independent Evaluation Office of the IMF, *IMF Performance in the Run-Up to the Financial and Economic Crisis: IMF Surveillance in 2004-07*, Evaluation Report (Jan. 2011) ("The prevailing view among IMF staff – a cohesive group of macroeconomists – was that market discipline and self-regulation would be sufficient to stave off serious problems in financial institutions . . . IMF staff was essentially in agreement with views of the US, UK and other advanced country authorities that their financial systems were essentially sound and resilient.").

#### IV. The Structure of Financial Stability Regulation

Sections I and II sketched some of the basic features of the financial system that contribute to financial instability. The most familiar account of financial instability begins with the discrete example of bank runs. As a general matter, the structural features of liquidity and maturity transformation provide depositors/investors with first-mover incentives to “run” on assets in times of distress. In the bank sector, deposit insurance and lender of last resort regimes help to mitigate those incentives and reduce the probability and intensity of bank runs. However, as liquidity and maturity transformation activities have moved to the shadow banking sector and outside the formal reach of the public support structure, a greater proportion of the financial system is now susceptible to runs. Although runs on liquidity or maturity transformation activities in isolated markets do not necessarily result in systemic crises, the phenomenon highlights the potential fragility endogenous to common financing arrangements.

Heterodox economic theory complements this story with a broader account of the dynamics through which fragility emerges in the financial system. FIH predicts that financing structures in modern economies “evolve from being robust to being fragile over a period in which the economy does well”<sup>144</sup> as a result of the financing process. In the early stages of a growth cycle, memories of the most recent financial crisis or downturn weigh heavily on the expectations of bankers and borrowers alike. External financing, to the extent it exists, is highly conservative and extended only to those projects with predictable cash flows and high margins of safety.<sup>145</sup> Pro-cyclical risk-taking and leverage are encouraged by Schumpeterian evolution and structural transformation of the financial system that result from financial innovation.<sup>146</sup> Financial system fragility is impacted, therefore, not only by financial technique and product innovations but also from innovations in financial institutions and custom. Once expectations change – and market participants realize the system as a whole is liquidity-constrained – the system unravels through the same feedback mechanisms.

These theories support an economic rationale for financial stability regulation and suggest distinctive principles for the design of financial stability institutions. I group these principles under two broad categories: (1) *functional capabilities*, which describe the capabilities required for prudential or macroprudential regulators to achieve the technical task of identifying and maintaining an optimal level of financial stability; and

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144. Hyman P. Minsky, *Financial Crises: System or Idiosyncratic* 5 (Working Paper No. 51, 1991), <https://ssrn.com/abstract=171533>.

145. HYMAN P. MINSKY, *STABILIZING AN UNSTABLE ECONOMY* 234 (1986). In “normal times,” a variety of factors operate to constrain risk-taking. These “orthodox barriers” include, for example, prevailing custom and usage which help define what may constitute “overly” risky investments. These environmental constraints are relaxed during boom times as demand-lead asset price increases effectively validate increasingly risky investment strategies. Ultimately, risk taking may be trivialized in these circumstances; the quality of investments thus declines and fragility financing regimes develop. *Id.*

146. Minsky, *supra* note 134, at 106 (“[N]owhere is evolution, change and Schumpeterian entrepreneurship more evident than in banking and finance and nowhere is the drive for profits more clearly the factor making for change.”).

(2) *accountability frameworks*, which describe the manner or process through which financial stability policy is made and interventions are implemented.

## A. Functional Capabilities

### 1. Anti-*Laissez Faire* Capabilities

FIH challenges the efficacy of market discipline as the starting point for financial regulation. Equilibrium-based economic theories assume that decentralized markets provide the most efficient allocation of social resources through the coordinating function of the pricing mechanism and therefore broadly support a *laissez faire* approach to regulation. Heterodox theories, by contrast, observe that the profit-seeking activities of financial institutions naturally drive the macroeconomy toward increasing levels of leverage and risk taking.<sup>147</sup> By reversing the presumption of stable equilibrium, heterodox economic theory provides normative support for a presumption in favor of efficiency-enhancing stability interventions.<sup>148</sup>

At this point it may be worth providing some examples of the type of interventions that are implied under an anti-*laissez faire* approach. As a general matter, stability interventions may be grouped into (1) *resiliency regimes*, such as static capital and liquidity requirements, which are intended to improve the strength of the financial system to withstand significant downturns or shock; and (2) *dynamic intervention regimes*, which are intended to target specific, emergent sources of systemic or sectoral risk or imbalance. Examples of commonly contemplated stability tools are presented below.<sup>149</sup>

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147. See notes 21-23 *supra* and accompanying text.

148. It is important to note, however, that the anti-*laissez faire* approach implied by FIH does not imply the rejection of market-oriented mechanisms for addressing financial stability. Indeed, Minsky himself acknowledged both the positive role that market discipline can play in promoting stability and the potential inefficiencies of inappropriate regulatory interventions. MINSKY, *supra* note 145, at 7 (“The sophisticated Keynesian view accepts that while there is a need to intervene to keep a market economy performing in a satisfactory manner or to prevent disasters, actual systems of intervention, especially when they are not enlightened by a theory which helps us understand why there is a positive value to intervention, can do substantial harm. Furthermore, the Keynesian view recognizes that agents learn and adapt, so that a system of intervention that was apt under one set of circumstances can become inept as the economy evolves.”).

149. See generally C. Lim, et al., *Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences* (IMF Working Paper No. 11, 2011); BANK OF INT’L SETTLEMENTS, *MACROPRUDENTIAL POLICY TOOLS AND FRAMEWORKS: PROGRESS REPORT TO G20* (2011); IMF, *Key Aspects of Macroprudential Policy*, Policy Paper (June 2013); DOUGLAS J. ELLIOTT, GREG FELDBERG & ANDREAS LEHNERT, *THE HISTORY OF CYCLICAL MACROPRUDENTIAL POLICY IN THE UNITED STATES* (Division of Res. & Statistics and Monetary Aff., Fed. Reserve Board, Fin. and Econ. Discussion Series No. 2013-29, 2013).

FIGURE 1. FINANCIAL STABILITY TOOLS (CONTINUED ON NEXT PAGE)

<b>Stability Tool</b>	<b>Rationale</b>
<i>Time-varying capital requirements (including dynamic provisioning and restrictions on profit distribution)</i>	Address pro-cyclicality by mitigating excess lending during economic upswings while providing buffers that may be drawn down during economic distress. <sup>150</sup>
<i>Capped or time-varying loan-to-value (LTV) ratios</i>	Limit the pro-cyclicality of collateralized lending since housing prices and households' capacity to borrow based on the collateralized value of the house interact in a pro-cyclical manner.
<i>Capped or time-varying debt-to-income (DTI) ratios</i>	Enhance lenders' asset quality and, when used in conjunction with LTV, further dampen the cyclicity of collateralized lending.
<i>Reserve requirements</i>	Dampen the credit/asset price cycle by reducing credit growth and provide a liquidity cushion that may be used to alleviate a systemic liquidity crunch.
<i>Limits on maturity mismatch</i>	Enhance resiliency by improving the ability of financial institutions to meet short-term obligations and thus reduce the need to fire sale assets.
<i>Systemic risk surcharges</i>	Enhance the resilience of systemically important financial institutions by requiring additional capital margins and/or payment into a systemic risk fund to force "internalization" of the institution's idiosyncratic contribution to overall systemic risk.
<i>SIFI resolution requirements</i>	Improve transparency into complex financial

150. See Bank for Int'l Settlements, *Guidance for National Authorities Operating the Countercyclical Buffer* (Dec. 2010) ("In addressing the aim of protecting the banking sector from the credit cycle, the countercyclical capital buffer regime may also help to lean against the build-up phase of the cycle in the first place. This potential moderating effect on the build-up phase of the credit cycle should be viewed as a positive side benefit, rather than the primary aim of the countercyclical capital buffer regime.").

institutions and reduce uncertainty regarding potential failure or distress of systemically important institutions.

Many of these stability tools – such as capital requirements – are familiar as bank regulatory mechanisms. Others, such as systemic risk surcharges or resolution requirements, may apply more broadly to banks and non-banks, depending on the extent of their lending operations or inter-firm exposure. Still others, such as LTV or DTI ratio, may be used to target specific asset classes regardless of the identity of the financial institution.

## 2. Search Capabilities

The effectiveness of financial stability regulation ultimately will depend on timely identifying systemic risks and sources of financial system instability and designing appropriate policies and interventions to counter those risks without triggering a crisis. Search capabilities are thus critical to financial stability regulatory structure. In some sense, all administrative agencies face the basic challenge of spotting and encouraging, preempting, or punishing conduct according to their statutory mandates. What distinguishes financial stability, perhaps, from other prudential financial regulatory regimes is the potential indeterminacy of the problem that stability regulation seeks to address.

As a threshold matter, there is currently no consensus on the definition of “systemic risk” or “financial instability,” let alone agreement on relevant indicators, transmission channels or efficacy of interventions.<sup>151</sup>

A related complication concerns the importance of correlations as a source of financial system instability. Unlike other forms of financial regulation, which focus on preventing or identifying known categories of prohibited conduct or market activity, stability regulation concerns shared conduct or activities which, in isolation, appear as efficiency-enhancing conventions (for example, standard form contracts or mark-to-market accounting rules), but on aggregate have the potential to transmit risk throughout the system. These techniques for facilitating exchange in normal times may unintentionally serve as transmission channels for systemic risk during market disruptions.<sup>152</sup>

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151. See *supra* notes 41-43 and accompanying text.

152. See, e.g., Anabtawi & Schwarcz, *supra* note 9 (arguing that localized economic shocks may transmit risks through the financial system when two otherwise independent correlations combine: (1) *intra-firm correlations*, that is, correlations between a firm’s financial integrity and exposure to a low-probability event; and (2) *inter-institutional correlations*, or correlations among financial firms and markets); Erik F. Gerding, *Code, Crash, and Open Source: The Outsourcing of Financial Regulation to Risk Models and the Global Financial Crisis*,

Somewhat more prosaically, the task of tailoring effective stability regulation requires assessment of the expectations of economic agents in order to understand how regulatory interventions might be received and incorporated into prevailing beliefs and conventions. Like monetary policy, stability interventions convey important information to economic agents regarding the regulator's view of systemic risk and stability. A regulatory intervention that signals heightened concern about the stability of a particular sector or market may have destabilizing effects, and thus may need to be combined with mitigating regimes, such as deposit insurance or commitments to lender of last resort liquidity mechanisms.<sup>153</sup> If the immediate regulatory goal is to do no harm, it will be critical for the stability regulator to have a basis for understanding the potential market response to interventions intended to enhance financial stability.

As with the scope of regulatory authority, the scope of a stability regulator's search capability should be sufficiently broad to cover risks that may emerge from unregulated or lightly regulated parts of the system. Again, this observation is consistent with the aims of macroprudential regulation and potentially raises challenges related to the stability regulator's ability and authority to collect reliable information relating to unregulated entities and sectors.<sup>154</sup>

### 3. Coordination Capabilities

The object of stability regulation is the financial system as a whole. As discussed in Section II *supra*, heterodox economic theory, and theories of regulatory arbitrage more generally, predict that systemic risks often emerge from the interstices of regulatory systems. Tightening regulatory control over a single sector of the financial system – such as the formal bank sector – may improve sectoral resilience while simultaneously encouraging credit enhancement and maturity transformation activities to move to other parts of the financial system.<sup>155</sup> FIH therefore suggests that effective stability regulation requires coordination of policy responses across

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84 WASH. L. REV. 127 (2009) (highlighting the benefits and dangers of risk models); Charles K. Whitehead, *Destructive Coordination*, 96 CORNELL L. REV. 323 (2011) (“[A]lthough regulation and market standards can help reduce systemic risk, they themselves can also become a systemic risk.”) (emphasis in original).

153. This is a variant of the temporal coordination argument presented by Anabtawi and Schwarcz. See Anabtawi & Schwarcz, *supra* note 10.

154. The term “macroprudential” broadly refers to financial regulation that fills the gap between conventional macroeconomic policy and the regulation of individual financial institutions. See Douglas J. Elliott, Greg Feldberg & Andreas Lehnert, *supra* note 149, at 6 (“The [macroprudential] policymaker’s goal is to manage factors that could endanger the financial system as a whole, even if they would not be obvious as serious threats when viewed in the context of a single institution.”).

155. Steven L. Schwarcz, *Regulating Shadow Banking*, 31 REV. BANKING & FIN. L. 619, 624 (2012) (“[T]he fact that shadow banks tend to be less regulated than traditional banks inevitably means that regulatory arbitrage drives the demand for shadow banking to some extent. Therefore, increasing bank regulation will almost certainly increase shadow-banking demand.”).



regulatory and jurisdictional boundaries to ensure that interventions do more than “squeeze the balloon” by shifting risk around the system.

Regulator coordination is required on three levels: (1) coordination among domestic prudential regulators; (2) coordination between domestic prudential regulators and their central bank; and (3) international coordination.

#### a. Prudential Coordination

The U.S. financial regulatory system is highly balkanized. Federally-chartered financial institutions – i.e., banks, thrifts and credit unions – are supervised by one or more of four financial regulators. Federal Reserve supervision is further allocated among the regional Reserve banks along geographic lines. State-chartered banks are also subject to oversight and supervision by the various state bank regulators. Broker-dealers are regulated by the Securities and Exchange Commission (SEC) and swap dealers by the Commodities and Futures Trading Commission. Insurance companies are regulated by the states.<sup>156</sup> Commentators have argued that this regulatory architecture contributed to the Financial Crisis by creating regulatory gaps and encouraging prudential regulators to “stay in their lane” to avoid jurisdictional conflicts with other agencies.<sup>157</sup>

Because the scope of stability regulation must be sufficiently broad to reach all potential risks to the financial system, it is imperative that prudential regulators have a shared understanding of the ways in which regulation in one segment of the system may contribute to excessive risk taking or correlations in a sector under the purview of another regulator.

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156. The McCarran-Ferguson Act formally delegates authority to establish insurance laws to the states. *See* McCarran-Ferguson Act of 1945, 15 U.S.C. §§ 1011–1015 (1988). The notable exceptions to this state-based system of regulation are AIG and Prudential which have been designated as systemically important non-bank financial institutions (SIFI) subject to supervision by the Board of Governors of the Federal Reserve System. *See* U.S. Dep’t of the Treasury, Financial Stability Oversight Council, Designations Regarding American International Group, Inc. (July 8, 2013), <https://www.treasury.gov/initiatives/fsoc/designations/Documents/Basis%20of%20Final%20Determination%20Regarding%20American%20International%20Group,%20Inc.pdf>; U.S. Dep’t of the Treasury, Financial Stability Oversight Council, Designations Regarding General Electric Capital Corporations, Inc. (July 8, 2013), <http://www.treasury.gov/initiatives/fsoc/designations/Documents/Prudential%20Financial%20Inc.pdf>.

157. *See, e.g.,* Schwarcz, *supra* note 2.

b. Central Bank Coordination

In addition to prudential coordination, financial stability regulation must be closely coordinated with monetary policy.<sup>158</sup> Monetary policy can have positive or negative effects on the efficacy of financial stability policy, and vice versa. For example, some have argued that the prolonged period of low interest rates after the dot-com boom of the late 1990s contributed to the Financial Crisis by encouraging banks and financial institutions to extend mortgage loans to households that could not have borrowed in a higher interest rate environment.<sup>159</sup> As former Federal Reserve Chairman Ben Bernanke speculated: “one cannot look back at the Great Moderation today without asking whether the sustained economic stability of the period somehow promoted the excessive risk taking that followed.”<sup>160</sup>

On the other hand, monetary policy can complement the goals of financial stability. Indeed, price stability can be used as a macroprudential tool, even though there may be short-term trade-offs between price stability and financial stability that the central bank’s lender of last resort function makes necessary.<sup>161</sup> More prosaically, legal scholars have observed that credit creation by shadow banks outside of the formal banking system has supplemented the traditional role of central banks through its impact on the money supply.<sup>162</sup>

Central banks likewise have strong institutional incentives to reduce the frequency and severity of financial crises.<sup>163</sup> A central bank’s role in both the resolution of systemically important financial institutions and as lender of last resort during

158. For a general discussion of the linkages and complementarities between price stability and financial stability objectives, see Arthur W.S. Duff, *Central Bank Independence and Macroprudential Policy: A Critical Assessment of the U.S. Financial Stability Framework*, 11 BERKELEY. BUS. L. J. 183 (2014).

159. This accommodative stance was motivated by what Federal Reserve Chairman Alan Greenspan called “risk management policy,” in which, to reduce the possibility of deflation, the funds rate was held below the level that would otherwise have been chosen to promote a return to full employment. See Alan Greenspan, Former Chairman, Fed. Reserve System, Speech at the Federal Reserve Bank of Kansas City Symposium: Monetary Policy under Uncertainty (Aug. 29, 2003).

160. Ben S. Bernanke, Former Chairman, Fed. Reserve System, A Century of U.S. Central Banking: Goals, Frameworks, Accountability, Address Before the National Bureau of Economic Research Conference, The First 100 Years of the Federal Reserve: The Policy Record, Lessons Learned, and Prospects for the Future (July 10, 2013).

161. For example, a central bank may need to abandon its interest rate policy during a financial crisis in order to provide necessary liquidity to avoid a bank run. See, e.g., Ernst Baltensperger, *Central Bank Policy and Lending of Last Resort*, 51 GIORNALE DEGLI ECONOMISTI E ANNALI DI ECONOMIA NUOVA SERIE 441, 441-552 (1992) (It.), <http://www.jstor.org/stable/23247861?origin=JSTOR-pdf>.

162. See, e.g., Margaret M. Blair, *Financial Innovation, Leverage, Bubbles, and the Distribution of Income*, 30 REV. BANKING & FIN. L. 225 (2010); Erik F. Gerding, *Credit Derivatives, Leverage and Financial Regulation’s Missing Macroeconomic Dimension*, 8 BERKELEY. BUS. L.J. 29, 35 (2011) (arguing for a “systematic exploration of the linkages between financial regulation and macroeconomic/monetary policy”); GERDING, *supra* note 135, at 487–489.

163. See Duff, *supra* note 158, at 205.

liquidity crises places its balance sheet at risk. As the meteoric increase in post-Crisis central bank balance sheets demonstrate, the process of unwinding financial excesses not mitigated through sound macroprudential policy can be costly for central banks.<sup>164</sup> Avoiding what commentators have described as the “push-me, pull-you” dilemma, and the related welfare efficiency losses of non-cooperation, requires more explicit coordination between macroprudential stability tools and monetary policy.<sup>165</sup>

### c. International Coordination

The internationalization of the financial system has increased the potential for cross-border arbitrage and systemic risk spillovers. Countering these trends places a greater premium on coordinating of financial stability policy across international boundaries. Coordination efforts should address both systemic risk identification measures and the coordination of national financial stability policies.

### B. Accountability Structures

The aims and demands of financial stability regulation create unique demands for regulatory accountability. For purposes of this discussion, accountability frameworks refer to the range of processes and tools employed to reduce the discretion of financial stability regulators to adopt welfare-reducing rules, to enhance public understanding of the reasons for pursuing particular stability policies, and generally to increase the legitimacy of the stability rules or policies eventually adopted.<sup>166</sup>

First, financial stability policy is likely to involve rules or interventions that operate to mitigate credit or asset price increases in rising markets or to thwart the development of efficiency-producing standards or practices that create systemically risky correlations or connections across the financial sector.<sup>167</sup> Even more so than monetary policy, which operates through generally applicable interest rates, the more focused application of financial stability interventions to “take away the punch bowl”

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164. To provide just one example, the Federal Reserve’s balance sheet expanded from approximately \$870 billion in 2007 to over \$4 trillion at the beginning of 2014. See *Credit and Liquidity Programs and the Balance Sheet*, FED. RESERVE [http://www.federalreserve.gov/monetarypolicy/bst\\_recenttrends.htm](http://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm) (last visited Nov. 8, 2017).

165. Bianca De Paoli & Matthias Paustian, *Coordinating Monetary and Macroprudential Policies*, 653 FED. RESERVE BANK OF N.Y. STAFF REPORTS 1 (2013) (“[T]he macro-stabilization exercise must be viewed as a joint optimization problem where monetary and regulatory policies are used in concert in pursuit of monetary and macroprudential objectives.”).

166. See generally Glen Staszewski, *Reason-Giving and Accountability*, 93 MINN. L. REV. 1253, 1291 (2009); John C. Coates IV, *Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications* (Eur. Corp. Governance Inst., Working Paper No. 234, 2014).

167. See Figure 1 *supra* and accompanying text.

in particular financial sectors or products can be expected to draw intense opposition from affected market participants.

*Second*, and related, public opposition to stability interventions may be exacerbated by uncertainty over the sources and severity of systemic risks and the perceived necessity and effectiveness of the regulatory response. Whereas the economic effects of a stability intervention will be immediate and quantifiable – for example, output or profit reductions resulting from countercyclical capital requirements,<sup>168</sup> time-varying collateral requirements<sup>169</sup> or selective credit controls<sup>170</sup> – the benefits of successful interventions (i.e., crises avoided) will be difficult or impossible to identify *ex ante* with any precision. Although some empirical research has called into question the link between specific financial stability interventions and reduced macroeconomic performance,<sup>171</sup> the advocate of any particular stability regulation must be prepared to address the potential spillover costs of intervention as well as the expected benefits.

*Third*, because the financial system is constantly evolving, and the systemic risks difficult to define in static terms, pro-active financial stability policy must allow for significant agency discretion in order to accommodate a flexible approach to emerging risks. Although rule-based interventions, such as enhanced capital and liquidity requirements, may operate through traditional notice and comment processes, discretionary interventions raise greater concerns about administrative accountability – particularly where the criteria for intervention are difficult to define.

*Fourth*, because financial stability depends in significant measure on the expectations of financial market participants, the signaling value of regulatory action

168. A variety of international monetary and political organizations have endorsed time variable bank capital requirements as an effective and targeted means of dampening the excessive growth of bank leverage, including the Basel Committee on Banking Supervision, the Financial Stability Board, and the G20. See Fin. Stability Board, *Report on Addressing Procyclicality in the Financial System*, at 11 (Apr. 2, 2009); Bank of Int'l Settlements, *Countercyclical Capital Buffer Proposal*, at 2 (Sept. 10, 2010); G20, *Declaration on Strengthening the Financial System*, at 2 (Apr. 2, 2009).

169. See David Longworth, et al., *The Role of Margin Requirements and Haircuts in Procyclicality* viii (Comm. on the Global Fin. Sys., Paper No. 36, 2010) (explaining that “higher haircuts and initial margins during expansions would provide greater credit loss protection if collateral assets have to be liquidated to secure claims”); BANK OF ENGLAND, *THE ROLE OF MACROPRUDENTIAL POLICY* 19 (2009) (discussing same).

170. See, e.g., Elliott, Feldberg & Lenhart, *supra* note 151 (identifying use of selective credit controls by the Federal Reserve to address overheating in certain credit and asset markets).

171. See, e.g., BANK OF ENGLAND, *supra* note 169, at 7 (explaining that “a higher equity share in the capital structure of a firm need not necessarily imply a higher cost of funding for the banking system because of the reduced risk and, hence, cost of debt finance arising from lower levels of leverage”); Macroeconomic Assessment Group, Financial Stability Board and Basel Committee on Banking Supervision, *Final Report: Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements* at 2 (Dec. 2010) (concluding, based on a simulation analysis across 15 countries, that the estimated maximum GDP impact per percentage point of higher bank capital required was 0.17%, reached 35 quarters after the implementation of the new capital requirement).

may be as important to the efficacy of stability interventions as the merits. Because instability is closely linked to the deterioration or change in expectations resulting from the resolution of uncertainty, the expressive function of stability regulation may be critical to facilitating efficiency-enhancing coordination.

Given these demands, stability regulation requires an accountability framework that enables the efficient pursuit of stability policy while maintaining a level of accountability commensurate with its mandate. Three potential accountability models employed in other financial regulatory paradigms – capital markets regulation, bank supervision and monetary policy – and their limitations are considered below.

## 1. Prudential Models

### a. Cost-Benefit Analysis

Until recently, cost-benefit analysis (CBA) has not been a staple of federal financial regulation.<sup>172</sup> Independent agencies, such as the federal banking regulators, SEC and CFTC, generally were excluded from the scope of the Executive orders which required administrative agencies to weigh the costs and benefits of any proposed “major rules” and submit their analysis to the Office of Management and Budget (OMB) for review.<sup>173</sup>

CBA for financial regulation has gained prominence in the Dodd-Frank era, however, largely due to a string of D.C. Circuit cases<sup>174</sup> that reversed SEC rulemakings on grounds that the Commission failed to sufficiently analyze the costs and benefits of proposed regulation as required by the Commission’s authorizing statute.<sup>175</sup> The

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172. See Whitehead, *supra* note 12, at 1267–1308.

173. See, e.g., Exec. Order No. 12,229, 46 FED. REG. 13193 (Feb. 17, 1981) (“Regulatory action shall not be undertaken unless the potential benefits to society for the regulation outweigh the potential costs to society.”); Executive Order 12,866, *Regulatory Planning and Review*, 58 FED. REG. 51735 (Oct. 4, 1993); Executive Order 13,563, *Improving Regulation and Regulatory Review*, 76 FED. REG. 3821 (Jan. 21, 2011).

174. See, e.g., *Bus. Roundtable v. SEC*, 647 F.3d 1144 (D.C. Cir. 2011); *Am. Equity Inv. Life Ins. Co. v. SEC*, 613 F.3d 166 (D.C. Cir. 2010); *Chamber of Commerce v. SEC*, 412 F.3d 133 (D.C. Cir. 2005).

175. Specifically, the Commission is required to evaluate the effect of a new rule upon “efficiency, competition, and capital formation.” 15 U.S.C. §§ 78c(f), 78w(a)(2), 80a-2(c) (2012).

CFTC,<sup>176</sup> CFPB<sup>177</sup> and federal banking agencies<sup>178</sup> each have a statutory mandate – of varying significance – to consider the administrative burdens and benefits of proposed regulations.

Proponents have forwarded numerous efficiency and good governance rationales for CBA. For example, CBA may enhance rational decision making by promoting positive social outcomes, reducing the risk of regulatory (cognitive) bias<sup>179</sup> or other unintended consequences of regulation,<sup>180</sup> and facilitating the efficient allocation of scarce social resources.<sup>181</sup> Moreover, CBA can help address democratic accountability concerns by making the agency decision-making process more participatory, transparent and subject to executive oversight.<sup>182</sup> Opponents have challenged the use of CBA on similar grounds, arguing that CBA’s efficiency-promoting justifications are overstated in light of substantial methodological uncertainties,<sup>183</sup> or cannot be justified on moral or ethical grounds.<sup>184</sup>

In a series of recent papers, Eric Posner and E. Glen Weyl have argued in favor of applying CBA to financial regulation on both efficiency and accountability grounds.<sup>185</sup> Although Posner and Weyl do not specifically discuss financial stability regulation, their analysis highlights some of the difficulties of applying CBA in this context –

176. 7 U.S.C. § 19(a) (2012) (the CFTC “shall consider the costs and benefits of the [proposed] action” and specifically must consider the effects on “efficiency, competitiveness, and financial integrity of futures markets”).
177. 12 U.S.C. § 5512(b)(2)(A) (2012) (CFPB shall “consider—(i) the potential benefits and costs to consumers and covered persons, including the potential reduction of access by consumers to consumer financial products or services resulting from such rule; and (ii) the impact of proposed rules on covered persons . . . and the impact on consumers in rural areas”).
178. 12 U.S.C. § 4802(a) (2012) (federal banking regulators must “consider, consistent with the principles of safety and soundness and the public interest—(1) any administrative burdens that such regulations would place on depository institutions, including small depository institutions and customers of depository institutions; and (2) the benefits of such regulations”).
179. See, e.g., Larry E. Ribstein, *Bubble Laws*, 40 HOUS. L. REV. 77, 78–79 (2003) (arguing that recent, high-profile events where regulation failed may cause regulators to overestimate the likelihood of future, similar occurrences).
180. See, e.g., Cass R. Sunstein, *Congress, Constitutional Moments, and the Cost-Benefit State*, 48 STAN. L. REV. 247, 261–62 (1996).
181. *Id.* at 258.
182. See, e.g., Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 U. CHI. L. REV. 1137, 1141 (2001) (“The purpose of requiring agencies to perform cost-benefit analysis is not to ensure that regulations are efficient; it is to ensure that elected officials maintain power over agency regulation”).
183. Thomas O. McGarity, *Professor Sunstein’s Fuzzy Math*, 90 GEO. L.J. 2341, 2344–45 (2002).
184. Martha C. Nussbaum, *The Costs of Tragedy: Some Moral Limits of Cost-Benefit Analysis*, 29 J. LEGAL STUD. 1005 (2000).
185. Eric A. Posner & E. Glen Weyl, *Benefit-Cost Analysis for Financial Regulation*, 103 AM. ECON. REV. 393, 393–397 (2013); ERIC A. POSNER & E. GLEN WEYL, BENEFIT-COST PARADIGMS IN FINANCIAL REGULATION (U. Chi. Coase-Sandor Institute for L. & Econ. Res. Paper 60, 2014), <http://ssrn.com/abstract=2346466>.

including estimation of the reduced probability of financial crises (presumptively, the key benefit of financial stability regulation), the costs resulting from the under (or over) supply of credit, and the facilitation of economic transactions based on “beliefs” or “conventions” rather than fundamentals.<sup>186</sup> Taking up some of these critiques, John Coates has argued strongly against quantified CBA for financial regulation on grounds that the presumption of an accurate methodology for assessing the expected costs of *non-intervention* and the expected benefits of systemic risk intervention mask the incoherence of such calculation and therefore undermine administrative accountability.<sup>187</sup>

Aside from the methodological difficulties of applying CBA in the stability context, there may be procedural hurdles as well. As discussed, one of the virtues of CBA is the potential to enhance the democratic accountability of agency decision making both by providing a framework for administrative action and an avenue for judicial review. To the extent that financial stability policy, like monetary policy, is intended to reflect antidemocratic considerations – that is, a pre-commitment to sacrifice certain short-term gains for longer-term efficiency – then the democracy-forcing feature of CBA and related judicial review may be counterproductive.

#### b. Banking Supervision and Technocratic Trust

In contrast to the transparency and information-production features of CBA, traditional approaches to bank examination and supervision have been grounded in confidentiality. Bank examiner reports generally are protected from production by the so-called bank examination privilege. This privilege is grounded in the “practical necessit[ies]” of the supervision process.<sup>188</sup> The supervisory process gives banks and bank regulators an opportunity for iterative assessment and adjustment of expectations regarding bank conduct. As a result, bank supervision tends to be less adversarial than capital markets regulation,<sup>189</sup> and a significant aspect of bank regulation involves informal guidance. As a panel of the D.C. Circuit Court of Appeals observed:

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186. Posner & Wyel, *Benefit-Cost Analysis*, *supra* note 185, at 2–5; Posner & Wyel, *Benefit-Cost Paradigms*, *supra* note 185, at 5–8.

187. See John C. Coates, IV, *Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications*, 124 Yale L.J. 882 (2015). For an argument in favor of a rule-based approach to capital requirements, and the application of cost-benefit analysis to such rulemaking, see Prasad Krishnamurthy, *Rules, Standards, and Complexity in Capital Regulation*, 43 J. LEGAL STUD. 273 (2014).

188. *In re Subpoena Served Upon the Comptroller of the Currency and the Secretary of the Board of Governors of the Federal Reserve System*, 967 F.2d 630, 633 (1992).

189. See generally David Zaring, *Administration by Treasury*, 95 MINN. L. REV. 187, 193 (2010) (“[F]inancial regulation . . . is simply less litigious than is the sort of regulated industry oversight that other important agencies . . . perform.”).

Bank safety and soundness supervision is an iterative process of comment by the regulators and response by the bank. The success of the supervision therefore depends vitally upon the quality of communication between the regulated banking firm and the bank regulatory agency. This relationship is both extensive and informal. It is extensive in that bank examiners concern themselves with all manner of a bank's affairs: Not only the classification of assets and the review of financial transactions, but also the adequacy of security systems and of internal reporting requirements, and even the quality of managerial personnel are of concern to the examiners . . . . Because bank supervision is relatively informal and more or less continuous, so too must be the flow of communication between the bank and the regulatory agency. Bank management must be open and forthcoming in response to the inquiries of bank examiners, and the examiners must in turn be frank in expressing their concerns about the bank. These conditions simply could not be met as well if communications between the bank and its regulators were not privileged.<sup>190</sup>

Public access to bank supervisory records is similarly limited by the bank examination exemption to the Freedom of Information Act.<sup>191</sup>

A classic bank regulatory approach to supervision may be helpful to generate private information and provide supervisors with enhanced understanding of individual bank risk management practices. But it also reduces market discipline by keeping information relevant to assessments of bank risk taking out of the public domain. This opacity potentially contributes to market uncertainty and the propensity for inefficient coordination in the form of credit rationing or bank runs in times of stress. If one of the imperatives of financial stability regulation includes enhancing market discipline in normal times, and discouraging inefficient coordination in times of stress, the secrecy of the bank supervision model may be inappropriate. The banking model, therefore, needs to be complimented with or implemented through a justificatory structure that provides greater transparency and public content into stability regulation.

## 2. Central Banking Models

A third potential accountability model for stability policy can be drawn from central banking. Like financial stability, price stability is complex, uncertain and highly indeterminate. And yet most countries grant significant independence to central bankers to exercise their expert judgment in formulating monetary policy.<sup>192</sup> In part,

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190. *In re Subpoena*, 967 F.2d at 633–34.

191. 5 U.S.C. § 552(b)(8) (2012) (exempting from disclosure materials “contained in or related to examination, operating or condition reports prepared by, on behalf of, or for the use of an agency responsible for the regulation or supervision of financial institutions”).

192. *See, e.g.*, Alex Cukierman, *Central Bank Independence and Monetary Control*, THE ECON. J. 1437, 1437–1448 (1994) (collecting studies that find a negative relationship between central



this discretion can be attributed to the antidemocratic nature of monetary policy,<sup>193</sup> which generally requires central banks to “lean against the wind” and pursue short-term interest rate policies that may be beneficial to price stability but detrimental to short-term growth.<sup>194</sup>

Notwithstanding the high levels of independence afforded to central banks as a pre-commitment device, the discretion of monetary authorities is often constrained through a range of mechanisms. Price stability objectives are typically established by constitution or statute, which set either a general mandate or specific inflation targets. While central bankers retain discretion over their choice and timing of policy interventions, their performance can be publicly assessed by comparison to their mandates. More specifically, the performance of monetary policy is often assessed by reference to the Taylor Rule, a principle of monetary policy developed by economist John Taylor which stipulates that a central bank should raise interest rates by more than one percentage point in response to a percentage point increase in inflation.<sup>195</sup> As a practical matter, central banks routinely depart from the policy path dictated by the Taylor Rule, although the Rule itself provides something of a benchmark for assessing the performance of monetary policy.<sup>196</sup>

Aside from these accountability mechanisms, monetary policy exhibits a fairly high degree of methodological and procedural transparency. The Federal Reserve, for example, routinely publishes its macroeconomic models and related research for public comment and critique, and its economists are active contributors in the academic community. The Federal Reserve Open Markets Committee publishes transcripts of its meetings, and governors communicate policy information through speeches and releases that provide informal guidance on future policy directions.

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bank legal independence and inflation within a group of industrialized countries); Alberto Alesina & Lawrence H. Summers, *Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence*, 25 J. OF MONEY, CREDIT AND BANKING 151, 151–162 (1993) (finding central bank independence improves price stability, but has no measurable impact on real economic performance).

193. José Gabilondo, *Financial Hospitals: Defending the Fed’s Role as a Market Maker of Last Resort*, 36 SEATTLE U. L. REV. 731, 787–788 (2013) (“[T]he notion that the Fed faces an accountability deficit ignores the intended antidemocratic nature of its mission. The Fed leans against both business and electoral cycles, so some ensuing objections from Main Street and its purported representatives should be understood as foreseeable resistance to an antimajoritarian mandate.”).
194. See, e.g., Rosa M. Lastra, *Central Bank Independence and Financial Stability*, 18 ESTABILIDAD FINANCIERA 51 (2009) (Spain).
195. See John Taylor, *Discretion versus Policy Rules in Practice*, 39 CARNEGIE-ROCHESTER CONFERENCE SERIES ON PUBLIC POLICY 195 (1993).
196. See Boris Hoff, *Taylor Rules and Monetary Policy: A Global “Great Deviation?”*, BIS Q. REV., Sept. 2012, at 37, 38. (showing that funds rates were well below the Taylor-implied rates for most of the decade preceding the financial crisis).

Benjamin Friedman has argued that transparency of monetary policy has two primary benefits: (1) providing greater predictability that in turn “leads to more efficient decision making by private investors, firms and workers involved in determining prices and wages”; and (2) “enabl[ing] both higher political authority and the body politic at large to hold monetary policy makers accountable for their success or failure in achieving the ends to which they are charged.”<sup>197</sup>

An accountability model based on the central banking model would have specific characteristics. First, financial stability regulators would be provided with a clear stability mandate. Second, financial stability regulators would provide access and transparency to the analytical and decision tools that informed its systemic risk assessments and determinations. To the extent that the analytical complexity of its assessment tools prevented effective public scrutiny, it should develop proxy measures (akin to the Taylor Rule) against which its policy could be assessed. In this context, simple yet robust indicators are likely to be preferred over complex indicators with better fit. Third, because “soft” communications (such as regulator speeches, informal releases and guidance) may play an important role in shaping the expectations of market participants, and thus impact the efficacy of policy initiatives, financial stability regulation should develop both transparent decision-making processes and proactive regimes for managing the delivery of policy-related information to the marketplace.

## V. The U.S. Financial Stability Architecture

### A. Functional Capabilities

#### 1. Market Discipline and Anti-*Laissez Faire* Sensibilities

In the post-War boom, the influence of neoclassical economic and finance theories can be seen across a range of financial institutions and financial market regulations. Disclosure-oriented regulation dominated the Securities and Exchange Commission’s (SEC) approach to broker-dealer regulation and investor protection. Structural regulation of the banking sector, including the separation of traditional commercial banking and investment banking, was abolished.<sup>198</sup> And the fast-growing over-the-counter (OTC) market was eventually excluded entirely from federal oversight.<sup>199</sup> In

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197. Benjamin M. Friedman, *Why A Dual Mandate is Right for Monetary Policy*, 11 INT’L FIN. 159 (2008).

198. The decision to separate commercial and investment banking in 1933, codified as the Banking Act of 1933, Pub. L. 73-65 (the Glass-Steagall Act), was largely repealed by the Financial Services Modernization Act of 1999, Pub. L. No. 106-102, 15 U.S.C. §§ 6801-6809, 6821-6827 (Gramm-Leach-Bliley Act). Other structural reforms went in the other direction – for example, the Bank Holding Company Act walled off banks from the underwriting of insurance in 1956. *See* Bank Holding Company Act of 1956, Pub. L. No. 84-511, 12 U.S.C. §§ 1841–1850.

199. For a concise history of U.S. derivatives regulation, and some prognostication on the new form of derivatives regulation under the Dodd-Frank Act, *see* Arthur W.S. Duff & David

short, the New Deal financial regulatory architecture slowly gave way to a market-oriented regulatory restructure in years leading up to the Financial Crisis.

If the pre-Crisis regulatory landscape was *laissez faire*, the Dodd-Frank era may be characterized as giving a firm nod to instability while keeping one foot firmly planted in market discipline. Dodd-Frank has many features which directly address the more obvious “market failures.” Among other things, Dodd-Frank enhances disclosure and transparency in the derivatives markets, expands the scope of federal supervision, and removes certain market-distorting incentives that may have exacerbated inefficient risk taking. Dodd-Frank overhauls the pre-Crisis derivative landscape with mandatory reporting requirements for swap transactions,<sup>200</sup> which include public reports of swap prices and volumes, clearance of many swaps to reduce counterparty credit risk,<sup>201</sup> oversight and supervision of important derivatives market participants<sup>202</sup> and prudential regulation.<sup>203</sup>

In other ways, Dodd-Frank displays profoundly anti-*laissez faire* sensibilities. Among other things, it designates a specific macroprudential regulator – the multi-member Financial Stability Oversight Council (FSOC) – which is charged with monitoring the financial system for emerging systemic threats.<sup>204</sup> More discretely, Dodd-Frank codifies a number of mechanisms that are intended to increase resilience to systemic risk. Some of these reforms are in the vein of Glass-Steagall-type restrictions on risk-taking activities by certain types of financial entities – for example, the Volcker Rule,<sup>205</sup> which prohibits certain kinds of proprietary trading activities by depository institutions, and the “push out rule,”<sup>206</sup> which requires depository institutions to move derivatives trading activities into a separately capitalized subsidiary or affiliate.

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Zaring, *New Paradigms and Familiar Tools in the New Derivatives Regulation*. 81 GEO. WASH. L. REV. 677 (2013).

200. Dodd-Frank Wall Street Reform and Consumer Protection Act (hereinafter “Dodd-Frank Act”) § 729, 7 U.S.C. § 6o-1 (2010).

201. *See id.* § 723.

202. *Id.* § 113.

203. *Id.* § 716.

204. *Id.* § 111.

205. *Id.* § 619.

206. *Id.* § 716.

Likewise, capital requirements both for banks<sup>207</sup> and non-bank entities including swap dealers<sup>208</sup> and certain broker-dealers<sup>209</sup> are aimed at enhancing the resilience of covered institutions (to the extent they are required to hold higher reserves against potential losses) to systemic shocks. Margin requirements operate to a similar effect at a transactional level,<sup>210</sup> while mandatory swap clearing aims to reduce counterparty credit risk.<sup>211</sup>

In addition to enhancing the structural resilience of the banking and derivatives sectors, Dodd-Frank alters the scope and nature of financial institution supervision for the purpose of enhancing both safety and soundness oversight and financial stability monitoring. For example, Dodd-Frank requires the Federal Reserve to supervise any entity designated as “systemically important” by FSOC,<sup>212</sup> financial institutions with more than \$50 billion in assets<sup>213</sup> and other entities subject to consolidated (enhanced) supervision by the Board of Governors of the Federal Reserve System.<sup>214</sup> Dodd-Frank likewise expands oversight of the important participants in the derivatives market,<sup>215</sup> and authorizes the SEC to supervise certain security-based swap dealers and major swap participants (MSPs)<sup>216</sup> and to set capital requirements for major security-based swap dealers and MSPs to promote safety and soundness.<sup>217</sup> This expansion of authority and supervision over previously unregulated financial market institutions is consistent with the principles outlined above as are the particular resiliency features

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207. *Id.* § 171(b)(7)(A).

208. *Id.* §§ 115, 731; *see also* Professor Henry T. C. Hu, Chair in the Law of Banking and Finance, University of Texas Law School, *Keynote Address: The Sec, Dodd-Frank, and Modern Capital Markets*, 7 N.Y.U. J.L. & Bus. 427, 430 (2011) (“The complexity of developing rules that properly balance systemic risk concerns while accommodating worthwhile derivatives transactions can be seen through the lens of a single task that Dodd-Frank assigns to the SEC: developing capital adequacy standards for security-based swap dealers that are not banks.”).

209. Dodd-Frank Act §§ 731, 804.

210. CFTC, *Margin Requirements for Uncleared Swaps for Swap Dealers and Major Swap Participants*, 76 Fed. Reg. 23,732-23,733 (proposed Apr. 28, 2011).

211. Dodd-Frank Act § 723.

212. *Id.* §§ 804-805; *see also* Board of Governors of the Federal Reserve System, *Authority To Require Supervision and Regulation of Certain Nonbank Financial Companies*, 77 Fed. Reg. 21,637, 21,643 (Apr. 11, 2012).

213. Dodd-Frank Act § 618.

214. *See* Board of Governors of the Federal Reserve System, *Consolidated Supervision Framework for Large Financial Institutions*, SR 12-17 / CA 12-14 (Dec. 17, 2012).

215. Dodd-Frank Act § 113.

216. *Id.* §§ 761-774.

217. *See* Securities and Exchange Commission, *Capital, Margin and Segregation Requirements for Security-based Swap Dealers and Major Security-Based Swap Participants and Capital Requirements for Broker-Dealers*, 17 CFR § 240. As discussed below, Dodd-Frank divides regulatory over swap agreements between the SEC and the Commodity Futures Trading Commission (CFTC). The SEC has regulatory authority over “security-based swaps,” defined as swaps based on a single security or loan or a narrow-based group or index of securities. The CFTC has primary authority over all other swaps.

of Dodd-Frank (e.g., capital requirements, structural separation of certain risk-taking activities from depository institutions, etc.). Moreover, the scope of systemic risk regulation may expand over time if FSOC designates additional SIFIs or recommends stability interventions to specific prudential regulators.

## 2. Systemic Risk Identification and Analysis

As suggested above, FSOC, acting in conjunction with the Treasury Department's Office of Financial Research, collects and assesses information about potential threats to the U.S. financial system, monitors domestic and international financial regulatory proposals, and facilitates information sharing among state and federal agencies regarding the development of domestic financial services policy.<sup>218</sup> FSOC then has the duty to make recommendations to its member agencies, including, *inter alia*, recommending supervisory priorities to its members agencies, recommending to the Federal Reserve prudential standards for risk-based capital, leverage, liquidity, contingent capital, resolution plans, credit exposure reports, enhanced public disclosures and overall risk management programs for supervised nonbank financial companies and bank holding companies.<sup>219</sup> FSOC is supported by several standing committees, including the committees of Deputies, Systemic Risk (Institutions and Markets sub-committees), Designations of Nonbank Financial Companies, Designations of Financial Market Utilities, Heightened Prudential Standards, and Data. These committees may meet more frequently than the FSOC and include senior representation from the member agencies and the OFR.

Additional systemic risk monitoring is provided by the Board of Governors of the Federal Reserve System and its Reserve Banks, both of which maintain research teams dedicated to assessing macroprudential and financial stability conditions.<sup>220</sup> The Fed's expanded supervisory authority over "systemically important financial institutions" (SIFIs), including bank and non-bank financial institutions with assets in excess of \$50 billion, and financial market utilities,<sup>221</sup> including swap clearing houses, likewise enhances its access to information on systemic risk, as does its consolidated

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218. Dodd-Frank Act § 112(a)(2)(A)–(E).

219. *Id.* §§ 112(a)(2)(F), (I), (K).

220. The Board of Governors of the Federal Reserve System maintains an Office of Financial Stability and Research which includes some 23 economists who conduct research on financial and macroeconomic stability issues. See *Board of Governors of the Federal Reserve System*, THE FEDERAL RESERVE, <http://www.federalreserve.gov/econresdata/fsprstaff.htm> (last updated Jan. 29, 2018).

221. See Dodd-Frank Act § 804(a)(1).

supervision program for large financial institutions which may not qualify for SIFI status.<sup>222</sup>

### 3. Multi-Level Coordination

#### a. Domestic Stability Coordination

In the United States, financial stability policy is coordinated through FSOC, an interagency group which provides a regular forum for the various heads of the federal financial regulatory agencies, plus the Federal Reserve Chairman and other non-voting delegates, to assess potential systemically-important developments in the financial system.<sup>223</sup> FSOC's mandate is threefold: (1) to identify risks to the financial stability of the United States, (2) to "promote market discipline" by eliminating expectations of shareholders, creditors and counterparties that the government will shield them from losses in the event of failure (read: no bailouts); and (3) to respond to emerging threats to the stability of the United States financial system.<sup>224</sup> Acting in conjunction with the Office of Financial Research, FSOC collects and assesses potential threats to the U.S. financial system, monitors domestic and international financial regulatory proposals, and facilitates information sharing among state and federal agencies regarding the development of domestic financial services policy.<sup>225</sup>

Notwithstanding its mandate to "respond to emerging threats to the stability of the United States financial system,"<sup>226</sup> FSOC has little formal authority to implement macroprudential policy. Rather, upon identifying a systemic risk, FSOC may "recommend" policy directions to its member agencies.<sup>227</sup> The member agency must then either respond publicly to proposal recommendations made by FSOC or explain

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222. See Board of Governors of the Federal Reserve System, *Consolidated Supervision Framework for Large Financial Institutions*, SR 12-17 / CA 12-14 (Dec. 17, 2012) (addressing "potential systemic risk implications of [supervised] firm actions and operations").

223. FSOC is chaired by the Secretary of the Treasury and, including the Secretary, includes ten voting members: the Chairman of the Board of Governors of the Federal Reserve System, the Director of the Bureau of Consumer Financial Protection, the Comptroller of the Currency, the Chairman of the Securities and Exchange Commission, the Chairperson of the Federal Deposit Insurance Corporation, the Chairperson of the Commodities Futures Trading Commission, the Director of the Federal Housing Finance Agency, the Chairman of the National Credit Union Administration Board and an independent member appointed by the President of the United States, upon advice and consent of the U.S. Senate, with "insurance expertise." Dodd-Frank Act § 111(b)(1); 12 U.S.C. § 5321(b)(1). FSOC also includes five non-voting members: the Director of the Office of Financial Research, the Director of the Federal Insurance Office, a state banking regulator, a state insurance regulator and a state securities regulator. The three state regulator representatives are designated through a selection process agreed upon by the states. Dodd-Frank Act § 111(b)(2); 12 U.S.C. § 5321(b)(2).

224. Dodd-Frank Act § 112(a)(1).

225. *Id.* § 112(a)(2)(A)–(E).

226. *Id.* § 112(a)(1)(C).

227. *Id.* §§ 112(a)(2)(F), (I), (K).

its rationale for refusing to adopt the recommendation. Section 120, which establishes a default presumption that prudential regulators will adopt any macroprudential recommendations from FSOC, is subject to a written explanation for any departure from that presumption.<sup>228</sup> Likewise, although FSOC member agencies are encouraged to coordinate on prudential regulatory initiatives, they are not obliged to incorporate the feedback they receive from the FSOC in finalizing their rules and regulations.

FSOC's most significant authority is the power to designate systemically important financial institutions (SIFIs), which, by virtue of such designation, are subject to heightened prudential regulation by the Federal Reserve.<sup>229</sup> FSOC has made twelve SIFI designations to date, including several non-banks, insurance companies and financial market utilities.<sup>230</sup> As a result, FSOC has achieved the expansion and deepening of bank-style regulation over the U.S. financial system. And in this sense, FSOC has reduced the potential for inter-regulator mis-coordination on issues of financial stability policy by placing more of the U.S. financial system under the purview of a single regulator: the Federal Reserve. While the balkanization of the U.S. financial regulatory architecture persists after Dodd-Frank, at least as to stability issues arising from the most systemically important institutions, it has been substantially reduced.

As for formalities, Title I of Dodd-Frank provides a worrisome half measure for coordinating stability policy. FSOC itself has few powers it can implement directly in pursuit of financial stability and must rely instead on prudential regulators to adopt its recommendations. Title I did not alter the statutory mandates of any of the FSOC member organizations and, with the exception of the CFTC, none have a formal stability mandate.<sup>231</sup> It is not difficult to imagine a scenario where a prudential regulator refuses to carry forward the stability recommendation and indeed, precisely that occurred in August 2012 when the SEC declined to promulgate a proposed rule

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228. *Id.* § 120(c)(2).

229. *Id.* § 113.

230. *See* Designations, FINANCIAL STABILITY OVERSIGHT COUNCIL (Oct. 2, 2017, 5:59PM), <http://www.treasury.gov/initiatives/fsoc/designations/Pages/default.aspx>.

231. *See* 7 U.S.C. § 5(b) (defining purpose of the Commodities Exchange Act, to be enforced by the CFTC, to, *inter alia*, "ensure the financial integrity of all transactions subject to this chapter and the avoidance of systemic risk"). Although the Federal Reserve arguably has a *de facto* stability mandate, its formal mandate is more circumscribed. *See* 12 U.S.C. § 225a (identifying mandate of Federal Reserve to "maintain the long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long term growth.").

adopting FSOC recommendations for reform of money market mutual fund regulations.<sup>232</sup>

As a practical matter, however, the FSOC itself seems to have devoted a level of attention to informal coordination and policy direction that is more reminiscent of the macroeconomic planning of the Federal Reserve’s Open Market Committee (FOMC) than traditional agency or multi-agency actions. FSOC has appeared to follow FOMC’s approach of iterative, transparent market assessment as a mechanism for conveying its review of market conditions. By statute, FSOC is required to convene on at least a quarterly basis<sup>233</sup>, although the group convenes more frequently. Like the FOMC, FSOC publicly releases its minutes<sup>234</sup> and, for some portion of most meetings, provides public access.<sup>235</sup> It releases annual reports that catalogue its ongoing assessment of potential threats to the financial system, and partners with OFR in producing research reports on selected topics germane to stability. FSOC has also fostered the creation of deputy-level personnel networks between its member agencies as a means of developing and facilitating financial stability policy.

FSOC’s interagency structure and limited formal powers create interesting incentives for prudential regulators with respect to financial stability issues. On the one hand, FSOC provides a standing forum for the collection and exchange of information related to financial stability. On the other hand, FSOC’s implementing framework provides a valuable “put” for prudential agencies wrestling with stability regulation that may be unpopular with regulated constituencies. As the recent experience with the SEC’s MMMF rules suggests, a failure to implement stability regulation at the prudential level may inspire counterproposals at the FSOC level.<sup>236</sup>

FSOC’s approach to interagency coordination therefore closely resembles the FOMC’s approach to monetary policy. It employs similar signaling techniques to keep market participants apprised of potential policy directions. In other respects, however,

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232. Recommendations to reform the money market mutual fund (MMMF) marketplace came from the President’s Working Group on Financial Markets and FSOC in both 2011 and 2012. The SEC opened a public comment period on a proposed set of reforms in 2010 but decided not to move forward with those proposed reforms, declaring defeat in August 2012. In response, FSOC proposed its own recommendations in November 2012. See Financial Stability Oversight Council, *Proposed Recommendations Regarding Money Market Mutual Fund Reform*, 77 Fed. Reg. 69,455 (Nov. 19, 2012).

233. Dodd-Frank Act § 111(e)(1); 12 U.S.C. § 5321(e)(1).

234. *Meeting Minutes*, FIN. STABILITY OVERSIGHT COUNCIL, <https://www.treasury.gov/initiatives/fsoc/council-meetings/Pages/meeting-minutes.aspx>. (last visited?)

235. *Transparency Policy*, FIN. STABILITY OVERSIGHT COUNCIL, <https://www.treasury.gov/initiatives/fsoc/Documents/The%20Council%27s%20Transparency%20Policy.pdf>. (last visited?)

236. See FIN. STABILITY OVERSIGHT COUNCIL, *PROPOSED RECOMMENDATIONS ON MONEY MARKET MUTUAL FUND REFORM* (Nov. 2012), <https://www.treasury.gov/initiatives/fsoc/Documents/Proposed%20Recommendations%20Regarding%20Money%20Market%20Mutual%20Fund%20Reform%20-%20November%202013,%202012.pdf> (observing the “2010 [SEC] reforms did not address the structural vulnerabilities of MMFs that leave them susceptible to destabilizing runs”).



FSOC is unique among the federal financial regulators. FSOC has less independence over financial stability policy than the Federal Reserve does over interest rate policy. As discussed, FSOC itself has very limited formal authority to implement stability tools and the majority of its voting members, including the Chair, are political appointees.<sup>237</sup> This raises questions about its ability to effectively coordinate the type of “lean against the wind” policies and interventions that are likely to characterize stability policy. Moreover, by decoupling the financial stability mandate from the authority to implement macroprudential policy, Title I creates a potential regulatory responsibility and accountability gap – precisely the kind of gap that inspired the creation of FSOC in the first instance.<sup>238</sup>

At the end of the day, however, FSOC improves upon the pre-Dodd-Frank framework by providing a formal structure for coordinating financial stability policy. FSOC minimizes the burden of regulatory coordination by delegating to the Federal Reserve the task of monitoring the most systemically important financial institutions. After SIFI designations, the Federal Reserve has supervisory authority over the entire U.S. banking system, the eight major swap clearinghouses that have been designated financial market utilities and several non-bank SIFIs including AIG, General Electric and Prudential. Notwithstanding FSOC’s *de jure* designation as the systemic risk regulator, the Federal Reserve continues to serve as the primary coordinator of financial stability.

## b. International Stability Coordination

### i. International Financial Regulators

International coordination is a staple among banking and capital markets regulators. National securities regulators have long collaborated under the auspices of International Organization of Securities Commissions (IOSCO). Bank regulators have similarly coordinated policy through the Basel Committee on Banking Supervision.<sup>239</sup>

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237. The Federal Reserve chairperson serves for an eight-year term. The Director of the Consumer Financial Protection Bureau serves for a six-year term.

238. A recent “peer review” of FSOC conducted by the Financial Stability Board made a similar point, noting that the “scope of risk analysis (conducted by FSOC) currently is relatively narrow as it tends to reflect the sectoral perspectives of individual agencies, rather than providing a system-wide view of interconnections and exposure to risk.” See Financial Stability Board, Peer Review of the United States, Review Report (Aug. 27, 2013), [http://www.fsb.org/2013/08/r\\_130827/](http://www.fsb.org/2013/08/r_130827/)

239. The structure and dynamics of these institutions have been well-documented. See, e.g., David Zaring, *Informal Procedure, Hard and Soft*, in *International Administration*, 5 CHI. J. INT’L L. 547 (2005) (examining institutional features of IOSCO and the Basel Committee on Banking Supervision as examples of international financial regulatory coordination);

The global breadth of the Financial Crisis necessitated new levels and venues of international political and regulatory cooperation on financial stability issues. During the height of the crisis, the Group of Twenty Finance Ministers and Central Bank Governors (G20) served as a coordinating venue for political leaders and economic policy makers engaged in crisis response.<sup>240</sup> Among other things, the G20 meetings resulted in the creation of a new international financial regulatory network: the Financial Stability Board (FSB).

The FSB expanded the original membership and mandate of its predecessor organization, the Financial Stability Forum, in order to strengthen its institutional effectiveness in addressing systemic vulnerabilities and promoting financial stability.<sup>241</sup> The FSB's membership is comprised of central bankers, finance ministers, bank and securities regulators of the G20 countries plus Hong Kong SAR, the Netherlands, Singapore, Spain and Switzerland.<sup>242</sup> In addition, the FSB includes the four major international financial institutions – the Bank for International Settlements, the International Monetary Fund, the Organization for Economic Co-operation and Development and the World Bank – and six international standard-setting, regulatory, supervisory and central bodies.<sup>243</sup>

FSB's mandate includes, *inter alia*: monitoring and assessing emerging vulnerabilities to the global financial system, promoting coordination and information exchange among national authorities responsible for financial stability, advising on best practices in meeting regulatory standards, and supporting contingency planning for cross-border crisis management.<sup>244</sup> Much like IOSCO<sup>245</sup> in the securities field and Basel<sup>246</sup> in the banking field, FSB has articulated a collection of principles relating to financial stability policy and practices including, for example, principles for cross-border financial institution resolution, compensation practices, residential mortgage

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Chris Brummer, *How International Financial Law Works (and How It Doesn't)*, 99 GEO. L.J. 257, 275–280 (2011).

240. See generally Eric J. Pan, *Challenge of International Cooperation and Institutional Design in Financial Supervision: Beyond Transgovernmental Networks*, 11 CHI. J. INT'L L. 243, 245–47 (2010).

241. See *History*, FINANCIAL STABILITY BOARD, <http://www.financialstabilityboard.org/about/history.htm> (last visited?).

242. See *Member Institutions*, FINANCIAL STABILITY BOARD, [http://www.financialstabilityboard.org/about/fsb\\_members.htm](http://www.financialstabilityboard.org/about/fsb_members.htm) (last visited?).

243. They are: Basel Committee on Banking Supervision; Committee on Payment and Settlement Systems; Committee on the Global Financial System; International Accounting Standards Board; International Association of Insurance Supervisors; and IOSCO. See Financial Stability Board, Charter 12-14 (June 2012), <http://www.fsb.org/wp-content/uploads/FSB-Charter-with-revised-Annex-FINAL.pdf>

244. *Mandate*, FINANCIAL STABILITY BOARD, <http://www.fsb.org/about/mandate/>. (last visited?)

245. IOSCO, CORE PRINCIPLES – CROSS-SECTORAL COMPARISON (Nov. 2001), <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD121.pdf>.

246. BASEL COMMITTEE, CORE PRINCIPLES FOR EFFECTIVE BANKING SUPERVISION (Apr. 1997), <http://www.bis.org/publ/bcbs30.pdf>.

underwriting and cross-border cooperation on crisis- management response.<sup>247</sup> Although not legally binding, FSB member jurisdictions agree to implement these principles and work through FSB to ensure consistency and coordination across jurisdictions.

In addition, FSB member jurisdictions commit to periodic country and thematic peer reviews as part of the FSB's *Framework for Strengthening Adherence to International Standards*.<sup>248</sup> Country reviews primarily assess the implementation and effectiveness of regulatory, supervisory or other standards and policies agreed within the FSB, as well as their effectiveness in achieving desired outcomes.<sup>249</sup> Thematic reviews, by contrast, focus on the implementation and effectiveness across the FSB member jurisdictions of international financial standards developed and agreed upon within the FSB or, more generally, on issues important to global financial stability but not yet subject to international standards.<sup>250</sup> Both forms of review are intended to facilitate information sharing across FSB members, improve transparency and provide greater incentives or "peer pressure" for domestic compliance with "soft" international standards.

FSB differs somewhat from the historic incantations of transnational financial networks such as IOSCO and Basel which operate primarily through informal coordination and "soft law" arrangements.<sup>251</sup> Although it cannot issue binding national standards, FSB's more overtly political composition and institutional features designed to enhance member "peer pressure" to implement domestic policies congruent with FSB consensus may ultimately give the FSB greater traction in coordinating domestic financial stability policies notwithstanding its informal legal status.<sup>252</sup> FSB member jurisdictions are expected to "lead by example" and commit to

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247. See *Principles and Standards*, FINANCIAL STABILITY BOARD, [http://www.fsb.org/what-we-do/about-the-compendium-of-standards/key\\_standards/](http://www.fsb.org/what-we-do/about-the-compendium-of-standards/key_standards/). (last visited?)

248. See *FRAMEWORK FOR STRENGTHENING ADHERENCE TO INTERNATIONAL STANDARDS*, FINANCIAL STABILITY BOARD, (Jan. 2010), [http://www.fsb.org/wp-content/uploads/r\\_100109a.pdf](http://www.fsb.org/wp-content/uploads/r_100109a.pdf).

249. See FINANCIAL STABILITY BOARD, *FINANCIAL STABILITY BOARD HANDBOOK FOR PEER REVIEWS* (Jan. 2014), [http://staging.financialstabilityboard.org/publications/r\\_140106.pdf](http://staging.financialstabilityboard.org/publications/r_140106.pdf).

250. Cross-country thematic reviews conducted to date have addressed, for example, origination and underwriting standards, risk governance, resolution regimes, risk disclosure practices, deposit insurance regimes. See generally *Peer Reviews*, FINANCIAL STABILITY BOARD, [http://www.fsb.org/what-we-do/implementation-monitoring/peer\\_reviews/](http://www.fsb.org/what-we-do/implementation-monitoring/peer_reviews/). (last visited?)

251. See generally Zaring, *supra* note 239.

252. For an account of the political structure of FSB and the changing nature of international financial regulation, see Stavros Gadinis, *The Financial Stability Board: The New Politics of International Financial Regulation*, 48 *TEX. INT'L L.J.* 157 (2013); see also David Zaring, *Presidential Powers and Foreign Affairs: Presidential Power to Manage International Economic Affairs: The President and International Financial Regulation*, 45 *CASE W. RES. J. INT'L L.* 361,

domestically implementing international financial standards. As Chris Brummer has observed, these features may make FSB “the nearest thing the world has to an overarching global financial regulatory group.”<sup>253</sup>

FSB provides an international analogue to domestic financial regulation by bringing forward the basic tenets of national financial regulatory systems into an international context. Much of FSB’s proposed policy frameworks have explored the international dimensions of domestic regimes. For example, FSB has taken the lead on establishing a regulatory framework for global systemically important financial institutions (G-SIFIs) in order to address the moral hazard problem of “too big to fail” on a global scale. Like the U.S. SIFI regime, the FSB framework for G-SIFIs calls for stricter capital requirements, stronger resolution procedures and heightened domestic and international supervisors through “supervisory colleges” with regulatory representatives from multiple jurisdictions. FSB further contemplates that G-SIFI regulation will be subject to thematic peer review.<sup>254</sup> The FSB has engaged in similar policymaking initiatives that are designed to coordinate the international application of domestic prudential regimes including, for example, OTC derivatives reform, credit rating agency monitoring, consumer finance protection, risk management and financial institution executive compensation. In essence, these initiatives are information-gathering and gap-filling measures to ensure consistency in regulatory approaches to the same issue across jurisdictions and to provide a basis for coordinated action across multiple jurisdictions.

## ii. International Coordination by Domestic Fiat

The U.S. financial stability framework has further achieved a measure of international coordination through domestic fiat—namely, the extraterritoriality provisions of Dodd-Frank which govern the regulation of derivatives and swaps. Specifically, Section 722 states that Title VII of Dodd-Frank (the derivatives section) will not apply to activities outside the United States unless those activities: (1) have a direct and significant connection with activities in, or effect on, commerce of the United States or (2) contravene the rules and regulations promulgated by the CFTC as necessary or appropriate to prevent evasion of the Dodd-Frank Act.<sup>255</sup>

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366 (2012) (“The result is that financial regulation has a political overseer, and, as the top of the increasingly elaborate post-crisis pyramid of international regulation, it is a unique example of political oversight in international governance.”).

253. Chris Brummer, *Post-American Securities Regulation*, 98 CALIF. L. REV. 327, 360 (2010).

254. BASEL COMMITTEE ON BANKING SUPERVISION, GLOBAL SYSTEMICALLY IMPORTANT BANKS: UPDATED ASSESSMENT METHODOLOGY AND THE HIGHER LOSS ABSORBENCY REQUIREMENTS (July 2013), <http://www.bis.org/publ/bcbs255.pdf>. A recent “peer review” of FSOC conducted by the Financial Stability Board made a similar point, noting that the “scope of risk analysis (conducted by FSOC) currently is relatively narrow as it tends to reflect the sectoral perspectives of individual agencies, rather than providing a system-wide view of interconnections and exposure to risk.” See FINANCIAL STABILITY BOARD, PEER REVIEW OF THE UNITED STATES (Aug. 27, 2013), [http://www.fsb.org/2013/08/r\\_130827/](http://www.fsb.org/2013/08/r_130827/).

255. Dodd-Frank Act § 722.

Under its cross-border swaps rules, the CFTC proposed a procedural framework for determining whether an entity's swap activities or positions might require it to register with the CFTC as a swap dealer or otherwise comply with other risk management, clearing, trade execution, and certain reporting and recordkeeping provisions under the Commodities Exchange Act (CEA).<sup>256</sup> As part of this framework, the CFTC proposed a "substituted compliance" process pursuant to which a swap dealer could demonstrate fulfilment with a comparable regulatory requirement of a foreign jurisdiction to substitute for compliance with the requirements of the CEA.<sup>257</sup> Numerous non-U.S. swap dealers and major swap participants requested comparability determinations with respect to swap dealer regimes in the European Union, Japan, Hong Kong, Switzerland and Australia.<sup>258</sup> Although these submissions were made by both public and private entities, the comparability determination ultimately involved multi-level discussions and negotiations between both local market participants and their home country regulators to coordinate country-level submissions to the CFTC and discussions between the CFTC and foreign regulators to assess the equivalence of non-U.S. regimes. At the time, the process (particularly concerning the European Union) was viewed as adversarial, and very much not in the spirit of other international financial regulatory bodies. As a practical matter, however, the substituted compliance process can be viewed as deepening the cross-border regulatory networks with respect to swap dealer activities, and thus enhancing the potential for informal international regulatory coordination on financial stability issues.

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256. See Commodity Futures Trading Commission, *Cross-Border Application of Certain Swaps Provisions of the Commodity Exchange Act; Proposed Rule*, 77 Fed. Reg. 41,214 (July 12, 2012).

257. *Id.* at 41,229 ("Substituted compliance means that a non-U.S. swap dealer or non-U.S. [major swap participant] is permitted to conduct business by complying with its home regulation, without additional requirements under the CEA."). For helpful background on the substituted compliance process, see Sean J. Griffith, *Substituted Compliance and Systemic Risk: How to Make a Global Market in Derivatives Regulation*, 98 MINN. L. REV. 1291 (2014).

258. For the final comparability determinations, see *Comparability Determination for the European Union: Certain Transaction-Level Requirements*, 78 Fed. Reg. 78,878 (Dec. 27, 2013); *Comparability Determination for the European Union: Certain Entity-Level Requirements*, 78 Fed. Reg. 78,923 (Dec. 27, 2013); *Canada: Certain Entity-Level Requirements*, 78 Fed. Reg. 78,839 (Dec. 27, 2013); *Switzerland: Certain Entity-Level Requirements*, 78 Fed. Reg. 78,890 (Dec. 27, 2013); *Japan: Certain Entity-Level Requirements*, 78 Fed. Reg. 78,910 (Dec. 27, 2013); *Hong Kong: Certain Entity-Level Requirements*, 78 Fed. Reg. 78,852 (Dec. 27, 2013); *Australia: Certain Entity-Level Requirements*, 78 Fed. Reg. 78,864 (Dec. 27, 2013).

## B. Accountability Structures

If Dodd-Frank deserves three cheers for formalizing new functional financial stability capabilities into the U.S. financial regulation architecture, we should hold the applause for the design and implementation of the accompanying accountability frameworks.

### 1. Mandates and Formal Authority

Dodd-Frank provides FSOC with a statutory mandate to respond to emerging threats to the stability of the United States financial system.<sup>259</sup> This grant of authority fills an important gap in the pre-Crisis regulatory landscape by tasking a single regulatory body with responsibility for monitoring and managing systemic risk and financial stability. This mandate is weakened, however, by the lack of formal authority that Dodd-Frank grants to FSOC to implement stability policy.

As discussed, FSOC's authority is limited to making "recommendations" to its individual member agencies but such recommendations have no binding force. As a technical matter, therefore, financial stability policy continues to operate through prudential financial regulators, none of whom have an express financial stability mandate. This presents several awkward institutional design questions. *First*, financial stability regulations and interventions can be effectively stymied by an individual prudential regulator that refuses to adopt the recommendations of the Council. Although Title I presumptively requires prudential regulators to adopt FSOC's macroprudential recommendations or provide a written explanation for why they are rejecting such recommendations,<sup>260</sup> the commission structure of most FSOC member agencies makes such situations more than plausible.

Moreover, separating FSOC's authority to recommend policy from any ability to implement those recommendations raises the question of how prudential rulemaking and interventions in response to a FSOC recommendation might be reviewed or challenged. FSOC is required to take into account the impact of any stability recommendation on "long-term economic growth."<sup>261</sup> But because formal implementation authority resides with the individual regulators, presumably the rulemaking standards applicable to the individual agencies will likewise apply to stability interventions. In addition to potentially applying the heightened "quantified" CBA required for capital markets regulation to the domain of stability policy, this raises questions about *ultra vires* challenges to prudential rulemaking in service of stability. Again, FSOC member agencies generally do not have stability mandates. Unless a regulatory intervention separately served the purpose of the promulgating agency's organic statute, such intervention may be challenged as beyond the scope of the agency's authorizing statute.

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259. Dodd-Frank Act § 112(a)(1).

260. *Id.* § 120(c)(2).

261. *Id.* § 112(b)(2)(A).

## 2. Independence and Review

Independence is prized in the central bank context because of the anti-majoritarian purpose of price stability. Money creation in the form of low interest rates can generate positive short-term effects on growth and employment, while shifting the costs of such policies, most notably higher inflation, into the medium to longer term, beyond upcoming election cycles. This presents an obvious temptation for elected officials to use monetary policy to enhance short-term economic performance for electoral gain.<sup>262</sup> Delegating monetary policy to an independent central bank removes this temptation and thus enhances the positive impact of price stability on long-term growth. As Alesina and Summers state, “[d]elegating monetary policy to an agent whose preferences are more inflation averse than are society’s preferences serves as a commitment device that permits sustaining a lower rate of inflation than would otherwise be possible.”<sup>263</sup> Numerous studies over the past two decades have endorsed the wisdom of this strategy, concluding that central bank legal independence, variously defined, is inversely correlated to inflation, at least in industrialized countries.<sup>264</sup>

But there are also familiar concerns with delegating monetary policy to a wholly independent central bank. Economists have criticized central bank independence in setting monetary policy as undemocratic on the grounds that it entrusts monetary

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262. See William Poole, *Institutions for Stable Prices: How To Design an Optimal Central Bank Law*, Federal Reserve Bank of St. Louis 3 (2003) (“Political independence and nonpartisan monetary policy provide the promise of policy stability over time, which in turn stabilize expectations in asset markets. Such stability and continuity is essential to successful monetary policy.”).

263. Alberta Alesina & Lawrence H. Summers, *Central Bank Independence and Macroeconomic Performance: Some Comparative Data*, 25 J. MONEY, CREDIT & BANKING 151, 151 (1993).

264. Alex Cukierman, Steven B. Webb & Bilin Neyapti, *Measuring the Independence of Central Banks and Its Effect on Policy Outcomes*, 6 WORLD BANK ECON. REV. 353, 353–398 (1992) (concluding, based on longitudinal study of 72 countries, that central bank independence was inversely related to inflation—with independence determined by rate of turnover of central bank governors, an index based on a questionnaire answered by specialists in 23 countries, and an aggregation of the legal index and the rate of turnover); Alex Cukierman, *Central Bank Independence and Monetary Control*, 104 ECON. J. 1437, 1437–1448 (1994) (collecting studies that find a negative relationship between central bank legal independence and inflation within a group of industrialized countries); Alberto Alesina & Lawrence H. Summers, *Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence*, 25 J. MONEY, CREDIT & BANKING 151, 151–162 (1993) (finding that central bank independence improves price stability, but has no measurable impact on real economic performance). As to developing countries or countries with weaker rule of law, Cukierman et al. found that the rate of turnover of central bank chief executives provided a better proxy for central bank independence, at least as a predictor of price stability. Alex Cukierman, *Central Bank Independence and Monetary Control*, 104 ECON. J. 1437, 1437–1448 (1994).

policy to a group of unaccountable technocrats with limited or no political oversight.<sup>265</sup> As the argument goes, policymakers may prefer accommodative monetary policy because it reduces recessionary concerns and provides short-term gains in employment and economic output going into the election cycle. Pre-committing monetary policy to an independent central bank is intended to overcome short-term democratic pressures in favor of long-term price stability. The accountability dilemma arguably becomes more acute during financial crises or unexpected macroeconomic shocks, when the central bank may intervene more directly at the institution or sector level to mitigate the potential crisis.<sup>266</sup> In either case, accountability and communication structures that enhance transparency and enable greater political scrutiny (if not direct control) over central bank actions can somewhat mitigate these concerns relating to central bank independence.

The same basic rationale for delegating authority over monetary policy to an independent agency applies to financial stability policy. As with interest rate policy, political authorities may have an incentive to distort macroprudential policies in the short run—for example by preventing the imposition of countercyclical capital requirements that slow lending and asset price increases—to the detriment of long- or medium-term financial stability. So again, the pre-commitment of macroprudential policy to an independent agency helps ensure efficient action can be taken to address systemic risks in advance of a financial crisis, even if that means taking away the punch bowl as the party gets going.<sup>267</sup> Indeed, because the instruments of macroprudential policy are, in the main, more targeted to specific institutions or sectors of the financial system, they are likely to be subject to even more intense resistance from the affected parties than a general interest rate move that impacts the economy more broadly.<sup>268</sup>

FSOC, however, has significantly less independence than is typically found in central bank arrangements. FSOC's multi-member council structure, with the Secretary of the Treasury as the chair with effective veto power over certain Council determinations, subjects U.S. macroprudential policymaking to significant political influence. FSOC is subject to Congressional oversight and is required to submit annual reports to Congress on a range of topics, including its own activities, significant

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265. See, e.g., Milton Friedman, *Monetary Policy*, 14 J. MONEY CREDIT AND BANKING 108 (1982) (criticizing the "bureaucratic inertia" caused in part by the lack of political accountability and advocating direct Congressional or Executive (Treasury Department) oversight of monetary policy); John Chant & Keith Acheson, *The Choice of Monetary Policy Instruments and the Theory of Bureaucracy*, PUB. CHOICE 13 (1972).

266. Alex Cukierman, *Central Bank Independence and Monetary Control*, ECON. J. 1437, 1444 (1994).

267. See generally Charles A.E. Goodhart, *The Macro-Prudential Authority: Powers, Scope and Accountability*, OECD JOURNAL – FIN. MARKET TRENDS Vol. 2011, Issue 2.

268. See, e.g., Christopher Crowe, Giovanni Dell'Araccia, Deniz Igan & Pau Rabanal, *Policies for Macrofinancial Stability: Options to Deal with Real Estate Booms*, 6–7 (2011) (analyzing lobbying activity of mortgage lenders prior to the Financial Crisis and suggesting that this and related lobbying activity by the financial industry influenced financial stability); Randall Kroszner & Philip Strahan, *Bankers on Boards: Monitoring, Conflicts of Interest, and Lender Liability*, available at <http://www.nber.org/papers/w7319> (showing that special interest theory can be used to explain bank deregulation in the United States).



financial market and regulatory developments, potential emerging threats to the financial stability of the United States, the designation of any systemically important nonbank financial institutions, and any recommendations to promote market discipline and maintain investor confidence by “enhanc[ing] the integrity, efficiency, competitiveness or stability of United States financial markets.”<sup>269</sup> In addition, each voting member of the Council must submit a signed statement at the same time as the annual report stating that the member believes “the Council, the Government, and the private sector are taking all reasonable steps to ensure financial stability and to mitigate systemic risk that would negatively affect the economy,” or, alternatively, to identify which additional actions need to be taken.<sup>270</sup> Finally, the Secretary of the Treasury, as Chairman of the Council, is required to testify before the House and Senate about the contents of the annual report.<sup>271</sup>

### 3. Transparency, Disclosure and Coordination

FSOC has made strides in allowing public access to aspects of its decision-making framework. FSOC and OFR make publicly available documents and data streams that are collected and reviewed in connection with their ongoing monitoring of systemic risk developments.<sup>272</sup> OFR economists likewise publish academic articles on systemic risk issues and actively participate in academic and industry fora on related issues. FSOC publishes an annual report<sup>273</sup> which highlights its assessment of emerging risks to the financial system and makes available minutes that reflect portions of its regular meetings.<sup>274</sup> Formal actions, such as proposed rule makings, are subject to the notice and comment process,<sup>275</sup> and SIFI designations are subject to the appeal and review requirements of Dodd-Frank. These activities contribute to the transparency of and public participation in the financial stability framework.

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269. Dodd-Frank Act § 112(a)(2)(N).

270. *Id.* § 112(b)(1)–(2).

271. *Id.* § 112(c).

272. See *Interagency Data Report*, OFFICE OF FINANCIAL RESEARCH (April 2017), <https://www.financialresearch.gov/data/interagency-data-inventory/>.

273. See *Studies and Reports*, FINANCIAL STABILITY OVERSIGHT COUNCIL (December 14, 2017, 4:45PM), <http://www.treasury.gov/initiatives/fsoc/studies-reports/Pages/default.aspx>.

274. See *Meeting Minutes*, FINANCIAL STABILITY OVERSIGHT COUNCIL (December 14, 2017, 4:45PM), <http://www.treasury.gov/initiatives/fsoc/council-meetings/Pages/meeting-minutes.aspx>.

275. See, e.g., Financial Stability Oversight Council, Notice of Proposed Rulemaking, *Authority To Require Supervision and Regulation of Certain Nonbank Financial Companies*, 76 Fed. Reg. 4555 (Jan. 26, 2011); Financial Stability Oversight Council, Notice of Proposed Rulemaking, *Authority To Designate Financial Market Utilities as Systemically Important*, 76 Fed. Reg. 17047 (March 28, 2011).

In other respects, however, FSOC's stability policy appears disappointingly opaque. Neither FSOC nor OFR has offered an explanation as to how they interpret or prioritize the various data sources they review into a singular view of financial stability. Likewise, FSOC has not articulated a procedural or substantive standard as to the thresholds or triggers for policy action—that is to say, how it will define or act upon risks in the financial system. In contrast, the Bank of England's Financial Policy Committee (FPC) provides a more overt articulation of the information and data it monitors in support of assessing financial stability and systemic risk. Specifically, the FPC notes that it “regularly updates [the core indicators] to help explain its decisions and to enhance the predictability of the regime.”<sup>276</sup> These indicators are fairly straightforward and include, for example, bank balance sheet indicators (e.g., capital and leverage ratios, level of exposure to other banks and foreign non-banks), non-balance indicators, and other indicators of general lending conditions. Compared to this procedure, FSOC's largely discretionary approach seems opaque and question-begging.

What the FSOC lacks in terms of procedural and substantive transparency, the Federal Reserve has provided in terms of stress tests. Stress tests are a novel regulatory tool that aim to connect the potentially disparate fields of macroeconomics and prudential financial stability regulation.<sup>277</sup> Prior to the failure or near-failure and rescue, Bear Stearns, Washington Mutual, Lehman Brothers and Wachovia were considered adequately capitalized under then-prevailing capital rules.<sup>278</sup> The resulting skepticism of capital adequacy rules encouraged reconsideration of the tools employed by regulators to assess capital adequacy in a more dynamic, but credible, fashion. Dodd-Frank makes stress tests a permanent feature of financial stability regulation.<sup>279</sup>

In serving the ultimate goal of financial stability, stress tests pursue two primary objectives: (1) informing bank supervisors and, potentially, markets on the current health of the stress-tested bank and (2) identifying corrective actions that can improve any identified weaknesses in bank balance sheets. Stress tests involve mapping macroeconomic scenarios and risk factors against a number of different bank balance

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276. See *Policy Statement, Core Indicators and Countercyclical Capital Buffer Guide*, FINANCIAL STABILITY, BANK OF ENGLAND (Jan. 26, 2018) <http://www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx>.

277. Ignazio Angeloni, *Stress-Testing Banks: Are Econometric Models Growing Young Again?*, Remarks at the Inaugural Conference for the Program on Financial Stability, Yale School of Management 3 (Aug. 1, 2014) (“The new technique holds the promise of building a bridge between macroeconomics and micro-banking analysis, thereby making supervisory and regulatory policies, often considered opaque and arbitrary, more systematic, transparent and accountable.”).

278. See Til Schuermann, *Stress Testing Banks*, 30 INT’L J. FORECASTING 717 (2014).

279. Specifically, Dodd-Frank requires the Federal Reserve to conduct annual stress tests on large bank holding companies and non-bank financial companies supervised by the Federal Reserve. In addition, banks with more than \$10 billion in consolidated assets that are regulated by a primary federal financial regulator and non-banks designated by FSOC for enhanced supervision must conduct their own stress test on an annual or semi-annual basis. See Dodd-Frank Act § 165(i); 12 U.S.C. § 5365.

sheet variables over a specified time horizon, generally two years. As a practical matter, stress tests focus principally on capital adequacy, but liquidity and profitability are often included as additional variables.

In the typical stress test, bank performance is projected under a baseline scenario which reflects the expected or mean outcome of bank performance in “normal times” when macroeconomic variables are in line with expectations. Bank performance is then assessed under one or more unlikely adverse scenarios. More complex scenarios incorporate assumptions regarding how the bank will react to the economic conditions and feedback effects from bank balance sheets with overall macroeconomic conditions, including aggregate demand and asset market conditions. These scenarios are then mapped against bank balance sheet variables.

Stress tests come in two primary forms depending on the underlying testing methodologies and data.<sup>280</sup> In “top down” stress tests, bank supervisors calculate the impact of testing scenarios using their own models and with relatively less input from the banks themselves.<sup>281</sup> “Bottom up” approaches, by contrast, rely on supervised banks to implement a common methodology and scenarios defined by regulators and supervisors, but using their own internal models.<sup>282</sup>

Narrowly understood, stress tests are an important new tool for bank supervisors attempting to assess the safety and soundness of individual financial institutions in a dynamic context. On this score, stress tests provide regulators with access to sources of new information that previously were unavailable through traditional prudential examinations.<sup>283</sup> But stress tests can also perform an important macroprudential function by communicating information that has the potential to enable market discipline during normal times and efficient coordination during crisis.

The U.S. bank stress tests in 2009 – Supervisory Capital Assessment Program (SCAP) – are often cited as an example of stress tests’ power to generate public confidence in the banking sector and facilitate efficiency-enhancing market

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280. There is a burgeoning economics literature on stress-testing tools and design considerations, which I will not detail here except to note that methodological approaches vary across jurisdictions. See Schuermann, *supra* note 278, for a summary of the literature.

281. Ignazio Angeloni, *supra* note 277.

282. *Id.*

283. For example, because they focus on realized losses, traditional regulator exams are retrospective whereas stress tests are forward-looking because they project future losses under adverse scenarios. Likewise, by projecting future losses under adverse scenarios, stress tests put greater emphasis on “tail risks” than traditional value-at-risk (VaR) measures. Finally, whereas the results of traditional supervisory exams are kept public, many regimes including Dodd-Frank now require the results of stress tests to be publicly disclosed. See generally Itay Goldstein & Haresh Sapra, *Should Banks’ Stress Test Results Be Disclosed? An Analysis of the Costs and Benefits*, REFLECTIONS & TRENDS IN FIN. 8(1): 1-54, 8-9 (2013).

coordination. At the time, tremendous uncertainty remained regarding the health of the U.S. banking system. Investors were unwilling to commit resources to bank recapitalization, both because of uncertainty regarding the condition of bank balance sheets and the possibility of government dilution through public sector bail-outs.

SCAP helped reduce investor uncertainty by subjecting all banks with more than \$100 billion in assets to macroeconomic stress tests.<sup>284</sup> By creating entity-level and asset class transparency into projected losses for the participating banks under stress conditions, SCAP allowed the market to assess not only the efficacy of the underlying testing methodology but also the resulting outcomes and expectations for bank performance. Arguably, this level of transparency helped to return confidence to the market and thus reduced the need for additional public investment in the bank sector. Ultimately, ten of the nineteen SCAP banks were required to raise \$75 billion in capital within six months, and ultimately raised more than \$77 billion in Tier 1 common equity, without resort to the Treasury Department's Capital Assistance Program (CAP) lending facility.<sup>285</sup> By providing a credible assessment of bank capital strength in a circumstance where the market itself could not generate sufficient private information on capital adequacy, and providing a commitment, via the CAP program, that the Treasury was willing to commit resources toward recapitalization even if the market was not, the stress tests helped to coordinate market participants around a welfare-enhancing "lending" equilibrium.

The SCAP example suggests that stress test disclosures and transparency for financial stability policy can be socially beneficial to the extent that they enhance market discipline and promote regulatory accountability. As in other financial regulatory contexts, the general argument in favor of stress test disclosure is that transparency facilitates market discipline by impounding bank risk exposures into market price.<sup>286</sup> Likewise, stress test disclosures arguably improve supervisory discipline by enhancing regulatory transparency and accountability.<sup>287</sup>

On the other hand, the benefits of disclosure may be more nuanced for stability policy than in the capital markets context where maximum disclosure is generally viewed as optimal for achieving fundamental efficiency in price discovery. *First*, disclosure may decrease social welfare if it reduces risk-sharing opportunities for

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284. BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM, THE SUPERVISORY CAPITAL ASSESSMENT PROGRAM: OVERVIEW OF RESULTS (May 7, 2009) <https://www.federalreserve.gov/newsevents/files/bcreg20090507a1.pdf>.

285. *See id.*

286. *See, e.g.,* Daniel K. Tarullo, *Lessons from the Crisis Stress Tests*, Remarks Made to the International Research Forum on Monetary Policy, Washington D.C. (2010) <http://www.federalreserve.gov/newsevents/speech/tarullo20100326a.htm>; Ben Bernanke, *Stress testing banks: What have we learned?*, Speech at "Maintaining Financial Stability: Holding a Tiger by the Tail" financial markets conference sponsored by the Federal Reserve Bank of Atlanta, Stone Mountain, Georgia, at BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM, (April 8, 2013), <http://www.federalreserve.gov/newsevents/speech/bernanke20130408a.htm>.

287. *See generally* Itay Goldstein & Haresh Saprà, *supra* note 283.

economic agents.<sup>288</sup> In the banking context, Franklin Allen and Douglas Gale have studied how banks create interbank arrangements to insure against liquidity shocks.<sup>289</sup> Holding deposits with each other, which they may draw down in the event of a liquidity crisis, allows banks to share the risks of non-correlated liquidity shocks.<sup>290</sup> Interbank risk-sharing opportunities may become more limited if supervisory information yields negative information about the financial condition of particular banks.

*Second*, information disclosure may generate negative externalities by causing inefficient coordination among market participants. In the classic Keynesian “beauty contest,” market participants make determinations about asset values based on both their assessment of fundamental values and their expectation about how market participants will value the asset.<sup>291</sup> If stress test results cause market participants to lose confidence in a particular bank, it may provide incentive for other participants to “run” or reduce liquidity in the classic dynamic of a bank run.<sup>292</sup> Stress test disclosures may not be socially beneficial if the results have such destabilizing effects.<sup>293</sup> Likewise, when the actions of market participants are impacted by their assessment of the expectations of other economic agents, they may overvalue public information and invest too little in the production of private information.<sup>294</sup> Whereas disclosure is typically viewed as socially beneficial to the extent it facilitates fundamental efficiency – that is, the pricing of individual bank risk – in the stability context, disclosure may reduce economic efficiency.

Even where disclosure is desirable, the amount and nature of the disclosure may have stability implications. As the SCAP example suggests, supervisors may outperform markets during times of stress when market participants may not be able to accurately distinguish between “good” banks and “bad” banks and therefore restrict liquidity out of risk aversion. But optimal disclosure in crisis may depend on the credibility of the supervisory – where the credibility of the regulator is low, benefits of disclosure may require detailed descriptions and disclosures so that market

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288. Jack Hirshleifer, *The private and social value of information and the reward to inventive activity*, AM. ECON. REV. 61:561–574 (1971).

289. Franklin Allen & Douglas Gale, *Financial Contagion*, J. POL. ECON. 108: 1–33. (2000).

290. Goldstein & Sapra, *supra* note 283 at 20.

291. John Maynard Keynes, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST AND MONEY* 156 (1936).

292. Douglas W. Diamond & Phillip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, J. POL. ECON. 91(3): 401–419 (1983).

293. See Ignazio Angeloni, *supra* note 277.

294. Andrew Hertzberg, Jose M. Liberti, & Daniel Paravisini, *Public Information and Coordination: Evidence from a Credit Registry Ecredit registry xpansion*, J. FIN. 66:379–412 (2011); see also Goldstein & Sapra, *supra* note 283 at 35.

participants can perform their own assessments of balance sheet health.<sup>295</sup> Where the regulator is more credible, less granular data may be required as market participants will have greater confidence in the regulator's aggregation of data into overall assessments of bank or bank-sector health. Similarly, whether aggregate disclosure is preferable to entity-level disclosure may depend on the circumstances. Aggregation has the virtue of averaging individual bank results under stress scenarios and thus smoothing idiosyncratic errors in estimating bank conditions.<sup>296</sup> As some commentators have noted, these trade-offs present a delicate balancing act for regulators: "[O]ptimal disclosure [of stress test results] is just enough to restart the risk sharing market, but not higher than that so that risk sharing opportunities start being diminished."<sup>297</sup>

## VI. Conclusion and Extensions

This Article has attempted to characterize financial stability as a discrete and distinct form of financial regulation. The normative case for an active financial stability policy is supported both by the growth of maturity and liquidity transformation in the shadow banking sector and by heterodox economic theories which predict that financial systems destabilize endogenously. While it may be tempting to think of financial stability regulation as a simple jurisdictional extension of capital markets or bank regulation to previously unregulated sectors of the financial system, this Article argues that financial stability demands a discrete regulatory form with unique structural and institutional features. In a narrow sense, the aim of this Article is to identify financial stability as a distinct regulatory model and to caution against reliance on prudential regulatory models as a comprehensive framework for addressing systemic risk.

Substituting heterodox economic theory as a motivating theory for financial stability regulation exposes a broader research agenda as well. For example, in the corporate governance context, FIH implies that market discipline and, specifically, shareholder discipline, may erode pro-cyclically. Governance mechanisms that are effective at mitigating agency problems during a boom or growth period may be less effective during recessions or crisis periods. If governance mechanisms – debt holder monitoring, the market for corporate control, direct supervision – respond synchronously to macroeconomic conditions, this dynamic may contribute to instability and accelerate the transmission of systemic risk. Heterodox economic theory may, therefore, expose the macroeconomic dimensions of current academic

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295. See Til Schuermann, *Stress Testing Banks*, Wharton Financial Institutions Center 8–15 (Feb. 13, 2013) available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2041579](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2041579) (“Because credibility of European supervisors was rather low by that point, only with very detailed disclosure, bank by bank, of their exposures by asset class, by country, by maturity bucket, could the market do its own math and arrive at its own conclusions.”).

296. Goldstein & Sapra, *supra* note 283 at 28.

297. *Id.* at 20.

work on temporal interactive governance and, conversely, the micro-foundations of financial instability.<sup>298</sup>

Similarly, because it implies the need for monitoring and intervention into markets and with respect to activities that may fall outside of the current regulatory structure, FIH provides further normative support for proposals against entity-centrism in the law. Likewise, the uncertainty and indeterminacy of stability regulation, which stems from the difficulty of identifying and planning efficiency-enhancing responses to systemic imbalances, supports proposals both for functional financial regulation<sup>299</sup> and increased incrementalism in administrative decision making. These arguments are further bolstered by the behavioral elements of FIH which identify conventions – that is, heuristics or beliefs about the future condition of the economy – as a key stability mechanism. Incremental regulation – interventions of “small” duration, scope or significance – may serve an important communicative function in helping align market participants around particular regulatory objectives. At the same time, however, FIH suggests important limiting principles for those proposals, including the need to complement the functional capabilities of systemic risk regulation with accountability structures to provide public support and legitimacy to such interventions.

An FIH-inspired framework for stability regulation joins the growing conversation on law and macroeconomics. When legal scholars think about financial regulation, they often begin and end with theories that are microeconomic in orientation – i.e., theories that endeavor to explain how information is translated into prices. This is, perhaps, unsurprising – much of the history of the law and economics movement can be understood as attacking the problem of static inefficiency resulting from sub-optimal (either insufficient or excessive) levels of precaution against harm.

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298. See, e.g., Albert Choi & George Triantis, *Market Conditions and Contract Design: Variations in Debt Contracting*, 88 N.Y.U. L. REV. 51, 53 (2013) (observing that creditor monitoring may weaken in response to overall macroeconomic conditions as lenders adjust both covenants and collateral requirements); Charles K. Whitehead, *The Evolution of Debt: Covenants, The Credit Market, and Corporate Governance*, 34 IOWA J. CORP. L. 641 (2009) (explaining how evolution of the credit market may impact corporate governance by strengthening or weakening monitoring efficacy and incentives); c.f. Allen N. Berger, Margaret K. Kyle & Joseph M. Scalise, *Did U.S. Bank Supervisors Get Tougher during the Credit Crunch? Did They Get Easier during the Banking Boom? Did It Matter to Bank Lending?* in PRUDENTIAL SUPERVISION: WHAT WORKS AND WHAT DOESN'T (Frederic S. Mishkin ed., 2001).

299. See Charles K. Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1, 41–42 (2010) (calling for “financial regulation that is more flexible - addressing ‘old’ risks that arise in new situations, and ‘new’ risks that arise as financial instruments, participants, and markets continue to evolve”); Robert C. Merton, *Financial Innovation and the Management and Regulation of Financial Institutions*, 19 J. BANKING & FIN. 461, 466–70 (1995) (proposing that traditional institutional categories of financial regulation have “become almost arbitrary,” as the same functions can be performed by various institutions).

To the extent these theories are offered up as grounds for macro-policy prescriptions, they often assume that macroeconomic conditions are simply the aggregated sum of individually rational decisions given a certain opportunity set.

The problem, of course, is that conduct and incentives that produce efficient results at the individual level may not necessarily yield similar results on the aggregate level. Paul McCulley, PIMCO chief economist and Minsky acolyte explained the intuition:

“Anybody who has ever been a spectator at a crowded ball game has witnessed the difference between microeconomics and macroeconomics: From a micro perspective, it is rational for each individual to stand up to get a better view; but from a macro perspective, each individual acting rationally will produce the irrational outcome of everybody standing up but nobody having a better view.”<sup>300</sup>

The Financial Crisis caused some legal scholars to reassess the use of microeconomic assumptions as a starting point for financial regulation, with even Richard Posner commenting that the Crisis had served as a “wake-up call” for the profession.<sup>301</sup> Law and economics scholarship has answered this call, in part, with explorations of the organization of productive ventures and the design of efficient institutions to advance the production possibility frontier. Scholarly attention to such topics as the macroeconomic effects of the federal securities laws<sup>302</sup> and the design (and defense) of institutions to support national economic output<sup>303</sup> reflects the concern that improperly designed legal institutions may preclude enterprises from developing maximally productive structures. Another group of scholars, drawing inspiration from the Financial Crisis, has focused specifically on the macroeconomic effects of financial regulation.<sup>304</sup>

Resonant with the basic mission of law and economics, law and *macroeconomics* is concerned with the internalization of externalities and the effective pricing of risk. Training a legal lens on macroeconomic issues reveals, at first glance anyway, concerns related to regulatory arbitrage – that is, the structuring of conduct to take advantage of the lowest cost legal regime. But the concern is both broader and fundamentally different.

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300. Paul McCulley, *The Shadow Banking System and Hyman Minsky’s Economic Journey*, in *INSIGHTS INTO THE GLOBAL FINANCIAL CRISIS* 257, 260 (Lawrence B. Siegel ed., Research Foundation Publications 2009).

301. Richard A. Posner, *A FAILURE OF CAPITALISM: THE CRISIS OF ‘08 AND THE DESCENT INTO DEPRESSION* 231 (2009).

302. See Steven A. Ramirez, *Fear and Social Capitalism: The Law and Macroeconomics of Investor Confidence*, 42 *WASHBURN L.J.* 31 (2002).

303. See Nancy C. Staudt & Yilei He, *The Macroeconomic Court: Rhetoric and Implications of New Deal Decisionmaking*, 5 *NW. J.L. & SOC. POL’Y* (2010).

304. See Erik F. Gerding, *Credit Derivatives, Leverage, and Financial Regulation’s Missing Macroeconomic Dimension*, 8 *BERKELEY BUS. L.J.* 29, 35 (2011); Margaret M. Blair, *Financial Innovation, Leverage, Bubbles and the Distribution of Income*, 30 *REV. BANKING & FIN. LAW* 225, 229 (2010).



To be sure, the causes and consequences of regulatory arbitrage have been of great concern to students of the Financial Crisis and, indeed, many of the recent financial regulatory reform efforts have been directed precisely to closing regulatory gaps, both domestically and internationally. Although regulatory arbitrage may be viewed (rightly) as a macroeconomic concern, it is not necessarily so and, to the contrary, is fundamentally microeconomic in the sense that it represents a rational strategy for individual institutions to pursue in price competitive markets (that is, by selecting a less intrusive regulatory regime, an individual or firm can either retain those cost savings as increased profits or compete more effectively for consumers by offering lower prices). In some cases, closing a regulatory gap may require nothing more than prudential action. And certain regulatory arbitrage strategies – for example, incorporating in Delaware instead of Florida, pursuing a national bank charter instead of a state charter or structuring legitimate transactions in a manner that reduces the overall tax liabilities – even if pursued *en masse*, are unlikely to generate systemic risks that necessitate macroprudential response.

Law and macroeconomics, as imagined here, is concerned with the impact of legal institutions – and, specifically, the impact of financial regulation – on the stability of financial markets as a whole. In some sense, it is a bold statement to suggest that legal scholarship has anything to add to the understanding of macroeconomic institutions such as central banks, prudential super-regulators or macroprudential regulators. After all, while lawyers may do a good job of articulating and defending basic intuitions about human nature – the impact of incentives on behavior, whether those incentives are understood economically, psychologically or otherwise – it is more difficult to make the case that lawyers are equipped to proffer insights into the impact of risk concentration, money supply and volatility on financial stability. The retort to that reasonable cynicism is that the basic tools of law and economics (including game theory and public choice) – which are geared to identifying information asymmetries, expected payouts and efficient default rules in any system of substantive law – are equally well-suited to assessing the structural design of financial stability institutions. Although a handful of law and macroeconomics scholars have begun to explore the linkages between financial regulation and economic liquidity,<sup>305</sup> and between financial regulation and asset bubbles,<sup>306</sup> the discipline has been, as of yet, relatively unexplored by legal academics.

Financial stability regulation requires just such a blending of finance and macroeconomic perspectives. Of critical relevance to the effectiveness of any stability regime is the necessary interaction between financial regulation and monetary policy.

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305. See Eric K. Gerding, *Credit Derivatives, Leverage, and Financial Regulation's Missing Macroeconomic Dimension*, 8 BERKELEY. BUS. L.J. 29 (2011).

306. Adam J. Levitin & Susan Wachter, *Explaining the Housing Bubble*, Georgetown Law & Econ. Research Paper No-16 (2010); John Patrick Hunt, *Taking Bubbles Seriously in Contract Law*, 61 CASE W. R. L. REV. 681 (2010).

This is because, as Minsky and others have noted, the institutional context can influence aggregate liquidity, the effectiveness of monetary policy as a tool for managing liquidity, and the ability of central banks to address safety and soundness concerns. Monetary policy and fiscal policy may even come into conflict. These tensions raise important considerations for the design of financial stability institutions.