

11-6-2017

Taxing Systemic Risk

Eric D. Chason

William & Mary Law School

Follow this and additional works at: http://scholars.unh.edu/unh_lr

 Part of the [Business Law, Public Responsibility, and Ethics Commons](#), [Taxation Commons](#), [Taxation-Transnational Commons](#), and the [Tax Law Commons](#)

Repository Citation

Eric D. Chason, *Taxing Systemic Risk*, 16 U.N.H. L. Rev. 1 (2017).

This Article is brought to you for free and open access by the University of New Hampshire – School of Law at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in University of New Hampshire Law Review by an authorized editor of University of New Hampshire Scholars' Repository. For more information, please contact ellen.phillips@law.unh.edu.

Taxing Systemic Risk

Abstract

A tax on the harmful elements of finance—a tax on systemic risk—would raise revenue and also lower the likelihood of future crisis. Financial institutions, which pay the tax, would try to minimize its cost by lowering their systemic risk. In theory, a tax on systemic risk is perfect policy. In practice, however, this perfect policy is unattainable. Tax laws need clear definitions to be administrable. Our current understanding of systemic risk is too abstract and too metaphorical to serve as a target for taxation.

Despite the absence of a clear definition of systemic risk, academics and policy makers continue to propose special taxes on finance. The most prominent proposal is the financial transaction tax (FTT), which has some possibility of being adopted in the European Union. The FTT and other similar proposals levy their taxes on proxies for systemic risk (for example, the volume of financial transactions or the size of financial institutions). While these proposals would raise revenue, they would fail as regulatory measures (and could even be counterproductive). While transaction volume and institutional size might be correlated with systemic risk, they are not causes of systemic risk. By exploring each of these issues in depth, this article provides a useful starting point for the discussion on taxing the financial sector.

Keywords

tax, financial regulation, systemic risk, tax policy, revenue

Cover Page Footnote

The author presented this article at the annual William & Mary Law School Blackstone Lecture.

Taxing Systemic Risk

ERIC D. CHASON*

ABSTRACT

A tax on the harmful elements of finance—a tax on systemic risk—would raise revenue and also lower the likelihood of future crisis. Financial institutions, which pay the tax, would try to minimize its cost by lowering their systemic risk. In theory, a tax on systemic risk is perfect policy. In practice, however, this perfect policy is unattainable. Tax laws need clear definitions to be administrable. Our current understanding of systemic risk is too abstract and too metaphorical to serve as a target for taxation.

Despite the absence of a clear definition of systemic risk, academics and policy makers continue to propose special taxes on finance. The most prominent proposal is the financial transaction tax (FTT), which has some possibility of being adopted in the European Union. The FTT and other similar proposals levy their taxes on proxies for systemic risk (for example, the volume of financial transactions or the size of financial institutions). While these proposals would raise revenue, they would fail as regulatory measures (and could even be counterproductive). While transaction volume and institutional size might be correlated with systemic risk, they are not causes of systemic risk. By exploring each of these issues in depth, this article provides a useful starting point for the discussion on taxing the financial sector.

CONTENTS

INTRODUCTION.....	2
I. SYSTEMIC RISK AND THE GOAL OF FINANCIAL REGULATION.....	5
A. Introduction	5
B. Financial Intermediation.....	6
C. The Fire-Sale Externality and Systemic Risk.....	9
D. Micro- and Macro-Prudential Regulation	12
E. Financial Regulation	13
II. TAXING SYSTEMIC RISK.....	20
A. Introduction	20
B. The Pigouvian Tradition	21
C. Design of a Corrective Tax on the Financial Sector	22

* Associate Professor of Law, William & Mary Law School. The author presented this article at the annual William & Mary Law School Blackstone Lecture. He thanks all of the attendees for their comments.

D. Institutional Considerations of a Corrective Tax on Finance	28
III. FINANCIAL TRANSACTIONS TAX.....	31
A. Introduction	31
B. EU Proposed Financial Transaction Tax (FTT).....	33
C. Possible Advantages	36
D. Cascading and Conglomeration	37
IV. FINANCIAL ACTIVITIES TAX.....	38
A. IMF Proposed Financial Activities Tax (FAT)	38
B. The FAT's Potential Success in Taxing Investment Risk	39
C. The FAT's Failure to Tax Systemic Risk.....	43
V. BALANCE SHEET LEVIES	44
A. Introduction	44
B. Dodd-Frank's Near Miss: Financial Crisis Special Assessment	45
C. Obama Administration's Proposed Financial Crisis Responsibility Fee	47
D. Analysis	48
VI. CONCLUSION.....	49

INTRODUCTION

Despite the passage of time and reform legislation¹ since the end of the financial crisis, policymakers and commentators still worry about the risks that remain in the financial sector. At the same time, governments in both Europe and the United States face deep budget deficits, caused in part by the financial crisis and ensuing economic dislocations. Special taxes on the financial sector seem to address both concerns. They would certainly raise revenue. And, if they targeted risky practices and transactions, special taxes could even reduce the risk of future financial crisis.²

The most prominent proposal is the financial transactions tax of the European Union.³ The tax would apply a low rate to the value of all financial transactions, similar in operation to taxes on retail and real-estate sales.

¹ Cf. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, 124 Stat. 1376 (2010) (codified at 12 U.S.C. § 1851 (2012)) (purporting to “promote the financial stability of the United States” among other purposes).

² See generally Daniel N. Shaviro, *The Financial Transactions Tax vs. the Financial Activities Tax*, 66 TAX NOTES INT’L 661, 661–62 (May 14, 2012).

³ See *infra* Part III.

Economist James Tobin proposed a similar tax on currency transactions in the 1970s, hoping to stabilize the turbulent flows of currencies that then plagued cross-border finance.⁴ Modern supporters claim that the tax would stabilize markets, diminish an overly powerful financial sector, and add much needed revenue to depleted public coffers.⁵ As of late March 2017, the financial transactions tax faces uncertain prospects for passage.⁶

While motives of revenue (and perhaps revenge) support the tax, some view a tax on finance as having a regulatory purpose.⁷ The failure or distress of banks can harm the economy at large, not just investors and others who are directly connected to the bank. Such harm is an externality justifying regulation and corrective taxes.⁸ Taxes on other externalities, particularly pollution, enjoy considerable support.⁹ Taxing pollution not only curtails pollution but gives polluters the flexibility on how to cut their emissions most cost effectively. Theoretically, policymakers could regulate finance solely by taxing third third-party effects.

The practical difficulties of corrective taxation, though, are daunting. Recall the problem just mentioned: failure or distress in the financial sector harms third parties. A tax on bad outcomes would apply to a firm already in distress or insolvency. Such a tax would be useless or even counterproductive, worsening the very distress that the tax should avoid. To be effective, a regulatory tax on finance must apply to activities that increase the risk of bad outcomes at financial institutions. In other words, the tax must apply to

⁴ See *infra* Part III.A.

⁵ See *infra* Part III.A.

⁶ See *infra* Part IV.

⁷ Contributions include Douglas A. Shackelford, Daniel Shaviro & Joel B. Slemrod, *Taxation and the Financial Sector*, 63 NAT'L TAX J. 781 (2010); Reuven S. Avi-Yonah, *Taxation as Regulation: Carbon Tax, Health Care Tax, Bank Tax and Other Regulatory Taxes* (Univ. of Mich. Pub. L. Working Paper No. 216, 2010), <http://ssrn.com/abstract=1664045> [<https://perma.cc/F9ED-7T66>]; Narayana Kocherlakota, *Taxing Risk and the Optimal Regulation of Financial Institutions* (Fed. Reserve Bank of Minneapolis Econ. Policy Paper 10-3, 2010), <http://ssrn.com/abstract=1616810> [<https://perma.cc/9F6Z-DFTQ>]; Beatrice Weder di Mauro, *Taxing Systemic Risk: Proposal for a Systemic Risk Levy and a Systemic Risk Fund* (Univ. of Mainz and Ger. Council of Econ. Experts, Jan. 25, 2010).

⁸ See Lee A. Sheppard & Martin A. Sullivan, *Taxing Financial Pollution*, 126 TAX NOTES 697, 699 (Feb. 8, 2010).

⁹ Editorial, *Externalities: The Lives of Others*, ECONOMIST (Aug. 19, 2017), <https://www.economist.com/news/economics-brief/21726709-what-do-when-interests-individuals-and-society-do-not-coincide-fourth> [<https://perma.cc/8V4Q-53G2>].

“systemic risk.” This Article argues that mainstream proposals, like financial transactions tax, fail to do so.¹⁰

Real-world taxes require crisp definitions, but crisply defining systemic risk is hard, even for the lords of finance.¹¹ Part II starts abstractly, proposing to define systemic risk in terms of the social cost of firm failure or distress.¹² Losses borne directly by stakeholders (shareholders, creditors, or even employees) should not qualify as systemic risk, unless those losses spill over to the public at large. Employees and investors at Goldman Sachs deserve no more special treatment than their counterparts at a bankrupt company like Blockbuster Video. The rest of us, though, might suffer a lot more from Goldman’s demise than Blockbuster’s. Conceptually, then, systemic risk includes two aspects: (1) the likelihood of firm financial distress occurring and (2) the impact financial distress would have upon non-stakeholders.

Part III describes how a corrective tax on finance should work.¹³ It first looks to familiar arguments in favor of taxing externalities in general, and environmental pollution in particular. Policymakers might control pollution by either limiting or taxing emissions. Both methods could limit pollution. Only taxation, though, produces public revenue, and it also gives firms the incentive to reduce outputs in the most cost-effective manner. In effect, the government supplies a price at which it sells the right to emit a unit of pollution. The free market takes care of the rest. Extending this model to systemic risk sounds attractive in theory. In practice, though, the government must draft legislation that defines the tax base. An environmental tax might apply to a metric ton of carbon output. An income tax applies to a dollar of income. A systemic-risk tax would apply to some measure of systemic risk or a robust proxy. We must define it in a concrete, measurable way. The conceptual definition of systemic risk previously described in Part II does not go far enough.

Parts IV through VI¹⁴ examine three prominent proposals to tax finance, asking whether they adequately define and measure systemic risk. None of the proposals appear focused on reducing systemic risk. The financial transactions tax, discussed in Part IV, taxes every unit of currency (dollar, euro, pound, etc.) involved in a financial transaction. But there is no reason to think that a unit of currency involved in a financial transaction causes systemic risk. The Article makes similar observations about two other proposals: the

¹⁰ See *infra* Part IV.

¹¹ See Editorial, *The Diviner of Systemic Risk*, WALL ST. J., Sept. 4, 2010, at A14 (describing difficulties of Ben Bernanke and Tim Geithner in defining systemic risk).

¹² See *infra* Part II.

¹³ See *infra* Part III.

¹⁴ See *infra* Parts IV–VI.

financial activities tax (favored by the International Monetary Fund (IMF)) and taxes on financial leverage (favored by the Obama administration).

As Part VII¹⁵ notes in conclusion, these failures are in execution, not in theory. Better measures of systemic risk could well result in a successful corrective tax on finance.

I. SYSTEMIC RISK AND THE GOAL OF FINANCIAL REGULATION

A. Introduction

Legal scholars often describe systemic risk metaphorically as a shock spreading from firm to firm and into the larger economy via a chain reaction. In his 2008 article entitled *Systemic Risk*, Steven Schwarcz defines systemic risk as:

[T]he risk that (i) an economic shock such as market or institutional failure triggers (through a panic or otherwise) either (X) the failure of a chain of markets or institutions or (Y) a chain of significant losses to financial institutions, (ii) resulting in increases in the cost of capital or decreases in its availability, often evidenced by substantial financial-market price volatility.¹⁶

Similarly, Hal Scott contends:

Systemic risk has two distinct meanings. First, it refers to a financial shock that has a simultaneous impact on a number of financial institutions. Second, it refers to the chain reaction problem, the possibility that the failure of one bank will affect other banks. To some extent, these two versions are interrelated; a major shock can trigger a chain reaction.¹⁷

The metaphors of “shock” and “chain reactions” may well convey the essence of the problem. Financial firms are interconnected and important to the overall economy. Failure of one financial firm threatens the entire economy in unique ways. Many argue that losses at one firm not only spread throughout the system but amplify as they spread.¹⁸

¹⁵ See *infra* Part VI.

¹⁶ Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 204 (2008).

¹⁷ HALL S. SCOTT, INTERNATIONAL FINANCE 173 (16th ed. 2009).

¹⁸ Schwarcz, *supra* note 16, at 213–14.

These metaphors may also help justify regulating, and taxing, financial firms as a way to avoid the shocks and chain reactions.¹⁹ But the design of a corrective tax would need to account for more than metaphor. Traditional tax bases—like income, sales, and wealth—can be reduced to numerical values. Ideas like “shocks” and “chain reactions” cannot. The rest of this Part seeks greater clarity in defining systemic risk.

B. Financial Intermediation

1. Mismatch between Short-Term Financing and Long-Term Investing

To understand systemic risk, we must understand what banks and other financial institutions actually do. Your bank may call you a “customer” (or, if you are rich enough, a “client”), but you and your deposits are really a source of financing for the bank’s investments. The classic use of bank funds is to make loans to homebuyers and businesses. Readers might remember George Bailey standing down his panicked and homespun depositors in *It’s a Wonderful Life*: “[Y]ou’re thinking of this place all wrong. As if I had the money back in a safe. The money’s not here. Well, your money’s in Joe’s house . . . that’s right next to yours. And in the Kennedy house, and Mrs. Macklin’s house, and . . . a hundred others.”²⁰

Of course, businesses and individuals throughout the economy borrow to finance their investments. What makes banks unique, however, is that they typically invest in long-term, illiquid investments but finance with short-term, liquid liabilities.²¹ The bank may invest in Mrs. Macklin’s and Joe’s mortgages, but the bank cannot demand immediate repayment, nor can it easily sell those mortgages in a market. In contrast, the bank receives its funds (i.e., finances its investments) from depositors who may demand repayment on a moment’s notice. The assets (mortgage claims against borrowers) and liabilities (deposits held for depositors) are mismatched.

The important service that Bailey and other banks provide is financial intermediation.²² Mrs. Macklin wants a 30-year mortgage. Her neighbors want a safe but accessible place to put their money. Bailey takes in short-term deposits and channels the funds to long-term borrowers. Doing so lets the

¹⁹ *Id.* at 232.

²⁰ *It’s a Wonderful Life*, Script, http://www.script-orama.com/movie_scripts/i/its-a-wonderful-life-script.html [<https://perma.cc/DNC2-ZXPK>].

²¹ See RICHARD SCOTT CARNELL ET AL., *THE LAW OF BANKING & FINANCIAL INSTITUTIONS* 37 (4th ed. 2009).

²² See generally Daniel A. Fischel et al., *The Regulation of Banks and Bank Holding Companies*, 73 VA. L. REV. 301, 306–07 (1987).

depositors diversify across lots of mortgages and business loans (not just Mrs. Macklin's). Bailey's problem was that his depositors all showed up at once demanding to be paid.²³

2. *Modern Variants on Bank Loans*

Modern banks still lend Mrs. Macklin money. But rather than holding her mortgage indefinitely, they likely "originate to distribute."²⁴ A bank pools thousands of mortgages into a single portfolio, which is then sliced (tranching) into marketable securities for resale to investors. Different tranches have different priorities of repayment, with the senior tranche being repaid first, the equity tranche last, and the mezzanine tranche in between.²⁵ The allure of tranching comes from the ability to place a high (e.g., AAA) credit rating on the senior tranche, making it marketable to conservative and regulated investors. Mezzanine tranches carry a lower, less marketable credit rating (e.g., BBB), while equity tranches are not rated at all. Creating "high quality" tranches is so alluring that banks reiterated the process, pooling the mezzanine tranches themselves into a new portfolio, which is itself then tranching into collateralized debt obligations (CDOs) of senior, mezzanine, and equity tranches.²⁶

Despite this process of securitization, much of the risks remained within the banking system, as banks were some of the largest buyers of CDOs and similar products.²⁷ When real estate prices fell and borrowers began to default, banks could not exit these risks because no one else wanted to buy CDOs. Even senior tranches looked like toxic waste, not conservative investments. Banks discovered, at that time, that they had not successfully converted Mrs. Macklin's long-term, illiquid mortgage into a liquid security.

3. *Modern Variants on Bank Deposits*

Much as modern banking shifted from Mrs. Macklin's mortgage to CDOs, it has also turned to new sources of financing. Modern banks still finance with traditional deposits, but they also raise funds through so-called shadow

²³ See *infra* Sections I.C and I.D (describing how bank runs can destabilize the economy and how governments try to control them).

²⁴ See FIN. CRISIS INQUIRY COMM'N, FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES 447 (2011).

²⁵ See *id.* at 43.

²⁶ See *id.* at 71–72.

²⁷ See JOHN C. HULL, OPTIONS, FUTURES, AND OTHER DERIVATIVES 189 (8th ed. 2011).

banking. For example, repurchase agreements or “repo” allow banks to raise funds cheaply and quickly without the bother of obtaining a bank loan, issuing securities, or taking in deposits.²⁸ Repo is secured lending: the lender buys an asset from the borrower, on the condition that the borrower buy it back at a slightly higher price in the future. The term is very short, and the buyback date is often the very next day.²⁹ Repo lenders might be other financial institutions and, indirectly, retail investors. Money-market funds take in contributions from a wide array of investors (including individuals of modest means) and invest them in short-term, liquid debt instruments like repo.³⁰ Money-market funds and deposits are regulated differently but function similarly, both giving short-term investors an accessible place to park their money while giving borrowers a source of financing.

Banks and other financial firms came to rely heavily on repo borrowing to finance their investments in the years leading up to the crisis.³¹ Because they are not insured by the Federal Deposit Insurance Corporation (FDIC), however, repo lenders have far more incentive to react to bank distress than depositors. Ordinarily, banks can rely on repo lenders to roll over their expiring loans or find new ones on the market. During times of distress, however, repo lenders can walk away with their money at any time, which has the same effect as withdrawing a bank deposit. One prominent account of the financial crisis calls it a “run on repo,”³² in which losses in the subprime market caused repo lenders to demand greater or higher quality collateral or simply to exit the market altogether. Just as in a bank run, the bank does not have enough liquidity on hand to pay the borrowers.³³ At the height of the financial crisis, the Treasury Department took the extraordinary step of guaranteeing money-market funds much like the FDIC guarantees deposits.³⁴

²⁸ Commercial paper is another form of short-term borrowing included in the shadow-banking system. *See generally id.* at 787.

²⁹ *See id.* at 76.

³⁰ *Id.*

³¹ *See* Gary B. Gorton & Andrew Metrick, *Securitized Banking and the Run on Repo* 1 (Yale ICF Working Paper No. 09-14, 2010), <http://ssrn.com/abstract=1440752> [<https://perma.cc/V7LE-J5G3>].

³² *Id.*

³³ The lenders may themselves be retail investors who have bought shares of money-market mutual funds. The funds act as conduits, taking in “deposits” from investors and using them to buy repo or other short-term assets from borrowers. *See* FIN. CRISIS INQUIRY COMM’N, *supra* note 24, at 30.

³⁴ *See* Press Release, U.S. Dep’t of the Treasury, Treasury Announces Temporary Guarantee Program for Money Market Funds (Sept. 29, 2008), <http://www.treasury.gov/press-center/press-releases/Pages/hp1161.aspx> [<https://perma.cc/YUL6-KDEM>].

C. *The Fire-Sale Externality and Systemic Risk*

The prior Section shows why financial institutions tend to be unstable. They take in funds from short-term borrowers (deposits, repo) and deploy those funds in illiquid investments (Mrs. Macklin's mortgage, CDOs). If borrowers all want repayment at once, the bank may not be able to pay and could fail. So far, though, this account simply describes what might happen at a particular firm. Why should failure at a bank be a matter of public concern? Moreover, a bank run causes illiquidity not insolvency. The fact that George Bailey's depositors all want their money does not directly make Mrs. Macklin's loan worth less. Similarly, the fact that repo lenders withdraw from the market en masse does not make illiquid CDOs³⁵ worth less.

This Section describes how firm-level distress can spread throughout the economy. The prevailing view is that excessive risk taking at financial institutions substantially contributed to the recent crisis.³⁶ We need, however, some idea of what makes some risk taking "excessive,"³⁷ why self-serving firms would subject themselves to it, and why it would actually affect anyone unconnected to the firm.

A bank facing a run (either by deposits or by repo lenders) needs cash. If the bank does not have enough cash on hand and cannot raise more through new deposits, repo, or the like, it will need to sell its stake in its illiquid investments: Mrs. Macklin's mortgage, the CDOs, etc. During a panic, however, several banks are looking to sell and few are looking to buy. Banks thus need to accept a lower value for the asset. But doing so forces the bank to revalue all similar assets it holds, even if it is not selling. The distressed sale affects the bank's entire balance sheet.³⁸

³⁵ See *supra* note 26 and accompanying text (discussing CDOs).

³⁶ See, e.g., FIN. CRISIS INQUIRY COMM'N, *supra* note 24, at xix ("We conclude a combination of excessive borrowing, risky investments, and lack of transparency put the financial system on a collision course with crisis.").

³⁷ Cf. *Compensation Structure and Systemic Risk: Hearing Before the Comm. on Fin. Servs.*, 111th Cong. 1 (2009), (statement of Kevin J. Murphy) ("Political pressures to reform pay have escalated in spite of limited evidence that compensation structures have, in fact, been responsible for excessive risk taking in the financial services industry. Indeed, the pressures have emerged even without a definition of 'excessive risk taking' or how we might distinguish excessive risk from the normal risks.").

³⁸ The analysis that follows relies heavily on Markus K. Brunnermeier, *Deciphering the Liquidity and Credit Crunch 2007–2008*, 23 J. ECON. PERSPECTIVES 77 (2009). The Article enjoyed fame that few academics dream of when Fed Chair Ben Bernanke recommended it (along with two other articles and one book) for those trying to understand the financial crisis. See Michael Corkery, *Ben Bernanke's Labor Day Reading List*, WALL ST. J.: DEAL J. (Sept. 2, 2010, 4:18 PM),

To see why, suppose that a bank has assets valued at \$100 billion, derived from repo lending of \$90 billion and equity of \$10 billion. All of the assets are invested in CDOs. Now, suppose that 10% of the bank's repo lenders (holding \$9 billion of claims) fear losses on the bank's investments in CDOs and refuse to roll over their repo. No one else is willing to supply new funds. The bank needs \$9 billion of cash to repay these lenders.

Repayment is no problem if the bank can simply sell CDOs at book value.³⁹ But, recall that the market is concerned about the bank, so the bank might need to accept a lower price. Perhaps the bank needs to sell 10% of its portfolio—previously thought to have been worth \$10 billion but saleable for only \$9 billion. Initially, this discount might not look so bad if the bank is merely taking a \$1 billion loss, which can be absorbed by its \$10 billion of equity. After the sale, it has CDOs of \$90 billion and cash of \$9 billion, right?

Perhaps not, because the discount sale may cause us to reexamine the entire value of the bank. The bank is selling *some* of its CDOs at a 10% discount. Arguably, we should discount *all* of its holdings by that much. If so, it now has CDOs discounted to \$81 billion and cash worth \$9 billion. Because it still has liabilities of \$90 billion, its entire equity is wiped out, putting it on the edge of insolvency. News of the bank's distress panics its remaining lenders, who themselves seek to withdraw their funds (e.g., by declining to roll over their repo). The second wave of discounts throws the bank into insolvency.

This vicious cycle is the “run on repo” mentioned above.⁴⁰ The cycle endangers other banks as well, who may be holding similar CDOs financed by similarly panicked depositors and repo lenders. Discounted selling by one bank forces other banks to discount their holdings, making them appear less healthy. Because the discounted selling affects other banks, it has been termed the “fire-sale externality.”⁴¹ We usually expect lower prices to attract bargain hunters, driving up demand and stabilizing prices. But depositors, repo lenders, and other banks are all looking to get out of the market. Without buyers, a “liquidity spiral” takes hold, making banking structures less stable and self-correcting than most economic activities.⁴²

The liquidity spiral does not directly affect bank borrowers like Mrs. Macklin. She is unlikely to know or care if her mortgage has been sliced up and sold several times over. Yet, her 25-year-old daughter, Miranda, might

<http://blogs.wsj.com/deals/2010/09/02/ben-bernanke-labor-day-reading-list/>
 [https://perma.cc/TX2Z-CDVE].

³⁹ The bank's balance sheet would have \$91 billion of assets, \$81 billion of deposits/repo, and \$10 billion of equity.

⁴⁰ See Gorton & Metrick, *supra* note 31.

⁴¹ See Brunnermeier, *supra* note 38.

⁴² See *id.*

not be able to find a loan for her new house. Or, her law-firm employer might need to lay her off as tighter credit conditions drive down economic activity and the demand for legal services. Instability, distress, and failure in banking can spread, inflicting costs upon society at large, not just the shareholders, depositors, and other stakeholders of a firm.⁴³ This characteristic, known as systemic risk,⁴⁴ explains how perhaps \$1 trillion of subprime mortgage losses translated into an \$8 trillion decline in the U.S. stock market and the worst economic crisis since the Great Depression.⁴⁵

In light of these costs, this Article will treat systemic risk as an externality⁴⁶ that justifies regulation.⁴⁷ A bank that poses systemic risk enjoys the full upside of its risk taking but is shielded from much of the downside. This asymmetry is far more pronounced in a bank than in a typical limited liability firm like a corporation.⁴⁸ It is true that corporate shareholders, in all industries, enjoy the full upside of their risk taking while exposing their creditors to some of the downside. However, corporate creditors are (for the most part) voluntary and screen their debtors for excessive risk taking. Corporate debtors who take on additional risk must pay for the privilege with higher interest rates. In contrast, systemic risk burdens society at large. Absent regulation, society has no way of imposing higher costs on firms that engage in activities that produce more systemic risk.

⁴³ See Schwarcz, *supra* note 16 at 206 (describing systemic risk as an externality).

⁴⁴ See *infra* Part I.A.

⁴⁵ Atif R. Mian & Amir Sufi, *The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis*, 124 QUARTERLY J. ECON. 1449 (2009), <https://ssrn.com/abstract=1072304> [<https://perma.cc/BA3D-5ZNF>].

⁴⁶ Cf. ANDREU MAS-COLELL ET AL., MICROECONOMIC THEORY 352 (1995) (“An externality is present whenever the well-being of a consumer or the production possibilities of a firm are directly affected by the actions of another agent in the economy.”); DOUGLAS BAIRD ET AL., GAME THEORY AND THE LAW 307 (1998) (“An externality exists whenever a person does not enjoy all the benefits or incur all the costs that result from the actions that person undertakes.”).

⁴⁷ One could similarly characterize systemic risk as a collective-action problem of shareholders. See Jeffrey N. Gordon, *Executive Compensation and Corporate Governance in Financial Firms: The Case for Convertible Equity-Based Pay* (Columbia L. and Econ. Working Paper No. 373, 2010), <http://ssrn.com/abstract=1633906> [<https://perma.cc/E8B7-L8H5>].

⁴⁸ See generally FRANK EASTERBROOK & DANIEL R. FISCHEL, THE ECONOMIC STRUCTURE OF CORPORATE LAW (1996).

D. Micro- and Macro-Prudential Regulation

The traditional, and still dominant, form of financial regulation is “micro-prudential” in that it seeks stability at individual firms.⁴⁹ For example, suppose (like in the prior Section), a large bank invests in CDOs. Before the bank’s repo lenders become alarmed, regulators identify the CDOs as being particularly risky. Forcing the bank to sell the CDOs would decrease the risk of insolvency or distress at the bank.

Following the financial crisis, however, many commentators have criticized the micro-prudential approach.⁵⁰ In the prior Section, we saw how actions that stabilize one bank (selling risky CDOs) may destabilize the entire financial system. Selling the risky CDOs in an illiquid market may be difficult, and the seller may need to accept a discounted price. Other banks holding similar CDOs may need to revalue their holdings to account for the loss, making them appear less stable and making it harder for them to obtain financing. Thus, by forcing one bank to sell its CDOs, regulators might make the entire system less stable. In short, micro-prudential regulation may stabilize one firm but destabilize the entire system.

Proposals for “macro-prudential” regulation would focus on such system-wide effects. A macro-prudential approach would tighten during boom markets when the system could most easily accommodate the side effects. During busts, regulation would ease. To date, macro-prudential regulation is still in the development phase. For example, some contend that the capital adequacy rules (discussed below)⁵¹ could be strengthened during booms and relaxed during busts.⁵²

Along these lines, some argue that a financial transactions tax could dampen the boom/bust cycle. According to them, the tax could thwart the formation of financial bubbles by making trading more expensive.⁵³ However, the recent financial crisis was sparked by a bubble in the U.S. housing market.⁵⁴ Transactions taxes (on sales and deed recordations) already exist in

⁴⁹ See generally CARNELL ET AL., *supra* note 21 (providing overviews of firm-level banking and financial regulation).

⁵⁰ See, e.g., Piet Clement, *The Term “Macroprudential”: Origins and Evolution*, BIS Q. REV., Mar. 1, 2010, at 59.

⁵¹ See *infra* Part I.E.2.

⁵² See generally Avinash Persaud, *Macro-Prudential Regulation* (2009), <http://documents.worldbank.org/curated/en/337731468161952385/pdf/503470BRI0Box31ponse0Note601PUBLIC1.pdf> [<https://perma.cc/MNG7-82EE>].

⁵³ See, e.g., Thornton Matheson, *Taxing Financial Transactions: Issues and Evidence* 21 (IMF Working Paper WP/11/54, Mar. 2011).

⁵⁴ Jeff Holt, *A Summary of the Primary Causes of the Housing Bubble and the Resulting Credit Crisis: A Non-Technical Paper*, 8 J. BUS. INQUIRY 120, 120 (2009)

this market and failed to prevent the crisis. Similarly, a recurring problem of bank runs is that markets become illiquid. Banks cannot find buyers for their illiquid investments, and transactions taxes would seem to make it even harder to sell at the margin.

In short, the micro-prudential approach still dominates financial regulation, and corrective taxes have no obvious macro-prudential benefits. As a result, this Article will limit its analysis to the micro-prudential effects of corrective taxes on finance. To develop this analysis, the next Section summarizes the existing system of (largely micro-prudential) regulation in the United States.

E. Financial Regulation

Section C suggested that systemic risk is a type of externality for firms. Firms certainly suffer from financial distress, but banking is unique in that distress not only spreads but amplifies through the rest of the economy. Thus, it is possible that banks would take risks that are privately optimal (even if they turn out badly for the banks) but socially destructive. In order to control these risks, governments not only regulate banks but also support them in times of distress.

Outside the financial sector, preventing default or insolvency is usually not a matter of public concern.⁵⁵ The failure of a firm certainly causes hardships for employees, suppliers, and investors, but such “creative destruction” is usually tolerated, sometimes even welcomed, as an essential part of economic growth.⁵⁶ Poorly run firms should fail and release their resources for better run firms to use. For banks and other financial firms,

(“The general consensus is that the primary cause of the current recession was the credit crisis arising from the bursting of the housing bubble.”).

⁵⁵ That is not to say that the government never intervenes to protect failing, nonfinancial firms. Most recently and perhaps famously, the U.S. Treasury assisted General Motors and Chrysler with its Automotive Industry Financing Program. *See generally* U.S. GOV’T ACCOUNTABILITY OFF., GAO-10-151, TROUBLED ASSET RELIEF PROGRAM: CONTINUED STEWARDSHIP NEEDED AS TREASURY DEVELOPS STRATEGIES FOR MONITORING AND DIVESTING FINANCIAL INTERESTS IN CHRYSLER AND GM (2009). Later, in 2009, the government would provide additional funding to General Motors and Chrysler through unorthodox and controversial bankruptcy proceedings. Mark J. Roe & David Skeel, *Assessing The Chrysler Bankruptcy*, 108 MICH. L. REV. 727, 728 (2010).

⁵⁶ The phrase “creative destruction” is associated with the Austrian economist Joseph Schumpeter and his most famous work, *CAPITALISM, SOCIALISM AND DEMOCRACY* (1942).

however, destruction is often just destructive. Few today would heed the economic recovery plan that Herbert Hoover attributed to Andrew Mellon:

“Liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate.” [Mellon] insisted that, when the people get an inflation brainstorm, the only way to get it out of their blood is to let it collapse. He held that even a panic was not altogether a bad thing. He said: “It will purge the rottenness out of the system. High costs of living and high living will come down. People will work harder, live a more moral life. Values will be adjusted, and enterprising people will pick up the wrecks from less competent people.”⁵⁷

As described above, bank and financial failures are particularly disruptive to the larger economy.

I. Bank Activities

Governments have long regulated the types of activities that banks can undertake. The Depression-era Glass-Steagall Act⁵⁸ divorced commercial banking (i.e., taking customer deposits) from investment banking (i.e., acting as broker, dealer or underwriter for securities) but had been repealed by the end of the twentieth century.⁵⁹ Glass-Steagall had several rationales, one of which was to protect the banking system from the risks inherent in the stock

⁵⁷ HERBERT HOOVER, THE MEMOIRS OF HERBERT HOOVER: THE GREAT DEPRESSION, 1929-1941 (1952).

⁵⁸ The U.S. Banking Act of 1933, Pub. L. No. 73-66, §§ 16, 20, 21, 32, 48 Stat. 162, 184–85, 188–89, 194 (1933) (codified as amended in scattered sections of 12 U.S.C.).

⁵⁹ The Glass-Steagall provisions were sections 16, 20, 21, and 32 of the Banking Act of 1933. See Jonathan R. Macey, *Special Interest Groups Legislation and the Judicial Function: The Dilemma of Glass-Steagall*, 33 EMORY L.J. 1, 1 n.1 (1987). Sections 16 (codified as amended at 12 U.S.C. § 24 (2012)) and 21 (codified as amended at 12 U.S.C. § 378 (2012)) remain in force, preventing the same corporate entity from acting as both investment and commercial bank. Sections 20 and 32 prevented investment and commercial banks from coming under common control (either by corporate structure or by interlocking directors, officers, or employees). These provisions were formally repealed by the Gramm-Leach-Bliley Act of 1999, Pub. L. No. 106-102, § 101, 103, 113 Stat. 1338, 1341 (1999), although prior regulatory and judicial interpretations had largely eviscerated them. See Jonathan R. Macey, *The Business of Banking: Before and After Gramm-Leach-Bliley*, 25 IOWA J. CORP. L. 691, 691–92 (2000).

market.⁶⁰ Today, banks that accept deposits cannot directly engage in investment banking, but they can indirectly do so via non-bank affiliates.

The Dodd-Frank Act's "Volcker rule,"⁶¹ attempts to create a similar divide between regulated banks and securities dealing by prohibiting banks from engaging in proprietary trading on their own account (rather than for clients).⁶² The Volcker rule is a high-profile slice of Dodd-Frank, which dramatically expands the authority of financial regulators, especially over the large bank holding companies that now dominate American finance.⁶³ Like Glass-Steagall, the Volcker rule regulates the asset side of the bank's balance sheet. Because volatile assets are more likely to send a bank into insolvency than placid ones, governments try to direct banks into less investment.

2. Capital Adequacy

Firm investments determine the amount of losses a firm might face. Banks might suffer losses differently by investing in the stock market, mortgages, or CDOs. Firm capital structure, however, determines how much loss a firm can absorb before being distressed or insolvent. A firm funded 100% with common equity could not become insolvent, whereas a firm funded 100% with debt becomes insolvent with the slightest loss. As financial intermediaries, banks naturally hold debt in their capital structure in the form of demand deposits and other short-term obligations like repo.

To reduce the risk of distress or insolvency, regulators require banks to hold a certain level of common equity and other "capital" on their balance sheets. The actual rules for bank capital are incredibly complex⁶⁴ but present

⁶⁰ See *Investment Co. Institute v. Camp*, 401 U.S. 617, 630–31 (1971).

⁶¹ The Volcker rule is named after former Federal Reserve Chairman Paul Volcker who advocated for the rule. See FIN. STABILITY OVERSIGHT COUNCIL, STUDY & RECOMMENDATIONS ON PROHIBITIONS ON PROPRIETARY TRADING & CERTAIN RELATIONSHIPS WITH HEDGE FUNDS & PRIVATE EQUITY FUNDS 1–2 (2010).

⁶² See Dodd-Frank § 619(a)(1) (codified at 12 U.S.C. § 1851(a)(1) (2012)); see also *id.* § 619(h)(4) (codified at 12 U.S.C. § 1851(h)(4) (2012)) (defining proprietary trading). The prohibition applies to a "banking entity," which includes a depository institution, its parent company, and affiliates. See *id.* § 619(h)(1) (codified at 12 U.S.C. § 1851(h)(1) (2012)).

⁶³ See, e.g., Dodd-Frank § 114(a)(1) (codified at 12 U.S.C. § 5325(a)(1) (2012)) (authorizing additional regulation for "large, interconnected bank holding companies").

⁶⁴ See generally BASEL COMMITTEE ON BANKING SUPERVISION, BASEL III: A GLOBAL REGULATORY FRAMEWORK FOR MORE RESILIENT BANKS AND BANKING SYSTEMS (2010, rev. 2011) [hereinafter BASEL III, CAPITAL] <http://www.bis.org/publ/bcbs189.pdf> [<https://perma.cc/WPQ8-496W>]; BASEL COMMITTEE ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL

fairly straightforward issues. Regulators must define what qualifies as capital and specify the amount a bank must carry. Common equity clearly qualifies, and senior secured debt does not. Firms also finance with instruments having characteristics of both debt and equity, like preferred stock and unsecured debentures.

Capital structure alone, however, does not determine the risk of a default. We must also know about the riskiness of the firm's business. A firm with a 1-to-1 debt-to-equity ratio looks to have a safe capital structure, but if it is pursuing a very risky business strategy, it could still face a high risk of default. Similarly, a firm with a 9-to-1 debt-to-equity ratio might pursue a very safe, low-risk business strategy that makes default unlikely. Thus, regulators need a way to link the riskiness of the firm's capital structure to the riskiness of its activities. A series of agreements among central bankers from the developed world, known as the Basel accords, provide regulators with a road map for regulating bank capital.⁶⁵

The basic model of Basel is to require firms to have a certain amount of "capital" in their financial structure; the amount is determined as a percentage of "risk-weighted assets." Under the current and prior accords, Basel I and II, the requirement is that total capital equal at least 8% of risk-weighted assets.⁶⁶ Conceptually, capital is a structure that the Basel committee believed could absorb losses, perhaps thought of as financial shock absorbers. The accords divide capital into "tier 1" and "tier 2." The main component of tier 1 capital is common equity, although certain types of preferred stock and disclosed accounting reserves count as well.⁶⁷ At least half of required capital must come from tier 1.⁶⁸ The remainder may come from tier 2, a less restrictive set including preferred stock and accounting provisions and reserves excluded from tier 2.⁶⁹

The true complexity of Basel comes from determining a firm's "risk-weighted assets." Different assets held by a firm receive different weight, depending on the asset, the accord (Basel I or II), and the methodology authorized by the accord. The following stylized example will hopefully convey the gist of the Basel approach. A very low-risk asset (like government bonds) might receive a 0% weight. As a result, a firm need not hold any capital

MEASUREMENT AND CAPITAL STANDARDS: A REVISED FRAMEWORK COMPREHENSIVE VERSION (2006) [hereinafter BASEL II] <http://www.bis.org/publ/bcbs128.pdf> [<https://perma.cc/DH3U-2W77>].

⁶⁵ See BASEL III, CAPITAL, *supra* note 64; BASEL II, *supra* note 64; see also BASEL COMMITTEE ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS (1988) [hereinafter BASEL I].

⁶⁶ BASEL II, *supra* note 64, at 12; BASEL I, *supra* note 65, at 14.

⁶⁷ See BASEL III, CAPITAL, *supra* note 64 at 13.

⁶⁸ See *supra* note 66.

⁶⁹ See BASEL II, *supra* note 64, at 14–18.

against the bond. Riskier assets are assigned higher weights, up to and even exceeding 100%. To use a simple example, a firm might hold two assets, both with a value of \$500 million, but one with a risk-weighting of 0% and the other with a risk-weighting of 100%. The firm would then have total risk-weighted assets of \$500 million, against which the firm would need to hold capital of 8%, or \$40 million. At least half, or \$20 million, would need to come from tier 1 capital.

Basel is an unusually successful example of cooperative international law. The Basel Committee itself has no formal power, and the Basel accords are not binding as treaties. Still, countries over the world have adopted some version of Basel. Basel has not, however, been so brilliant in the intended goal of controlling systemic risk.⁷⁰ All of the large investment and commercial banks in the United States were subject to some version of Basel in 2008.⁷¹ Moreover, the United States imposed an additional “leverage ratio” on its commercial (but not investment banks), requiring them to holding at least 5% of tier 1 capital against total assets.⁷² This rule is simpler than Basel II, in that assets are not weighted for risk.

In response to the financial crisis, the Basel committee agreed on a new accord, “Basel III,” in September 2010.⁷³ Basel III has yet to be implemented in the U.S., but will force banks to hold more tier 1 capital and common equity. Common equity must be at least 4.5%, and tier 1 capital 6.0%, of risk-weighted assets.⁷⁴ Systemically important financial institutions (SIFIs) must hold even more. Basel III also advances the concept of macro-prudential regulation by requiring banks to increase their capital when credit markets are expanding.⁷⁵

3. *Deposit Insurance*

Federal deposit insurance not only protects depositors but also removes their incentive to panic and make a run on their bank. Before the financial

⁷⁰ See BASEL COMMITTEE ON BANKING SUPERVISION, THE BASEL COMMITTEE’S RESPONSE TO THE FINANCIAL CRISIS: REPORT TO THE G-20 10 (2010), <http://www.bis.org/publ/bcbs179.pdf> [<https://perma.cc/9UDV-D5RF>].

⁷¹ DANIEL K. TARULLO, BANQUE DE FRANCE CONFERENCE, CAPITAL REGULATION ACROSS FINANCIAL INTERMEDIARIES 8 (2015) (“Prior to the crisis, the Basel regime—though nominally applicable only to internationally active banks—in fact applied to most banks in many member jurisdictions, including the United States and the European Union (EU).”).

⁷² See 12 C.F.R. § 325.103(b) (2017).

⁷³ See BASEL III, CAPITAL, *supra* note 64.

⁷⁴ *Id.* at 12.

⁷⁵ See *id.* at 59.

crisis, the FDIC protected account values up to \$100,000.⁷⁶ In order to calm depositors and prevent bank runs, the government increased this protection to \$250,000.⁷⁷ The Treasury department even temporarily guaranteed money-market mutual funds,⁷⁸ the supposedly uninsured mutual funds that invest in repo and other short-term corporate obligations.⁷⁹

The FDIC charges premiums for its deposit insurance in order to offset amounts it must pay out.⁸⁰ Protecting depositors, though, comes at a cost beyond directly covering their losses. Depositors do not monitor their banks to make sure they are conducting their business prudently. As a result, bank managers and shareholders may be tempted to pursue risky projects that have a large potential gain, even if potential losses make those projects imprudent overall. The incentive to pursue risk is known as “moral hazard,” which is thought to be the primary cost of deposit insurance and bailouts.⁸¹

4. Discount Window and Other Lending Facilities

Banks face the risk of illiquidity because they borrow short-term funds (e.g., deposits, repo) and invest in long-term projects (e.g., Mrs. Macklin’s mortgage, structured finance projects). Thus, a perfectly solvent bank may not have enough liquid funds to discharge its liabilities. Through its discount window, the Federal Reserve (Fed) system acts as lender-of-last-resort and makes short-term loans to banks facing liquidity strains.⁸²

During the crisis, many banks feared they would be stigmatized by borrowing from the discount window, perversely making the discount window a destabilizing force.⁸³ In December 2007, the Fed responded to this concern

⁷⁶ Cf. Dodd-Frank § 335(a), 124 Stat. at 1540 (codified at 12 U.S.C. § 1821(a)(1)(E)(2012)) (replacing \$100,000 limit with \$250,000).

⁷⁷ See 12 U.S.C. § 1821(a)(1)(E). The FDIC fully insures non-interest-bearing accounts through December 31, 2012. See 12 U.S.C. § 1821(a)(1)(B)(ii) (2012) (amended by Dodd-Frank § 343(a), 124 Stat. at 1544).

⁷⁸ See U.S. DEPT. OF THE TREASURY, FREQUENTLY ASKED QUESTIONS ABOUT THE TREASURY’S TEMPORARY GUARANTEE PROGRAM FOR MONEY MARKET FUNDS (2008), <http://www.treasury.gov/press-center/press-releases/Pages/hp1163.aspx> [<https://perma.cc/3ELW-QVFZ>].

⁷⁹ Cf. Gorton & Metrick, *supra* note 31 (discussing the “run on repo”).

⁸⁰ See Schwarcz, *supra* note 16, at 226.

⁸¹ See, e.g., *id.* at 209.

⁸² See THE FEDERAL RESERVE SYSTEM: PURPOSES AND FUNCTIONS 44–45 (9th ed. 2005), http://www.federalreserve.gov/pf/pdf/pf_complete.pdf [<https://perma.cc/TYM2-QHDK>].

⁸³ Before Dodd-Frank, the Federal Reserve did not publish the identity of discount-window borrowers, although it did publish the volume of borrowing. Nevertheless, banks feared that others could detect their discount-window borrowing

by creating the Term Auction Facility (TAF), which came to dwarf the discount window during the crisis.⁸⁴ Because TAF used a competitive bidding process, banks perceived it as carrying less stigma than the discount window.⁸⁵

TAF was open only to depository institutions.⁸⁶ In order to supply liquidity to other financial institutions, the Fed created a wide array of extraordinary lending facilities and guarantee programs.⁸⁷ In December 2010, the Fed revealed the details of many of these transactions, identifying participants ranging from Goldman Sachs to Harley Davidson.⁸⁸

5. Bailouts

Afraid that default would further destabilize the financial system, the U.S. government deployed massive funds to keep bank creditors whole, while letting shareholders suffer, to curtail moral hazard. When the New York Fed brokered a deal for JPMorgan to buy Bear Stearns, government officials initially urged a lower price than JPMorgan was willing to pay.⁸⁹ And, when it put Fannie Mae and Freddie Mac in government conservatorship, it largely squeezed out the interests of their shareholders (including Ralph Nader, who has taken his grievances to the readership of the *Wall Street Journal*).⁹⁰

by analyzing private borrowing patterns and the published volume of borrowing. See Renee Courtois Haltom, *Stigma and the Discount Window*, REGION FOCUS: RICHMOND FED. RES., First Quarter 2011, at 6.

⁸⁴ See *id.* at 7–8.

⁸⁵ Indeed, banks paid higher rates using TAF than they could at the discount window. See *id.* at 8; see also Olivier Armantier et al., *The Federal Reserve's Term Auction Facility*, 14 FED. RES. BANK OF N.Y.: CURRENT ISSUES IN ECON. AND FIN., no. 5, 2008, at 6 (describing the decreased stigma from auction borrowing).

⁸⁶ See *Extensions of Credit by Federal Reserve Banks*, 72 FED. REG. 71,202, 71,202 (Dec. 17, 2007) (to be codified at 12 C.F.R. pt. 201) (“TAF will be made only to depository institutions that are in generally sound financial condition, are expected to remain in that condition during the term of the advance and are eligible to receive advances under section 10B of the Federal Reserve Act.”).

⁸⁷ The legal authorization for these facilities comes from section 13(3) of the Federal Reserve Act (codified at 12 U.S.C. § 343 (2012)). See also BAIRD WEBEL & MARC LABONTE, *GOVERNMENT INTERVENTIONS IN RESPONSE TO FINANCIAL TURMOIL 16* (2010).

⁸⁸ See David Reilly & Rolfe Winkler, *Moral Hazard, Thy Price Is \$3.3 Trillion*, WALL ST. J., Dec. 2, 2010.

⁸⁹ Kate Kelly, *Bear Stearns Nearing Collapse Twice in Frenzied Last Days*, WALL ST. J., May 29, 2008, at A14.

⁹⁰ See Ralph Nader, *The Great Fannie and Freddie Rip-Off*, WALL ST. J., Jan. 26, 2011.

Early on, the government's assistance was *ad hoc*, as with the Bear Stearns deal. As the financial crisis intensified, it became clear that many firms would fold without direct assistance. The government started an array of ambitious programs to prop up failing banks, the most famous of which is the Troubled Asset Relief Program (TARP), created by Congress in October 2008.⁹¹ The Treasury Department used its TARP funding and authority to buy roughly \$200 billion of preferred stock in banks and other companies, most of which has been repaid.⁹²

Even though bailouts largely protected bank creditors, not all remained intact. In another government-brokered acquisition, JPMorgan bought the assets of failed thrift Washington Mutual, subject to the claims of its depositors and general creditors.⁹³ It did not, however, assume any obligations to Washington Mutual's equity and subordinated debt holders, who were wiped out in the deal.⁹⁴ Similarly, creditors of Lehman Brothers were left to fend for themselves in bankruptcy.⁹⁵ Nevertheless, most creditors of failed banks survived unimpaired thanks to government bailouts. As Professor David Skeel notes, "[t]he bailouts of 2008 were creditor bailouts."⁹⁶

II. TAXING SYSTEMIC RISK

A. Introduction

This Article focuses on financial taxes as a regulatory measure imposed to improve the behavior of financial firms. Some might argue that financial-sector taxes could be useful for other purposes, like retribution for harm caused during the financial crisis or diminution of an overly large and powerful financial sector.⁹⁷ Even if these goals are valid, they may have already been achieved. As a recent magazine article puts it, "[a]fter surprisingly successful financial reform, public vilification, and politics that have turned against them,

⁹¹ See Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, 122 Stat. 3765, 3767-3800.

⁹² See WEBEL & LABONTE, *supra* note 87, at 8.

⁹³ See Richard M. Hynes & Steven D. Walt, *Why Banks Are Not Allowed in Bankruptcy* 67 WASH. & LEE L. REV. 985, 1034 (2010).

⁹⁴ See *id.*

⁹⁵ See DAVID SKEEL, THE NEW FINANCIAL DEAL: UNDERSTANDING THE DODD-FRANK ACT AND ITS (UNINTENDED) CONSEQUENCES (2011).

⁹⁶ *Id.* at 147.

⁹⁷ See Shackelford et al., *supra* note 7, at 781.

the Masters of the Universe are masters no longer.”⁹⁸ In any event, this Article does not consider these non-regulatory goals in any detail.

B. *The Pigouvian Tradition*

Taxing externalities is an old idea, usually attributed to economist A.C. Pigou’s 1932 work, *The Economics of Welfare*.⁹⁹ A modern defense of the Pigovian tradition comes from economist Greg Mankiw, who writes:

For at least two reasons, Pigovian taxes are popular among economists. First, they are often the least invasive way to remedy a market failure. They can restore an efficient allocation of resources without requiring a heavy-handed government intervention into the specific decisions made by households and firms. Second, they raise revenue that the government can use to reduce other taxes, such as income taxes, which distort incentives and cause deadweight losses.¹⁰⁰

Environmental taxes (e.g., carbon or gasoline taxes) are favorites of Mankiw and his “Pigou Club.” Some commentators resist environmental taxes because they are regressive.¹⁰¹ A gasoline tax does not distinguish between wealthy and poor drivers. Regardless of the merits of this resistance, it has no obvious application to a corrective tax on the financial sector. If anything, such a tax would be progressive, falling mainly on bankers and owners of capital.

Louis Kaplow and Steven Shavell elaborate on the general superiority of corrective taxes to regulation. They write, “[t]he reason that the corrective tax is superior to quantity regulation is evident. The corrective tax effectively harnesses the firm’s information about its control costs.”¹⁰² Kaplow and Shavell show that a Pigovian tax works even if the government does not know the magnitude of harms caused by an externality. Without this knowledge, the

⁹⁸ Gabriel Sherman, *Is This the End of Wall Street As They Knew It?*, N.Y. MAG. (Feb. 5, 2012), <http://nymag.com/news/features/wall-street-2012-2/> [https://perma.cc/5MYG-8QRU].

⁹⁹ ARTHUR C. PIGOU, *THE ECONOMICS OF WELFARE* 183 (4th ed. 1932).

¹⁰⁰ N. Gregory Mankiw, *Smart Taxes: An Open Invitation to Join the Pigou Club*, 35 E. ECON. J. 14, 16 (2009), https://scholar.harvard.edu/files/mankiw/files/smart_taxes.pdf [https://perma.cc/V5J4-U4FZ].

¹⁰¹ *Id.* at 22.

¹⁰² Louis Kaplow & Steven Shavell, *On the Superiority of Corrective Taxes to Quantity Regulation*, 4 AM. L. & ECON. REV. 1, 4 (2002).

government could not set the tax rate at its optimal level, which equals the marginal cost of harms caused. Nevertheless, the tax can still limit the amount of externalities (e.g., the amount of carbon output). Even under uncertainty about harms, the tax serves the same function as direct regulation (limiting the externality), only more efficiently (by harnessing producers' information about their own costs).

These arguments, coming from the strongest supporters of corrective taxation, direct the inquiry for the rest of this Article. As argued earlier in this Part, systemic risk is an externality that the government should curtail. One avenue for doing so would be a corrective tax. Kaplow and Shavell rebut the potential complaint that the harms caused by systemic risk are too uncertain and speculative to warrant a corrective tax. Government could still use the tax to limit total systemic risk.¹⁰³

However, we still have the problem of actually measuring the externality that must be curtailed. Just what should policymakers try to limit? Presumably, it is systemic risk, but we need some concrete and numerical measurement of systemic risk in order to levy a corrective tax on finance. As this Article proceeds, we will see that these problems present the most serious obstacle to policymakers trying to enact a corrective tax on finance.

C. *Design of a Corrective Tax on the Financial Sector*

1. *International Cooperation*

Financial regulation is largely international. The premier regulatory framework for controlling systemic risk, the Basel Accords, is the result of international cooperation.¹⁰⁴ Suppose that the U.S. government effectively identifies a marker that strongly correlates with systemic risk and chooses to tax it. Financial firms may pay the tax, but they may simply move their operations abroad. Indeed, the United Kingdom resists a European tax on finance for just this reason, fearful that its London-based banks and financial firms will simply relocate to New York or elsewhere.¹⁰⁵

A standard critique is that such an exit from markets is a policy failure.¹⁰⁶ Suppose that the United States alone enacted a financial-sector tax and drove many of its banks to London or elsewhere. The United States would lose

¹⁰³ *Id.* at 9.

¹⁰⁴ *See supra* Part I.E.2.

¹⁰⁵ *See supra* note 164 and accompanying text.

¹⁰⁶ *See* BASEL I, *supra* note 65, p. 2 (“[Regulation] should be in fair and have a high degree of consistency in its application to banks in different countries with a view to diminishing an existing source of competitive inequality among international banks.”).

access to capital market. The exiting firms may still pose a systemic threat to the U.S. economy. Continuing with the pollution analogy, the United States does not win if its polluters simply move to the Bahamas. Moving from analogy to recent history, we should note that the recent crisis affected the global economy, even though it originated in U.S. financial markets. Even today, the sovereign-debt crisis in Europe threatens U.S. markets. Ridding ourselves of bankers does not rid us of systemic risk.

International cooperation has been successful in implementing global standards on bank capital.¹⁰⁷ National regulators meet in Basel, decide on policy, and bring their decisions back home for domestication via the regulatory process. It is impossible to imagine this cooperative model producing a new tax in the United States, anytime soon. Regulators cannot adopt taxes via notice and comment the way they adopt Basel.

2. *Not Taxing Bad Outcomes*

Corrective taxes are usually straightforward. If we want less of something—say pollution—we tax it. This simple logic does not apply to bank failures. We may want fewer banks to fail, but we can hardly tax them when they do. Indeed, the government is unlikely to let a major bank fail anytime soon after the wreckage believed to have been caused by the failure of Lehman Brothers in September 2008.

Similarly, corrective taxes should not apply at times of distress, when failure seems particularly likely. The politics, economics, and regulation of banks are already “procyclical” in that a banking crisis feeds on itself. As discussed above, the failure of one destabilizes the balance sheet of other banks and the confidence of their depositors.¹⁰⁸ Regulation can reinforce the vortex of failure. Faltering banks must sell assets in order to meet capital requirements,¹⁰⁹ but doing so only destabilizes markets even more. Increasing the burdens on financial firms during distress would counter the goal of financial stability.

3. *Not Imposing Higher Income Taxes*

As taxing failure is not an option, higher income taxes on banks might seem promising. After all, income taxes are premised on the idea of burdening winners by taxing them and assisting losers by granting them deductions.¹¹⁰ A

¹⁰⁷ See *supra* Part I.E.2.

¹⁰⁸ See *supra* Part I.C.

¹⁰⁹ See *supra* Part I.D.

¹¹⁰ See Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax over an Ideal Income Tax*, 58 STAN. L. REV. 1413, 1440 (2006) (noting “morally relevant difference between winners and losers”).

close examination of the income tax, though, will show that it fails as a corrective tax on finance. Suppose that, in a tax-free world, an investment bank *IB* would want enter into a derivatives contract with a counterparty *CP* under the following terms:

- If gold hits some preestablished benchmark next year, *IB* receives \$100 from *CP*.
- If gold does not hit the benchmark, *IB* pays \$100 to *CP*.

Let us assume that the benchmark is set so that the contract is “fair” (i.e., it has no ex-ante value to either side). Even though it has no expected value, the contract does impose risk, in that possible outcomes are dispersed.¹¹¹ Each party will either win or lose \$100, giving the possible outcomes a spread of \$200.

An income tax reduces this spread. A 50% income tax lowers the winner’s after-tax gain to \$50. But, if the government grants a deduction to the loser, the loser may suffer an after-tax harm of only \$50. The 50% tax cuts the after-tax spread in half, from \$200 to \$100. More generally, we can say that the 50% tax cuts in half the investment risk. So far, the income tax looks like a plausible corrective tax as it seems to reduce risk.

Nevertheless, the parties can easily undo this risk reduction. In a tax-free world, they would structure their bet to achieve a spread of \$200. Under a 50% tax, they achieve this desired result simply by doubling the risky bet as

¹¹¹ By granting a deduction worth 50% of losses, the tax system is “symmetric.” The full loss offset condition requires that the tax system be symmetrical with respect to gains and losses. See Lawrence Zelenak, *The Sometimes-Taxation of the Returns to Risk-Bearing Under a Progressive Income Tax*, 59 SMU L. REV. 879 (2006). The example and adjustments described above come from the “taxation of risk” literature which aims to address risk taking of all types of taxpayers. Arguably, individuals do not have the sophistication or access to capital needed to make the adjustments contemplated by this literature. See Deborah H. Schenk, *Saving the Income Tax with a Wealth Tax*, 53 TAX L. REV. 423, 431–32 (2000). Clearly, this criticism has no force against investment banks. A more potent criticism focuses on the assumption that the income tax treats gains and losses symmetrically. In our example, *IB* and the government share equally in the gains and losses. However, the U.S. corporate tax does not always treat gains and losses symmetrically. Corporations may or may not be able to deduct capital losses immediately, depending on whether they have offsetting capital gains. See I.R.C. § 1211 (2012). They may or may not receive an immediate tax benefit for ending a taxable year with an overall loss, depending on profitability in prior years. See I.R.C. § 172 (2012). These limits are haphazard from a financial perspective, as they depend on a corporation’s tax attributes, which have little bearing on systemic risk.

follows:

- If gold hits the benchmark, *IB* \$200 receives before tax. After paying tax on the income, *IB* gains \$100.
- If gold does not hit the benchmark, *IB* pays *CP* \$200. After deducting the loss, *IB* loses \$100.

Imposing the 50% tax does not change the after-tax results. *IB* easily undoes the risk reduction coming from the income tax. With or without the tax, it faces the same \$200 spread between winning as losing.¹¹²

At best then, higher taxes seem not to alter the firm's overall riskiness. One might even argue that the income tax makes systemic risk worse. In our example, the income tax caused *IB* to double the size of its risky wager. Ultimately, *IB*'s after-tax results do not change. If *IB* loses the bet, its \$200 loss imposes only \$100 of after-tax harm. The income tax does, however, result in larger pre-tax losses. Market observers might become panicked by observing the larger losses without considering their tax benefits. As noted before,¹¹³ perceptions do matter to the stability of financial firms. By encouraging more before-tax risk taking, a higher income-tax rate might make perceptions worse.

The example so far has focused on taxes and the riskiness of firm assets. Taxes already distort the capital structure of incorporated firms, at least in that U.S. corporations may deduct interest payments¹¹⁴ but not dividends. Thus, U.S. corporations have a tax incentive to finance their operations with debt rather than equity.¹¹⁵ Higher income taxes on corporations—the near universal form of large financial firms—would provide them an incentive to fund with even more debt, further threatening financial stability.¹¹⁶

¹¹² Financial markets usually measure investment risk in terms of standard deviation or the dispersion of possible returns. See Jeff Schwartz, *Reconceptualizing Investment Management Regulation*, 16 GEO. MASON L. REV. 521, 573 (2009) (“The key measure of risk is standard deviation.”).

¹¹³ See *supra* Part I.C.

¹¹⁴ See I.R.C. §163 (2012).

¹¹⁵ Several countries attempt to “integrate” the taxation of corporations and shareholders, aiming to achieve a single level of tax. See MYRON S. SCHOLES ET AL., TAXES AND BUSINESS STRATEGY 120 (3d ed. 2009).

¹¹⁶ *But cf.* William Poole, *Moral Hazard: The Long-Lasting Legacy of Bailouts*, 65 FIN. ANALYSTS J. 17, 22 (Nov./Dec. 2009) (proposing to deny interest deductions for financial firms).

4. *Taxing Factors Associated with Bad Outcomes*

Let us continue with the prior example and ask why *IB* wants to bet on the price of gold in the first place. We can identify three plausible motives:

- *Hedging*: *IB* is hedging against some exposure it faces elsewhere. For example, *IB* might simply be offsetting another gold contract demanded by a customer. The contract with *CP* reduces its overall risk. This motivation is clearly allowed.
- “*Alpha*” *Hunting*: *IB* is capitalizing on some particular knowledge or expertise about what the future holds for the price of gold. In financial jargon, alpha is the portion of investment returns derived from acumen or research. According to proponents of market efficiency, alpha does not exist.¹¹⁷ Bankers and high-profile investors invariably claim that it does.¹¹⁸
- “*Volatility*” *Hunting*: Bankers at *IB* are simply gambling. In financial jargon, volatility is risk, which requires no acumen to assume.¹¹⁹ If gold goes up, the bankers pay themselves handsomely. If gold goes down, they shrug it off and try again next year. To make the example more extreme, suppose they bet \$10 billion on gold contracts. If gold goes up, the bankers receive a huge bonus that sets them up for life. If gold goes down, the bankers get fired but face no other repercussions, even if they trigger insolvency or a systemic crisis.

Clearly, the hedging motivation is benign, even beneficial, to systemic risk. Volatility hunting clearly harms the financial system. Alpha has less clear effects. If *IB* has superior knowledge and can capitalize on it with little or no risk, financial regulators should have no qualms. We should, however, be concerned that bankers at *IB* are deluding themselves about their abilities,

¹¹⁷ See BURTON G. MALKIEL, *A RANDOM WALK DOWN WALL STREET* 230 (rev. ed. 2003).

¹¹⁸ Cf. Martin L. Liebowitz, *Alpha Hunters and Beta Grazers*, 61 *FIN. ANALYSTS J.*, 32, 33 (Sept./Oct. 2005) (discussing attributes of highly successful investors like Warren Buffett).

¹¹⁹ Cf. *id.* at 39 n.1 (“The great mass of investors should treat the market as being highly efficient and should start with the null hypothesis that all assets are fairly priced.”).

claiming that they are seeking alpha but in reality seeking volatility. There may be intermediate cases of concern as well. Perhaps *IB* does have superior knowledge about the likely price of gold next but cannot capitalize on it without exposing itself to some significant risk of failure.

The Volcker rule outlaws most forms of “proprietary trading” financial firms that accept insured deposits¹²⁰ (most systemically important financial firms in the U.S. accept deposits).¹²¹ Conceptually, the Volcker rule tries to banish both alpha and volatility hunting. It continues to allow for hedging and other activities perceived to be less risky. Regulators face a massive challenge, however, in implementing this rule. The categories given above seem clear cut, but in reality they are not. Regulators must draft rules that identify particular transactions as falling within allowed or prohibited categories.¹²² Drafting efforts to date have proven to be extraordinarily complex¹²³ and controversial (at least when compared to other forms of financial regulation).¹²⁴

Perhaps tax can act as the sieve. Firms that do particularly well may simply be taking on a lot of risk via proprietary trading (i.e., alpha and

¹²⁰ See Nathaniel Popper, *Regulators Weigh Public Input on ‘Volcker Rule’*, L.A. TIMES (Feb. 15, 2012), <http://articles.latimes.com/2012/feb/15/business/la-fi-volcker-rule-20120215> [<https://perma.cc/X2L4-G5FZ>].

¹²¹ “Systemic importance” is, of course, in the eye of the beholder. To date, the most consequential designation as such has come from the Financial Stability Board. The FSB designated eight U.S. firms as such: Bank of America; Bank of New York Mellon; Citigroup; Goldman Sachs Group; JP Morgan Chase; Morgan Stanley; State Street; and Wells Fargo. See Fin. Stability Bd., *Policy Measures to Address Systemically Important Financial Institutions* (Nov. 4 2011), http://www.financialstabilityboard.org/publications/r_111104bb.pdf [<https://perma.cc/MH9U-J9R7>]. All of them are “bank holding companies” that include depository institutions within their corporate families. See HOLDING COMPANIES WITH ASSETS GREATER THAN \$10 BILLION, <https://www.ffiec.gov/nicpubweb/nicweb/HCSGreaterThan10B.aspx> [<https://perma.cc/S9XW-SGPG>](last visited Oct. 10, 2017) (listing the top 50 bank holding companies).

¹²² See generally Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, 76 Fed. Reg. 68,846 (Nov. 7, 2011) (to be codified at 12 C.F.R. pt. 351).

¹²³ Davis Polk is likely the leading private law firm dealing with Dodd-Frank implementation. Its “summary” version of the Volcker Rule’s prohibition on proprietary trading runs 20 pages and reads more like an electrical schematic than a legal document. Cf. Summary of the Volcker Rule Study – Proprietary Trading, (Jan. 19, 2011), <https://www.davispolk.com/publications/summary-volcker-rule-study---proprietary-trading/> [<https://perma.cc/HQW6-ANZ6>] (summarizing Volcker Rule).

¹²⁴ Popper, *supra* note 120.

volatility hunting). If that is the case, then good performance in one year may well predict a bad result in later years. Thus, corrective tax on particularly good outcomes might curtail systemic risk.

This idea faces two obstacles. First, we would need to be convinced that particularly good performance is strongly correlated with something we want to curtail. Second, even if we could make that case, we would need to define a tax that defines particularly good performance. The financial activities tax, advocated by the IMF, is a plausible candidate for such a tax.¹²⁵ The theoretical case for this and similar taxes on “success” is discussed below.¹²⁶

The government may also seek markers of systemic risk other than particularly good financial results. Two candidates discussed below are taxing leverage¹²⁷ and taxing financial transactions.¹²⁸ Each of these has a plausible connection to systemic risk. Leverage reduces the ability of a firm to absorb losses before it is thrown into insolvency. Frequent trading might be associated with alpha and volatility hunting. Moreover, many financial firms rely heavily on short-term debt-like repurchase agreements (repo) that must be renewed frequently. Repo is an unstable source of financing that can disappear during a panic. A financial transactions tax would apply every time a firm renews repo lending (potentially daily) and could encourage financial firms to seek out long-term, more stable financing.

D. Institutional Considerations of a Corrective Tax on Finance

Section A began by taking some non-regulatory justifications for a financial-sector tax off the table. Section B offered the “Pigovian” rationale for preferring a regulatory tax over direct regulation. This Section will discuss institutional and pragmatic considerations for choosing the balance between direct regulation and corrective taxation of the financial sector.

First, and most powerfully, regulatory efforts may already be effective in curtailing systemic risk. Dodd-Frank in particular is not yet fully implemented. If Dodd-Frank is successful in curtailing systemic risk, then the rationale for imposing a corrective tax is significantly diminished. For example, Dodd-Frank authorizes the federal government to shut down and resolve troubled financial firms. The goal of this resolution authority is to avoid both government bailouts and complex bankruptcy proceedings.¹²⁹

¹²⁵ Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, 76 Fed. Reg. 68,846.

¹²⁶ See *infra* Part IV.

¹²⁷ See *infra* Part V.

¹²⁸ See *infra* Part III.

¹²⁹ See SKEEL, *supra* note 95.

Similarly, Basel III will require banks to hold more capital than they held before the financial crisis.

A well-designed corrective tax may seem superior to regulation for institutional reasons. Recent critics have complained that U.S. financial regulators are too cozy and accommodating with their wards. Matt Taibbi, writing for the *Rolling Stone*, (in)famously called Goldman Sachs “a great vampire squid wrapped around the face of humanity, relentlessly jamming its blood funnel into anything that smells like money.”¹³⁰ According to Taibbi, Hank Paulson (former head of Goldman and then Secretary of Treasury during most of the crisis) rigged government bailout efforts for the benefit of Goldman.¹³¹ Paulson let Goldman competitor Lehman Brothers collapse but made sure to bail out AIG, which owed Goldman billions of dollars.¹³² Taibbi is not alone in his harsh treatment of both Wall Street and Washington.¹³³

Regardless of the harsh critics, financial regulation is inherently discretionary. The bailouts of 2008 and 2009 were mainly ad hoc, devised and implemented in response to current events. Even during placid times, financial regulation relies on ambiguous concepts like “safety and soundness” which entrust discretion to regulators. Similarly, banks and other interested parties are currently lobbying regulators for exemptions from the reach of the Volcker Rule and other elements of Dodd-Frank.¹³⁴

We should not, however, compare the messy “real world” of financial regulation with some idealized system for taxing banks. Any financial-sector tax in the United States, must come from Congress, which currently appears incapable of creating sound tax policy.¹³⁵ Congress regularly uses special giveaways in the Internal Revenue Code (IRC or Code) to curry favor with voters and supporters, and we could expect Congress to do much the same with

¹³⁰ Matt Taibbi, *The Great American Bubble Machine*, ROLLING STONE (Apr. 5, 2010), <http://www.rollingstone.com/politics/news/the-great-american-bubble-machine-20100405> [<https://perma.cc/B7VN-U2XE>].

¹³¹ *Id.*

¹³² *See id.*

¹³³ *Cf.* INSIDE JOB (Sony Picture Classics 2010) (harshly chronicling role of regulators in financial crisis).

¹³⁴ *Cf.* Tom Fairless, *Citigroup Wants Foreign Sovereign Debt Exempt From Volcker Rule*, WALL ST. J., (Feb. 26, 2012), <http://online.wsj.com/article/SB10001424052970203918304577245263719776348.html> [<https://perma.cc/LMX6-SPDS>] (“Foreign sovereign debt should be exempt from a proposed U.S. ban on proprietary trading, Citigroup Inc.’s head of global consumer banking said Saturday.”).

¹³⁵ *See generally* Edward J. McCaffery & Linda R. Cohen, *Shakedown at Gucci Gulch: The New Logic of Collective Action*, 84 N.C. L. REV. 1159, 1172–73 (2006) (describing rent-seeking and rent extraction in the tax legislative process).

any new system of tax. For example, a financial transactions tax should apply in principle to any financial transaction. Congress, though, would probably seek exemptions for certain transactions (like trading in U.S. government debt) and for certain parties (like pension funds).¹³⁶

Indeed, the Internal Revenue Service (IRS) appears to have bowed to political realities following the financial crisis. In general, when a corporation has a net loss for a year, it may carry that loss and deduct that loss against income earned in later years.¹³⁷ Past losses then create a valuable tax asset that firms can use in the future. However, the Code limits the ability of corporations to deduct such losses following a change in corporate control.¹³⁸ The policy rationale is to prevent healthy corporations from acquiring the tax losses of other corporations.

Several bailout recipients, like General Motors, possessed net operating losses. According to the text of the Code, the government bailouts triggered the change-in-control limits. Controversially, the IRS waived any such claim, ruling that General Motors and other bailout recipients could continue to use their prior losses without limit.¹³⁹ According to the IRS, imposing the limits would be contrary to the policy of the statute and would frustrate the government's attempts to assist the troubled firms.¹⁴⁰ Critics, however, claim that the IRS was covertly enhancing the bailouts by waiving statutory claims to billions of dollars revenue.¹⁴¹ This Article does not take sides on that debate but simply notes that IRS was not able to maintain a disinterested neutrality toward firms affected by the crisis. From an institutional perspective, we should be skeptical that tax authorities would be more resilient to political or industry pressure than financial regulators.

A corrective tax may also more difficult to change in the future. Tax cuts and tax increases are highly politicized and polarized. Were Congress to adopt

¹³⁶ Cf. Fairless, *supra* note 134 (describing attempts at exemptions from the Volcker Rule).

¹³⁷ See I.R.C. § 172.

¹³⁸ See I.R.C. § 382 (2012).

¹³⁹ See Shamik Trivedi, *Media Renews Criticism of Treasury NOL Guidance*, 134 TAX NOTES 1210 (Mar. 5, 2012).

¹⁴⁰ See Emily McMahon, *Just the Facts: Government Investments in Private Companies, the Tax Code and Taxpayers' Interests*, U.S. DEP'T OF THE TREASURY: TREASURY NOTES BLOG (Mar. 1, 2012) <http://www.treasury.gov/connect/blog/Pages/Just-the-Facts-Government-Investments-in-Private-Companies-the-Tax-Code-and-Taxpayers-Interests.aspx> [<https://perma.cc/7SKQ-7Y85>].

¹⁴¹ See J. Mark Ramseyer & Eric B. Rasmusen, *Can the Treasury Exempt its Own Companies from Tax?: The \$45 Billion GM NOL Carryforward* (Harvard L. & Econ. Discussion Paper No. 690, 2011), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1873429 [<https://perma.cc/4BPP-CWA5>].

a tax on financial transactions in 2012, it would likely become a permanent fixture even if we later determine that the tax does nothing to curtail systemic risk. The revenue would become part of the budget, and Congress would need to pay for its loss. In short, Congress would have difficulty fixing a failed corrective tax on finance. Financial regulators, in contrast, have more flexibility in adapting to changing times, as evidenced by the rapid pace of developments following the financial crisis (in particular Dodd-Frank and Basel III).

III. FINANCIAL TRANSACTIONS TAX

A. Introduction

To date, the most politically viable form of financial-sector taxation has been the financial transaction tax, particularly in continental Europe as discussed in the next Section. In the United States, though, a new federal tax of any sort is a non-starter for the Republican Party. A few Democrats supported the financial transaction tax, but the Obama Administration did not, preferring instead a milder fee assessed on the liabilities of financial institutions rather than on their transactions.¹⁴² The EU tax, if enacted in the United States, would produce annual revenue of perhaps \$70 billion.¹⁴³ In contrast, the Obama fee would produce about \$6 billion per year and would presumptively expire after 10 years.¹⁴⁴

¹⁴² See Daniel Pruzin & Rick Mitchell, *Tax Policy: At G-20 Summit, Obama Pushes Risk 'Contribution' Over Financial Transaction Tax*, 97 BANKING REP. (BNA) 831 (Nov. 8, 2011); OFFICE OF MGMT. AND BUDGET, EXEC. OFFICE OF THE PRESIDENT, BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2012 BUDGET OF THE UNITED STATES 23 (Feb. 2011), <https://www.gpo.gov/fdsys/pkg/BUDGET-2012-BUD/pdf/BUDGET-2012-BUD.pdf> [<https://perma.cc/MLK8-MMSK>].

¹⁴³ European Commission Press Release MEMO/11/640, Common Rules for a Financial Transaction Tax – Frequently Asked Questions (Sept. 28, 2011), <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/640> [<https://perma.cc/Z3VL-Q5MZ>] (“At a rate of 0.1% for bonds and shares and 0.01% for other kinds of transactions such as derivatives, the [EU] tax could raise approximately € 57 billion per year.”). The EU’s economy is about € 12.6 trillion, suggesting that the tax could raise revenue of around 0.45% of 2011 GDP. The U.S. 2011 GDP was \$15.09 trillion, implying comparable revenue of \$68 billion.

¹⁴⁴ See OFFICE OF MGMT. AND BUDGET, EXEC. OFFICE OF THE PRESIDENT, BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2013 BUDGET OF THE UNITED STATES 26 (Feb. 2012), <https://www.gpo.gov/fdsys/pkg/BUDGET-2013-BUD/pdf/BUDGET-2013-BUD.pdf> [<https://perma.cc/F7KL-9GGL>].

Despite sturdy political obstacles in the United States and the United Kingdom, the financial-transactions tax has potent support, from George Soros to Pope Benedict.¹⁴⁵ Occupy Wall Street, often criticized for its lack of a specific agenda,¹⁴⁶ does seem to embrace is a “financial transactions tax.”¹⁴⁷ Given its potential for revenue and impact on a despised financial sector, a financial transaction may still emerge as politically viable in the United States and the EU.

Keynes suggested such a tax in his *General Theory*, arguing, “[t]he introduction of a substantial Government transfer tax on all transactions might prove the most serviceable reform available, with a view to mitigating the predominance of speculation over enterprise in the United States.”¹⁴⁸

Despite its Keynesian heritage, the transaction tax is most associated with James Tobin’s proposal to stabilize foreign-exchange rates.¹⁴⁹ From the end of World War II until the early 1970s, currencies exchanged according to rates fixed by the Bretton Woods agreement of 1944.¹⁵⁰ The U.S. dollar became the official reserve currency of the world economy and was fixed relative to gold at \$35 per ounce.¹⁵¹ Other nations fixed their currencies relative to the dollar.¹⁵² Bretton Woods collapsed in 1971, when President Nixon abandoned the gold standard and allowed the dollar to float relative to gold.¹⁵³ Shortly thereafter, other nations allowed their currencies to float relative to the dollar.¹⁵⁴

Tobin proposed his tax in the period following the collapse of Bretton Woods. He largely welcomed floating exchange rates, but was concerned that

¹⁴⁵ See Jason Zweig, *Why a Financial-Transaction Tax Could Backfire*, WALL ST. J.: TOTAL RETURN BLOG, (Dec. 13, 2011), <https://blogs.wsj.com/totalreturn/2011/12/13/why-a-financial-transaction-tax-could-backfire/> [https://perma.cc/N6WB-WVQY].

¹⁴⁶ Editorial, *The Occupation*, WALL ST. J., Oct. 28, 2011, at A16 (“It had to happen. The Occupy Wall Street movement—with no leaders, no identifiable agenda and nothing but time on its hands—is turning violent.”)

¹⁴⁷ Nicholas D. Kristof, *The Bankers and the Revolutionaries*, N.Y. TIMES (Oct 1, 2011), <http://www.nytimes.com/2011/10/02/opinion/sunday/kristof-the-bankers-and-the-revolutionaries.html?mcubz=3> [https://perma.cc/M7W7-P8D6].

¹⁴⁸ JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT* 160 (1936).

¹⁴⁹ James Tobin, *A Proposal for International Monetary Reform*, 4 E. ECON. J. 153 (1978).

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.* at 155.

¹⁵³ *Id.* at 153.

¹⁵⁴ See THE END OF THE BRETON WOODS SYSTEM (1972-81), INTERNATIONAL MONETARY FUND WEBSITE, <https://www.imf.org/external/about/histend.htm> [https://perma.cc/TD8A-UQBG].

the efficiency of currency markets threatened economic stability:

Specifically, the mobility of financial capital limits viable differences among national interest rates and thus severely restricts the ability of central banks and governments to pursue monetary and fiscal policies appropriate to their internal economies. Likewise speculation on exchange rates, whether its consequences are vast shifts of official assets and debts or large movements of exchange rates themselves, have serious and frequently painful real internal economic consequences.¹⁵⁵

Tobin's response was a tax (perhaps 1%) on all conversions of one currency for another, including purchases of goods and services from abroad.¹⁵⁶ Doing so would "throw some sand in the wheels of our excessively efficient international money markets."¹⁵⁷ Tobin was no isolationist, favored free trade, and preferred a system of greater coordination of fiscal and monetary policies among nations. In a world of individual nation states with separate currencies, however, he would "regretfully recommend" a system of "greater financial segmentation between nations."¹⁵⁸

The Tobin tax was designed to slow movement of financial capital from one currency to another. Limited to its original terms, then, the Tobin tax does not respond to the recent financial crisis. No one thinks violent movements of currencies across nations caused the crisis. In broader terms, however, many suggest that an overly active and efficient financial sector may have done so. Hoping to slow the fast spinning wheels of finance, modern reformers have adapted Tobin's currency-tax proposal to apply to a wide range of financial transactions.

B. EU Proposed Financial Transaction Tax

The leading proposal for a financial transactions tax today comes from the EU. In September 2011, the European Commission proposed a Council Directive that would establish a financial transaction tax (FTT) across the EU.¹⁵⁹ This FTT reflects the distinctive political structure of the EU. The EU

¹⁵⁵ Tobin, *supra* note 149, at 154.

¹⁵⁶ *Id.* at 155.

¹⁵⁷ *Id.* at 154.

¹⁵⁸ *Id.* at 154–55.

¹⁵⁹ *Proposal for a Council Directive on a Common System of Financial Transaction Tax*, at 2, COM (2011) 594 final (Sept. 28, 2011) [hereinafter *Proposal*].

itself mandates the FTT and sets the basic design of the FTT.¹⁶⁰ Individual member states (Germany, France, etc.) collect and enforce the tax.¹⁶¹ Moreover, the revenue produced by the FTT belongs to the member states, not the EU itself.¹⁶²

France and Germany strongly support the tax, but the United Kingdom remains opposed, concerned that the tax would harm London's financial sector.¹⁶³ Indeed, U.K. opposition to the tax has affected the entire EU enterprise, complicating attempts at dealing with Europe's very current banking crisis. In December 2011, the United Kingdom alone dissented from a new EU pact aimed at improving fiscal discipline and saving the euro from possible collapse.¹⁶⁴ Some of the sticking points for the United Kingdom were the tax and other possible harms to London's financial sector.¹⁶⁵

Undeterred by Anglo-Saxon resistance, France unilaterally implemented such a tax in summer 2012, hoping to prompt the rest of the EU to follow.¹⁶⁶ In early 2013, supporters of an EU tax achieved a partial victory. Eleven of the 27 Member States (including France, Germany, Italy, and Spain) obtained EU authorization to adopt and coordinate their own financial transactions tax pursuant to "enhanced cooperation."¹⁶⁷ In short, the 11 adopting states can coordinate their taxes via the EU without involving the other 16 states.¹⁶⁸ Originally, the tax was expected to go into effect in 2014,¹⁶⁹ but

¹⁶⁰ *Implementing Enhanced Cooperation in the Area of Financial Transaction Tax*, at 19, COM (2013) 71 final (Feb. 14, 2013) [hereinafter *Implementing Enhanced Cooperation*].

¹⁶¹ *Proposal*, *supra* note 159, at 20–21.

¹⁶² See European Commission Memorandum MEMO/13/98, *Financial Transaction Tax through Enhanced Cooperation: Questions and Answers* (Feb. 14, 2013).

¹⁶³ Jim Brunsten, *EU Financial Transaction Tax Progress Stalls*, FIN. TIMES, June 5, 2016.

¹⁶⁴ Anthony Faiola, *European Union Leaders Agree to Forge New Fiscal Pact; Britain the Only Holdout*, WASH. POST (Dec. 9, 2011), https://www.washingtonpost.com/world/europe/23-european-union-leaders-agree-to-fiscal-curbs-but-britain-blocks-broad-deal/2011/12/09/gIQAFi5UhO_story.html?utm_term=.c07bc02337b3 [https://perma.cc/4SHG-F88C].

¹⁶⁵ See Polly Curtis, *Will David Cameron's Veto Protect the City?*, THE GUARDIAN: POLITICS BLOG (Dec. 12, 2011, 8:21 AM), <http://www.guardian.co.uk/politics/reality-check-with-polly-curtis/2011/dec/12/debt-crisis-conservatives> [https://perma.cc/HVL8-78A8].

¹⁶⁶ See *French Assembly Adopts Budget With Tax Hikes for Transactions, Banks' Systemic Risk*, 99 BANKING REP. (BNA) No. 14, at 180–81 (July 24, 2012).

¹⁶⁷ *Implementing Enhanced Cooperation*, *supra* note 160, at 3.

¹⁶⁸ See European Commission Memorandum, *supra* note 162.

¹⁶⁹ *Proposal*, *supra* note 159, at 23.

implementation has been repeatedly postponed because of disagreements among the member states.

The tax is levied on any “financial transaction,” defined as a transaction involving any financial instrument. In a curious omission, the EU excludes from the FTT the conversion of one currency for another. The very transaction targeted by the original Tobin tax is exempted by the FTT.

The EU identifies the obvious rationales behind the FTT. First and foremost, it would produce revenue. Seeking revenue from financial firms is justified in that they caused or contributed to the financial crisis and resulting expense and hardships. More subtly, the EU defends the proposition that it (rather than individual member states) should mandate the tax.¹⁷⁰ The EU hopes to maintain a level playing field across member states and to avoid what it calls “fragmentation.”¹⁷¹ Thus, coordinated action is required. The EU gives a nod to the regulatory aspirations of financial sector taxes. Without elaboration, the EU claims it expects the FTT to achieve “financial stability” and “to create appropriate disincentives for overly risky transactions and to complement regulatory measures.”¹⁷² Clearly with its eyes on the United States, the EU maintains that “a coordinated approach at international level is the best option” and that its proposals “should pave the way towards a coordinated approach with the most relevant international partners.”¹⁷³ Like the first commandment given to Moses,¹⁷⁴ the EU instructs the member states to have no other FTTs.¹⁷⁵

The EU proposal is fairly simple in its terms. If adopted, it would need to be implemented by individual member states.¹⁷⁶ Member states would charge the tax.¹⁷⁷ In rough terms, it would work like a sales tax, applying to the face amount of any transaction. The general rate is 0.1% (10 basis points) of the amount involved in the transaction.¹⁷⁸ So, a €1 billion transaction would generate a €1 million tax. Derivatives contracts, though, often do not involve the exchange of money up front but are measured in terms of a “notional

¹⁷⁰ *Id.* at 2–3.

¹⁷¹ *Id.*

¹⁷² *Id.* at 24.

¹⁷³ *Id.* at 3.

¹⁷⁴ *Cf. Exodus 20:3* (“You shall have no other gods before me.”).

¹⁷⁵ *Proposal, supra* note 159, at 10.

¹⁷⁶ *Id.* at 23.

¹⁷⁷ *Id.* at 20.

¹⁷⁸ *Id.* at 19–20.

amount.¹⁷⁹ In the case of derivatives, the tax rate is 0.01% (1 basis point) of the notional amount.¹⁸⁰

C. Possible Advantages

The FTT does not have an obvious regulatory element. It applies to all financial transactions, whether good, bad or indifferent. The FTT might conceivably curtail systemic failure simply by shrinking the size of the financial sector. Even if such an effect is a good one, the approach could hardly be called regulatory. Moreover, the balance sheet levies, discussed in the next Part, would seem better targeted toward overly large financial institutions.

One possible advantage would be to discourage interconnectedness in the financial sector. Financial firms become connected by transacting with each other. For example, American International Group (AIG) posed systemic risk during 2008 because it had sold billions of dollars worth of credit default swaps (CDS) to other financial institutions.¹⁸¹ Similarly, banks sold off their mortgage portfolios by “securitizing” them into CDOs.¹⁸² These transactions—the most infamous of the financial crisis—are all of a fairly long-term duration. A one-time tax of 0.1% might make them slightly costlier, but probably will not discourage them. The FTT is far more effective at curtailing “high frequency trading” in which firms buy and sell assets over the course of a few minutes. The problem during the financial crisis, though, was not too much liquidity. It was too little, when firms holding CDOs and similar instruments could not readily sell them.

The best argument in favor of an FTT is that it would increase the cost of short-term borrowing. Financial firms rely heavily on short-term borrowing like repo.¹⁸³ The FTT should apply every time a firm rolls over its repo obligations, often on a daily basis. Because repo has such a short duration, its cost is usually very low. But, firms funding through repo need to be able to

¹⁷⁹ For example, parties to an interest rate swap would exchange interest payments on a notional amount. One party would pay a fixed 5% rate but receive a variable rate (like LIBOR). A notional amount of \$1 million results in fixed payment of \$50,000. Usually, the notional amount does not trade hands, only interest payments. See generally HULL, *supra* note 27, at 150.

¹⁸⁰ *Implementing Enhanced Cooperation*, *supra* note 160, at 26.

¹⁸¹ *Credit Derivatives: The Great Untangling*, ECONOMIST (Nov. 6, 2008), <http://www.economist.com/node/12552204> [<https://perma.cc/5C76-RN8V>].

¹⁸² See HULL, *supra* note 27, at 547.

¹⁸³ *Id.* at 76 (2012); Gary Groton & Andrew Metrick, *Securitized Banking and the Run on Repo* 1 (Yale ICF Working Paper No. 09-14, 2010), <http://ssrn.com/abstract=1440752> [<https://perma.cc/S5C7-7YEF>].

access the market on a daily basis. During a panic, repo lenders could simply walk away, causing the equivalent of a bank run.

An FTT at the rate proposed in Europe (0.1%) could destroy overnight repo. If applied over the 252 trading days in year, an FTT would almost make overnight repo more expensive than consumer credit cards.¹⁸⁴

D. Cascading and Conglomeration

A significant problem, noted by the IMF and others, is that an FTT has a cascading effect. Let us start with a simple, nonfinancial example to see the problem clearly. Suppose that a nation wants to adopt a 5% sales tax, but the tax applies to business sales in addition to retail sales. Suppose further that three steps are involved in making kitchen tables. Someone must obtain the wood. Someone must cut it into boards. And, someone crafts the boards into a table. If each step costs \$300 (including profits), then the table should sell for \$900.

Whether each step should be conducted at one table firm or three specialty firms should be determined by which arrangement is more efficient. But, imposing a sales tax on business sales artificially distorts that organization of production. If one firm conducts all production, the tax is \$45. But, if separate firms do so, the tax “cascades” at each step. The first step costs \$300 for a \$15 tax. The second step costs \$600 for a \$30 tax. And, the final sale costs \$900 for a \$45 tax. The cascading tax thus encourages concentrated production even if specialization across multiple firms would be more efficient.

A similar, but more complicated, phenomenon could occur under an FTT. For example, a bank might find it prudent to hedge against certain interest or currency fluctuations. One option would be to enter into a derivatives transaction with another firm. Another would be for the firm to hedge its risks directly by creating its own derivatives division or altering its overall portfolio. The incentive is the same as it was with the tables. The firm has an incentive to take on more activities itself rather than farming out work to other firms.

The effects are ambiguous. By discouraging inter-firm transactions, the FTT may make financial institutions less dependent on one another and less interconnected. On the other hand, an FTT may encourage firms to grow in size, making financial distress at one firm more disruptive to the overall system and economy.

¹⁸⁴ Assume that the repo rate is otherwise 0% and that the repo transaction is for 1 million euros. A daily FTT of 0.1%, compounded over 252 days, forces the borrower to repay 1.286 million euros on an annualized basis.

IV. FINANCIAL ACTIVITIES TAX

A. IMF Proposed Financial Activities Tax

In September 2009, leaders of the G20 met in Pittsburgh to discuss recovery from the financial crisis.¹⁸⁵ The G20 leaders tasked the IMF with preparing a report describing “how the financial sector could make a fair and substantial contribution toward paying for any burdens associated with government interventions to repair the banking system.”¹⁸⁶ The IMF responded ten months later, setting out its case for a “financial activities tax” (FAT).¹⁸⁷

Obviously, the FAT would produce revenue, which the IMF envisions being used for general purposes.¹⁸⁸ The IMF suggests a 5% rate¹⁸⁹ along with three different designs. The design producing the most revenue would yield around \$50 billion a year for the United States.¹⁹⁰ In the current political climate, the FAT is a non-starter in the U.S. Congress. Few Republicans are willing to raise taxes or create new ones. The financial sector also has natural allies in the Democratic party. Democratic members from New York, New Jersey, and Connecticut have historically resisted reforms that would increase taxes on finance.¹⁹¹ Even if the U.S. Congress were interested in the FAT, the United States would probably need to enact one unilaterally. Europe, at present, is focusing its attention on taxing financial transactions rather than financial profits.¹⁹²

¹⁸⁵ See G20, *Leaders' Statement: The Pittsburgh Summit* (Sept. 24–25, 2009), https://www.g20.org/Content/DE/StatistischeSeiten/Breg/G7G20/Anlagen/G20-erklarung-pittsburgh-2009-en.pdf?__blob=publicationFile&v=1 [<https://perma.cc/3JRN-RSZW>].

¹⁸⁶ *Id.*

¹⁸⁷ IMF, *A Fair and Substantial Contribution by the Financial Sector: Final Report for the G-20*, at 4–5 (June 2010), <https://www.imf.org/external/np/g20/pdf/062710b.pdf> [<https://perma.cc/V2H4-QBDC>] [hereinafter IMF].

¹⁸⁸ *Id.* at 5.

¹⁸⁹ *Id.* at 22.

¹⁹⁰ *Id.* at 70 (The IMF suggests three different tax bases. The largest would capture 6.6% of U.S. GDP.); see World Bank Data, County Profile: United States (Aug. 2, 2017), <http://data.worldbank.org/country/united-states> [<https://perma.cc/6AUX-53U5>] (U.S. GDP for 2010 is \$14.96 trillion.).

¹⁹¹ See, e.g., Noel B. Cunningham & Mitchell L. Engler, *The Carried Interest Controversy: Let's Not Get Carried Away*, 61 TAX L. REV. 121, 138 n.80 (2008) (discussing Senator Charles Schumer's opposition to higher taxes on hedge fund and private equity managers).

¹⁹² *Proposal*, *supra* note 159, at 4.

The IMF offers the regulatory purpose of curtailing risk taking.¹⁹³ In broad terms, the FAT would apply to both profits and compensation.¹⁹⁴ A regulatory FAT (dubbed FAT3 by the IMF) would apply only after profits and compensation exceeds a certain normal threshold. The rationale was discussed above—good outcomes in a particular year suggest risk taking or gambling, which could lead to bad outcomes in later years.¹⁹⁵

B. The FAT's Potential Success in Taxing Investment Risk

1. The Call Option Analogy

The FAT is similar to an option held by the government. If the firm performs well, the government gets paid. In a sense, it “exercises” the option. If the firm does not perform well, the government does not get paid, but loses nothing either. The FAT, by effectively granting the government options on the stock of large financial firms, arguably burdens their risk-taking. To see why, suppose that a bank starts with assets of \$100 million. The government holds the right, exercisable in one year, to buy 5% of the firm’s assets at their current value (i.e., \$5 million). Thus, the government holds a call option over assets with a current value of \$5 million.

- Suppose the firm doubles the value of its assets over the course of the year, growing them to \$200 million. The government exercises its right because the assets it can buy (5%) are worth more today (\$10 million) than their original value (\$5 million). The net value to the government is the difference, or \$5 million.
- Suppose the firm assets fall by 50%. The government does not exercise its option because the assets are worth less than their original value.

In effect, the option gives the government the right to take 5% of the growth of the asset. But, the government does not share in any losses. An FAT, imposed at a 5% rate, gives the government similar claim.

¹⁹³ See IMF, *supra* note 187, at 12.

¹⁹⁴ See *id.* at 5; Shaviro, *supra* note 7, at 781.

¹⁹⁵ See *supra* Part II.C.4.

2. *Relation between Option Values and Risk*

Option theory recognizes the relationship between good outcomes and higher risk by assigning higher prices to options on riskier assets.¹⁹⁶ Investment risk refers to the dispersion or variance of possible results. A bond that is sure to grow by 2% is not risky because there is only one outcome (2% growth). Stock that might go up or down 20% in a year is risky. Stock that might go up or down by 50% in a year is even riskier. Quantitatively, risk is measured using standard deviation, a statistical measure of dispersion around the average (or mean) return of a particular stock.¹⁹⁷

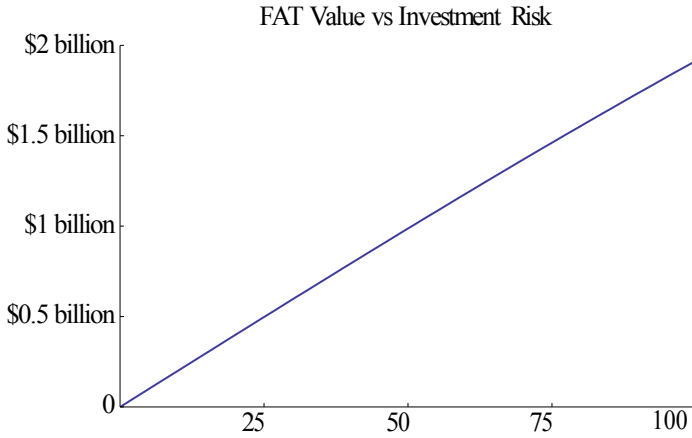
Higher levels of risk make options more valuable. Suppose we have two assets, both worth \$100. One is sure to grow by 2%. An option to buy this asset for \$102 is worthless. The other might go up or down by 20%. Clearly, an option to buy this asset for \$102 has some value. If the asset goes up, the option holder has the right to buy an asset worth \$120 for only \$102. Option pricing models, like Black-Scholes, provide the value and can illustrate the relationship between risk and option value.¹⁹⁸

Before, we saw that the IMF FAT is similar to a government held option. For now, let us assume that the FAT is the same as an option over the assets of a financial firm. Now, we will see how the value of the FAT increases as the firm invests in riskier assets. Suppose that the firm, at the beginning of the year, holds assets of \$100 billion. The firm chooses how risky it wants to be in investing those assets. It could choose no risk (0%) or very high risk (100%) or something in between. At the end of the year, the government receives 5% of the growth of firm assets but does not bear any costs if the assets fall in value. The following graphic shows how the government's claim, valued *ex ante*, varies depending on the investment risk selected by the firm. The vertical represents the *ex-ante* value of the FAT. The horizontal represents the level of investment risk, measured in terms of standard deviation.

¹⁹⁶ See HULL, *supra* note 27, at 7–8.

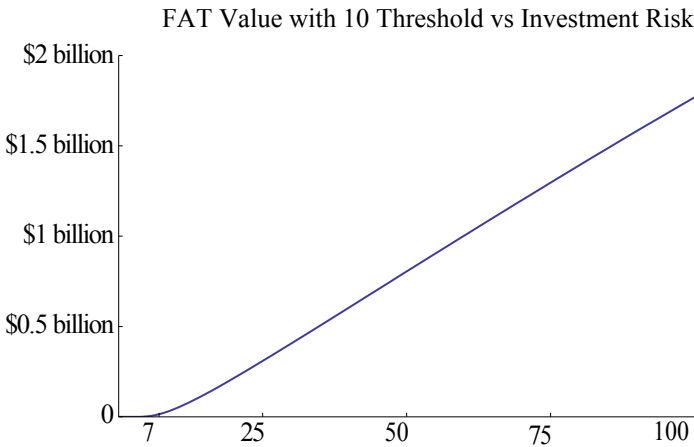
¹⁹⁷ See HOWELL E. JACKSON ET AL., *ANALYTICAL METHODS FOR LAWYERS* 459–64 (Robert C. Clark et al. eds., 2011).

¹⁹⁸ See *generally* HULL, *supra* note 27, ch. 14.



Clearly, the value of the FAT is nearly linear when related to the level of risk selected by the firm.¹⁹⁹ Thus, we may think of the FAT (at least as modeled above) as imposing a flat rate of tax on risk taking.

An alternative design, suggested by the IMF, would apply the FAT only when profits exceed some hurdle rate of return.²⁰⁰ The hurdle rates are intended to capture “excess returns” which might represent rents enjoyed by the financial sector or excessive risk seeking.²⁰¹ The following graph assumes that the FAT does not apply until after the firm has a 10% return on assets. Thus, the government receives 5% of all profits that exceed \$10 billion.



¹⁹⁹ A close approximation is that the option price equals 40% of the current stock price times volatility (expressed in standard deviations of return).

²⁰⁰ IMF, *supra* note 187, at 68.

²⁰¹ *Id.*

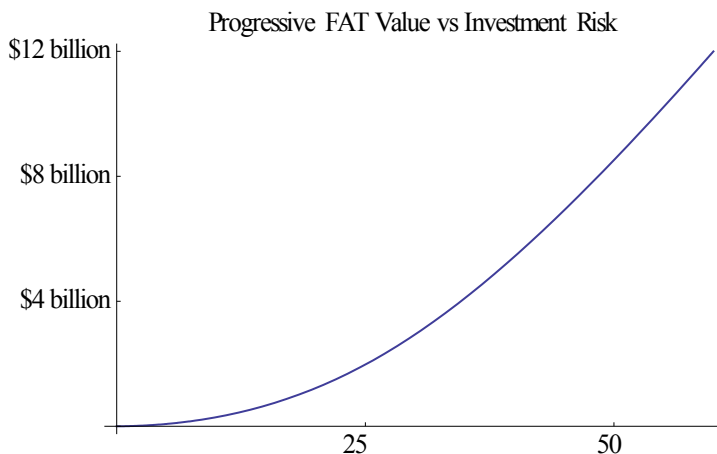
In the prior graph, the FAT was applied at an essentially flat rate to all levels of risk. In this graph, the FAT largely does not apply until the firm takes on a certain level of investment risk. The graph marks a risk level of 7% as the point at which the FAT begins to apply, but it is largely flat after that point.

3. *A Risk-Progressive FAT*

The IMF FAT proposals indirectly tax risk at a flat rate. Adding an exemption essentially creates a zero bracket for risk, but the flat structure remains. The marginal social cost of risk taking in finance, however, may not be flat. If a very conservative firm takes on more risk, it may just barely increase its risk of failure. If an aggressive firm takes on more risk, it may send it to collapse. Adding a threshold to the FAT does not capture that dynamic. Instead, the threshold simply adds a zero bracket, after which all risk is taxed at virtually the same flat rate.

Ideally, the FAT would impose a progressive rate of tax on risk. The rate of tax should increase along with the rate of return that the firm earns. For example, the FAT rate could equal half the rate of return that the firm itself earns. This does not mean that the firm shares half of its return with the government. Suppose that the firm described above starts with \$100 billion. It has a 20% return for the year, earning \$20 billion. Its tax rate would be 10%, and it would pay \$2 billion under the modified FAT. If it earned \$30 billion (a 30% return), its tax rate would be 15%, and it would pay \$4.5 billion to the government.

The following graph illustrates how such a progressive FAT would relate the burden of the FAT and investment risk undertaken by the firm.



Thus, the ex-ante burden of the tax accelerates as risk-taking increases. It is not flat as it was under the FAT proposed by the IMF.

We should be clear that the burdens imposed by this progressive FAT depend not only on the size of profits but also on the rate of return to earn them. A large firm with \$100 billion in assets might produce a 2% return or \$2 billion. It would pay tax of only 1%. A smaller firm with only \$10 billion in assets might produce the same \$2 billion. Since its rate of return is higher (20%), it would pay a higher rate, 10% under my suggestion. This disparity would be justified if we think that the smaller firm produced its return by taking on more socially harmful risk.

C. *The FAT's Failure to Tax Systemic Risk*

To impose the FAT, regulators and legislators would, of course, need to identify the taxpayers and the tax base. The obvious method of identifying FAT taxpayers is to identify firms subject to enhanced oversight under Dodd-Frank. Bank holding companies with assets over \$50 billion make up the bulk of this category, which includes virtually all of the name brands in banking like Goldman Sachs.²⁰² A handful of non-bank firms (like AIG) will likely join them in being subject to Dodd-Frank oversight.²⁰³

Defining the right tax base, though, proves much tougher. A corrective tax on finance must apply to *systemic risk*, which may well be different from the *investment risk* that the FAT could tax quite effectively. To see the difference, above, I used a hypothetical firm that held \$100 billion in assets. The FAT quite effectively taxes the risk inherent in the firm's investments. The FAT could even be tweaked to impose progressively greater burdens as risk increases. But, the firm's systemic threat depends not only on such investment risk. It also turns on the capital structure of the firm. Compare two financial firms, both with \$100 billion of assets, and otherwise identical except for their capital structures:

- At EQ Corp., the \$100 billion is completely attributable to shareholder contributions and retained earnings. So long as EQ Corp. has no creditors, it cannot become insolvent. And, if it cannot become insolvent, it poses no obvious systemic risk to the

²⁰² Victoria MaGrane & Damian Paletta, *Regulators Begin Process of Labeling the 'Systemically Important'*, WALL ST. J. (Aug. 20, 2010), <http://www.wsj.com/articles/SB10001424052748704488404575441723679581784> [<https://perma.cc/RQ5E-M7AE>]; see also Dodd-Frank §165(a)(1) (codified at 12 U.S.C. § 5365(a)(1)) (explaining that the purpose of the Dodd-Frank statute is to mitigate the risk that could arise from the "material financial distress or failure, or ongoing activities, of large, interconnected financial institutions . . . Board of Governors and bank holding companies with total consolidated assets equal to or greater than \$50,000,000,000 . . .").

²⁰³ *Id.*

financial system.

- At LEV Corp., the \$100 billion is financed with \$5 billion of equity and \$95 billion of debt. If LEV Corp. loses \$5 billion, it will become insolvent and potentially pose a systemic threat to the financial system.

The FAT, as proposed by the IMF, would quite effectively burden the firms for investing the \$100 billion in risky ventures. As a policy matter, though, there is no reason to keep EQ Corp. from going wild in risking its assets. It is funded 100% with equity and cannot become insolvent. LEV Corp., in contrast, should be restrained because of its narrow margin.

The FAT, though, fails to distinguish between these firms. It expressly seeks to encourage neutrality in the choice between debt and equity.²⁰⁴ This is quite wrongheaded if the FAT is to function as a good regulatory tax, which would need to place a much higher burden on LEV Corp. At a minimum, a regulatory tax would need to differentiate between firms based on their likelihood of failure. Clearly, the FAT fails in accomplishing this task.

This is not to say that FAT model is worthless. The risk of failure is largely determined by two factors: investment risk (which the FAT elegantly captures) and leverage (which the FAT treats indifferently than Basel).²⁰⁵ The Basel model (discussed previously)²⁰⁶ asks the right questions but failed to prevent the recent financial crisis.²⁰⁷ Perhaps Basel should use the FAT model in its regulations. Regulators could (and perhaps should) interpret high profits as a mark of high investment risk. If a leveraged firm like LEV Corp. has high profits, it should be forced to increase the amount of equity and other capital it has on its books. A firm like EQ Corp., though, would be left alone because it already has abundant capital.

V. BALANCE SHEET LEVIES

A. Introduction

The discussion of the IMF FAT showed how it failed to reach systemic risk. The FAT may be quite effective at reaching investment risk, or the

²⁰⁴ See IMF, *supra* note 187, at 66 (“A key feature of this form of profit taxation is that it is neutral with respect to marginal financing and investment decisions.”).

²⁰⁵ *Id.* at 68.

²⁰⁶ See *supra* Part I.E.2.

²⁰⁷ Arthur E. Wilmarth, Jr., *The Dodd-Frank Act: A Flawed and Inadequate Response to the Too-Big-to-Fail Problem*, 89 OR. L. REV. 951, 1010–11 (2011) (“After reviewing a preliminary version of the Basel III proposals, a prominent U.K. financial commentator observed, ‘[w]e can say with conviction now that Basel II failed.’”).

volatility inherent in a firm's investment strategy. It does not, however, distinguish between firms that can and cannot handle high levels of risk. This Part discusses the inverse problem. Now we see proposals that tax the amount of debt that firms carry but do not differentiate between firms based on whether their debt levels are actually harmful.

B. *Dodd-Frank's Near Miss: Financial Crisis Special Assessment*

At the end of June 2010, the U.S. Congress seemed poised to enact a bank tax as part of the Dodd-Frank Act.²⁰⁸ Senate and House negotiators added a bank tax provision to the bill in late June in order to offset the additional regulatory costs of the Act.²⁰⁹ Senator Scott Brown—the Republican elected to replace the late Edward Kennedy—balked at the new tax, writing a letter to Senator Dodd and Representative Frank threatening to withhold his support for the bill.²¹⁰ Brown's support was crucial for passage of Dodd-Frank, which could not survive the Senate without 60 votes.²¹¹ Almost immediately, the tax was dropped from the bill, which Brown did ultimately support along with two other Republican Senators.²¹²

The dropped provision would have imposed a “financial crisis special assessment.”²¹³ The assessment was not permanent revenue. Instead, it would

²⁰⁸ See David M. Herszenhorn, *Bank Tax is Dropped in Overhaul of Industry*, N.Y. TIMES, June 30, 2010.

²⁰⁹ See Mike Ferullo, *Lawmakers Remove \$19 Billion Bank Levy in Bid to Secure Senate Support for Reform*, BNA BANKING DAILY (June 30, 2010).

²¹⁰ See Herszenhorn, *supra* note 208.

²¹¹ GREGORY P. WILSON, *MANAGING TO THE NEW REGULATORY REALITY: DOING BUSINESS UNDER THE DODD-FRANK ACT 65* (2011); see Matt Viser, *Brown's Threat Gets Bank Tax Removed*, BOS. GLOBE (June 30, 2010), http://www.boston.com/news/nation/washington/articles/2010/06/30/browns_threat_gets_bank_tax_removed/ [https://perma.cc/NQP9-445B].

²¹² See U.S. Senate Roll Call Votes 111th Congress – 2nd Session (Conference Report to Accompany H.R. 4173), July 15, 2010, http://www.senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_cfm.cfm?congress=111&session=2&vote=0028 [https://perma.cc/79UL-53KW]; GERALD P. WILSON, *MANAGING TO THE NEW REGULATORY REALITY: DOING BUSINESS UNDER THE DODD-FRANK ACT 64–65* (2011).

²¹³ Characterizing the June 25, 2010 agreement is difficult. A conference committee of House and Senate negotiators approved a conference report containing the tax on June 25, 2010. Responding to Senator Brown's threat, the conferees amended their report, which they issued on June 29, 2010. Cf. H.R. REP. NO. 111-4173, at 2306 (2010) (Conf. Rep.), http://housedocs.house.gov/rules/finserv/111_hr4173_finsrvcr.pdf

have raised \$19 billion (or 133% of Dodd-Frank’s 10-year costs, whichever was less)²¹⁴ and would have been collected over four years.²¹⁵ By dropping the assessment, Congress needed to find alternative revenue or spending cuts to pay for the costs of Dodd-Frank. They found it by curtailing the much-hated TARP and by increasing FDIC premiums.²¹⁶

The assessment would have applied to financial institutions with over \$50 billion in assets (or hedge funds with over \$10 billion in assets).²¹⁷ The proposed text did not define a rate or a taxable base, but simply granted regulators the authority to enact a levy based on a variety of factors.²¹⁸ The factors could include any “risk-related factors as [the Financial Stability Oversight] Council may determine to be appropriate.”²¹⁹ The proposed language did list some factors clearly relevant to systemic risk, like leverage, activities, and interconnectedness.²²⁰ Other factors related to non-risk policy goals, such as “the company’s importance as a source of credit for low-income, minority, or underserved communities and the impact the failure of such company would have on the availability of credit in such communities.”²²¹

Amounts collected would have been placed in a newly created “financial crisis special assessment fund” maintained by the FDIC.²²² Interestingly, the fund would not have been used for general revenue, bailout costs, or for any other particular purpose.²²³ Instead, the FDIC would have simply maintained the fund until 2035 and then would have been used to pay down the federal debt.²²⁴

The limited life of the assessment, the use of the funds, and the context in which both were proposed all indicate that the assessment was not a serious attempt at corrective taxation. It was simply a mechanism to satisfy federal budgetary rules. The statutory language described who would pay the fee but shed few clues on how regulators would assess the levy.

[<https://perma.cc/U49Z-ETEG>] [hereinafter Tentative Report]. The financial crisis special assessment is levied by Tentative Report § 1601.

²¹⁴ Tentative Report, *supra* note 213, at 2306 (§ 1601(a)).

²¹⁵ *Id.* at 2307 (§ 1601(b)).

²¹⁶ See WILSON, *supra* note 211, at 65; Viser, *supra* note 211.

²¹⁷ Tentative Report, *supra* note 213, at 2308–09 (§ 1601(f)).

²¹⁸ *Id.* at 2309–12 (§ 1601(g), (h)).

²¹⁹ *Id.* at 2312 (§ 1601(g)(13)).

²²⁰ *Id.* at 2310–11 (§ 1601(g)(3)–(5)).

²²¹ *Id.* at 2311 (§ 1601(g)(7)).

²²² *Id.* at 2306, 2308 § (1602(a), (e)).

²²³ *Id.* at 2309–12 (§ 1602(g)).

²²⁴ *Id.*

C. *Obama Administration's Proposed Financial Crisis Responsibility Fee*

On January 14, 2010, President Obama proposed a “Financial Crisis Responsibility Fee” on large financial firms.²²⁵ The tax rate would have been 0.15% and imposed on the liabilities, other than deposits, of the firms.²²⁶ The stated goal of the reform was restitution of TARP payouts tinged with retribution over large executive bonuses.²²⁷ According to the President, “My commitment is to recover every single dime the American people are owed. And my determination to achieve this goal is only heightened when I see reports of massive profits and obscene bonuses at the very firms who owe their continued existence to the American people.”²²⁸

The fee would remain in place for ten to twelve years and collect enough funds to cover the government’s outlays in the TARP program.²²⁹ Presumably, the tax would end once the government recouped its TARP outlays. When originally proposed, the expected costs of TARP were \$117 billion.²³⁰ When President Obama repropoed the fee a year later in February 2011, the expected costs had fallen to \$48 billion,²³¹ and in December 2011 they stood at \$34 billion.²³²

The fee would apply to financial firms with more than \$50 billion in consolidated assets. Firms that received no direct TARP assistance would still pay, under the theory that they indirectly benefited from TARP.²³³ The fee

²²⁵ See Press Release, The White House Office of the Press Secretary, President Obama Proposes Financial Crisis Responsibility Fee to Recoup Every Last Penny for American Taxpayers (Jan. 14, 2010), <https://obamawhitehouse.archives.gov/the-press-office/president-obama-proposes-financial-crisis-responsibility-fee-recoup-every-last-penn> [<https://perma.cc/QK2J-JDYR>] [hereinafter Fee Proposal].

²²⁶ See Financial Crisis Responsibility Fee Fact Sheet, <https://www.treasury.gov/press-center/press-releases/Pages/tg506.aspx> [<https://perma.cc/H746-ALZJ>] 2 (Jan. 14, 2010), [hereinafter Fact Sheet].

²²⁷ *Id.*

²²⁸ See Fee Proposal, *supra* note 225.

²²⁹ See Fact Sheet, *supra* note 226.

²³⁰ *Id.*

²³¹ See OFFICE OF MGMT. AND BUDGET, EXEC. OFFICE OF THE PRESIDENT, BUDGET OF THE UNITED STATES GOVERNMENT, FISCAL YEAR 2012 Budget of the United States 23 (Feb. 2011), <https://www.gpo.gov/fdsys/pkg/BUDGET-2012-BUD/pdf/BUDGET-2012-BUD.pdf> [<https://perma.cc/MLK8-MMSK>].

²³² See CONGRESSIONAL BUDGET OFFICE, REPORT ON THE TROUBLED ASSET RELIEF PROGRAM 2 (Dec. 16, 2011), http://www.cbo.gov/ftpdocs/126xx/doc12611/12-16-TARP_report.pdf [<https://perma.cc/9ZLV-UYMZ>].

²³³ See Fact Sheet, *supra* note 226, at 2.

would be 15 basis points (0.15%) of the firms “covered liabilities,” defined as (1) total assets reduced by (2) tier one capital and (3) FDIC insured deposits.²³⁴

Because the fee expires when all TARP expenses have been restored, the proposal is not a corrective tax. If made permanent, however, the fee could arguably serve a regulatory purpose because it would be levied on firm leverage. Tier one capital, in rough terms, is firm equity. More equity reduces leverage and also the fee. Deposits are certainly a form of debt, but they are already “taxed” by the FDIC insurance system.²³⁵ The rate of the fee—15 basis points—roughly corresponds to IMF estimates of the value of governmental support of “too big to fail entities.”²³⁶

D. Analysis

Proponents of liability levies typically frame their goals in terms of restitution (e.g., the Obama administration) or the financing of future bailouts (e.g., the derailed Dodd-Frank fee). They do not appear to be focused on regulating conduct. Liability levies do, however, raise the cost of debt financing, or leverage. Highly leveraged firms are more likely to fail and impose costs on the financial system and economy as a whole. Thus, the liability levies have some plausible relation to systemic risk.

The liability levies, though, are the roughest of tools. The premier system of regulating financial institutions, the Basel Accords, started more than twenty years ago out of the recognition that bank leverage does not adequately measure systemic risk.²³⁷ Consider two banks. Both have \$90 billion of liabilities (including deposits) and \$10 billion of equity. They must, of course, both have \$100 billion of assets. One bank invests in risky assets that have a 50% chance of falling by more than \$10 billion this year. This bank, as a result, has a 50% chance of become insolvent. The other bank invests in low-risk assets that have only a 1% chance of falling by more than \$10 billion, producing only a 1% chance of becoming insolvent. The two banks present radically different systemic risks, but they are subject to the same levy. Similarly, the liability levies do not adequately address derivatives, which very often have the economic payoffs of leveraged investments.²³⁸

Nor does it account for the stability of the firm’s debt financing. Short-term, wholesale financing (like repo) is far more unstable during a crisis than long-term debt.²³⁹ Finally, it does nothing to address how connected the institution is to the financial system. A hedge fund might make highly

²³⁴ *Id.*

²³⁵ *Cf. supra* Part I.E.3 (describing deposit insurance).

²³⁶ *See* IMF, *supra* note 187, at 14.

²³⁷ *See supra* Part I.E.2.

²³⁸ *See generally* HULL, *supra* note 27, Ch. 35.

²³⁹ *See supra* Part I.C.

leveraged bets on publicly traded stock. If the fund fails, it may stress its lenders but otherwise cause little distress in the markets.

VI. CONCLUSION

The theory of a regulatory tax on finance sounds promising. Systemic risk is an externality, like carbon emissions or pollution. Systemic-risk “polluters” (large banks, etc.) privately profit while imposing costs on everyone else. Direct regulation may well limit the amount of systemic risk at individual firms and in the economy as a whole. It cannot, however, effectively allocate the ability to emit systemic risk among various firms.

A tax on systemic risk could theoretically accomplish this goal by placing a marginal cost upon each unit of systemic risk. If subject to tax, systemic risk becomes just like any other economic input (labor, capital, etc.). The market then automatically allocates the input to the most efficient producer. Another advantage of a systemic risk tax could be in political economy if tax collectors are more resilient to agency capture than financial regulators. Finally, a systemic-risk tax would produce public revenue, much needed in an era of large budget deficits in the United States and Europe.

But a tax needs some reasonably ascertainable base subject to tax. Environmental taxes can rely on a physical tax base (e.g., carbon emissions). Defining the right base for a corrective tax on finance is far harder. To do so, we must move beyond metaphors (systemic risk is a “shock”) and economic abstractions (systemic risk is an externality). We must, instead, define some accounting or transactional measure that operationalizes the metaphors and abstractions. To date, policymakers and commentators have failed to do so. Mainstream proposals tax three basic measures: financial transactions, financial activities, or firm leverage. None of these measures, though, has a strong conceptual relationship to systemic risk. More esoteric measures proposed in the finance literature fail as well.

This is not the final word on financial sector taxes. Alternative justifications (like simply raising revenue) exist. Moreover, the problems identified in this Article are practical in nature. Future researchers may yet arrive at a good, administrable measure of systemic risk. This Article does not end any debate, but it will hopefully guide the discussion on taxing the financial sector.