

GLOBAL SYSTEMIC RISK AND INTERNATIONAL REGULATORY COORDINATION: SQUARING SOVEREIGNTY AND FINANCIAL STABILITY

by

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In recent years much attention has been given to systemic risk and maintaining financial stability. Much of the focus, rightly, has been on market failures and the role of regulation in addressing them. This article looks at the role of domestic policies and government actions as sources of global instability. The global financial system is built upon global markets controlled by national financial and macroeconomic policies. In this context, regulatory asymmetries, diverging policy preferences, and government failures add a further dimension to global systemic risk not present at the national level. Systemic risk is a result of the interplay between two independent variables: an underlying trigger event, in this analysis a domestic policy measure, and a transmission channel. The solution to systemic risk requires tackling one of these variables. In a domestic setting, the centralization of regulatory power into one single authority makes it easier to balance the delicate equilibrium between enhancing efficiency and reducing instability. However, in a global financial system in which national financial policies serve to maximize economic welfare, regulators will be confronted with difficult policy and legal tradeoffs. We investigate the role that financial regulation plays in addressing domestic policy failures and in controlling the danger of global financial interdependence. To do so we analyze global financial interconnectedness, and explain its role in transmitting instability; we investigate the political economy dynamics at the origin of regulatory asymmetries and government failures; and we discuss the limits of regulation.

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I. INTRODUCTION.....	3
II. SYSTEMIC RISK THEORY AND ITS LIMITS.....	7
A. Systemic Risk as the Result of Market Failures	8
1. Information Failures	9
2. Contagion	10
3. Common Shocks.....	11
B. Global Systemic Risk beyond Market Failures.....	13
1. Systemically Important Jurisdictions.....	13
2. Sovereignty Problems.....	14
III. GLOBAL FINANCIAL INTERCONNECTEDNESS.....	15
A. Financial Systems from Unitary to Network Systems.....	16
B. Three Levels of Global Financial Interconnectedness.....	19
1. Market-to-Market Interconnectedness.....	20
2. Market-to-Sovereigns Interconnectedness.....	23
3. Common Infrastructures	26
C. Global Interconnectedness and Systemic Instability	26
IV. THE ROLE OF DOMESTIC POLICIES.....	27
A. Asymmetries.....	28
1. Principal–Agent Problem in Global Finance.....	29
2. Macro Asymmetries and Spillovers	Error! Bookmark not defined.
B. Government Failures.....	Error! Bookmark not defined.
1. The Time Consistency Problem in Sovereign Debt	Error! Bookmark not defined.
2. Regulatory Failures.....	Error! Bookmark not defined.
V. POLICY IMPLICATIONS.....	Error! Bookmark not defined.
A. Global Systemic Risk and the Financial Trilemma	Error! Bookmark not defined.
B. Regulating Interconnectedness	Error! Bookmark not defined.
1. Recent Domestic Regulatory Reforms	Error! Bookmark not defined.
2. Problems in Regulating International Interconnectedness.....	Error! Bookmark not defined.
3. The Need for a Pareto-efficient Regulatory Framework	Error! Bookmark not defined.
C. The Limited Role of International Law in Regulating Domestic Policies.....	Error! Bookmark not defined.
1. Government Failures	Error! Bookmark not defined.
2. Asymmetries.....	Error! Bookmark not defined.
3. Spillovers.....	Error! Bookmark not defined.
VI. CONCLUSIONS.....	Error! Bookmark not defined.

I. INTRODUCTION

Instability is a hardy perennial of financial markets.¹ Charles Kindleberger, the eminent financial historian, notes that financial intermediation has always been an essential but fragile business.² Unlike other businesses, however, the failure of a financial institution is a serious event that may trigger systemic consequences for the whole economy, well beyond the fate of the individual bank and its customers. Economists refer to this as *systemic risk*. This problem has always existed in financial systems.³ However, it is undeniable that the complexity of modern financial markets,⁴ the pivotal role of finance in modern economies, and the unprecedented level of integration between markets and institutions,⁵ make systemic risk a particularly pernicious problem

¹ The economic literature has for a long time tried to develop a comprehensive concept of financial stability. As argued by the International Monetary Fund [IMF], in a broad sense, financial stability denotes the absence of “swings in economic activity, high inflation, and excessive volatility in exchange rates and financial markets”. See IMF, *HOW THE IMF PROMOTES GLOBAL ECONOMIC STABILITY 1* (2014). Along these lines, Rosa Maria Lastra defines financial stability as the safety and soundness of the financial system and the stability of the international payment and settlement system. See ROSA MARIA LASTRA, *LEGAL FOUNDATIONS OF INTERNATIONAL MONETARY STABILITY* 92–96 (2007). Tommaso Padoa-Schioppa defines financial stability as “a condition in which the financial system would be able to withstand shocks, without giving way to cumulative processes, which impair the allocation of savings to investment opportunities and the processing of payment in the economy.” See TOMMASO PADOA-SCHIOPPA, *REGULATING FINANCE: BALANCING FREEDOM AND RISK* 110 (2004). Garry Schinasi defines financial stability as “a situation in which the financial system is capable of satisfactorily performing its three key functions simultaneously. First the financial system is efficiently and smoothly facilitating the intertemporal allocation of resources from savers to investors and the allocation of economic resources generally. Second, forward-looking financial risks are being assessed and priced reasonably accurately and are being relatively well managed. Third, the financial system is in such condition that it can comfortably if not smoothly absorb financial and real economic surprises and shocks”. See GARRY SCHINASI, *SAFEGUARDING FINANCIAL STABILITY: THEORY AND PRACTICE* 82 (2006). Schinasi also defines a financial system in a situation of stability as “a financial system, which is capable of facilitating (rather than impeding) the performance of an economy, and of dissipating financial imbalances that arise endogenously or as a result of significant adverse and unanticipated events.” See Garry Schinasi, *Defining Financial Stability* 8, 11 (IMF, Working Paper No. WP/04/187, 2004).

² CHARLES A. KINDLEBERGER & ROBERT P. ALIBER, *MANIAS PANICS AND CRASHES: A HISTORY OF FINANCIAL CRISES* (2011).

³ In his treatise on the history of money, Felix Martin reports that even in the days of the old Roman Empire during the reign of Emperor Tiberius in 33 AD, a boom in private lending created a massive housing bubble that dangerously drove up prices in the city of Rome, and led the Emperor to impose one of the first reported examples of financial regulation. See FELIX MARTIN, *MONEY: THE UNAUTHORIZED BIOGRAPHY* 81–82 (2013).

⁴ On Complexity See Dan Awrey, *Complexity, Innovation, and The Regulation Of Modern Financial Markets*, 2 HARV. BUS. L. REV. 235 (2012).

⁵ IMF, *GLOBAL FINANCIAL STABILITY REPORT (2010-2013)*; IMF, *2012 SPILLOVER REPORT* (2012).

for regulators. Financial regulators worldwide have thus devoted particular attention to reducing systemic risk by enacting appropriate legislation and by setting up new institutional mechanisms, such as the Financial Stability Oversight Council in the United States and the European Systemic Risk Board⁶ in the European Union. Behind the intuitive simplicity of the concept, the precise nature of systemic risk and its evolution has always been highly controversial. At the outset of the financial crisis most G20 countries did not even have a formal definition of systemic risk to guide their regulatory intervention.⁷

After the financial crisis, systemic risk reduction was put at the top of the international regulatory agenda. This is unsurprising given the high level of financial integration of the last twenty years. The International Monetary Fund (IMF), the Basel Committee on Banking Supervision (BCBS), and the Financial Stability Board (FSB) are now responsible for monitoring financial stability and for developing a coherent international regulatory framework for finance.⁸ Despite a large effort in this direction, confusion remains about the precise forms and patterns that *global* systemic risk takes. The concept of systemic risk has long been developed mostly within economic theory.⁹ Economists have tried to develop various theoretical frameworks and models to

⁶ On the recent EU reforms of financial supervision see, FINANCIAL REGULATION AND SUPERVISION: A POST-CRISIS ANALYSIS (Eddy Wymeersch et al. eds., 2012).

⁷ IMF et al., *Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations* (Briefing Paper for the G20 Finance Ministers and Central Bank Governors, October 28, 2009).

⁸ There is a vast literature on the international financial architecture. For a basic overview of the various organizations involved see, CHRIS BRUMMER, *SOFT LAW AND THE GLOBAL FINANCIAL SYSTEM: RULE MAKING IN THE 21ST CENTURY* (2012); EMILIOS AVGOULEAS, *GOVERNANCE OF GLOBAL FINANCIAL MARKETS: THE LAW, THE ECONOMICS, THE POLITICS* (2012).

⁹ For a basic overview of the economic literature see, *HANDBOOK ON SYSTEMIC RISK* (Jean Pierre Fouque & Joseph A. Langsam eds., 2013); IMF, *GLOBAL FINANCIAL STABILITY REPORT 2010: SYSTEMIC RISK AND THE REDESIGN OF INTERNATIONAL FINANCIAL REGULATIONS* (2010); Eur. Cent. Bank, *The Concept of Systemic Risk*, EUR. CENT. BANK FIN. STABILITY REV., Dec. 2009, at 134; *See also* Daron Acemoglu et al., *Systemic Risk and Stability in Financial Networks* (Nat'l Bureau of Econ. Research, Working Paper No. 18727, 2013); Vyril V. Acharya, *A Theory of Systemic Risk and Design of Prudential Bank Regulation*, 5 J. FIN. STAB. 224 (2009); Vyril V. Acharya & Tanju Yorulmazer, *Information Contagion and Interbank Correlation in a Theory of Systemic Risk*, (Ctr. Econ. Policy Research, Discussion Paper No. 3473, 2003); Franklin Allen & Douglas Gale, *Financial Contagion*, 108 J. POL. ECON. 1 (1998); Ennio Cerutti et al., *Systemic Risks in Global Banking: What Available Data Can Tell Us and What More Data are Needed?*, (IMF, Working Paper No. WP/11/222, 2011); Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance, and Liquidity*, 91 J. POL. ECON. 401 (1983); Xavier Freixas et al., *Systemic Risk*,

explain the different patterns of international financial contagion and how it propagates in an interconnected global financial network.¹⁰ In doing so, they have largely focused on market failures – such as contagion, information failures, or common shocks – as the main underlying causes of systemic risk.¹¹

In this article we analyze one particular aspect within the broader theory of global systemic risk: the role of domestic policies. The need to analyze state's behavior arises because while financial markets are global, the scope of regulatory intervention within the global financial system is still largely national. We propose that within such a system, diverging policy preferences or government failures add a further dimension to global systemic risk that can contribute to the creation of financial instability.

Based on this conclusion, we then move on to analyze the role of international law in coordinating national policies and addressing global systemic risk. We argue that, while regulation is necessary to address market inefficiencies in a closed economy, regulatory coordination is difficult to achieve – and sometimes even undesirable – in a global economy in which states hold diverging policy preferences.

Irrespective of its form, systemic risk is a function of two interdependent variables. The control exerted by public authorities on each variable directly influences the efficiency of a financial system and the amount of instability it might transmit. One variable is the trigger event – the underlying cause of instability. Economic and legal theory has proposed various analyses of trigger

Interbank Relations, and Liquidity Provision by the Central Bank, 32 J. MONEY, CREDIT, & BANKING 611 (2000); Jean-Charles Rochet & Jean Tirole, *Interbank Lending and Systemic Risk*, 28 J. MONEY, CREDIT, & BANKING 733 (1996).

¹⁰ The literature on global financial instability is vast. For a good overview see, *See* GLOBALIZATION AND SYSTEMIC RISK (Douglas D. Evanoff et al. eds., 2007); THE INTERNATIONAL FINANCIAL CRISIS: HOW THE RULES OF FINANCE CHANGED? (Asli Demirguc-Kunt et al. eds., 2011); ROGER W. FERGUSON JR. ET AL., GENEVA REPORTS ON THE WORLD ECONOMY 9: INTERNATIONAL FINANCIAL STABILITY (2011); INTERNATIONAL FINANCIAL INSTABILITY: GLOBAL BANKING AND NATIONAL REGULATIONS (Douglas D. Evanoff et al. eds., 2007).

¹¹ Among the most important are the Triffin dilemma, the Mundell-Fleming monetary trilemma, and Dirk Schoenmaker's financial trilemma.

events, mostly relating them to various types of market inefficiencies.¹² Our analysis, however, will focus on domestic policies. In particular, we will examine regulatory and policy asymmetries and government failures, including the underlying dynamics at their origin and the potential role of international law in addressing them. The second variable is the transmission mechanism – the financial interconnectedness through which financial instability propagates. The role of the law in this situation is to find a balance between the benefits that an extended network brings and the threat that a negative event might propagate across the network.

Our paper is divided into six sections. Following this introduction, we investigate the concept of systemic risk as it applies to the global financial system through briefly introducing the mainstream theories of systemic risk and explaining their limits in addressing global financial instability. We also briefly analyze the peculiarities of global systemic risk in terms of mechanisms of contagion and the diverging structure of the international financial architecture. The third section analyzes the evolution of the global financial system from a unit-based to a network-based system and the role of global financial interconnectedness. We explain why interconnectedness arises, and argue that financial systems develop as network structures to increase efficiencies but that, if not properly constructed, financial networks can act as contagions mechanisms. The fourth section addresses trigger events. The main argument proposed here is that global systemic risk is caused by two different mechanisms: (i) policy or regulatory asymmetries, and (ii) governance failures. The fifth section explains the role of the law in reducing global systemic risk. After introducing the financial Trilemma as the overarching theory for the regulation of global systemic risk, it analyzes separately the trade-offs faced by regulators in addressing interconnectedness and trigger events.. Our final section concludes.

¹² Steven L. Schwarcz, *Systemic Risk*, 193 GEO. L.J. 97 (2008); Hal. S. Scott, *The Reduction Of Systemic Risk in the United States Financial System*, 672 HARV. J.L. & PUB. POL'Y 33 (2010); Iman Anabtawi & Steven L. Schwarcz, *Regulating Systemic Risk: Towards an Analytical Framework*, 86 NOTRE DAME L. REV. 1349 (2011); John Crawford, *CDO Ratings and Systemic Instability: Causes and Cure*, 7 N.Y.U. J. L. & BUS. 1 (2010); Mael A. Utset, *Complex Financial Institutions and Systemic Risk*, 45 GA. L. REV. 770 (2010); Steven L. Schwarcz, *Controlling Financial Chaos: The Power and Limits of Law*, WIS. L. REV. 815 (2012).

The main finding of this paper is that while international law plays a very crucial role in addressing global systemic risk it cannot address all sources of global instability. On the one hand, when it comes to addressing systemic risk due to regulatory failures, international law can play a powerful role in mobilizing domestic political interests favouring regulatory convergence, thereby levelling the playing field for financial regulation. Similarly, international law can help in harmonizing the regulation of financial interconnectedness, thereby preventing inefficient unilateral measures. However, when it comes to reducing global macroeconomic spillovers, cooperation is very difficult and, sometimes, also unadvisable.

II. SYSTEMIC RISK THEORY AND ITS LIMITS

The study of financial crises has recently developed as an almost autonomous discipline in economics and finance. In this burgeoning literature, which now also informs law and political science,¹³ systemic risk occupies center stage.¹⁴ However, the study of *global* systemic risk has

¹³ A good overview of the very concept of systemic risk is provided in Schwarcz, *Ibid.*; Hal. S. Scott, *Ibid.*; Anabtawi & Schwarcz, *Ibid.*; Crawford, *Ibid.*; Utset, *Ibid.*; Schwarcz, *Controlling Financial Chaos*, *Ibid.*; Julia Lees Allen, *Derivatives Clearinghouses and Systemic Risk: A Bankruptcy and Dodd-Frank Analysis*, 64 STAN. L. REV. 1079 (2012); Matthew Beville, *Financial Pollution: Systemic Risk and Market Stability*, 36 FLA. ST. U. L. REV. 245 (2009); Kathryn Judge, *Fragmentation Nodes: A Study in Financial Innovation, Complexity, and Systemic Risk*, 64 STAN. L. REV. 657; Edward F. Greene et al., *A Closer Look at 'Too Big To Fail': National and International Approaches to Addressing the Risks of Large, Interconnected Financial Institutions*, 5 CAP. MARKETS L. J. 117 (2010); John Crawford, *Predicting Failure*, 7 VA. L. REV. 172 (2012); John C. Coffee, Jr., *Systemic Risk After Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies Beyond Oversight*, 111 COLUM. L. REV. 795 (2011); Julie A.D. Manasfi, *Systemic Risk and Dodd-Frank's Volcker Rule*, 4 WM. & MARY. BUS. L. REV. 181 (2013); Jeffrey Gordon & Christopher Muller, *Confronting Financial Crisis: Dodd-Frank's Dangers and the Case for A Systemic Emergency Insurance Fund*, 28 YALE J. ON REG. 151 (2011), Jeffrey Golden, *The Courts, the Financial Crisis and Systemic Risk*, 4 CAP. MARKETS L.J. 141 (2009); John C. Coffee, Jr., *The Political Economy of Dodd-Frank: Why Financial Reform Tends to Be Frustrated and Systemic Risk Perpetuated*, 97 CORNELL L. REV. 1019 (2012); Bernard S. Sharfman, *Using the Law to Reduce Systemic Risk*, 36 J. CORP. L. 607 (2011); Adam J. Levitin, *In Defense of Bailouts*, 99 GEO L. J. 435 (2011) (For the legal literature, see, Steven L. Schwarcz, *Systemic Risk*, 193 GEO. L. J. 97 (2008)).

¹⁴ According to Janet Yellen, "A search for either 'interconnectedness' or 'systemic risk' in article abstracts of academic research cataloged by EconLit results in 311 entries from 1988 to 2006. The same search

been relegated to the periphery. Most literature discusses systemic risk as the result of market inefficiencies, which spread contagion in an extended financial network. This does not fully take into account jurisdictional differences and the role of states. In this section we introduce the most important theories of systemic risk, and demonstrate their limits when applied to the global financial system.

A. Systemic Risk as the Result of Market Failures

Systemic risk theory has evolved over time, in line with technological advancements and the constantly changing underlying structure of financial markets. The role of a lender of last resort advocated by Bagehot in 1873,¹⁵ the creation of modern Central Banks in the late 19th and early 20th centuries,¹⁶ and depositor guarantee schemes are all examples of the struggle of financial authorities to limit systemic risk.¹⁷ Despite the simplicity of the concept, economists and regulators have long disagreed over the precise causes of instability and its transmission mechanisms. Modern systemic risk theory can be traced back to three fundamental types of market failures:¹⁸ information failures, contagion, and common shocks.

conducted for the period from 2007 through the present yields 624 entries”. *See* Janet Yellen, Address at the American Economic Association/American Finance Association Joint Luncheon: Interconnectedness and Systemic Risk, Lessons from the Financial Crisis (Jan. 4, 2013), at 5.

¹⁵ WALTER BAGEHOT, *LOMBARD STREET: A DESCRIPTION OF THE MONEY MARKET* (1873).

¹⁶ By modern central banks we mean central banks that have the monopoly of money creation, control the payment system, control the liquidity of the financial system, and provide emergency liquidity assistance to banks in distress. Although some central banks - like the Bank of England or the Swedish Riksbank - were established in the 17th century, they started to perform the abovementioned functions much later. On central banks’ role in maintaining financial stability see, *FINANCIAL STABILITY AND CENTRAL BANKS: A GLOBAL PERSPECTIVE* (Richard Brealey et al. eds., 2000); CHARLES GOODHART, *THE EVOLUTION OF CENTRAL BANKS* (1988), at 5-11.

¹⁷ GARY GORTON, *MISUNDERSTANDING FINANCIAL CRISES: WHY WE DON’T SEE THEM COMING* (2013).

¹⁸ In a free market economy, markets are considered self-correcting, as they do not need government intervention to function efficiently. In economic theory, market failures generally indicate the negative consequences that sometimes arise from the inability of markets to correct themselves. Examples of market failures include time-inconsistencies, monopolies, externalities, public goods, principal-agent problems, adverse-selection, non-competitive markets, or informational asymmetries. In economic theory, market failures are used as a justification for regulatory intervention. Market failures occur in all aspects of

1. Information Failures

Until the creation of the modern financial system as an interconnected network, panics were the main cause of financial instability. The most basic forms of panic are bank runs¹⁹ or fire sales in which investors rush to sell their assets, thereby leading to a sudden depreciation of their value. Nowadays, bank runs are not as frequent as they used to be, although they recently occurred during the bankruptcy of Northern Rock Bank in the UK, in Greece during the financial crisis and in Cyprus in 2013.²⁰ Panics are mainly the result of psychological effects, such as information problems or irrationality. They usually arise when investors cannot adequately process and evaluate market information.²¹

International bank runs might occur when the news of a cross border bank failing in one country causes panic in one of its foreign subsidiaries or branches. It might also occur between two countries with similar economies. This occurred during the Argentinian crisis, when depositors of certain banks in Uruguay demanded the withdrawal of their money, fearing the government in Uruguay would also not maintain its peg to the dollar.²²

economic life, from finance to public policy. For a good overview of the concept of market failures see, Francis M. Bator, *The Anatomy of Market Failure*, 72 Q. J. ECON. 351 (1958); John O. Ledyard, *Market Failure*, in THE NEW PALGRAVE DICTIONARY OF ECONOMICS (Steven N. Durlauf & Lawrence Blume, eds., 2008).

¹⁹ As in a self-fulfilling prophecy, depositors rush to the bank to withdraw their deposits back fearing that their bank will be insolvent, thereby forcing the closure of the bank. Gary Gorton reports that since 1970 around 62% of financial crises around the world involved some kind of bank runs. See GORTON, *supra* note 17, at 32.

²⁰ See Rosa Maria Lastra, *Northern Rock, UK Bank Insolvency and Cross-Border Bank Insolvency*, 9 J. BANK. REG. 165 (2008).

²¹ Acharya argues that during a crisis banks exhibit a herding behavior, which increases the cost of borrowing for the rest of the financial system. He argues that the breakdown of the money market in 2008 was due to an increased risk aversion by financial institutions following the collapse of Lehman Brothers. See Viral V. Acharya and Tanju Yorulmazer, *Information Contagion and Interbank Correlation in A Theory of Systemic Risk* (Ctr. Econ. Policy Research, Discussion Paper No. 3473, 2003).

²² Thomas Moser, *What Is International Financial Contagion?*, 6 INT'L FIN. 157, 165.

Investor panics are often a relevant factor in international financial crises. The East Asian crisis of 1997 is a good example.²³ In the years preceding the crisis, South Korea, Thailand, Malaysia, Indonesia and the Philippines financed much of their economic growth by inflows of foreign capital, which created an asset bubble. When investors began to doubt the macroeconomic fundamentals of these economies they also began to panic, triggering a massive reversal of capital outflows. When the central banks in Thailand, South Korea, Malaysia and Indonesia found themselves unable to defend their rapidly depreciating currencies, the financial crisis turned into a full-blown currency crisis.²⁴

2. Contagion

Prior to the global financial crisis of 2008, the concept of systemic risk was essentially synonymous with financial contagion: a cascade of defaults starting with the failure of a financial institution and spreading through the interconnectedness of banks.²⁵ The most prominent example is contagion through the interbank market from the credit interconnectedness between financial institutions.²⁶

²³ Ross Buckley, *An Oft-Ignored Perspective on the Asian Economic Crisis: The Role of Creditors and Investors*, 15 *BANKING & FIN. L. REV.* 431 (2000).

²⁴ There are various debates on the true reasons behind the crisis. However, there is a consensus that the underlying roots of the crisis lie in the premature opening of the financial sector, which was not supported by an adequate regulatory framework, and which fuelled massive capital inflows; by diffuse corrupt practices in local banks, often plagued by crony capitalism, which exacerbated the macro-financial stability instability loop; and weak monetary policies in which the local currency was informally pegged to the US Dollar, and which eventually created massive current account deficits when the US Dollar strengthened in 1995. See BUCKLEY, *ibid*; AVGOULEAS, *supra* note 8, at 73; DOUGLAS ARNER, *FINANCIAL STABILITY, ECONOMIC GROWTH AND THE ROLE OF LAW* 27–29 (2007).

²⁵ See Robert Kollmann & Frank Malherbe, *Financial Contagion*, in *HANDBOOK OF SAFEGUARDING GLOBAL FINANCIAL STABILITY: POLITICAL, SOCIAL, CULTURAL, AND ECONOMIC THEORIES AND MODELS* 139 (Gerard Caprio Jr. ed., 2013); Franklin Allen & Douglas Gale, *Financial Contagion*, 198 *J. POL. ECON.* 33 (2001).

²⁶ The interbank market consists of a financial network in which banks and other financial institutions, such as hedge funds or insurance companies, are connected through mutual interbank deposits and loans. Banks with excessive liquidity usually provide loans on a short-term basis to banks with a shortage of liquidity, often even without the backing of collaterals. Jean Charles Rochet & Jean Tirole, *Interbank Lending and Systemic Risk*, 28 *J. MONEY, CREDIT & BANKING* 733 (1996).

The basic logic of contagion is that in a tight and very interconnected network, the higher the exposure between banks, the higher the chances that a single negative event might trigger a widespread chain reaction in which even banks that are not directly interconnected would impact on one another. The problem is magnified when the failing institution is ‘too-big-to-fail’.²⁷ In that case the destructive effects of contagion would be such that the government would be forced to intervene and bail-out the systemically important institution. This in turn produces a moral hazard problem for the institution, which may ignore the externalities of its actions on the financial system.

One of the most important regulatory tools to address contagion is the adoption of capital buffers for each financial institution participating in the market. Since banks tend to be highly leveraged, they are extremely exposed to the risk that even a minimal loss through a nonperforming interbank loan might trigger their insolvency.²⁸ High capital buffers can minimize the impact of external shocks on individual banks by decreasing such leverage. The Basel Accords, which set a cohesive regulatory framework for capital adequacy regulation, are perhaps the most important feature of the vast array of financial regulation. However, the recent crisis exposed their limits. By assuming the stability of individual financial institutions automatically guarantees the stability of the financial system, the Basel Accords completely ignore the broader interplay between the institutions and the market. This interplay can lead to common shocks.

3. Common Shocks

The financial crisis of 2007-2008 showed that systemic risk occurs not only through inter-bank relationships, but also through common shocks. As a consequence, the regulatory focus shifted

²⁷ Edward F. Greene et al., *supra* note 13; Arthur E. Wilmarth Jr., *Reforming Financial Regulation to Address the Too-Big-To-Fail Problem*, 35 BROOK J. INT’L. L. 707 (2010).

²⁸ See ANAT ADMATI & MARTIN HELLMIG, *THE BANKERS’ NEW CLOTHES: WHAT’S WRONG WITH BANKING AND WHAT TO DO ABOUT IT* (2013)

towards the risk of breakdowns within the entire system, rather than individual breakdowns.²⁹ To appreciate how common shocks develop it is necessary to understand how modern finance is structured. Banks and other financial institutions now operate in financial markets not only by lending, but also by owning and trading assets. The use of derivatives for hedging and position taking purposes and the broader process of securitization now represent core businesses of banks.³⁰ The mark-to-market accounting method used by Basel to price the value of the assets in the balance sheet of a bank essentially sets the value of the assets to their actual market value. When the market value of those assets declines, the bank suffers a net loss in its balance-sheet that can lead to a perilous situation of insolvency.³¹

Common shocks proved to be a destructive force in the 2007 financial crisis, when the collapse in the market of CDOs led to a freeze in the repo market and from there of the system.³² They can also occur on an international scale. When banks invest in the same class of assets the rapid decline in their value not only reduces the capital base of the bank but also affects its interbank exposures.³³ A similar situation can also arise with liquidity constraints. Investors affected by a crisis in one country might “unwind their positions” in other markets to meet collateral demands or margin calls. This occurred early in the 1998 Russian crisis, when international investors took short positions in

²⁹ Rosa Maria Lastra, *Systemic Risk, SIFIs, and Financial Stability*, 6 *CAP. MARKETS L.J.* 192, 199.

³⁰ See Judge, *supra* note 13; ROSS CRANSTON, *PRINCIPLES OF BANKING LAW* 72 (1997).

³¹ Awrey, *supra* note 4.

³² GORTON, *supra* note 17; Gary Gorton & Andrew Metrick, *Regulating the Shadow Banking System*, [Fall 2010] *BROOKINGS PAPERS ON ECON. ACTIVITY* 261; GARY GORTON, *SLAPPED BY THE INVISIBLE HAND: THE PANIC OF 2007* (2010).

³³ Karl Whelan, for instance developed a basic model in which three banks – located in three different countries - invest in the same asset. When the market sentiment on the profitability of those assets declines, Bank A makes a loss in its loan books that reduces its capital base and forces it to sell some of its securities in a fire sale. This in turn reduces the value of the securities sold and of the remaining securities in the balance sheet, thereby reducing further the value of the bank assets. Bank B and Bank C, which also invested heavily in the same securities, now suffer a similar loss due to the depreciation in the value of the assets. In order to recoup the value of their balance sheet they decide not to roll over the loans to Bank A, which is now on the verge of default. See Karl Whelan, *Containing Systemic Risk* (Univ. Coll. Dublin Ctr. for Econ. Research, Working Paper No. WP09/27, 2009).

the relatively deep market for Brazilian debt to hedge long positions in Russian securities.³⁴ More recently, the US subprime mortgage crisis of 2007 seriously affected some European banks that had heavily invested in those products prior to the crisis.³⁵ The losses of Swiss bank UBS were in fact so high that the Swiss government had to intervene with a US\$59 billion bail-out to stabilize it.³⁶

B. Global Systemic Risk beyond Market Failures

The quick literature review above covers most of the problems faced by regulators addressing systemic risk in a domestic financial system. However, it is inadequate in the context of global finance. In a domestic system, the behavior of private agents is the only factor responsible for the creation and transmission of systemic risk. Instability is the product of market inefficiencies and government action does not *directly* contribute to creating systemic risk.³⁷ However, in a global financial network, the state plays a fundamental role in creating and transmitting instability. Global systemic risk is thus dramatically different for two reasons: the structure of the global financial system and the role of the state.

1. Systemically Important Jurisdictions

The global financial system has two layers. While the operation of firms and markets is the layer most often considered by mainstream literature, the more fundamental layer concerns the interaction between firms and governments.³⁸ The control exerted by governments within their

³⁴ See Moser, *supra* note 22, at 167.

³⁵ IMF, UNDERSTANDING FINANCIAL INTERCONNECTEDNESS 26–27 (2010).

³⁶ Warren Giles, *UBS Gets \$59.2 Billion Bailout; Credit Suisse Raises Capital*, BLOOMBERG, (October 16, 2008, 3:24 AM), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=ah0AFa2SEHhw>.

³⁷ This does not mean that government action or inaction does not affect systemic risk indirectly. Indeed, state intervention might increase the proclivity of markets to invest in certain asset classes or directly influence certain macroeconomic variables, or simply to fail to address dangerous market inefficiencies.

³⁸ See, *infra* Section III(B)(2) Market-to-Sovereign Interconnectedness.

territory not only determines the rules by which firms operate, but also important macroeconomic variables that directly influence the behavior of foreign firms.³⁹

The role of states is augmented by the fact that most global trading takes place in a few core nodes: systemically important national financial systems that dominate trading in particular asset classes.⁴⁰ In the context of its financial surveillance mandate,⁴¹ the IMF has developed the concept of Jurisdictions with Systemically Important Financial Sectors to highlight the systemic risk potential posed by instability in one of these nodes.⁴²

The architecture of the global financial system around core nodes has two serious implications. First, it concentrates global systemic risk in such a way that the failure of a core node would trigger disastrous global consequences. Secondly, it increases the impact that changes to regulation or macroeconomic conditions in a systemically important jurisdiction might have on the global market. This also means that states representing core nodes in a particular asset class enjoy a globally monopolistic position in terms of regulatory or macroeconomic power, with all the associated negative consequences.⁴³

2. Sovereignty Problems

³⁹ Examples of such variables include the exchange rate, the level of external indebtedness and the level of liquidity: HANDBOOK OF SAFEGUARDING GLOBAL FINANCIAL STABILITY: POLITICAL, SOCIAL, CULTURAL, AND ECONOMIC THEORIES AND MODELS, *supra* note 25.

⁴⁰ According to Bank for International Settlements and IMF statistics there are 17 Systemically Important Countries, representing around 95% of total cross-border banking claims. *See* IMF, *supra* note 35, at 9; IMF, MANDATORY FINANCIAL STABILITY ASSESSMENTS UNDER THE FINANCIAL SECTOR ASSESSMENT PROGRAM: UPDATE (2013); and, IMF, MAPPING CROSS-BORDER FINANCIAL LINKAGES: A SUPPORTING CASE FOR GLOBAL FINANCIAL SAFETY NETS (2011).

⁴¹ *See* IMF, MANDATORY FINANCIAL STABILITY ASSESSMENTS UNDER THE FINANCIAL SECTOR ASSESSMENT PROGRAM: UPDATE (2013).

⁴² *See id.* at 15.

⁴³ On hegemonic regulator theory see, Beth A. Simmons, *The International Politics of Harmonization: The Case of Capital Market Regulation*, 55 INT'L ORG. 589 (2001); Daniel W. Drezner, *Globalization, Harmonization, and Competition: The Different Pathways to Policy Convergence*, 12 J. EUR. PUB. POL'Y 841 (2005).

The second difference between domestic and global financial systems concerns the role of the state as a creator of systemic risk. In a global economy where markets and financial institutions operate across different jurisdictions, the nation state plays a vital economic role in maintaining financial stability and also, crucially, in creating financial instability.⁴⁴

While financial markets are global, financial regulation is still largely national.⁴⁵ Globally active financial institutions are subjected to regulatory and government risks that would not be present were they only operating at the domestic level. For example, governments might implement dangerous macroeconomic policies that lead to a default or a financial crisis, which can then spread to the wider global financial system.⁴⁶ Alternatively, they might implement legitimate, welfare-enhancing economic policies that nevertheless cause negative cross-border spillovers to partner countries. States might also simply refuse to impose regulatory standards promulgated abroad so as to promote domestic policy interests or otherwise refuse to cooperate with foreign regulators.⁴⁷ Government risk is difficult to control because foreign players have little influence over the regulatory and macroeconomic policies of the countries where they are hosted.⁴⁸

III. GLOBAL FINANCIAL INTERCONNECTEDNESS

Until the recent financial crisis, there was little thought about whether the very structure of the financial system contributes to financial instability. However, the speed and force of global contagion at the outset of the global and European sovereign debt crises suggest that the tight

⁴⁴ See WORLD BANK, GLOBAL FINANCIAL DEVELOPMENT REPORT 2013: RETHINKING THE ROLE OF THE STATE IN FINANCE (2013).

⁴⁵ See Rosa Maria Lastra & Charles Goodhart, *Border Problems*, 13 J. INT'L. ECON. L. 705 (2010), 714–17; See also Pierre-Hugues Verdier, *Transnational Regulatory Networks and Their Limits*, 34 YALE J. INT'L L. 113 (2009).

⁴⁶ See Lorenzo Bini Smaghi, *Sovereign Risk*, in STABILITY OF THE FINANCIAL SYSTEM 237, (Andreas Dombret & Otto Lucius eds., 2013).

⁴⁷ See *infra* Section IV.

⁴⁸ Of course, they might be able to repatriate their assets, but this strategy applies only to portfolio investors, such as hedge funds, which have short-term positions. When we look at global systemic risk, sometimes the instability is produced by the exposure to long-term sovereign debt, currency, or foreign assets contracts, or by the presence of the financial institution in a foreign country.

configuration of modern financial systems plays a role in spreading global systemic risk. One of the core problems of financial instability, both domestically and globally, is the presence of a network-like structure in which financial institutions, markets, and governments are linked with each other through bilateral financial claims. While participation in such a network enhances economic efficiency and growth, it nonetheless exposes firms, and indirectly, countries, to the externalities that sometimes arise from the individual or collective behaviors of agents. The first choice the law must make is thus whether to create a financial system structured as a network, or as a unitary system in which the level of interdependence is lower. Both options entail fundamental trade-offs in terms of economic efficiency, profitability, and, crucially, stability.

A. Financial Systems from Unitary to Network Systems

Modern finance works through a complex network of financial firms that all share a common characteristic: they are *very highly* interconnected with each other.⁴⁹ Such a high level of interdependence is not an intrinsic characteristic of finance, but the result of constant attempts by firms and governments to rely on each other to increase efficiency and to maximize returns. Financial systems were originally structured as unit-based systems.⁵⁰ In national financial systems, financial intermediaries were historically separate and independent from their national competitors and forced to conduct their business within limited territorial boundaries.⁵¹ Furthermore, until the

⁴⁹ Kartik Anand et al., *A Network Model of Financial System Resilience*, 85 J. ECON. BEHAVIOR & ORG 219 (2013); Steven L. Schwarcz, *Intermediary Risk in a Global Economy*, 50 DUKE L. J. 1541 (2001); Rodney J Garratt et al., *Mapping Risk in the International Banking Network* (Bank of England, Working Paper No. 413, 2011); IMF, *GLOBAL FINANCIAL STABILITY REPORT: RESPONDING TO THE FINANCIAL CRISIS AND MEASURING SYSTEMIC RISKS* ch. 2 (2009).

⁵⁰ See CHARLES W. CALOMIRIS AND STEPHEN H. HABER, *FRAGILE BY DESIGN: THE POLITICAL ORIGINS OF BANKING CRISES AND SCARCE CREDIT* 84–104, 154–202 (2014).

⁵¹ For a variety of reasons, mostly linked to the political economy of the eighteenth-century United States, each confederated state granted banking charters only to a handful of local financial institutions, which were allowed to operate only within the territorial limits of the federated state. To preserve the political rents granted to local elites by such an oligopolistic model, until the mid-nineteenth century, the US Supreme Court, as well as the state courts, consistently denied non-locally chartered financial institutions – mostly wealthy banks in New York or Baltimore – the right to establish a branch in another state, thus preventing the creation of a national financial system. The political foundations of unit banking were thus the result of a

mid-19th century⁵² there was no common currency or payment system. Each bank had to issue its own banknotes that were discounted differently from bank to bank, thereby imposing on traders a massive currency risk.⁵³ The creation of the global financial system followed a largely similar pattern. During WWII, when the architecture of the international financial and monetary system was discussed at Bretton Woods, John Maynard Keynes and Harry Dexter White – the architects of the Bretton Woods system – agreed that capital mobility should be left out of the perimeter of cooperation, “...not merely as a feature of the transition, but as a permanent arrangement [of the international monetary system]”.⁵⁴

Thus, for more than thirty years, the international financial system was structured as a constellation of individual national financial systems, independent from each other in terms of regulatory structure, market and macroeconomic dynamics, and pure market interconnectedness.⁵⁵ The Bretton Woods monetary system was predicated on exchange rate stability, enshrined in law by Article IV of the Articles of Agreements of the IMF (the IMF Articles).⁵⁶ One fundamental implication of this approach is that, while States retained the full freedom to control domestic macroeconomic policy, they nonetheless enjoyed only very limited international capital mobility.⁵⁷ .

political alliance between local populist politicians and powerful farmers in which banks were serving mostly the interests of local elites. *See id.*

⁵² In the US until the National Bank Act of 1863, ch. 58, 12 Stat. 665. *See* GORTON, *supra* note 17, at 11; *See also* MARTIN, *supra* note 3.

⁵³ For instance, the same banknote issued by a bank in New York for \$10, might have been worth only \$8.20 in Baltimore, depending on the level of trust that banks had toward each other. GORTON, *supra* note 17, at 11.

⁵⁴ John Maynard Keynes, Address to the House of Lords (May 23, 1944) (Quoted in RAWI ABDELAL, CAPITAL RULES: THE CONSTRUCTION OF GLOBAL FINANCE 7 (2007)).

⁵⁵ Andreas F Lowenfeld, *The International Monetary System: A Look Back over Seven Decades*, 13 J. INT’L ECON. L. 575 (2010); BARRY EICHENGREEN, GLOBALIZING CAPITAL: A HISTORY OF THE INTERNATIONAL MONETARY SYSTEM (2008).

⁵⁶ On the original formulation of Article IV of the IMF Articles see, Harold van B. Cleveland, *Reflections on the International Monetary Order*, 11 COLUM. J. TRANSNAT’L L. 403 (1972); Sir Joseph Gold, *Strengthening the Soft Law of Exchange Arrangements*, 77 AM. J. INT’L L. 443, 445–47 (1983).

⁵⁷ EICHENGREEN, *supra* note 55, at 91–134.

The unit-based financial system had two main features relevant to this study. First, systemic financial crises were not as common as they are now. Crises did occur – and often – but mainly because of the inability of banks to spread the risk across the system, thereby increasing the possibility that even a smallish shock might make them insolvent.⁵⁸ At the global level, given the limited level of international capital mobility,⁵⁹ crises were mostly the result of domestic problems, such as balance of payment or market inefficiencies, which were usually tackled through exchange rate devaluations or by the intervention of the Fund.⁶⁰ The second feature is that financial sector fragmentation caused an inefficient and limited distribution of credit, which did not reach the great majority of the population. In the United States, in the absence of a network, banks had to rely on independent funding structures in which capital was collected among the handful of wealthy local shareholders who controlled the bank. At the global level, without an integrated network, banks could not raise capital where it was cheaper and offer it where it provided the highest return,⁶¹ which in turn increased the cost of credit and reduced its availability.

Over time, it became clear that a choice had to be made between the diffidence towards banking conglomerates and the need to supply credit to the economy. In the late 20th and early 21st centuries, national financial systems put the availability of credit as the foremost policy objective.⁶² To do so, it was necessary to allow banks to operate according to the logic of economic efficiency. Banks began to rely on each other to enhance credit supply, achieve economies of scale, and reduce business risk. They did so by creating common infrastructures to support their business, offering

⁵⁸ CALOMIRIS & HABER, *supra* note 50.

⁵⁹ It is worth noting that international capital mobility survived even during the Bretton-Woods era, mainly in the form of sovereign debt financing.

⁶⁰ EICHENGREEN, *supra* note 55.

⁶¹ CALOMIRIS & HABER, *supra* note 50.

⁶² This is the system that led finance to become “a special sector” in the economy, and a major driver of economic growth in some jurisdictions. Calomiris and Haber show that the increased availability of credit for all sectors, from individuals to corporations was the result of precise political directives. *See* CALOMIRIS & HABER, *supra* note 50, at 203–55; *See also* GORTON, *supra* note 17.

financial services to each other, and creating new financial products.⁶³ This process drastically increased the interconnectedness between firms and markets, and ultimately resulted in the financial system as a network structure that we know today.

From the 1970s the iron curtain of capital controls that had governed the international financial system also began to be dismantled. The rise of Eurodollar deposits and the Eurocurrency markets offered foreign currency denominated financial services outside the purview of monetary and financial authorities, thus depriving them of the power to control parts of their financial systems.⁶⁴ When in 1977 Article IV of the IMF Articles was revised to allow exchange rate flexibility, the Bretton Woods system officially ended.⁶⁵ The ability to adopt a flexible exchange rate regime removed the constraints on capital mobility. This permitted nation states to open their financial systems to the services of foreign firms, and to access a much wider pool of capital. The process was accompanied by a progressive dismantling of cross-border regulatory barriers to the movement of capital⁶⁶ and, starting from the 1990s, also by a deregulatory process that led to the creation of the shadow banking system and more sophisticated financial instruments.⁶⁷

B. Three Levels of Global Financial Interconnectedness

⁶³ In 1863 the Federal Government put an end to the free banking era, by eliminating local bank currencies and by issuing paper money that traded at par and was backed by the Government. In 1913 the Federal Reserve was created to oversee the monetary policy and the stability of the financial system, and in 1933 the US Treasury created the Deposit and Financial Insurance Corporation to provide a basic safety net to depositors in the event of a crisis. Although the original distrust by American authorities towards big conglomerate banks remained until the 1980s, thus leading to the creation of the shadow banking system, the level of interconnectedness between financial institutions increased exponentially.

⁶⁴ EICHENGREEN, *supra* note 55, at 134–83; JOHN EATWELL & LANCE TAYLOR, *GLOBAL FINANCE AT RISK: THE CASE FOR INTERNATIONAL REGULATIONS* (2000), at 36–39 Cleveland, *supra* note 56; BARRY EICHENGREEN, *GLOBAL IMBALANCES AND THE LESSONS OF BRETTON WOODS* (2007).

⁶⁵ On the changes in Article IV of the IMF Articles see, Lowenfeld, *supra* note 55; Gold, *supra* note 56.

⁶⁶ ABDELAL, *supra* note 54; EICHENGREEN, *supra* note 55, at 134–85; JEFFREY M. CHWIEROTH, *CAPITAL IDEAS: THE IMF AND THE RISE OF FINANCIAL LIBERALIZATION* (2010); AVGOULEAS, *supra* note 8, at 64–88.

⁶⁷ AVGOULEAS, *supra* note 8, 64–88. On the shadow banking system see, Gorton & Metrick, *supra* note 32.

The process of financial liberalization not only increased credit supply and extended the scope of financial markets, it also created new layers of interdependence between different national economies. Like national financial systems, the global financial system quickly evolved as a network structure. However, the types of exposures and linkages between economies and the dynamics that pushed towards financial integration in the global system were fundamentally different to those in a closed national economy. This global financial interconnectedness can be divided into three main types: (i) market-to-market; (ii) market to sovereigns; and (iii) common infrastructures.

1. Market-to-Market Interconnectedness

When governments liberalized capital movements and removed regulatory barriers to finance,⁶⁸ firms began to exploit the increased scope of the market by establishing foreign operations, offering services on a cross-border basis, or simply by investing in foreign assets.⁶⁹ While there is no conclusive evidence on the impact of financial globalization on economic growth, mainstream economic theory has preached the economic benefits of financial integration since the 1970s. By reducing the barriers to the movement of capital, financial firms have been able to expand their activities across borders to achieve economies of scale, and collect capital where it is cheaper and invest it where it is more profitable. Consumers have similarly enjoyed the benefits usually

⁶⁸ On the regulatory framework for capital mobility see, Federico Lupo-Pasini, *The International Regulatory Regime on Capital Flows* (Asian Dev. Bank Inst., Working Paper No. 338, 2011), <http://www.adbi.org/files/2011.12.30.wp338.intl.regulatory.capital.flows.trade.services.pdf>; Federico Lupo-Pasini, *Movement of Capital and Trade in Services: Distinguishing Myth from Reality Regarding the GATS and the Liberalization of the Capital Account*, 15 J. INT'L ECON. L. 79 (2012).

⁶⁹ WTO, FINANCIAL SERVICES: BACKGROUND NOTE OF THE SECRETARIAT (1998), available at http://www.wto.org/english/tratop_e/serv_e/finance_e/w72.doc; Stjin Claessens, *Regulatory Reform and Trade Liberalization in Financial Services*, in DOMESTIC REGULATION AND SERVICES TRADE LIBERALIZATION 129 (Aaditya Mattoo & Pierre Sauvé eds., 2003).

associated with increased competition, such as higher diversification of products, reduced cost of credit, and more financing opportunities.⁷⁰

One type of global interconnectedness is interbank claims.⁷¹ According to BIS and IMF studies, cross-border banking claims increased sharply between the 1990s and the 2008 crisis, reaching more than half of global GDP. The process was reversed at the outset of the crisis, and current cross-border banking claims now represent around 35% of global GDP.⁷² In the run up to the global crisis, low interest rates caused banks to rely less on standard sources of financing and more on money market mutual funds, short term commercial papers, and repos.⁷³ Another source of interconnectedness is the derivative market – which as of 2013 reached an aggregate value of US\$710 trillion⁷⁴ – upon which SIFIs rely heavily to hedge against risk.⁷⁵

The most prominent source of interconnectedness in the global financial system is represented by Global Systemically Important Financial Institutions (G-SIFIs).⁷⁶ These are multinational financial institutions operating across different countries through a centralized structure relying on a network of foreign affiliates.⁷⁷ According to the FSB, there were 29 G-SIFIs around the globe in

⁷⁰ For the economics of financial services liberalization see, Masamichi Kono et al., *Opening Markets In Financial Services and The Role of The GATS* (WTO, Special Study No. 1, 1997), http://www.wto.org/english/res_e/booksp_e/special_study_1_e.pdf; WENDY DOBSON & PIERRE JACQUET, *FINANCIAL SERVICES LIBERALISATION IN THE WTO* (1998).

⁷¹ Lastra, *supra* note 29, at 202–03.

⁷² IMF, *GLOBAL FINANCIAL STABILITY REPORT* 107 (2014).

⁷³ IMF, *supra* note 35, at 21–28; Gorton & Metrick, *supra* note 32.

⁷⁴ According to the latest Bank of International Settlements statistics, as of December 2013 the amount of over-the-counter derivatives was \$US 710,182 billion. See *Derivatives Statistics*, BANK FOR INTERNATIONAL SETTLEMENTS (December 2013), <http://www.bis.org/statistics/derstats.htm>.

⁷⁵ IMF, *supra* note 35, at 28.

⁷⁶ In their policy reports, the Financial Stability Board and the Basel Committee on Banking Supervision use also the term Global-Systemically Important Banks (G-SIBs). The two terms can be used interchangeably.

⁷⁷ The concept of Systemically Important Financial Institutions (SIFI), of which G-SIFIs represent an evolution on a global scale, was first developed by the Financial Stability Board to identify those financial institutions “whose disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity”. See FIN. STABILITY BD., *REDUCING THE MORAL HAZARD POSED BY SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS – FSB RECOMMENDATIONS AND TIME LINES* (2010); Eugenio Cerutti, et al., *How Banks Go Abroad: Branches or Subsidiaries?*, 31 J. BANKING & FIN. 1669 (2007).

November 2013, 15 of them headquartered in Europe.⁷⁸ The rise of G-SIFIs is a product of the combination of financial liberalization and market dynamics. Financial institutions have various incentives to increase in size and expand across borders. First of all, by opening branches or subsidiaries abroad they can access a wider consumer base, while at the same time relying on an already established and tested organizational structure. Secondly, by relying on an integrated network between the parent bank and its affiliates, they can collect credit where it is cheaper and offer it where it is more profitable. They can also spread and diversify the risk across an extended network and capture economies of scope by offering new services and new products.⁷⁹ Finally, and importantly, the increase in size represents an increase in the implicit subsidy granted by too-big-to-fail protection.⁸⁰

G-SIFIs have two fundamental characteristics that make them particularly prone to transmitting instability across borders. The first is their peculiar structure, which acts as a bridge between different national financial systems. Since G-SIFIs operate with an integrated structure, they can move capital relatively easily from one local operation to the other, distribute and channel funds across the system, and operate as the main intermediaries between core nodes and markets.⁸¹ The second characteristic is the width of their business operations, which typically span all sectors of financial activity, encompassing trades and investments in virtually every financial product.⁸² As pointed out by the FSB, given their structure and size, “their distress or failure would cause

⁷⁸ FIN. STABILITY BD., 2013 UPDATE OF GROUP OF GLOBAL SYSTEMICALLY IMPORTANT BANKS (G-SIBS) (2013), http://www.financialstabilityboard.org/publications/r_131111.pdf; See also DIRK SCHOENMAKER, GOVERNANCE OF INTERNATIONAL BANKING: THE FINANCIAL TRILEMMA (2013).

⁷⁹ Jonathan Fiechter et al., *Subsidiaries or Branches: Does One Size Fit All?* (IMF, Staff Discussion Note No. SDN/11/04, 2011).

⁸⁰ CALOMIRIS & HABER, *supra* note 50, at 215; On the problem of SIFIs, see Lastra, *supra* note 29.

⁸¹ Robert A. Eisenbeis, *Home Country versus Cross Border Negative Externalities in Large Banking Organizations Failures and How to Avoid Them*, in INTERNATIONAL FINANCIAL INSTABILITY: GLOBAL BANKING AND NATIONAL REGULATIONS 181 (Douglas D. Evanoff et al. eds., 2007).

⁸² According to the IMF, “[G-SIFIs] dominate the markets for debt, equity securities, syndicated loans, securitization, structured financial products, and OTC derivatives. They are the main counterparties for large insurers and some of the biggest broker dealers”.. See IMF, *supra* note 35, at 7.

significant dislocation in the global financial system and adverse economic consequences across a range of countries.”⁸³

2. Market-to-Sovereigns Interconnectedness

Sovereign debt also contributes to global interconnectedness. States have often resorted to financial markets to finance their expenditures⁸⁴ and, in spite of the power imbalance between the two parties, banks have usually found sovereign lending a profitable business.⁸⁵ Occasionally, however, the inability or unwillingness of sovereigns to service their debts has led to the insolvency of financial institutions. This occurs primarily for two reasons.⁸⁶ The first has to do with the direct exposure of banks to foreign debt risk, as reflected in the balance sheet. Second, since debt issued by OECD sovereigns is usually used by the bank as collateral for its financing operations, the declining value of sovereign bonds immediately makes it difficult for banks to carry out their daily financing operations.⁸⁷

⁸³ FIN. STABILITY BD., *supra* note 78.

⁸⁴ The emergence of the banking business in Florence in the 15–16th centuries was spurred by the constant financing needs of sovereigns to wage wars. Bankers and sovereigns have a long history of cooperation that dates back centuries. *See* CHARLES TILLY, *COERCION, CAPITAL, AND EUROPEAN STATES AD 990–1990* (1990).

⁸⁵ NIAL FERGUSON, *THE ASCENT OF MONEY: A FINANCIAL HISTORY OF THE WORLD* (2009).

⁸⁶ Caruana and Avdjiev add three further factors. First, since the higher risk of sovereign bonds is reflected in the rating system, the downgrade of bonds automatically downgrades the rating of all companies in the state. Indeed, according to rating rules, the rating of a company cannot be higher than that of the sovereign where the company is listed. Second, the increased risk of sovereign debt risk make sovereign and private debt close substitutes in investor portfolios, thereby increasing the competition between the two forms of debt. Thus, without the easy availability of sovereign debt banks will find more difficulties in financing in the market. Finally, a loss of market confidence in sovereign debt may trigger fiscal consolidation. *See* Jaime Caruana & Stefan Avdjiev, *Sovereign Creditworthiness And Financial Stability: An International Perspective*, in *Public Debt, Monetary Policy And Financial Stability* 57–60 (Banque De France, Financial Stability Review No. 16, 2012).

⁸⁷ According to Caruana and Avdjiev, “There is evidence that in 2010 30% of the spread at launch on bank bonds reflected the conditions of the sovereign, and this figure was as high as 50% for countries for which sovereign strains were most pronounced”. *Id.* at 74.

Sovereign risk is inherent to sovereign financing.⁸⁸ However, in recent years – and especially in the context of the European sovereign debt crisis – it has become increasingly clear that, under the right circumstances, sovereign defaults might trigger global systemic risk. Academic literature has focused on three main factors to explain this risk.

First and foremost, the Basel rules have encouraged banks and financial institutions to hold OECD governments debt in their portfolio. Sovereign debt has usually been considered a no-risk or low-risk financial instrument because of the assumed unlimited repayment capacity of states.⁸⁹ This assumption was underscored by Basel I, which gave sovereign debt from OECD member countries a zero risk profile when calculating required capital.⁹⁰ Basel II and Basel III, while removing the explicit preference for OECD country debt, nonetheless achieved the same result, as they allow national supervisors to decide autonomously the risk profile of their national debt. Governments are therefore incentivized to give a very low risk profile to their debt in order to encourage banks to buy it. By having a large portfolio of government bonds, banks could reduce the level of capital buffer required by Basel rules.⁹¹ Thus, while the return of sovereign bonds seldom matched that of other financial instruments, it guaranteed a cushion to banks against market fluctuations. Given the allegedly low-risk status of sovereign bonds, banks also used it as collateral for their own financing.⁹²

⁸⁸ For instance, when in 1340 King Edward III of England defaulted on its debt, two of the major Florentine banks – the Peruzzi bank and the Bardi bank – went bankrupt. *See* CARMEN M. REINHART & KENNETH S. ROGOFF, *THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY* 69–70 (2010).

⁸⁹ The proclivity of financial institutions to lend to sovereigns was succinctly explained in the famous statement by the former Citibank Chairman Walter Wriston “Countries don't go out of business....The infrastructure doesn't go away, the productivity of the people doesn't go away, the natural resources don't go away. And so their assets always exceed their liabilities, which is the technical reason for bankruptcy. And that's very different from a company.” Cited in IMF, “Money Matters: An IMF Exhibit -- The Importance of Global Cooperation”, available at https://www.imf.org/external/np/exr/center/mm/eng/mm_dt_01.htm

⁹⁰ Simon Gleeson argues that, ultimately, the result will be the same as Basel I, because sovereigns will be incentivized to give a zero risk profile to their national sovereign debt. *See* SIMON GLEESON, *INTERNATIONAL REGULATION OF BANKING: CAPITAL AND RISK REQUIREMENTS* 115 (2nd ed. 2012).

⁹¹ *See* Danièle Nouy, *Is Sovereign Risk Properly Addressed by Financial Regulation?*, in *Public Debt, Monetary Policy and Financial Stability*, *supra* note 88, 95.

⁹² For the interbank secured funding market, or repo operations with central banks.

Secondly, OECD countries are now among the most indebted countries, with an average external debt to GDP ratio of around 100%.⁹³ For a few of them, most of the sovereign debt is held by national banks. The combination of those two factors increases twofold the global systemic risk potential of a sovereign default, because a banking crisis might turn into a sovereign debt crisis and vice-versa. Economists define this situation as the “vicious circle” between banks and sovereigns.⁹⁴ This was demonstrated during the recent Spanish and Irish crises, when the bail-out of the national financial systems by the national governments led the two countries to the verge of default.⁹⁵

Lastly, sovereign lending has become more sophisticated in form, increasing the systemic risk potential of sovereign default.⁹⁶ Over the last ten years, derivatives – especially credit default swaps – have entered the sovereign debt market.⁹⁷ These instruments, which are purchased by banks and institutional investors, serve the fundamental function of insuring the lender against sovereign debt risk. However, they also increase the systemic effect of a sovereign default because they spread the risks of default to the broader financial market.⁹⁸

⁹³ For up-to-date data see TRADING ECONOMICS, <http://www.tradingeconomics.com>.

⁹⁴ On the vicious link between banks and sovereigns, and how it develops see, Silvia Merler and Jean Pisani-Ferry, *Hazardous Tango: Sovereign-Bank Interdependence and Financial Stability in the Euro Area*, in *Public Debt, Monetary Policy and Financial Stability*, *supra* note 88, 1; Lucrezia Reichlin and Luis Garicano, *Squaring the Eurozone’s Vicious Circle*, PROJECT SYNDICATE (Jan. 27, 2014), <http://www.project-syndicate.org/commentary/lucrezia-reichlin-and-luis-garicano-offer-three-options-for-severing-the-link-between-sovereign-debt-risk-and-domestic-banking-stability>.

⁹⁵ See Federico Lupo-Pasini, *Economic Stability and Economic Governance in the Euro Area: What the European Crisis Can Teach on the Limits of Economic Integration*, 16 J. INT’L ECON. L. 211, 239 (2013).

⁹⁶ Sovereign debt takes many forms. Until the 1960s bonds were the main sources of finance for sovereigns. For a short period, from the 1960s until the 1982, syndicated bank loans became the favored mechanism. Eventually from the late 1980s onwards states shifted back to bonds. Philip J. Power, *Sovereign Debt: The Rise of the Secondary Market and Its Implications for Future Restructurings*, 64 FORDHAM L. REV. 2701; James Hais II, *The Sovereign Debt Dilemma*, 75-3 BROOK. L. REV. 906, 550.

⁹⁷ The most common form of derivatives is the so-called Credit Default Swaps (CDSs). See Rene M. Stulz, *Credit Default Swaps and the Credit Crisis*, 24 J. ECON. PERSP. 73, 74 (2010); Udaibir S. Das, et al., *Sovereign Debt Restructurings 1950–2010: Literature Survey, Data, and Stylized Facts* 57–60 (IMF, Working Paper No. 02/203, 2013); Régis Breton et al., *Banks, Moral Hazard, And Public Debts*, in *Public Debt, Monetary Policy And Financial Stability*, *supra* note 88, at 57, 57–60.

⁹⁸ Steven L. Schwarcz, *Sovereign Debt Restructuring Options: An Analytical Comparison*, 2 HARV. BUS. L. REV. 95, 97; Elena Kalotychou et al., *What Makes Systemic Risk Systemic? Contagion and Spillovers in the International Sovereign Debt Market* (H.K. Inst. for Monetary Research, Working Paper No. 07/2014, 2014), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2423184; Louise Story, *Derivatives Cloud the Possible Fallout from a Greek Default*, N.Y. TIMES at B1, June 22, 2011.

3. Common Infrastructures

Fundamental to the proper functioning of financial systems is the payment network. At the domestic level, payment systems are usually divided into net payment systems in which the various positions between banks are netted and settled at the end of the day, and real-time gross settlement systems in which the settlement is immediate. At the international level, however, the payment system is more complicated because payment transactions need to be converted into foreign currency. Economists usually describe an international foreign exchange or securities transaction as relying on two legs, as each transaction needs to be conducted in two different financial systems and at different times.

During the crisis, the international payment system worked well. However, this has not always been the case. Contagion in the international payment network can occur primarily when one of the two legs in the payment transaction stops functioning. This can happen for a variety of reasons, including currency mismatches, technical problems in the transmission of the payment, or regulatory interventions.⁹⁹ A key example is the failure of the German bank Herstatt in 1974, whose impact was such that it led to the creation of the BCBS.¹⁰⁰ Herstatt was a bank dealing with foreign exchange transactions, which was located in Cologne but with substantial operations in the United States. When the German authorities decided to liquidate it, they did not consider the effects that a forced closure would cause on Herstatt's counterparties in the US, which were left fully exposed to the Deutsche Mark deliveries made and to the pending settlements.¹⁰¹

C. Global Interconnectedness and Systemic Instability

⁹⁹ Lastra, *supra* note 29, at 203–04.

¹⁰⁰ CHARLES GOODHART, *THE BASEL COMMITTEE ON BANKING SUPERVISION: A HISTORY OF THE EARLY YEARS 1974–1997* (2011).

¹⁰¹ ROSA MARÍA LASTRA, *LEGAL FOUNDATIONS OF INTERNATIONAL MONETARY STABILITY* 145 (2006).

Over the years, interconnectedness has become a fundamental component of modern financial systems. According to Janet Yellen, “there is little doubt that some degree of interconnectedness is vital to the functioning of our financial system”.¹⁰² Many of the benefits of a network system have already been mentioned in this paper. However, during the crisis it became clear that a network is a double-edge sword.

First of all, while linkages might act as “shock absorbers” by spreading and diluting the risk across the whole system, they might nonetheless expose individual institutions to external shocks from the market or partner institutions. For instance, one institution might reduce its holding in certain assets, which in turn might reduce their market price and thus the solvency of other institutions holding the same assets.¹⁰³ Within a certain level of interdependence, financial interconnectedness serves to distribute risks and to absorb shocks. However, beyond a certain level of interdependence, in the presence of widespread market contractions and severe shocks, interconnectedness might only increase the possibility of contagion. Paradoxically, as was confirmed empirically during the crisis, those players that are less interconnected in the system are less likely to “receive” instability, and are therefore better positioned to withstand severe financial shocks.¹⁰⁴

IV. THE ROLE OF DOMESTIC POLICIES

Interconnectedness does not by itself create instability. The latter occurs when an event within the network creates a shock that is then transmitted to the wider financial system through the

¹⁰² Yellen, *supra* note 14.

¹⁰³ Jeffrey Gordon & Colin Mayer, *The Micro, Macro and International Design of Financial Regulation 2* (Columbia Law & Econ. Working Paper No. 422, 2012).

¹⁰⁴ Acemoglu et al., *supra* note 9, at 3.

various channels of contagion examined in Section I.¹⁰⁵ Thus far, mainstream economic theory has focused on market failures as the underlying cause of instability. Such a focus does not address the problems faced by international networks as it presumes a fundamental element that is not present in the global financial system: a centralized regulator.

As stated earlier, the global financial system consists of integrated financial markets that are subject to divergent national regulations and policies. These different state preferences are often the origin of financial instability. This section will analyze the political and economic dynamics at the origin of market failures. We have classified them into two major groups: (i) policy and regulatory asymmetries and (ii) government failures.

A. Asymmetries

Regulatory or policy differences have traditionally been analyzed only in terms of barriers of entry for foreign firms, or in the context of debate on international regulatory competition.¹⁰⁶

¹⁰⁵ See Schwarcz, *Systemic Risk* *supra* note 12, 196–97 ; Anabtawi & Schwarcz, *supra* note 12; Schwarcz, 2012 *Controlling Financial Chaos*, *supra* note 12, 816–25.

¹⁰⁶ For instance, there is a vast literature on the benefits and costs of regulatory competition in enhancing economic efficiency, and on the risk of a regulatory race to the bottom. A good overview of the theories is provided in, Stavros Gadinis, *The Politics of Competition in Financial Regulation*, 49 HARV. INT'L. L.J. 447. A stream of political science literature argued that financial globalization, and especially the mobility of capital, would drive states to a permanent condition of regulatory competition in which each government would be pushed to lower its regulatory apparatus to attract foreign capital. See Philip G. Cerny, *The Dynamics of Financial Globalization: Technology, Market Structure, and Policy Response*, 27 POL'Y SCI. 319 (1994). Other authors, however, argued that regulatory competition would lead to a race-to-the-top in financial services. See Stephen J. Choi & Andrew T. Guzman, *National Laws, International Money: Regulation in a Global Market*, 65 FORDHAM L. REV. 1855, 1860 (1997); Mahmood Bagheri and Chizu Nakajima, *Optimal Level of Financial Regulation under the GATS: A Regulatory Competition and Cooperation Framework for Capital Adequacy and Disclosure of Information*, J. INT'L ECON. L. 507 (2002); See also Joel P. Trachtman, *Recent Initiatives in International Financial Regulation and Goals of Competitiveness, Effectiveness, Consistency and Cooperation*, 12 NW. J. INT'L L. & BUS. 241, 246 (1991); Howell E. Jackson, *Centralization, Competition and Privatization in Financial Regulation*, 2 THEORETICAL INQUIRIES L. 649; DAVID ANDREW SINGER, *REGULATING CAPITAL: SETTING STANDARDS FOR THE INTERNATIONAL FINANCIAL SYSTEM* (2007); Roberta Romano, *For Diversity in the International Regulation of Financial Institutions: Critiquing and Recalibrating the Basel Architecture* (Yale Law & Econ. Research Paper No. 452, 2013), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2127749; The same theory ignited a long argument between US scholars with regard to regulatory competition within the US. See William Cary, *Federalism and Corporate Law: Reflections Upon Delaware*, 83 YALE L.J. 663, 705 (1974); ROBERTA ROMANO, *THE GENIUS OF AMERICAN CORPORATE LAW* (1993).

However, regulatory and policy asymmetries can also increase the likelihood of global systemic risk.

Asymmetries affecting global financial stability are the result of two independent, albeit often intertwined, factors. The first arises from the inability of national regulators to take into account the externalities of their actions on other countries, due to a principal–agent problem. The second arises from the natural macroeconomic asymmetries that prevent the adoption of Pareto optimal policies. We will examine each factor separately.

1. Principal–Agent Problem in Global Finance¹⁰⁷

In any national financial system, regulators perform a pivotal role in maintaining financial stability. Not only do they have the power to supervise and regulate financial institutions, they also have the power to intervene and stabilize markets when a crisis erupts. They do so through different mechanisms,¹⁰⁸ such as “lender of last resort” (LOLR) operations provided by central banks,¹⁰⁹

¹⁰⁷ The principal agent theory was originally developed by the institutional economics literature to analyze information problems in industrial organizations, and it has been widely used by the economics literature to explain the information asymmetry problems that arise between bank management and bank depositors. For a general overview of the principal-agent model see, Michelle Egan, *Regulatory Strategies, Delegation and European Market Integration*, 5 J. EUR. PUB. POL’Y 485 (1998); for a more extensive analysis see, TIMOTHY BESLEY, PRINCIPLED AGENTS? THE POLITICAL ECONOMY OF GOOD GOVERNMENT (2006).

¹⁰⁸ For a good overview of the different mechanisms to contain financial instability see, FINANCIAL CRISIS CONTAINMENT AND GOVERNMENT GUARANTEES (John LaBrosse et al. eds., 2012); Anna Gelpern, *Financial Crisis Containment*, 41 CONN. L. REV. 1051 (2009); Daniel W. Levy, *A Legal History of Irrational Exuberance*, 48 CASE W. RES. L. REV. 799, 803–04 (1998); Steven M. Davidoff & David Zaring, *Big Deal: The Government’s Response to the Financial Crisis*, 61 ADMIN. L. REV. (2009);

¹⁰⁹ For a quick overview on Lender of Last Resort see, Xavier Freixas et al, *Lender of Last Resort: A Review of the Literature*, FIN. STABILITY REV. 159 (1999), <https://notendur.hi.is/ajonsson/kennsla2006/fsr07art6.pdf>; Xavier Freixas et al., *The Lender of Last Resort: A Twenty-first Century Approach*, 2 J. EUR. ECON. ASS’N 1085 (2004); Xavier Freixas et al., *Systemic Risk, Interbank Relations, and Liquidity Provision by the Central Bank*, 32 J. MONEY, CREDIT & BANKING 611 (2000); Guillermo Rosas, *Bagehot or Bailout? An Analysis of Government Responses to Banking Crises*, 50 AM. J. POL. SCI. 175 (2006); Anna J. Schwartz, *The Lender of Last Resort and the Federal Safety Net*, 1 J. FIN. SERVICES RES. 77 (1987); Andrew Campbel & Rosa Lastra, *Revisiting the Lender of Last Resort*, 24 BANKING & FIN. L. REV. 453 (2009); Kern Alexander, *International Law and the Lender of Last Resort*, (Paper presented at Seminar on Current Developments in Monetary and Financial Law, Washington, D.C., October 23–27, 2006), <https://www.imf.org/External/NP/seminars/eng/2006/mfl/ka.pdf>; Rosa Maria Lastra, *Lender of Last Resort: An International Perspective*, 48 INT’L & COMP. L.Q. 340 (1999).

fresh capital injections provided by treasuries, forced mergers, creation of good and bad banks, bail-ins, and through bankruptcy regimes. In performing all those operations, national regulators usually enjoy a wide margin of discretion, albeit to different degrees.¹¹⁰ In spite of their relative freedom, however, both monetary and financial authorities suffer one fundamental constraint: they need to ensure the stability of *their own* national financial system.¹¹¹ More specifically, virtually all statutes of central bank and financial authorities limit the policy objective of the agencies to what is considered optimal for the national economy, rather than for the global financial or monetary system.¹¹² At the core of the authority's behavior lies a bond between the regulators – which act as agents – and their citizens – who act as principals.

Promoting regulatory efficiency does not, in the majority of cases, create global systemic risk, even in an integrated financial network. However, in certain circumstances, the pursuit of national interests might lead to global instability that reverberates across the whole system. The most relevant example arises in the context of a cross-border banking crisis.¹¹³ G-SIFIs rely on an integrated network.¹¹⁴ This means that a solvency or liquidity problem in the parent bank or in one of its foreign operations is immediately felt across the entire consolidated structure. The global

¹¹⁰ While monetary authorities are frequently independent, financial authorities and treasuries are regularly exposed to external political influences. See ROSA MARIA LASTRA, *CENTRAL BANKING AND BANKING REGULATIONS* (2006); Lorenzo Bini-Smaghi, *Central Bank Independence in the EU: From Theory to Practice*, 14 EUR. L.J. 446 (2008); ¹¹⁰ Stavros Gadinis, *From Independence To Politics In Financial Regulation*, 101 CAL L. REV. 327 (2013).

¹¹¹ Marianne Ojo, *The Changing Role of Central Banks and the Role of Competition in Financial Regulation during (and in the Aftermath of) the Financial Crisis*, 17 EUR. L.J. 513 (2011); Louis W. Pauly, *The Old and the New Politics of International Financial Stability*, 47 J. COMMON MARKET STUD. 955 (2009); Aneta Spendzharova, *Is More 'Brussels' the Solution? New European Union Member States' Preferences about the European Financial Architecture*, 50 J. COMMON MARKET STUD. 315 (2012).

¹¹² Francois Gianviti, *The Objectives of Central Banks*, in *INTERNATIONAL MONETARY AND FINANCIAL LAW: THE GLOBAL CRISIS* (M. Giovanoli and D. Devos eds., 2010).

¹¹³ On regulation in cross-border banking see, *CROSS-BORDER BANKING: REGULATORY CHALLENGES* (Gerard Caprio Jr. et al. eds., 2006).

¹¹⁴ The level of centralization varies according to the business model. Those banks that adopt a fully centralized model usually operate through branches and collect their capital and debt from the headquarters. On the contrary, those that rely on a decentralized model operate through subsidiaries, which collect their capital separately. Most of the times, however, banks adopt a hybrid model that combines both. See SCHOENMAKER, *supra* note 78, at ch. 3.

systemic risk potential of G-SIFIs is compounded by the fact that their systemic importance may vary in each of the countries where they operate. For instance, while a cross border bank headquartered in a large developed country might be of medium systemic importance for that economy, its operations in a developing country with an underdeveloped and highly connected financial sector might be of major systemic importance.¹¹⁵ This means that home and host regulators might hold different incentives when it comes to deciding how the G-SIFI's problems will be resolved.

The principal–agent relationship between national financial authorities and their citizens prevents national authorities from effectively intervening to maintain the stability of cross-border banks.¹¹⁶ Since their only goal is to safeguard national interests – in terms of fiscal outlays or financial stability – they will intervene only to the extent necessary to achieve their national mandate.¹¹⁷ The principal–agent problem affects financial stability during all stages of the resolution procedure. If the G-SIFI has to be bailed-out, the home state might not be inclined to provide taxpayer-funded financial assistance to the bank's foreign operations unless necessary to guarantee domestic stability.¹¹⁸ This could create a monstrous problem for the host country, which would be left alone to deal with the systemic impact of the bank's failure, often when it will be too late to properly do so.

The resolution of the Icelandic Landsbanki bank in 2008 represents better than any other example the kind of problems that regulators deal with when it comes to saving a cross-border

¹¹⁵ STIJN CLAESSENS ET AL., GENEVA REPORTS ON THE WORLD ECONOMY 12: A SAFER WORLD FINANCIAL SYSTEM: IMPROVING THE RESOLUTION OF SYSTEMIC INSTITUTIONS 29–32 (2010).

¹¹⁶ Katia D'Ulster, *Cross Border Banking Supervision: Incentive Conflicts in Supervisory Information Sharing between Home and Host Supervisors* (World Bank, Policy Research Working Paper No. 5871, 2011), <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5871>.

¹¹⁷ SCHOENMAKER, *supra* note 78.

¹¹⁸ This could happen whenever the failure of the branch would threaten the stability of the parent bank. This problem has been analysed consistently in the economics literature. See Garry Schinasi & Vitor Gaspar, *Financial Stability and Policy Cooperation* (Banco do Portugal, Working Paper No. 01-2010, 2010); Garry J. Schinasi & Pedro Gustavo Teixeira, *The Lender of Last Resort in the European Single Financial Market*, in CROSS-BORDER BANKING: REGULATORY CHALLENGES, *supra* note 115, at 349; Xavier Freixas, *Crisis Management in Europe*, in FINANCIAL SUPERVISION IN EUROPE 102 (Jeroen Kremers et al. eds., 2003).

bank. Landsbanki was headquartered in Iceland, but had foreign operations in the United Kingdom, Germany and the Netherlands in the form of branches. At the onset of the Icelandic banking crisis, the Icelandic authorities failed to provide support to Landsbanki's foreign operations, as they believed that providing equity injections would strain their already limited fiscal capacity. They also refused to compensate foreign depositors, contrary to EU law. As a result, English and Dutch depositors were left completely alone, and only the last minute intervention of host regulators prevented the crisis from escalating.¹¹⁹

Different bank insolvency regimes might similarly create global instability.¹²⁰ Countries' bankruptcy laws often differ greatly with regard to various aspects of the bankruptcy procedure, from the very definition of "bankruptcy" to the level of seniority of different creditors.¹²¹ In the absence of a harmonized bank insolvency framework, when a cross-border bank reaches the point of non-viability each national resolution authority where the bank operates has the right to initiate an independent bankruptcy procedure based on local law.

Regulatory asymmetries in bankruptcy laws might incentivize national authorities to protect their national interest, thereby leading to a disorderly resolution.¹²² This is especially true with regard to those countries that adopt a territorial approach to bankruptcy, such as the United States. Under the territorial approach, the local court adjudicates only claims on local assets and on the part of the

¹¹⁹ For a good analyses of the case see, M. Elvira Méndez-Pinedo, *The Icesave Saga: Iceland Wins Battle before the EFTA Court* 1 MICH. J. INT'L L. EMERGING SCHOLARSHIP PROJECT 101 (2013); M. Elvira Mendez-Pinedo, *Iceland and the EU: Bitter Lessons after the Bank Collapse and the Icesave Dispute*, 3 CONTEMP. LEGAL & ECON. ISSUES 9 (2013).

¹²⁰ IMF, RESOLUTION OF CROSS-BORDER BANKS – A PROPOSED FRAMEWORK FOR ENHANCED COORDINATION (2010), <https://www.imf.org/external/np/pp/eng/2010/061110.pdf>; BASEL COMM. ON BANKING SUPERVISION, REPORT AND RECOMMENDATIONS OF THE CROSS-BORDER BANK RESOLUTION GROUP (2010), www.bis.org/publ/bcbs169.pdf; Michael Krimminger, *Banking in a Changing World: Issues and Questions in the Resolution of Cross-Border Banks*, in CROSS-BORDER BANKING: REGULATORY CHALLENGES, *supra* note 115, at 401.

¹²¹ EVA HUPKES, THE LEGAL ASPECTS OF BANK INSOLVENCY: A COMPARATIVE ANALYSIS OF WESTERN EUROPE, THE UNITED STATES, AND CANADA (2000); Thomas C. Baxter, et al, *Two Cheers for Territoriality: An Essay on International Bank Insolvency Law* 78 AM. BANKR. L.J. 57, 73–76 (2004); Lastra, *supra* note 20; Rosa Maria Lastra, *Cross Border Bank Insolvency: Legal Implications in the Case of Banks Operating In Different Jurisdictions in Latin America*, 6 J. INT'L ECON. L. 79 (2003); CROSS-BORDER BANK INSOLVENCY (Rosa Maria Lastra ed., 2011).

¹²² See, IMF, *supra* note 120, at 9

bank group located in its jurisdiction. In practice, the court will not recognize other bankruptcy procedures and will focus only on protecting the local creditors by ring-fencing all the available assets of the local bank to the detriment of the creditors of the foreign entities.¹²³

This approach has a few systemic implications. First, the split of the bank into national, rather than business, lines during the bankruptcy procedure reduces the franchise value of the bank group, and therefore increases creditor losses.¹²⁴ Second, to control the resolution procedure, national regulators will often delay communicating the real situation of the bank to other regulators and will try to locate as many assets as possible in their jurisdiction before bankruptcy occurs, thereby leaving the foreign operations illiquid. The resolution of Lehman Brothers represents a textbook case in this regard. Before communicating their decision to declare Lehman Brothers bankrupt, US regulators managed to repatriate most of the Lehman Brothers' foreign assets from their European affiliate. When bankruptcy was declared, the UK and German operations were left completely illiquid, thereby triggering a systemic impact across the whole European financial system¹²⁵

2. Macro Asymmetries and Spillovers

While domestic policies may enhance economic efficiency domestically, they might nonetheless produce negative spillovers across borders.¹²⁶ Spillovers take various forms. Sometimes, domestic economic policies in the home country can lead to a surge of capital inflows in partner countries.¹²⁷ Indeed, portfolio flows channeled mainly through cross-border banks and

¹²³ *Ibid.*, at 9-10

¹²⁴ *Ibid.* at 12

¹²⁵ SCHOENMAKER, *supra* note 78, at 74-75.

¹²⁶ On this see, besides the Spillover Report (IMF, 2012 SPILLOVER REPORT (2012)), also, IMF, PILOT EXTERNAL SECTOR REPORT 2012 (2012); the report is published every year.

¹²⁷ IMF, 2012 SPILLOVER REPORT (2012); IMF, THE MULTILATERAL ASPECTS OF POLICIES AFFECTING CAPITAL FLOWS (2011), <http://www.imf.org/external/np/pp/eng/2011/101311.pdf>; IMF, PILOT EXTERNAL SECTOR REPORT (2012), <http://www.imf.org/external/np/pp/eng/2012/070212.pdf>; A.R. Gosh et al., *Surges* (IMF, Working Paper No. 12-22, 2012); Carmen Reinhart & V. R. Reinhart, *Capital Flow Bonanzas: An*

hedge funds are heavily procyclical, and expansionary monetary policies in the home country can increase the risk of asset bubbles and inflation during boom times in partner countries, and the risk of recession during burst.¹²⁸ Katarina Pistor argues that financial policies in Western Europe during the 1990s created asset bubbles in Eastern European countries, ultimately leading to financial crises in the Czech Republic, Poland, and Hungary.¹²⁹ More recently, the unconventional monetary measures adopted by central banks in developed economies to boost growth are believed to have caused the same negative spillovers in emerging economies.¹³⁰ As the financial crisis unfolded, interest rates in advanced economies reached zero, thereby preventing monetary authorities from using them to address monetary stability concerns. As a consequence, monetary authorities had to revert to financial policies and shift the focus of their intervention.¹³¹ In the United States, Japan and England, central banks set up an unconventional program consisting of a prolonged purchase of public bonds and financial assets – so-called *Quantitative Easing* – that pumped vast liquidity into the system, thus reducing real interest rates. While revitalizing sluggish domestic economic growth and safeguarding financial stability in the developed countries, those measures nevertheless increased global liquidity and led to a dangerous surge of capital inflows in emerging economies.

¹³²

Encompassing View of the Past and Present (Nat'l Bureau of Econ. Research, Working Paper No. 14321, 2008).

¹²⁸ In recent years, excessive capital outflows from advanced economies have often created problems in emerging economies. For instance, Brazil and other emerging markets have complained about the negative effects of excessive global liquidity on monetary stability. See IMF, RECENT EXPERIENCES IN MANAGING CAPITAL INFLOWS: CROSS-CUTTING THEMES AND POSSIBLE POLICY FRAMEWORK (2011); Johnatan Ostry et al., *Capital Inflows: The Role of Controls* (IMF, Staff Position Note No. SPN/10/04, 2010).

¹²⁹ Katharina Pistor, *Host's Dilemma: Rethinking EU Banking Regulation in Light of the Global Crisis*, (Eur. Corporate Governance Inst., Working Paper Series in Finance No. 286/2010, 2010), No 286/2010 (2010), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1631940.

¹³⁰ Marcel Fratzscher et al., *On the International Spillovers of US Quantitative Easing* (Eur. Central Bank, Working Paper No. 1557, 2013).

¹³¹ IMF, 2013 SPILLOVER REPORT (2013).

¹³² On the external impact of quantitative easing see, IMF, IMF MULTILATERAL ISSUES REPORT: 2013 SPILLOVER REPORT – ANALYTICAL UNDERPINNINGS AND OTHER BACKGROUND (2013), <http://www.imf.org/external/np/pp/eng/2013/070313a.pdf>; Fratzscher *supra* note 130; Peter J. Morgan, *Impact of US Quantitative Easing Policy on Emerging Asia* (Asian Dev. Bank Inst., Working Paper No. 321,

Sometimes spillovers are the result of different prudential or macroprudential policies. The decline in value of assets in one country might induce banks to cut back foreign loans or to shift into low-risk assets such as government securities in order to adjust their capital adequacy ratios.¹³³ Thomas Moser defines this situation as “portfolio rebalancing due to capital constraint”.¹³⁴ During the Japanese crisis in the early 1990s, the capital buffers imposed on Japanese banks by Basel I led to a reduction of loans from Japanese banks in the United States.¹³⁵

B. Government Failures

A very common source of global systemic risk is government failure. This refers to economic failures that arise from the inability of governments to address economic problems through appropriate regulation or timely policy intervention.¹³⁶ International finance is particularly prone to global systemic risks arising from government failures because, as we explained earlier, the global financial system relies on vertical integration between the public and financial sectors, and also on horizontal integration between national financial sectors. Unsustainable monetary or fiscal policies are thus immediately transmitted to the local financial system, and then spread across the whole global financial network.

In the context of global systemic risk, government failures have historically been associated with sovereign debt or currency crises in developing countries.¹³⁷ However, recent events have

2011).

<http://www.adbi.org/workingpaper/2011/11/18/4796.impact.us.quantitative.easing.policy.emerging.asia/>,

¹³³ Karl Whelan, *Containing Systemic Risk* (Univ. Coll. Dublin Ctr. for Econ. Research, Working Paper No. WP09/27, 2009).

¹³⁴ Moser, *supra* note 22, at 167–68.

¹³⁵ Joe Peek & Eric Rosengren, *The International Transmission of Financial Shocks: The Case of Japan*, 87 AMERICAN ECONOMIC REVIEW 495; Joe Peek & Eric Rosengren, *Collateral Damage: Effects of the Japanese Bank Crisis on Real Activity in the United States*, 9 AMERICAN ECONOMIC REVIEW 30.

¹³⁶ Barak Orbach, *What Is Government Failure?*, 30 YALE J. ON REG. 44 (2013).

¹³⁷ ROSS BUCKLEY & DOUGLAS ARNER, *FROM CRISIS TO CRISIS: THE GLOBAL FINANCIAL SYSTEM AND REGULATORY FAILURES* (2011).

shown that government failures are no longer the exclusive preserve of unstable political institutions, crony capitalism, or underdeveloped economic environments. On the contrary, perhaps most systemic risks caused by government policy now originate from developed and systemically important countries with highly sophisticated institutional frameworks, and from a much wider range of economic policies. Government failures can take many shapes and have different impacts. However, in the context of global systemic risk, sovereign defaults and regulatory failures are particularly relevant. In the next section we will address the peculiar political and economic dynamics that are at their origin.

1. The Time Consistency Problem in Sovereign Debt

Sovereign debt crises are, perhaps, the quintessential example of government failures.¹³⁸ The reasons why sovereigns choose not to service their debt on time differ widely. In some cases it might be the result of macroeconomic mismanagement or broader political failures, while in others it might be the result of prolonged slow growth or adverse economic circumstances.¹³⁹ In this section we will focus on two intertwined problems that were highlighted by the recent Eurozone crisis: the time consistency problem and excessive indebtedness.¹⁴⁰

Sovereign debt contracts are long-term agreements in which the performance of the debtor takes place a long time, sometimes up to thirty years, after the contract is signed. During the period of time that separates the borrowing decision from the actual servicing of the debt, many things can change in the debtor's country. As a consequence, the desire of earlier governments to borrow money to satisfy short-term interests may not be matched by an equal willingness of their

¹³⁸ REINHART & ROGOFF, *supra* note 88.

¹³⁹ For an overview see, Mark L.J. Wright, *Theory of Sovereign Debt and Default*, in HANDBOOK OF SAFEGUARDING GLOBAL FINANCIAL STABILITY: POLITICAL, SOCIAL, CULTURAL, AND ECONOMIC THEORIES AND MODELS, *supra* note 25, at 187.

¹⁴⁰ BARRY EICHENGREEN ET AL., GENEVA REPORTS ON THE WORLD ECONOMY 13: PUBLIC DEBTS: NUTS, BOLTS AND WORRIES (2011).

successors to repay. Since those who bear the costs of funding are not those who enjoy its benefits, sovereign contracts suffer from what economists call the *time consistency* problem.¹⁴¹

Sovereign borrowing is, in its essence, a redistributive policy within generations. If those who bore the costs of sovereign financing also enjoyed the benefits of the increased level of credit, they would probably choose a level of sovereign indebtedness that equated to its social or political marginal benefit. However, since the two groups are separated by up to a generational gap, those who benefit from higher levels of spending tend to undervalue the costs of repaying it borne by future generations.¹⁴² Thus, the real risk is that sovereigns might borrow “beyond the point at which the social cost of one additional unit of debt equals the social benefit of an additional unit of debt-financed government expenditure”.¹⁴³ Surprisingly, currently and with only a few exceptions, it is the developed and systemically important countries that have the higher levels of sovereign indebtedness. For instance, Italy has a debt-GDP ratio of 125%, Greece of 158%, Belgium of 100%, and France of 90%, compared to 60% in Brazil, 40% in Mexico, or 20% in Peru.¹⁴⁴

The political problems of sovereign debt apply to both the borrowing and repaying of debt. At the moment of borrowing, the ruling government can be strongly motivated to over-borrow. Aside from the difficulty of reliably calculating the long-term growth prospects of the country to inform the decision to borrow, democratic governments need to please their electorates to be reelected. They thus face a high political incentive to adopt policies that favor short-term interests rather than long-term fiscal sustainability goals. In the end, borrowing is the easiest option. Unlike taxing, it does not anger the population and it allows the government to finance social projects.

The same, however, applies also when repaying the debt. While democratic governments are in principle reliable in taking up their predecessor’s obligations, they nonetheless have little incentive

¹⁴¹ M. Hallerberg & J. Von Hagen, *Electoral Institutions, Cabinet Negotiations, and Budget Deficits in the EU*, in *FISCAL INSTITUTIONS AND FISCAL PERFORMANCE* (J Poterba & J Von Hagen eds., 1999).

¹⁴² EICHENGREEN ET AL., *supra* note 140, at 16.

¹⁴³ Common pool problems are the equivalent of environmental pollutions for fiscal policy. COMMITTEE ON ECONOMIC POLICIES AND REFORM, *REVISITING SOVEREIGN BANKRUPTCY* 8 (2013).

¹⁴⁴ *Id.* at 7.

to assume the political costs attached to it.¹⁴⁵ Since the rescheduling of sovereign debt is seen as a signal of distress by financial markets – which might reduce credit lines in the future or, more importantly, trigger a capital outflow – governments usually default only when the situation is no longer sustainable, thereby exacerbating further the systemic implications of the default.¹⁴⁶ Sometimes, the same behavior is also due to the political stigma associated with the acceptance of IMF conditionality or other forms of external support.¹⁴⁷ For instance, during the Eurozone crisis, the Greek government downplayed its macroeconomic problems until the very end. Even after the EU and the IMF agreed on a massive €172 billion bailout program conditional on the adoption of austerity measures, the Greek Prime Minister George Papandreou and certain parts of the Greek political establishment threatened to subject it to a national referendum.¹⁴⁸

2. Regulatory Failures

In their seminal book on financial crises, Reinhart and Rogoff argue that one of the main causes of regulatory failure is the inability of regulators to understand and regulate the evolution of the financial sector and its macroeconomic dynamics.¹⁴⁹ In the period leading up to the recent crisis, the international financial system was subject to great innovations and technological developments that created new sources of instability not well understood by regulators. The increased complexities brought by financial innovations, and the use of obscure, unregulated and overly complex financial

¹⁴⁵ Mark J. Wright, *Sovereign Debt Restructuring: Problems and Prospects*, 2 HARV. BUS. L. REV. 156, 175.

¹⁴⁶ In the words of Anne Krueger, “Like a toothache sufferer delaying a visit to the dentist until the last possible moment, governments frequently try to put off the inevitable. The result is that the citizens of the defaulting country experience greater hardship than they need to, and the international community has a tougher job helping pick up the pieces”. See Anne Krueger, *Should Countries like Argentina be able to Declare Themselves Bankrupt? A Commentary*, EL PAIS, Jan. 18, 2002, available online at <http://www.imf.org/external/np/vc/2002/011802.HTM>; See also COMM. ON ECON. POLICIES & REFORM, *supra* note 143

¹⁴⁷ COMM. ON ECON. POLICIES & REFORM, *supra* note 143, at 18.

¹⁴⁸ Peter Spiegel, *How the Euro Was Saved – First Part*, FINANCIAL TIMES, May 12, 2014, <http://www.ft.com/intl/cms/s/0/f6f4d6b4-ca2e-11e3-ac05-00144feabdc0.html#axzz33etPHDqs>.

¹⁴⁹ REINHART & ROGOFF, *supra* note 88.

products created a financial time bomb that ultimately exploded.¹⁵⁰ Perhaps due to a regulatory philosophy averse to state intervention, or perhaps due to regulatory capture by powerful lobbies, regulators failed to address the systemic risk implications of the new financial products. They adopted financial models that did not take into account those changes and their impact on systemic stability; they failed to understand properly the process of securitization and its potential in creating systemic risk, thereby leaving a big part of the business of financial intermediation totally unregulated; and they failed to appreciate the macro linkages between individual financial institutions and the market.¹⁵¹

Regulatory failures can also arise from the unwillingness or inability of regulatory authorities to maintain an adequate level of regulation or supervision.¹⁵² This problem is perhaps more acute in developing countries where financial authorities are even more constrained in terms of human and financial resources than they are in developed countries. However, the problem also arises in developed economies. Governments might choose to adopt lax regulations or supervisory policies in the hope that they might attract foreign firms to their market, or simply to enhance the competitiveness of local firms against foreign ones.¹⁵³ In both cases, however, there is a high risk that a national financial crisis triggered by lax or weak financial regulation would transcend national boundaries and spread to other countries.

¹⁵⁰ Emiliios Avgouleas, *The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a New Orthodoxy*, 9 J. CORP. L. STUD. 23 (2009); Dan Awrey, *supra* note 4; AVGOULEAS, *supra* note 8, at 133–54; CALOMIRIS & HABER, *supra* note 50, at 256–83.

¹⁵¹ For a good overview of the regulatory failures during the financial crisis see, UK FINANCIAL SERVICES AUTHORITY, *THE TURNER REVIEW* (2009); THE FINANCIAL CRISIS INQUIRY COMMISSION, *THE FINANCIAL CRISIS ENQUIRY REPORT* (2011); David Tarr, *The Political, Regulatory and Market Failures That Caused the US Financial Crisis* (World Bank, Policy Research Working Paper No. 5324, 2010).

¹⁵² Pierre-Hugues Verdier, *The Political Economy of International Financial Regulation*, 88 IND. L.J. 1405, 1445 (2013).

¹⁵³ For instance when the first Basel Accord was negotiated in the early eighties, Japanese authorities were opposed to the adoption of more stringent capital requirements, as they understood that the lower capital levels were giving a decisive advantage to their banks against their American and English competitors. See SINGER, *supra* note 106.

IV. POLICY IMPLICATIONS

The regulation of financial systems always confronts policymakers with difficult choices, as they balance competing interests. In a domestic setting the regulatory process is the result of political bargains between different coalitions of depositors, financial institutions, and regulators.¹⁵⁴ Regulating global financial stability, however, is more complicated. First of all, the tradeoff at the core of the *international* regulatory process not only involves competing private interests, but also a difficult compromise between competing sovereign rights. Secondly, in the absence of a centralized regulator – and enforcer – cooperation must rely on international regulatory regimes that promote win–win situations and ensure a Pareto-efficient equilibrium, rather than protecting individual Nash-efficient gains.¹⁵⁵ Pareto efficiency, however, is not easy to achieve in global financial markets. This section will analyze and evaluate the policy and legal implications in the regulation of global systemic risk, in light of our previous findings.

A. Global Systemic Risk and the Financial Trilemma

To understand the regulatory tradeoffs involved in the regulation of global systemic risk, it is useful to rely on a broad conceptual framework recently developed by the economist Dirk Schoenmaker: the so-called *financial trilemma*.¹⁵⁶

¹⁵⁴ On the political economy of financial regulation see, Edward J. Malesky, *Interest Group Politics*, in HANDBOOK OF SAFEGUARDING GLOBAL FINANCIAL STABILITY: POLITICAL, SOCIAL, CULTURAL, AND ECONOMIC THEORIES AND MODELS, *supra* note 25, at 59–68; Gadinis, *supra* note 110; CALOMIRIS & HABER, *supra* note 50.

¹⁵⁵ See Eric A. POSNER & ALAN O. SYKES, ECONOMIC FOUNDATIONS OF INTERNATIONAL LAW (2012); Jeffrey L. Dunoff & Joel P. Trachtman, *Economic Analysis of International Law*, 24 YALE J. INT’L L. 1 (1999); JOEL P. TRACHTMAN, THE ECONOMIC STRUCTURE OF INTERNATIONAL LAW (2008); Eric A. Posner, *International Law: A Welfarist Approach*, 73 U. CHI. L. REV. 487, 518–22 (2006).

¹⁵⁶ The trilemma was developed to address the conflicting objectives facing national supervisory authorities in the context of a cross-border banking crisis, and it was used as the theoretical basis for the creation of the Banking Union in the European Union, at the outset of the recent crisis. See, SCHOENMAKER, *supra* note 78.

The trilemma posits that it is impossible for states to simultaneously achieve three policy objectives: financial integration, national financial sovereignty and financial stability. Financial integration refers to the benefits that financial firms enjoy from participating in a global financial network, and the benefits that consumers and sovereigns enjoy from increased availability of credit and competition. The desire to protect national financial sovereignty is intuitive. When states design and implement domestic policies, they are free to choose what they believe to be their national interest, irrespective of whether it will be sustainable in the long term or whether it will be detrimental to global economic growth.¹⁵⁷ The third objective is the protection of financial stability, particularly the reduction of systemic risk.

In the current *status quo* only two objectives are achieved: financial integration and national sovereignty. However, as we have demonstrated throughout this article, this choice entails the sacrifice of global financial stability, as states are exposed to global systemic risk from their partners' financial systems. If global financial stability is to become a mandatory objective of the future global financial system, states have no choice but to decide whether to reduce financial integration or reduce their national sovereignty.

This tradeoff cannot be considered as an absolute choice, but more simply a broader approach to global finance. In practice states could choose a global financial system organized as a network structure in which capital is mobile – as it is now – but where the degree of discretion of nation states in regulating their economy is lower, as they would have to factor in the external impact of their policies in the policymaking process. Alternatively, states could choose to reduce the level of integration and break some of the interconnectedness that transmits systemic risk. This option does not entail a complete return to a Bretton Woods system without any capital mobility,¹⁵⁸ but more

¹⁵⁷ For instance, Posner and Sykes argue that international law helps in mobilizing domestic political interests favoring Pareto optimal international economic policies. See Eric A. Posner & Alan O. Sykes, *Efficient Breach of International Law: Optimal Remedies, "Legalized Noncompliance," and Related Issues*, 110 MICH. L. REV. 243, 250 (2011).

¹⁵⁸ Some influential authors, however, recommend abolishing capital mobility. See DANI RODRIK, *THE GLOBALIZATION PARADOX* (2012).

simply a reduced level of network interconnectedness through “host-country control”, ring fencing, less freedom in fiscal policymaking, or increased regulatory barriers to finance.

The trilemma cannot be considered a perfectly modeled and ready-to-use financial theory as it lacks solid mathematical foundations – especially when measuring financial stability. Nevertheless, it shows the underlying tensions between the protection of national objectives and the maintenance of financial stability that we encounter in global finance, and it provides a fairly stylized picture of the broad conflicts that regulators must solve when regulating global systemic risk.

With the trilemma in mind, the next step is to see whether it is possible or practical to regulate the different sources of systemic risk, or prevent its transmission across borders. In doing so, we will analyze the role of international law in regulating interconnectedness and trigger events.

B. Regulating Interconnectedness

One of the key lessons from the global financial crisis is that financial institutions do not measure properly the risks associated with their exposure towards other financial or sovereign entities. Participation in a financial network benefits financial firms, but they often ignore the costs that might derive from such interconnectedness. Thus, they might rely excessively on short term funding from the repo or money markets to reduce liquidity problems, or hold too much sovereign debt to reduce the amount of first tier capital that must be set aside under the Basel framework,¹⁵⁹ or they may simply be exposed excessively to one single counterparty or a group of interconnected counterparties.¹⁶⁰ In the event of a counterparty default or a systemic shock, network

¹⁵⁹ Basel III, like its predecessors, assigns a zero-risk weight to OECD countries’ bond in calculating capital requirements. For instance, according to European Central Bank reports, Eurozone banks hold an average of 14% exposure in sovereign bonds, while in certain countries the exposure towards domestic sovereign bonds account for 10% of the overall portfolio. See European Banking Authority, EU-WIDE TRANSPARENCY EXERCISE: 2013 SUMMARY REPORT (2013), http://www.eba.europa.eu/documents/10180/526027/20131216_EU-wide+Transparency+Summary+Report.pdf/7de30cfe-dfdf-40eb-bc6c-f0537af2eed#page=13.

¹⁶⁰ Nicolas Arregui et al., *Addressing Interconnectedness: Concepts and Prudential Tools* 13 (IMF, Working Paper No. WP/13/199, 2013).

interconnectedness becomes a shock transmitter that spreads instability across the system. Given the systemic risk implications of financial linkages, regulating interconnectedness is a priority.¹⁶¹

1. Recent Domestic Regulatory Reforms

The regulatory work on financial interconnectedness is in its infancy compared to other avenues of reform such as capital adequacy or supervision.¹⁶² At the outset of the crisis, when the risks of excessive interconnectedness became clear, commentators proposed various solutions. The initial regulatory focus was on taxes,¹⁶³ levies,¹⁶⁴ or surcharges¹⁶⁵ as the main mechanisms to discourage banks to become too-interconnected-to-fail. Like other similar proposals – such as Financial Transaction Taxes (FTTs) or Financial Activity Taxes (FATs)¹⁶⁶ – none of them were adopted. Regulatory intervention took two other forms instead.

¹⁶¹ Scott, *supra* note 12; Anabtawi & Schwarcz *supra* note 12; Schwarcz, *supra* note 12; Hal S. Scott, *The Next Step in Global Financial Regulation: Global Regulation of Interconnectedness*, 1 GLOBAL POL'Y 332 (2010).

¹⁶² It is important, however, to note that the danger of excessive exposures existed long before the crisis. Indeed, the Basel Committee on Banking Supervision first issued supervisory guidance on large exposures in 1991 in the framework of Basel I. *See* BASEL COMMITTEE ON BANKING SUPERVISION, MEASURING AND CONTROLLING LARGE CREDIT EXPOSURES (1991). Furthermore, Core Principle 19 of the *Core Principles for Effective Banking Supervision* recommends that “national supervisor determine that banks have adequate policies and processes to identify, measure, evaluate, monitor, report and control or mitigate concentrations of risk on a timely basis”, and that national supervisors set “prudential limits to restrict bank exposures to single counterparties or group of connected counterparties. *See* BANK OF INT’L SETTLEMENTS, CORE PRINCIPLES FOR EFFECTIVE BANKING SUPERVISION, (September 2012), <http://www.bis.org/publ/bcbs230.pdf>.

¹⁶³ Markose proposed a “super-spreader” tax based on centrality analysis to raise a fund that would mitigate potential socialized losses from the failure of highly connected banks. *See* S. M. Markose, *Systemic Risk from Global Financial Derivatives: A Network Analysis of Contagion and Its Mitigation with Super-Spreader Tax* (IMF, Working Paper No. 12/282, 2012).

¹⁶⁴ For instance Chan-Lau proposed to impose a bank levy proportionate to the direct exposure between financial institutions. *See* Jorge A. Chan-Lau, *Regulatory Capital Charges for Too-Connected-to-Fail Institutions: A Practical Proposal* (IMF, Working Paper No. WP/10/98, 2010).

¹⁶⁵ Espinosa-Vega & Solé proposed the imposition of capital surcharges that tackle exposures. *See* M. A. Espinosa-Vega & J. Solé, *Cross-Border Financial Surveillance: A Network Perspective* (IMF, Working Paper No. 11/86, 2010).

¹⁶⁶ Ross Buckley & Gill North, *A Financial Transaction Tax Inefficient or Needed Systemic Reform?*, 43 GEORGETOWN GEO. JOURNAL J. OF INTERNATIONAL INT’L LAW L.745 (2012); Kern Alexander,

The first strategy was to *reduce* interconnectedness by setting mandatory exposure limits on financial intermediaries.¹⁶⁷ The BCBS has done this since 1991, but since the crisis it has substantially revised the regulatory framework in place.¹⁶⁸ The new *Supervisory Framework for Measuring and Controlling Large Exposures* requires international banks to communicate to their national regulators any exposure towards counterparties that is equal to or above 10% of the bank's eligible capital. Moreover, the value of a firm's exposure towards counterparties must not exceed 25% of the Tier 1 capital base at any time.¹⁶⁹ The value is reduced to 15% if the counterparty is a Globally Systemic Important Bank.

Under this framework whenever a group of counterparties are so interconnected with each other that the failure of one would likely imply the failure of all the others, the exposure limits must be calculated with reference to the group instead of each individual institution.¹⁷⁰ The above-mentioned standard is complemented by the newly issued *Capital Requirement for Bank Exposures to Central Counterparties*,¹⁷¹ which sets various rules regarding the bilateral exposures between a bank and central counterparties or their members.

Large exposure limits aim to reduce the potential loss a bank could face in the event of a sudden failure of a counterparty. They also prevent the creation of a financial system in which firms

International Regulatory Reforms and Financial Taxes, 13 JOURNAL J. OF INTERNATIONAL INT'L ECONOMIC ECON. L. 893 (2010);).

¹⁶⁷ Hal Scott suggested regulating global interconnectedness by imposing "position limits on net exposures (including all lending and derivatives) of financial institutions to each other." Scott, *supra* note 161, at 332.

¹⁶⁸ BASEL COMM. ON BANKING SUPERVISION (1991), *supra* note 162

¹⁶⁹ The level of exposure was subject to some debate. In its 2013 Consultative Document, the Basel Committee proposed an exposure limit lower than the current 25% of Tier 1 capital base, although it didn't specify the actual level. However, the limit was kept to 25% in the final document. According to the 2013 Consultative Document, actual practices range from 10% to 50%, with the majority of jurisdictions applying 25% limit. *See* BASEL COMM. ON BANKING SUPERVISION, CONSULTATIVE DOCUMENT: SUPERVISORY FRAMEWORK FOR MEASURING AND CONTROLLING LARGE EXPOSURES 7 (2013).

¹⁷⁰ For instance, if banks A+B+C are considered connected counterparties, the exposure limit that Bank H must not exceed towards them will not be 75% of the bank capital (25+25+25), but only 25% in total. BASEL COMM. ON BANKING SUPERVISION, SUPERVISORY FRAMEWORK FOR MEASURING AND CONTROLLING LARGE EXPOSURES §§ II, III, V (2014).

¹⁷¹ *Ibid.*

are dangerously exposed to only a few core nodes.¹⁷² One of the limits of this strategy, however, is that it cannot tackle common shocks. In the event of a market-wide crisis, a sudden reduction in prices across different segments would necessarily imply a proportional reduction in the value of the balance sheet.

The second strategy is to *break* the interconnectedness between two institutions by creating an intermediate entity that clears their bilateral exposures and absorbs potential shocks in the event of a counterparty default. This approach has been used recently in the context of securities and derivatives trading with the creation of Central Counterparty Clearinghouses (CCPs).¹⁷³ In derivatives trading, counterparty defaults are particularly troublesome because of the difficulty for each firm to monitor and value their counterparty's exposure towards other market participants. Until the financial crisis, most derivatives were traded bilaterally over the counter without any institutional trading platform.¹⁷⁴ In the absence of a centralized clearing entity firms could not control the risk they were taking when entering into a bilateral transaction, and in the event of their counterparty's default they were immediately exposed to the contagion effect that would eventually reverberate across the whole system.

Not surprisingly, the creation of CCPs was among the first measures adopted globally to address systemic risk.¹⁷⁵ CCPs operate by stepping between two members and assuming the legal role of a counterparty towards each of them in their bilateral transaction, thereby assuring that in the event of one's default the other is not impacted.¹⁷⁶ The philosophy of a CCP is not to limit

¹⁷² See Basel Comm. on Banking Supervision, Final Standard for Measuring and Controlling Large Exposures Published by the Basel Committee, available at <http://www.bis.org/press/p140415.htm>,

¹⁷³ Scott, *supra* note 12; Allen, *supra* note 13; Judge, *supra* note 13.

¹⁷⁴ Steven L. Schwarcz, *Regulating Complexity in Financial Markets*, 87 WASH. U. L. REV. 211, 235–36 (2009).

¹⁷⁵ The creation of CCPs was requested by the G-20 at Pittsburgh in 2009. See G-20, LEADERS' STATEMENT: THE PITTSBURGH SUMMIT (2009). Immediately afterwards, the United States and the European Union started to work on creating CCP and trade repositories. See Edward F. Greene & Joshua L. Boehm, *The Limits Of "Name-And-Shame" In International Financial Regulation*, 97 CORNELL L. REV. 1083 (2012).

¹⁷⁶ The non-defaulting counterparty receives the payment directly from the CCP. To minimize its risk, the CCP requires collateral deposit or margins by its members.

individual firms' exposures towards other counterparties, but rather to concentrate the risk in one institution only and thus break the domino effect in the event of contagion.

CCPs were met with skepticism by certain parts of the regulatory community. On the one hand, some commentators pointed out that by concentrating counterparty risk in one single institution, CCPs would create a monstrous systemic risk problem in the event of their insolvency.¹⁷⁷ Indeed, rather than containing the negative spillovers of a counterparty's default, CCPs would themselves become too-big-too-fail and would necessitate government intervention to contain systemic risk.¹⁷⁸ On the other hand, by concentrating the systemic risk of counterparties' default in the CCP only, regulators would be able to focus their intervention on only one institution that could more easily be isolated and firewalled, rather than having to intervene with multiple defaulting institutions. Furthermore, since the CCP acts as a central node to multiple firms it can monitor and evaluate the exposure and credit worthiness of its members at all times. By doing so it also reduces the information asymmetry problems that are at the origin of systemic risk.¹⁷⁹

2. Problems in Regulating International Interconnectedness

The strategies above strike a delicate balance between maximizing the benefits of a network system and minimizing the risks that tight interdependencies pose to financial stability. However, the global regulatory framework for international interconnectedness presents some clear limits.

¹⁷⁷ Allen, *supra* note 13; also the Bank of England pointed out the systemic risks of CCPs. However, it argued these could be reduced by proper monitoring and surveillance. See Amandeep Rehlon & Dan Dixon, *Central Counterparties: What Are They, Why Do They Matter and How Does the Bank Supervise Them?*, [Q2, 2013] BANK OF ENGLAND Q. BULL. 1, 6–7.

¹⁷⁸ Over the last forty years, three CCPs have gone bankrupt. See Alexandre Lazarow, *Lessons from International Central Counterparties: Benchmarking and Analysis* 13 (Bank of Can., Discussion Paper No. 2011-4, 2011).

¹⁷⁹ Allen, *supra* note 13.

First of all, the BCBS standards on large exposures do not deal with sovereign debt exposures, which were one of the fundamental causes of the financial crisis in Europe.¹⁸⁰ Similarly, Basel III reforms leave completely untouched the risk-weighting methodology for calculating capital ratios with regard to sovereign debt.¹⁸¹ Consequently, the global financial system is still largely exposed to the global systemic risk from sovereign default as well as from the sovereign-bank vicious link.¹⁸²

Secondly, at present there is no global framework for derivatives transactions. Since the derivatives market is global, it would require support by common clearing or supervisory infrastructures. Hal Scott has suggested the creation of an international body to oversee the process of: (1) “collecting, storing and monitoring information about positions on a timely basis; (2) setting parameters for valuing positions and collateral (not easy in the case of disrupted markets); and (3) devising methods for determining net exposures in light of hedges”.¹⁸³ Similarly, the G-20 at Pittsburgh recommended that “standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties, ...[that] OTC derivative contracts should be reported to trade repositories...[and that] non-centrally cleared contracts should be subject to higher capital requirements.”¹⁸⁴

Establishing those global infrastructures, however, requires a great deal of regulatory coordination and deep political trust to share confidential data; neither of which currently exist. While the BSBC standard on large exposures largely harmonized national regulatory frameworks, it did not create a centralized institution that performs all the coordinating and supervisory functions required in a global financial market.

¹⁸⁰ BASEL COMM. ON BANKING SUPERVISION(2014), *supra* note 174

¹⁸¹ Basel III reforms simply incorporated the Basel II framework on exposures to sovereigns. See, BIS, *Low Rates Spur Credit Markets As Banks Lose Ground* (BIS Quarterly Review, December 2013), at 10; For an overview of the rules under Basel II see, GLEESON, *supra* note 93

¹⁸² On the vicious link between banks and sovereigns, and how it develops see, Merler & Pisani-Ferry, *supra* note 96.

¹⁸³ Hal S. Scott, *supra* note 161, at 332–33.

¹⁸⁴ G-20, *supra* note 175, at 9.

Furthermore, while the creation of proper infrastructure for derivatives trading is progressing very fast at the national level,¹⁸⁵ the same is not occurring with *global* CCPs and *global* trade repositories. There are dangerous discrepancies between the EU and the US regimes in terms of what constitutes a derivative transaction and reporting requirements, margin requirements, and the supervisory framework.¹⁸⁶ There is also currently only one global trade repository for derivatives transactions.¹⁸⁷ The creation of a truly common monitoring framework for derivatives is of fundamental importance to the containment of global systemic risk. Given the global scope of the derivatives market, national central banks and financial authorities cannot rely only on domestic data to control the exposure of their financial institutions. A strong degree of cooperation is therefore necessary between national authorities, which need to share data on a daily basis.¹⁸⁸ However, as recently pointed out by Janet Yellen, "...[unfortunately] there is still no guarantee, due to confidentiality concerns and legal barriers to data sharing, that the data reported into these trade repositories will ultimately be accessible to all of the regulators who require the data to obtain a holistic view of the derivatives market".¹⁸⁹

Finally, none of the regulatory reforms take into consideration the systemic risk potential of *systemically important jurisdictions*. Since a few jurisdictions dominate trading in particular

¹⁸⁵ Title VII of The Dodd-Frank Act requires financial institutions to report data on swap and securities transactions to a trade repositories regulated by the Commodity Futures Trading Commission or Securities and Exchange Commission, respectively. *See* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010). Similarly, the European Securities and Market Authority, which is in charge of securities in the European Union issued in 2013 a regulatory framework for derivatives and securities trading. The European Market Infrastructure Regulation regulates both derivatives trading requirements, trade repositories, and central counterparties for derivatives transactions. *See* Regulation 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC Derivatives, Central Counterparties and Trade Repositories , 2012 O.J. (L 201) 1.

¹⁸⁶ Greene & Boehm, *supra* note 175, at 1127–29.

¹⁸⁷ The only active global trade repository is the DTCCC Global Trade Repository.

¹⁸⁸ William C. Dudley, Address at the Swiss National Bank-International Monetary Fund Conference: What Does Interconnectedness Imply for Macroeconomic and Financial Cooperation? (May 8, 2012). *See also*, Ulrich Körner, *Enhancing Financial Stability – A Global Bank’s Perspective*, in STABILITY OF THE FINANCIAL SYSTEM, *supra* note 46, at 407, 416–18.

¹⁸⁹ Janet Yellen, *supra* note 14, at 20.

areas,¹⁹⁰ a concentration of exposures towards one of these jurisdictions would make any macroeconomic problem or regulatory failure occurring there a potential source of global systemic risk.

3. The Need for a Pareto-efficient Regulatory Framework

As there is no common regulatory framework for global interconnectedness, states are left alone to cope with the dangers of global systemic risk. Historically, states have resorted to three main strategies to insulate themselves against external instability. First, they might impose controls on the inflow of capital.¹⁹¹ These are essentially regulatory barriers aimed at discouraging or impeding foreign financial assets from entering the country. Capital inflow controls can take many forms¹⁹² and be used for different purposes.¹⁹³ In the context of systemic risk reduction, states have used them to prevent the creation of asset bubbles, control inflation, maintain monetary stability, or as macroprudential policy tools.¹⁹⁴

The second strategy has been to adopt ring-fencing techniques to prevent foreign firms from moving their capital out of the country. Ring fencing, or capital outflow controls, is most commonly used in the context of cross-border banking issues.¹⁹⁵ It legally separates the cross-border bank into two completely independent entities, each under the control of the local authority.

¹⁹⁰ For example, the United States for repo financing and the European Union countries for sovereign debt: IMF, MANDATORY FINANCIAL STABILITY ASSESSMENTS UNDER THE FINANCIAL SECTOR ASSESSMENT PROGRAM: UPDATE 17 (2013).

¹⁹¹ Jonathan D. Ostry et al., *Capital Inflows: The Role of Controls* (IMF, Staff Position Note No. SPN/10/04, 2010), <https://www.imf.org/external/pubs/ft/spn/2010/spn1004.pdf>; and Nicolas E. Magud et al., *Capital Inflows, Exchange Rate Flexibility, and Credit Booms* (IMF, Working Paper No. 12/41, 2012), <http://www.imf.org/external/pubs/ft/wp/2012/wp1241.pdf>; Jonathan D. Ostry et al., *Managing Capital Inflows: What Tools to Use* (IMF, Staff Discussion Note No. SDN/11/06, 2011), <http://www.imf.org/external/pubs/ft/sdn/2011/sdn1106.pdf>.

¹⁹² Such as taxes, administrative and legal requirements, or prohibitions.

¹⁹³ Federico Lupo-Pasini, *supra* note 68.

¹⁹⁴ Jonathan D. Ostry et al., *supra* note 191; RP Buckley, "The Role of Capital Controls in International Financial Crises", 1999, 11 *Bond Law Review* 231.

¹⁹⁵ On ring fencing and cross border financial crises see, THE INDEP. COMM. ON BANKING, FINAL REPORT

The third strategy is that of *subsidiarization*.¹⁹⁶ This involves host authorities only allowing foreign firms to establish operations in their jurisdiction through subsidiaries, which are subject to local rules and supervision. Unlike ring fencing, this technique applies before a crisis occurs as a precautionary strategy. By preventing cross-border financial institutions from operating local branches, it allows host regulators to monitor and regulate foreign banks, and it prevents intra-bank capital mobility of the kind discussed before.

All three strategies are extremely effective at insulating domestic financial systems from global systemic risk. However, they are extremely inefficient from a global or Pareto standpoint. By focusing on the stability of individual countries rather than global stability, they promote Nash-efficient equilibrium in which national gains equate to the losses of another state or investor. Indeed, what capital control, ring fencing and subsidiarization achieve is a Balkanization of the global financial system into different national financial systems – a situation that drastically reduces the economic benefits of financial integration.¹⁹⁷ From a foreign investor’s viewpoint, they reduce free capital mobility and the freedom of investment, which in various instances is protected under international law by international investment or trade agreements.

C. The Limited Role of International Law in Regulating Domestic Policies

RECOMMENDATIONS (2011) (commonly referred to as the *Vickers Report*), <http://www.parliament.uk/briefing-papers/sn06171.pdf>; Alison Lui, *Retail Ring Fencing of Banks and Its Implications*, 13 J. BANKING REG. 336 (2012); and RP Buckley and SM Fitzgerald, “An Assessment of Malaysia’s Response to the IMF during the Asian Economic Crisis”, 2004, *Singapore Journal of Legal Studies* 96.

¹⁹⁶ On subsidiarization see, COMM. ON INT’L ECON. POLICY & REFORM, BANKS AND CROSS-BORDER CAPITAL FLOWS: POLICY CHALLENGES AND REGULATORY RESPONSES 37–43 (2012); D’Ulster, *supra* note 116; Eugenio Cerutti et al., *Bankers without Borders? Implications of Ring-Fencing for European Cross-Border Banks* (IMF, Working Paper No. WP/10/247, 2010), <https://www.imf.org/external/pubs/cat/longres.cfm?sk=24335.0>.

¹⁹⁷ Not all authors agree, however. For instance, Avinash Persaud and Katharina Pistor have often favoured more host country control. See Avinash Persaud, *The Locus of Financial Regulation: Home versus Host*, 86 INT’L AFF. 637 (2010); Pistor, *supra* note 129.

The second possible strategy to contain global instability is to address the underlying mechanisms at the origin of global systemic risk – the trigger events that spread contagion across the system. Since global systemic risk is the result of domestic policies, reducing instability necessarily entails reducing domestic policy space. This can only be achieved if states voluntarily cooperate and address the internal political economy dynamics that drive their behaviors. However, this will not always be possible or advisable. In this section we will examine the potential for coordination on domestic policies.

1. Government Failures

Of the two issues examined in Section IV, government failures are, potentially, the easiest to address through international cooperation. The regulatory output of the BCBS and other international financial standard setters can be seen as an attempt to prevent such failures. The very first instruments issued by the BCBS on supervisory coordination¹⁹⁸ attempted to create a minimum standard of supervision that would reduce dangerous policy discrepancies between national authorities in the supervision of cross-border banks. The Basel Accords were also intended to level the playing field for capital regulation, and therefore to reduce the systemic risk implications of a bank collapse.

When it comes to sovereign debt, the time consistency problem can be addressed by various means. First, domestic legislation can place limits on the amount of external indebtedness. Since ruling governments often over-borrow, it would be advisable to insert such limits into the constitution or special statute.¹⁹⁹ An example of this approach is the European Union's Stability and

¹⁹⁸ The Basel Concordat of 1975 and its subsequent amendments. *See* COMM. ON BANKING REGULATION AND SUPERVISORY PRACTICES, REPORT TO THE GOVERNORS ON THE SUPERVISION OF BANKS' FOREIGN ESTABLISHMENTS (1975).

¹⁹⁹ EICHENGREEN ET AL., *supra* note 140, at 21.

Growth Pact²⁰⁰ and its subsequent amendments under the Euro Plus Pact in 2011, which set a limit of 3% in the government budget deficit-GDP ratio of each EU Members, beyond which the members are subject to disciplinary rules.²⁰¹ Another potential mechanism is to transfer external borrowing policy decision-making to an independent authority in order to protect borrowing decisions from political interference.

The real question when it comes to the global financial system, however, is how to promote Pareto-efficient coordination. The answer lies in the political economy dynamics of government policies. Starting from Putnam's two-level game, the political science and the law and economics literatures have for quite some time analyzed the mechanism that leads to adherence and compliance to international norms.²⁰² The same analyses could be extended to government failures in the international context. From a political economy viewpoint, government failures arise due to the imbalance of power between different lobby groups, some of which might oppose long-term reforms that they consider detrimental to their interests. In the case of capital adequacy regulation the stronger group is primarily made of banks, which want to retain their competitiveness, while in the case of sovereign debt the stronger group consists of current government officials, who want to please their electorate.

In a closed economy in which external influences are absent, regulators are subject to regulatory capture from these groups and are unable to promote reforms that will guarantee the long-term interests of their country. Domestic interest groups that support structural regulatory reforms – such as younger generations, or depositors and taxpayers – are less visible or dispersed, and therefore less well represented in the process of regulatory design. In an open economy,

²⁰⁰ See Jean Victor Louis, *The Review of the Stability and Growth Pact*, 47 COMMON MKT. L. REV. 85 (2006); Waltraud Schelkle, *EU Fiscal Governance: Hard Law In The Shadow Of Soft Law?* 13 COLUM. J. EUR. L. 705 (2007).

²⁰¹ The EU legislation however does not tackle external indebtedness as such. See Fabian Amtenbrink & Jakob de Haan, *Economic Governance in the European Union: Fiscal Policy Discipline Versus Flexibility*, 40 COMMON MKT. L. REV. 1075 (2003); Jacques Delors, *JCMS 50th Anniversary Lecture Economic Governance in the European Union: Past, Present and Future*, 51 J. COMMON MARKET STUD. 169 (2013).

²⁰² Robert D. Putnam, *Diplomacy and Domestic Politics: The Logic of Two-Level Games*, 42 INT'L ORG. 427 (1988).

however, domestic groups favoring long term and globally efficient reforms are supported by foreign interest groups – mainly states and investors, or even international organizations – that similarly have an interest in their partner countries having a stable economy. Foreign interest groups, however, cannot exert their influence in the domestic political process. In this situation, international law plays an important role in pairing domestic and foreign interest groups to create a more powerful lobby group favoring globally Pareto-efficient reform.²⁰³

The power of global coalitions is already very visible, especially when it comes to financial standards. To offset local interests opposing prudential standards, foreign interest groups act through two main channels. First, financial markets exert pressure on local governments through reduced ratings or by threatening to move their capital elsewhere. Second, international financial organizations exert institutional pressure through some of the various mechanisms of supervision²⁰⁴ or through lending conditionality.²⁰⁵

A similar result could also be achieved with sovereign debt. International agreements on sovereign debt²⁰⁶ could contain provisions that mandate a certain domestic regulatory framework such as the ones we have described. Before allowing investors to buy sovereign bonds from a foreign country, the investors' parent authorities could ensure the host country had such a framework.²⁰⁷ The IMF could also require the adoption of such legislative reforms under its

²⁰³ In this regard, Prof Trachtman has recently developed a theoretical model that explains how political coalitions are formed in the international arena with the support of international law. Joel P. Trachtman, *International Law and Domestic Political Coalitions: The Grand Theory of Compliance with International Law*, 11 CHI. J. INT'L L. 127 (2010); On the positive role of international law in mobilizing domestic interest see also, Posner & Sykes, *supra* note 158; POSNER & SYKES, *supra* note 156, at 17–20.

²⁰⁴ The most relevant example of this is the IMF-World Bank Financial Sector Assessment Programme.

²⁰⁵ Chris Brummer, *How International Financial Law Works (And How It Doesn't)*, 99 GEO L.J. 257 (2011); Chris Brummer, "Why Soft Law Dominates International Finance and Not Trade", 13 J. INT'L ECON. L. 623 (2010); BRUMMER, *supra* note 8.

²⁰⁶ For example, most International Investment Agreements covering portfolio investment.

²⁰⁷ At the outset, it is important to remember that host countries are already subject to a rather stringent regulatory framework through the adoption of bilateral investment treaties. However, these instruments are in our view unsuited to regulate financial matters. First of all, they apply a regulatory framework that has been designed to protect the interests of FDI investors rather than those of portfolio investors. Indeed, the regulatory platform for international investment grew out of the customary international law on the treatment

conditionality package. Finally, rating agencies could factor in those mechanisms when evaluating sovereign credit worthiness by refusing AAA status to sovereign bonds from a state that did not have in place such a mechanism of control.

2. *Asymmetries*

Asymmetries in regulation and policies have featured as a source of global systemic risk since the Herstatt bank collapse. However, they are not impossible to resolve. The history of finance shows that, under the right conditions, asymmetries can be resolved by focusing on common incentives and eventually by exerting enough pressure on non-complying states. The clearest example is Basel I, which was imposed on a reluctant Japan by threatening to exclude Japanese firms from the US and European markets.²⁰⁸

In the context of cross-border bank resolution, various proposals have been put in place to prevent diverging incentives from derailing an optimal intervention on the failing bank. The most drastic was to centralize banking supervision and resolution among Eurozone countries by giving power to one centralized authority to address all aspects of crisis resolution in the event of an emergency. The logic was to transfer the jurisdiction of the cross-border bank to one authority, which would oversee the whole market, thereby bypassing the principal–agent problem that affects national supervisors.²⁰⁹ The centralization of supervisory and crisis resolution policies into one authority was seen as the only way to correct the regulatory and economic problems affecting the European monetary union, and it is currently ongoing among Eurozone countries. The ECB will

of aliens, and it still relies on vague standards of treatments and an ambiguous jurisprudence that, while rightly addressing the long-term problems of greenfield investment, is certainly not suited to the complexity of international finance.

²⁰⁸ SINGER, *supra* note 106; *See also* Verdier, *supra* note 45 (Verdier also examines coordination failures.).

²⁰⁹ Centralization was proposed by Dirk Schoenmaker as the solution of the financial trilemma. *See* SCHOENMAKER, *supra* note 78.

supervise most Eurozone banks, while the Single Resolution Board - a specialized agency under the European Commission - will manage their resolution.²¹⁰

Centralization is not, however, a feasible option outside the EU. Since it deprives states of a large portion of their sovereignty, it would probably meet with strong opposition.²¹¹ As an alternative, various authors have suggested agreeing on an ex-ante burden sharing agreement outlining the procedures of intervention during a cross-border banking crisis, and the criteria that will determine the level of contribution of each country in the bailout of the bank.²¹²

When it comes to coordinating banking resolution procedures and bankruptcy law, the best strategy is to reduce the control of national authorities on the fate of the bank. Living wills achieve precisely this objective.²¹³ Banks and financial institutions are now required to prepare resolution plans in the event of a failure, in which they set out precisely how the institution should be resolved across its global structure. The plans detail the procedures to be followed by each national authority

²¹⁰ At the time of writing, the architecture of the Banking Union is still a work in progress. At present the Banking Union is organized under two main pillars. The first pillar is the Single Supervisory Mechanism [SSM], which will enter into force in November 2014. According to the Single Supervisory Mechanism Regulation, the European Central Bank will assume the function of supervising all the Eurozone banks with assets of more than €30 billion or constituting at least 20% of their home country's GDP. The second pillar is the Single Resolution Mechanism [SRM], which will enter into force on the 1st January 2015. The SRM will be governed by the Single Resolution Board [Board], which will be made by representative of the European Commission, the European Council, the ECB, national resolution authorities, and by permanent members. The SRM will implement two main functions. First of all, it will apply the EU rules on crisis resolution as set out by the forthcoming Bank Recovery and Resolution Directive (entering into force on 1st January 2016). Second, it will intervene with emergency credit or liquidity operations in the event of a banking crisis, by using the credit facility provided by the Single Resolution Fund (set at €55 billion,) to which all Eurozone banks will contribute. For a good overview of the regulatory developments see, EUROPEAN COMMISSION, A COMPREHENSIVE EU RESPONSE TO THE FINANCIAL CRISIS: SUBSTANTIAL PROGRESS TOWARDS A STRONG FINANCIAL FRAMEWORK FOR EUROPE AND A BANKING UNION FOR THE EUROZONE (2014), http://europa.eu/rapid/press-release_MEMO-14-244_en.htm?locale=en.

²¹¹ This argument was first proposed by Federico Lupo-Pasini. See Lupo-Pasini, *supra* note 95, at 235–37.

²¹² Charles Goodhart & Dirk Schoenmaker, *Fiscal Burden Sharing in Cross-Border Banking Crises*, 5 INT'L J. CENT. BANKING 141 (2009); Dirk Schoenmaker, *Burden Sharing for Cross-Border Banks* (Banco de España, Estabilidad Financiera No. 18, 2011); SCHOENMAKER, *supra* note 78, at 98–103.

²¹³ Living Wills have been requested by the G-20 as one of the priority actions to strengthen the international financial system. They are mandatory for all the top 24 global banks and 6 insurance companies. See BASEL COMM. ON BANKING SUPERVISION, *supra* note 120; BASEL COMM. ON BANKING SUPERVISION, BASEL III: A GLOBAL REGULATORY FRAMEWORK FOR MORE RESILIENT BANKS AND BANKING SYSTEMS (2010); Emiliós Avgouleas et al., *Bank Resolution Plans As A Catalyst For Global Financial Reform*, 9 J. FIN. STABILITY 210 (2013).

in the event of a collapse and they also set out the internal strategy to be followed by the management to reduce losses and minimize the systemic impact of the collapse.

3. Spillovers

When it comes to realigning macroeconomic differences and reducing cross-border spillovers, the potential for coordination is extremely limited. The history of monetary cooperation post-Bretton Woods shows various failed attempts to coordinate macroeconomic policies. Following China's alleged manipulation of the exchange rate, some countries – especially the United States – promoted the establishment of a common policy framework to tackle exchange rate misalignments. Not surprisingly, this did not occur. As Keynes warned, in an interconnected global economy the mobility of capital makes it extremely difficult to find a Pareto-efficient equilibrium in which national policies maximize both domestic and global efficiency.²¹⁴ Confronted with a choice between the two, regulators will clearly favor the former to the detriment of global stability.

From a purely economic viewpoint, macroeconomic policy serves to achieve multiple economic goals. Since each macroeconomic policy tool affects multiple economic variables, cooperation cannot be tailored to achieve one objective only. To be effective, political bargains must extend to the whole set of economic objectives that the specific macroeconomic tool addresses.

Achieving this kind of coordination is, however, extremely difficult.²¹⁵ With only the possible exception of economic unions, economic structures always differ between countries due to a variety of factors, such as population, resources, capital, and even culture. To promote economic efficiency, macroeconomic policy must be tailored to the specific needs of each country. Indeed, the role of monetary authorities is to promote domestic stability and efficiency, and they must do so without

²¹⁴ See, CHWIEROTH, *supra* note 66, at 65

²¹⁵ Posner and Sykes reach the same conclusion, arguing that macroeconomic policies are often uncertain and time-variant. See, Eric A. Posner and Alan O. Sykes, *International Law and the Limits of Macroeconomic Cooperation* (Chicago Institute for Law and Economics Working Paper No 609, 2012)

taking the external impact of their policies into account. If monetary policy were to be coordinated between different countries, each national authority would find it impossible to address the underlying economic imbalances that affect their local economy.

V. CONCLUSIONS

This article has analyzed how domestic policies contribute to creating global systemic risk. At the core of this problem lies a disconnect between the global scope of financial markets and the national scope of regulatory intervention. In a global financial system in which nation states still control most financial and macroeconomic policies, divergent policy preferences and government failures add further dimensions to global financial instability that go beyond pure market inefficiencies. The role of international law in addressing global systemic risk is, therefore, more complex and challenging than in national financial systems.

In a closed economy, regulation can easily target and influence the behavior of private institutions and address market failures. In a global economy, however, in which states are separated by economic asymmetries and diverging policy preferences, regulatory coordination is more difficult to achieve and sometimes even undesirable. First of all, the trade-off at the core of the international regulatory process is not simply one between competing private interests; it also entails a difficult compromise between competing sovereign rights. Secondly, in the absence of a centralized regulator, cooperation needs to rely on international regulatory regimes that promote win-win situations and ensure a Pareto-efficient equilibrium, rather than protecting individual Nash-efficient gains.

This article conceptualizes global systemic risk as an underlying government failure, which transmits instability to the wider global financial system through financial interconnectedness. To achieve global financial stability, international law must operate on either one of two elements. The

first option is to correct government failures by reducing the domestic policy space on financial policies. International law can play a powerful role in this regard by mobilizing domestic political interests favoring regulatory convergence. However, when it comes to global macroeconomic spillovers, cooperation is extremely difficult and also unadvisable.

The other possibility is to reduce the financial interconnectedness through which financial instability propagates. The role of the law in this situation is to frame a correct trade-off between the benefits of an extended network and the need to protect against external threats. As the legal framework to reduce the risks of global interconnectedness remains largely underdeveloped, states are left on their own. To protect against external threats they resort to capital controls, ring-fencing and subsidiarization. These techniques, while extremely effective in insulating the country employing them, are extremely inefficient from a global or Pareto standpoint. Indeed, by focusing only on individual countries' stability, they promote a Nash-efficient equilibrium in which national gains equate to the losses of another state or investor. Furthermore, they lead to a Balkanization of the global financial system in which the economic benefits of financial integration are sacrificed.