Financial Safety Nets in Emerging Market Economies

by

Michael A. Gavin

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Department of Political Science
University of Toronto

Abstract

Why have financial safety nets in emerging market economies expanded dramatically in recent years? This dissertation argues that emerging market economies have increasingly turned to domestic financial safety nets as the politically viable solution to the puzzle of how to combine international financial integration and domestic credit growth with domestic financial stability. Yet the widespread proliferation of state-level financial safety nets was not an inevitable outcome, but a common response by emerging market economies to the general unwillingness of the large financial powers to provide robust international equivalents. Indeed, despite the many emerging market financial crises in the post-Bretton Woods era, international financial safety nets remained weak, or, at best, supplied as global club goods.

Yet despite this common motivation and the widespread expansion in financial safety nets, there is significant variation in their size and scope across countries and across time. Three explanatory variables stand out in this regard. First, the geopolitical closeness and relative degree of financial integration with the United States sets the parameters regarding a state's relative access to an international financial safety net. A formal model and anecdotal case study evidence suggests that, all else equal, states with greater access to an international financial safety net face fewer incentives to provision an equivalent domestic financial safety net. Second, the relative degree and pace of democratization, as well as the desire for governments to legitimate their rule via high rates of private credit growth, has pushed governments to supply more expansive financial safety nets. Third, the degree of independence the agent in control of the financial safety net has from political authority has tended to boost financial safety nets. This effect was found to be operative with respect to independent central banks and resolution authorities operating with formal independence (Turkey) or with few effective political constraints (Mexico).

To my girls, Şebnem, Nevra, and Rana.

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Contents

List of Tables

List of Figures

List of Acronyms

AKP	Adalet ve Kalkınma Partisi (Justice and Development Party)
ANAP	Anavatan Partisi (Motherland Party)
BIS	Bank for International Settlements
BLF	Bank Liquidation Fund
BOM	Banco de México
BRSA	Banking Regulation and Supervision Agency
CBRT	Central Bank of the Republic of Turkey
CD	Certificates of Deposit
CHP	Cumhuriet Halk Partisi (Republican People's Party)
CLD	Convertible Lira Deposit Accounts
CLSB	Continuously Linked Settlement Bank
CMB	Capital Markets Board
CMHC	Canadian Mortgage and Housing Corporation
CNBV	Comisión Nacional Bancaria y de Valores (The National Banking and Securities Commission)
DYP	Doğru Yol Partisi (True Path Party)
ECB	European Central Bank
EU	European Union
ESM	European Stability Mechanism
FCL	Flexible Credit Line
FDIC	Federal Deposit Insurance Corporation
Fobaproa	Fondo Bancario de Protección al Ahorro (The Banking Fund for the Protection of Savings)
FSB	Financial Stability Board
GGF	General Guarantee Fund
HST	Hegemonic Stability Theory
ICU	International Clearing Union
IFS	International Financial Statistics
IMF	International Monetary Fund
IPAB	Instituto para la Protección al Ahorro Bancario (The Institute for the Protection of Bank Savings)
IPE	International Political Economy
ISI	Import Substitute Industrialization
NAFTA	North American Free Trade Agreement
PLL	Precautionary and Liquidity Line
PRI	Partido Revolucionario Institucional (Institutional Revolutionary Party)
Procapte	Programa de Capitalizacion Temporal (Temporary Capitalization Program)
PSBR	Public Sector Borrowing Requirement
RP	Refah Partisi (Welfare Party)

RTGS   Real-Time Gross Settlement
SDIF   Savings Deposit Insurance Fund
SGF   Special Guarantee Fund
SIAC   Sistema de Atención a Cuentahabientes (Account Holders Service System)
SPEI   Sistema de Pagos Electrónicos Interbancarios
    (Interbanking Electronic Payment System)
TBTF   Too Big To Fail
WWI   World War One
WWII   World War Two

Chapter 1

Risk, Finance, and International Political Economy

The concept of risk management has come to occupy a central object of study in international political economy (IPE). At its most basic, risk defines a conception of how the present connects with the unknowable future. Although by its nature risk is intangible, managing risk has become a preoccupation of states and informs everything from military strategy, to electoral campaigns, to environmental assessments, to urban planning. Within IPE, the study of risk management often begins with a distinction first observed by Frank Knight.[1] In his classic work *Risk, Uncertainty, and Profit*, Knight distinguishes "risk," in which a distribution of possible outcomes has measurable probabilities, from "uncertainty," in which no such calculations are possible (Knight, 1921(2012)). From this starting point risk management consists of moving as many outcomes as possible out of the realm of uncertainty and into the realm of risk.

The value of this distinction notwithstanding, Knight assumed a fixed distribution of potential outcomes so that his discussion could zero in on the probabilities over these outcomes. While suitable for his purposes, this simplifying assumption renders the Knightian approach to risk management incomplete for IPE because politics shapes not only the probabilities of potential adverse events but also the size and distribution of their final consequences. After all, neither a high consequence but zero probability event nor a high probability but zero consequence event are risky in any meaningful sense. In a political economy study of risk, separating the risk of an event into its constituent probabilities and consequences is necessary because different political logics may exist for each. In this regard, the distinction between *risk reduction* policies that seek to reduce the probability of an event from *risk transfer* policies that aim to redistribute the consequences of an event, is crucial for a rigorous analysis of how states (and other political actors) shape the management of risk.[2]

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[1]Examples include Blyth (2002) and Nelson and Katzenstein (2014).

[2]For a general discussion of this distinction as it applies to government policy making, see Moss (2004).

Banking provides an ideal setting to study why and how politics reduces and transfers risk among private and public actors alike. Risk reduction policies in banking fall into two categories. The first is by enforcing minimum standards, which reduce the probability of an adverse event by simply prohibiting certain activities. For example, regulators prohibit insufficiently qualified individuals from owning or managing a bank through the enforcement of minimum standards for competence, honesty, and ethical conduct. These "fit and proper" standards ensure that bank owners and managers possess sufficient knowledge regarding the risks and duties of their firm (Van Greuning and Brajovic-Bratanovic, 2009). The second is through portfolio hedging and diversification. Hedging occurs when the risk contained in one security is offset by purchasing a second security with a return that is negatively correlated with the first. Diversification works in a similar manner by relying on the law of large numbers to ensure that losses in one area of a portfolio are offset by gains elsewhere.

Despite their utility, states are well aware that an over-reliance on risk reduction policies may be insufficient to prevent bank insolvencies and wider financial crises. While the origins of any crisis may be traced back to poor management or low capital levels, risk reduction policies will in general struggle to prevent many crises because regulators must be able to see further than market actors in determining when financial institutions are engaging in excessively risky behavior. For example, regulators have great difficulty determining what constitutes a sufficient minimum standard in many areas (i.e. capital adequacy), what activities should be prohibited outright, and whether a given policy actually reduces the probability of a financial crisis (Dang, Gorton, and Holmström, 2012). Devising a set of regulations that permit expanding credit markets while reigning in excess risk is therefore a tall order for any agency. It also explains why banks and states have long valued risk management policies that also transfer a risk's consequences onto others.

As with risk reduction, risk transfer policies come in two types: insurance and securitization. At the core of an insurance contract is an agreement between parties to exchange money for risk. Benefits for those covered by an insurance contract come in two types. The first is through *ex-post* compensation when an insurable event occurs. These payouts lower the overall harm to the policyholder by transferring to the insurance provider a portion of the costs of the event. The second benefit follows from the first and occurs through an *ex-ante* expanded menu of actions available to the policyholder. A classic example of this is the ability of marine insurance to promote international trade by pooling risk and spreading the cost of a sunken vessel across multiple insurers (Bernstein, 1996). Securitization is the second general method for transferring risk between parties. When a group of loans is securitized the original lender packages loan payments together into a new security that pays a regular stream of income, a process that also transfers credit risk to the purchaser. In theory, private insurance and securitization markets are an efficient means to transfer risk onto those most willing to bear it.

As with strategies of risk reduction, states have learned that letting private markets organize risk transfers will be insufficient to stave off systemic banking crises. The deficiencies in private sector risk reduction and risk transfer policies have pressured states to construct a public backstop for the banking system, however unpopular the use of this backstop is during actual financial crises. A necessary implication of the existence of this backstop is that in the period prior to a crisis states have effectively provided a financial safety net for the banking system, a set up that transfers a significant amount of risk onto the state.

What are financial safety nets? Financial safety nets include a range of policies and interventions designed to contain a financial crisis after initial troubles have begun (Gelpern, 2009). There are numerous components to a state's financial safety net. These include: deposit insurance, lender of last resort facilities, a state's stock of foreign currency reserves, implicit and explicit bailout guarantees, sponsorship of payment systems,

orderly resolution in the event of a bank failure, and the state-ownership of financial institutions. The link between these various financial safety net components is that each provides a backstop against specific types of financial risk. As such, they embody the state's desire to transfer some of the consequences of financial risk away from agents in the financial system and onto itself. The power of a state to provide this backstop is derived from its ability to sell assets and, more importantly, incur liabilities on behalf of the financial system.

When financial safety nets feature in IPE research they are overwhelmingly viewed as temporary tools of crisis management. While these episodes remind observers that states remain key actors in global financial markets beyond their capacity for regulation, once the crisis subsides financial safety nets are rarely studied, let alone viewed as a resource subject to political conflict. This is largely because during times of stability financial safety nets remain hidden from view which makes estimating their size and scope difficult. Yet the opaque benefits and costs of financial safety nets should not be confused with non-existence. Indeed, this dissertation shows that financial safety nets not only play a key role in the risk management strategies of states during times of stability and crisis alike, but that their structure and use are subject to a wide range of political forces.

The approach used here to study the politics of financial safety nets is to see them as a resource like any other, albeit with one crucial difference. That difference is that the resource states distribute does not always come with a monetary value attached to it. Instead, benefits accrue for financial actors and institutions when states assume contingent liabilities on their behalf (Moss, 2004; Alessandri and Haldane, 2009). Given that the cost of these contingent liabilities may be borne by future taxpayers, financial safety nets effectively socialize many of the risks that originate in the financial system. Yet even though the realized fiscal costs of financial safety nets are minimal in the absence of a crisis, states possess a limited capacity to saddle themselves with such contingent

liabilities. This fact implies that the provision of a financial safety net amounts to a politically contentious allocation of public resources that differs in kind, not in degree, from more traditional transfers of money. Moreover, the politics of financial safety nets are particularly salient in emerging market economies as they generally have a smaller capacity to issue these contingent liabilities owing to their greater susceptibility to fickle global capital markets.

1.1 Global Capital and Financial Safety Nets in Emerging Market Economies

The ideas motivating the construction of global capital markets are simple and intuitive: if deep domestic credit markets facilitate investment and boost domestic incomes, deep global capital markets will lead to more of the same. Guided by this idea, policymakers in many emerging market economies became convinced that their country's future lay down the long road of international financial integration. Nevertheless, in the four and a half decades following the breakdown of the Bretton Woods system, the rise of financial globalization has been as persistent as it has been controversial, although it should be noted that few states that have gone down the path of financial openness have sought to turn back the clock (Strange, 1997; Krippner, 2011). Yet the strength of the appeal of financial globalization is held in tension with questions regarding its endurance in the wake of the global financial crisis. While concerns over its demise owing to an inward turn by the leading financial powers are almost surely premature, as they always have been, serious debate over the trade-offs required by financial globalization appear entrenched and will likely take a decade or more to sort out.

Similar debates have a long precedent in the world's emerging market economies, which have been far more likely to experience the downsides of financial globalization (Laeven and Valencia, 2013; Calomiris and Haber, 2014). Despite a wide variety of polit-

ical contexts, there is an evident pattern in the response by emerging market economies to a brush with financial globalization. That pattern is marked not by states retrenching in the face of crisis, but by concerted efforts to identify and patch holes in their regime of domestic financial governance. While states must contend with domestic constituencies reluctant to change, post-crisis reforms generally occur along two dimensions. The first is through risk reduction measures that strengthen prudential regulation and supervision. Common regulatory changes include tighter capital adequacy requirements, greater loan loss provisions, and updated accounting standards. Supervisors are also commonly granted enhanced powers to intervene in weak banks and allocated additional resources. The goal of these actions, as with all risk reduction measures, is to reduce the probability of a similar crisis erupting again in the future. The second is through the state transferring increasing amounts of risk onto its balance sheet through expanded financial safety nets. The goal of these latter actions is to more effectively contain the spread of a crisis should the enhanced risk reduction measures prove insufficient.

While the broad outlines of a state's response to a financial crisis are generally discernible, the politics structuring this response are complex and have domestic and international components. Domestic factors include the depth of the crisis, the place of banks in the broader economic and political context, and the capacity of domestic institutions to enforce new rules and to implement expansions in the financial safety net. International factors include the state of contemporary international regulatory best practices and how likely the resources of international financial institutions, such as the International Monetary Fund (IMF), will serve as a partial substitute for domestically supplied financial safety nets. Whatever the constellation of factors that come to shape the response to a given crisis, the net result is almost always a further entrenchment of the state into the workings of financial markets. While the IPE literature is rich with accounts of how crises spark changes in financial regulation, much less attention has been paid to the politics of international and domestic financial safety nets, let alone the interactions between them.

7

Given the risk transferring capacity of financial safety nets, their study at the global level is best grounded in the politics of why and how states come to the aid of another that has fallen into crisis. Although international aid to manage a financial crisis can be provided bilaterally, multilaterally, or through an international organization, in practice aid of any kind is more the exception than the rule. Indeed, a cursory glance at the recent global financial crisis shows that no state stands ready to provide unconditional support to other states during a crisis. Decisions on such matters are ad hoc and subject to considerable scrutiny. Even when this assistance is allocated by an international financial institution such as the IMF, the amounts disbursed are generally ill-timed and small relative to the size of the crisis.

The lack of serious efforts to institutionalize a robust international financial safety net is an omission telling of the politics of global finance. This omission is in large part a reflection of the structural power of the large financial powers, and the United States in particular, that alone possess the capital necessary to fund such an institution. Therefore, despite the vast expansion in global capital flows since the 1970s, the persistent absence of an international institution with the capacity to effectively manage international financial crises surely stands as one of the key non-decisions that have shaped global finance in the post-Bretton Woods era (Strange, 1997). This decision has been particularly disappointing for emerging market economies which, at least in principle, have the most to gain from international financial integration but also face the largest cost when markets turn against them. But more than being disappointing, the mismatch between the depth and importance of global capital markets and its weak institutional underpinnings sets the context within which domestically oriented emerging market financial safety nets take shape.

The politics shaping financial safety nets, and how they transfer risk between the private and public sector, are complex, especially given that they have uncertain effects on many important economic and political variables. On the one hand, while certain

aspects of financial safety nets effectively bail out financial institutions for their past mistakes, financial safety nets also give banks a greater scope for action in the pre-crisis period. In the literature this is typically associated with arguments lamenting the fact that financial safety nets encourage banks to take greater risks than they otherwise would. These moral hazard concerns notwithstanding, it remains the case that the economic effects of financial safety nets are uncertain at best as not all its components are crisis promoting. Indeed, some can prevent crises from beginning in the first place. The ability of deposit insurance to prevent bank runs is a well-known example (Diamond and Dybvig, 1983). Financial safety nets may also further the political goal of fostering credit growth by allowing banks to lend to marginal borrowers typically shunned by traditional lenders. Irrespective of whether, on balance, the insurance embedded in financial safety nets encourages crises or prevents them, the opacity of both the benefits and costs of financial safety nets renders them politically contentious.

While the benefits and costs of financial safety nets pose a dilemma for essentially all states, they say little about how financial safety nets are likely to vary across time and space. What one can say with a degree of relative certainty is that casting a wider and deeper financial safety net is far easier than reigning one in (White, 2004). Moreover, even if policymakers successfully implement, and subsequently retrench, their financial safety nets, the genie cannot easily be put back in its bottle because states cannot credibly commit to withhold similar supports during a future crisis. The net result is that, over time, explicit financial safety nets either remain in place or are replaced by implicit ones, which in either case bound the state ever more closely to the workings of their banking system.

Within this general tendency for financial safety net expansion lies two distinct periods of financial safety net change: immediately following crises and during periods of relative stability. As previously alluded to, following financial crises states regularly bolster financial safety nets to better contain a future crisis. Typical targets of reform

include the central bank's lender of last resort facilities, deposit insurance, and payment system support. More incremental changes in financial safety nets are observed outside of a crisis context. The buildup of foreign exchange reserves is a well know example of this. Other changes include the adoption of a resilient market infrastructure, especially with respect to the clearing and settlement of large foreign exchange transactions as well as enhancements in a state's resolution regime.

Since the passing of the Bretton Woods era, many emerging market economies have put in place financial safety nets that rival their advanced country peers. In the process they have become key nodes of financial governance. This observation has gone largely unrecognized in the IPE literature as financial governance is primarily assumed to operate through risk reduction strategies embedded in formal and informal regulation and supervision. As will be shown throughout this dissertation, politics has structured the emergence, endurance, use, and withholding of financial safety nets in emerging market economies from the beginning. The task assigned to financial safety nets is large and the history of emerging market financial crises shows that they have failed on numerous occasions. Yet their ability to manage financial risk means that they will remain at the forefront of global financial governance for the foreseeable future.

1.2 Research Methods

A mixed methods approach is used to explore the politics of financial safety nets, with particular emphasis placed on the development and quantitative testing of various rational choice models. The rational choice approach is a mainstay in contemporary international relations and is closely associated with the American school of IPE (Cohen, 2008). The tenants of the rational choice approach include a grounding in methodological individualism, meaning that social outcomes can be explained by aggregating the preferences of

individuals subject to their information and resource constraints. As with any method in the social sciences, rational choice theorizing has both advantages and disadvantages.

One of the primary advantages of the rational choice approach in IPE is its explicit set of assumptions and how they constitute a transparent inventory of individuals preferences, resources, and contexts through which political behavior can be explained (Kydd, 2008). Although one can argue that all social science theories contain such assumptions, at least implicitly, critics of the rational choice approach argue that it simply goes too far. This critique has been most forcefully argued in Green and Shapiro (1996), who divide the flaws of rational choice theory into two types. First, rational choice theories assume an unrealistic degree of individual rationality. Simply put, since individuals do not have a fixed and rankable set of preferences, it is unreasonable to construct a theory presuming that they do. Second, rational choice theories overstretch in their universalistic aspirations. Each of these criticisms will be briefly discussed.

It has been twenty years since Green and Shapiro wrote their much discussed book on the pathologies of rational choice theory and the evidence against individual rationality has only grown. Indeed, in 2002 Daniel Kahneman and Vernon Smith shared the "Nobel" prize in economics for their work showing just how irrational (from an economic perspective) individual behavior can be in a wide variety of contexts. However, the criticism that rational choice theory requires preferences to be fixed and rankable is less severe than critics believe. For one, all social theories must, as a matter of necessity, make behavioral assumptions regarding their objects of study. Without founding assumptions, stated or not, relationships between variables simply cannot be made. There simply are no assumption free theories. The question is therefore whether the particular assumptions of rational choice theory are justified or whether an alternative research framework that appeals to norms, practices, or causal mechanisms is preferable. For most rational choice theorists, the answer to this question is no. For instance, Keohane argues that although "the assumption of rational egoist creates an abstract, unreal world for anal-

ysis," it nevertheless provides a degree of tractability (Keohane, 1984, p. 70). While critics may rightly argue that tractability does not in and of itself get you anywhere, the benefits of tractability should not be quickly dismissed.

The benefits of tractability can be understood through the distinction between accuracy and precision. Accuracy refers to how close a particular measurement is to a predefined target. Precision refers to how close two measurements are to one another. A particular process may be either accurate, precise, neither, or both. What critics of rational choice argue when they point to the method's unrealistic foundations is that theorists unjustifiably favor precision over accuracy. Hitting the same spot on a target, but one that is far from the bulls-eye, is hardly a virtue after all. Better to be accurate, but less precise, which would mean hitting a target in a circular pattern around the bulls-eye without ever hitting it. While most social scientists would like to believe that their favored theoretical framework is both accurate and precise, the fact of the matter is that achieving both is not likely feasible. To some degree there will remain a trade-off between accuracy and precision and where one finds themselves on the accuracy-precision continuum is to a certain degree arbitrary. The primary hope for the rational choice approach is that the precision of a given theory can be more accurately targeted over time. Conversely, for those favoring accuracy over precision, the hope is to preserve accuracy while increasing precision. In both of these tasks, tractability helps a great deal. Yet even if progress on this front is too slow for its critics, the unrealistic foundations of rational choice theory nevertheless says more about the infinite complexity of the social world than it does about the downsides to a particular approach to studying it.

The second defect identified by Green and Shapiro, that rational choice suffers from its universalistic aspirations, is equally unfair. It is true that rational choice theories aspire to be universally applicable in the sense that whenever we observe a particular value for variable x, outcome y should occur. But such universalistic aspirations are far more modest than critics such as Green and Shapiro claim because the law-like relationships

rational choice theory seeks to uncover are conditional statements, not absolute ones. Although the conditional nature of rational choice theory is deeply embedded throughout the method, it is particularly evident in regression analysis, a popular quantitative technique used by rational choice theorists. To be clear, regression coefficients are not absolute statements regarding the relationship between x and y. They are an estimate of the relationship conditional on the model's specification, the time period and population being studied, and the presence of accurately measured observations. This implies that the law-like relationships rational choice theorists seek to uncover have clear boundaries around them.

The highly conditional nature of rational choice theory is most evident during the early stages of theory development. Indeed, in a given piece of research, and in this dissertation in particular, there is as much emphasis placed on discovering the relationship between x and y as there is in discovering the conditions and sources of uncertainty that render any discovered relationship tenuous. This leads to the seemingly paradoxical result that honest researchers who consciously use a method designed to uncover universal laws of human behavior begin their journey knowing full well that no such laws will be discovered.

The primary benefit of rational choice theory, and one that I discovered firsthand while developing this dissertation's formal models, lies in its strict internal consistency. In the same manner as tractability, strict internal consistency itself is not a sufficient condition for a sound research framework. Yet it is an important aid in the theory development process because of the necessary, and unforgiving, connection between a model's inputs and outputs. In a rational choice framework, the combination of a model's founding assumptions, choice of variables, and interaction environment produces only *one* internally consistent conclusion to that model. The use of mathematics ensures that this is so. These strictures serve as a crucial aid in the theory development process because if, after solving a particular model, its conclusions seem off or illogical, it is possible to trace back all the way to the very beginning the path each variable took through the

model. Changes to the setup of the model can then be made accordingly. Indeed, the final model's produced in Chapter 5 and Appendix A were not written from start to finish in one sitting, but were the product of a long and painstaking iterative process of trial and error. Yet because of the internal checking process made possible by the requirement of strict internal consistency, the payoff was, I hope, a greatly strengthened set of models than would otherwise have been the case.

1.2.1 Case Studies

The politics of financial safety nets are also demonstrated through two case studies. Turkey and Mexico were chosen as they are large, middle income emerging market economies with a history of banking crises. In both countries the politics of financial safety nets are also highly salient with significant interactions between international and domestic financial safety nets. Safety nets in both states also contend with the high degree of foreign ownership in each respective banking system, an outcome encouraged in each case by domestic policymakers seeking foreign capital and knowledge in the wake of a banking crisis.

Turkey and Mexico also share many other economic and political similarities. Both are large, fast growing emerging market economies with nearly identical income per capita at just over 10,500 USD. Income inequality is also high in both states. Turkey and Mexico used to follow a state-led development model, but have since embraced a model of private sector led development and both states have received significant praise for having largely avoided a direct hit during the global financial crisis. They also share the common geopolitical trait of being adjacent to a major economic powerhouse, the United States in the case of Mexico and the European Union (EU) in the case of Turkey, that has a large impact on their foreign economic policies. This outside influence has also stabilized, to a degree, the democratization process in both countries, recent setbacks in Turkey notwithstanding.

Despite these similarities, the many differences between the two countries imply that the utility of a rigorous comparative method is limited (Lijphart, 1971). For example, Turkey is a unitary state while Mexico is a federal state. Turkish politics also continues to wrestle with the legacy of the dissolution of the Ottoman Empire and the secular reforms launched by the modern republic's founding father Mustafa Kemal Atatürk. There are no such comparisons with Mexico in this regard. Another pertinent difference concerns the relatively tighter relationship Mexico has with the United States than Turkey has with the EU. Although the pull from these large economies is clearly evident in both cases, the relationship is markedly different with respect to each state's access an international financial safety net. Specifically, on a relative basis, the stability of Mexico is of much greater concern to the United States than the stability of Turkey is to the EU. Combined with the fact that the United States is the main supplier of an international financial safety net, Mexico has found itself in a much more advantageous position relative to Turkey in terms of access to a stabilizing external anchor during its various crises.

The case studies were greatly enhanced by a series of semi-structured interviews conducted with policymakers in Turkey and Mexico. Nineteen interviews were conducted in Turkey between January and April 2016. The majority of these interviews were with officials at the Central Bank of the Republic of Turkey, the Banking Regulation and Supervision Agency, the Treasury, and the Savings Deposit Insurance Fund. I also interviewed academics and one private sector banker. Eleven interviews with a similar set of policymakers were conducted in Mexico City over a three week period in the early summer of 2016. Participants included government officials from the Banco de México (the central bank), the Comisión Nacional Bancaria y de Valores (the banking regulator), and the Instituto para la Protección al Ahorro Bancario (the banking resolution authority). I also interviewed the chief economist at a major Mexican commercial bank. These interviews allowed me to collect information on how policymakers in both countries gauge

various threats to domestic financial stability and how their financial safety nets adjust to these threats.

1.3 Outline

The remainder of this dissertation consists of seven chapters. Chapter 2 reviews the IPE literature on the politics of financial stability. The overall impression from the literature review is that international institutions for financial stability, and in particular international financial safety nets, have been perennially weak, especially from the perspective of emerging market economies. Chapter 3 builds on this literature by showing that international last resort lending conforms to a club model. The theory argues that there are three types of international last resort lenders that are distinguished by how exclusion from the lender's resources are governed. Chapter 4 lays out the seven financial safety net components that states rely on to insulate their banking sector in the face of weak international financial safety nets. As previously mentioned, the common element of these strategies is that they transfer risk onto the state in exchange for enhanced financial stability.

Chapters 5 begins the empirical section of the dissertation with a formal model and some quantitative evidence showing that political autonomy enhances domestically oriented financial safety nets. The Turkish and Mexican case studies showing the historical development of financial safety nets are provided in Chapters 6 and 7. A key finding from the case studies is that over the long-term financial safety nets have greatly expanded in size and scope despite the widespread concession that their banking systems should be guided by private sector principles. Chapter 8 concludes.

Chapter 2

Literature Review

The international political economy literature contains numerous theories regarding the politics of financial instability. The literature begins with a premise from the economics literature that says unlike markets for real goods, financial markets are uniquely prone to crisis. From this beginning two dominant themes have emerged to explain how politics can stabilize these fragile markets, and in the process provide a public good. These include the necessity of having a hegemonic state stabilize markets during periods of instability and having states enact stringent regulation to reduce the probability of crises in the first place. Narratives of the politics of financial crises are directly or indirectly grounded in the absence of either of these two forces.

This chapter provides an overview and critique of this literature. The discussion begins where most scholars do, with the argument for why banks are inherently susceptible to crises and why this fragility is an enduring political problem. The second section discusses how pertinent events such as the Great Depression, the formation and collapse of the Bretton Woods system, and the global financial crisis have shaped the dominant frameworks seen in the literature today. Throughout, the literature review highlights the persistent weakness of international approaches to financial stability, especially with respect to emerging market economies, and how political considerations have consistently precluded the construction of robust, inclusive, institutionalized international financial safety nets.

2.1 The Enduring Problem of Financial Instability

As financial intermediaries, banks pool savings from individuals and lend to those who wish to borrow. If everything goes well, the bank will profit from the interest rate spread on its lending and its payments to savers. However, the risks involved in financial intermediation are well known, and for banks these risks are traceable back to fundamental asset-liability mismatches. Three common asset-liability mismatches are maturity, liq-

uidity, and currency mismatches. A maturity mismatch occurs when a bank's short-term liabilities fund long-term assets, such as when retail deposits fund residential mortgages. A liquidity mismatch occurs when a bank's assets are less liquid than its liabilities. For example, US Treasuries and corporate bonds of equivalent maturities have different liquidity profiles because the former can be sold faster if necessary. The extra time delay when selling the corporate bond constitutes the liquidity risk assumed by the bank and is derived from their relatively shallower market relative to US Treasuries. Currency mismatches are particularly relevant for banks in emerging market economies. This type of mismatch occurs when a bank borrows in one currency and lends in another. The most common scenario is when a bank borrows in foreign currency at a low interest rate and lends domestically at a high interest rate. This type of mismatch is particularly risky for emerging market banks because exchange rate fluctuations alter the cost of servicing the foreign currency loan in local currency terms. In extreme circumstances, a currency crisis can render a bank insolvent even if its underlying local currency loans are sound.

While asset-liability mismatches exist for many types of businesses, the mismatches that characterize banking are particularly fragile. Because banks leverage their balance sheet by funding their assets with debt instead of equity, banks lose resilience to losses because, unlike equity, debt liabilities do not fall in value when a bank becomes financially stressed. The upside of leverage, from the perspective of banks, is the amplification of investors' return on equity. The downside of leverage, from the perspective of states, is the amplification of losses during downturns. From this perspective a bank's capital structure, which is founded on its pattern of asset-liability mismatches, determines its resilience to adverse shocks. This also explains why leverage and capital adequacy regulations are keen interests of states.

The rapid unwinding of asset-liability mismatches are the characteristic events of banking crises. Consider the prototypical example of a bank run, which occurs when depositors suddenly withdraw deposits in numbers large enough that the bank has trouble

meeting its liabilities in a timely fashion. Such demands can be sparked when a bank is rumoured to be in ill financial health, even if these rumours are greatly exaggerated. These events can quickly lead to a system wide panic if depositors set in motion a vicious cycle whereby depositors each make greater and greater efforts to be first in line to withdraw their deposits. If unchecked, this process can lead to the failure of the bank (Diamond and Dybvig, 1983; Diamond and Rajan, 2001). A wider crisis can result if the failed bank's creditors experience their own instability. While no two banking crises are identical, this model of a bank run shows at a general level that the mechanics of a banking crisis are tied directly to a bank's leveraged balance sheet that are in turn the product of various asset-liability mismatches.

Despite the inherent fragility in banking, bank failures and crises are not inevitable. Indeed, if they were one would expect over the last century a uniform distribution of banking crises through time and space. Yet this is not what we observe (Calomiris and Haber, 2014). For example, banking crises under the Bretton Woods system were very rare, unlike the liberal period that succeeded it (Bordo et al., 2001). Crises were also far more common in emerging market economies, especially prior to the global financial crisis. Yet within these periods there remains significant variation since not all emerging market economies experienced crises in the 1980s and 1990s and not all developed economies fell into crisis in 2008. Understanding any particular banking crisis therefore requires a deeper look into the reasons why a bank's asset-liability mismatches collapsed.

A popular framework used in international political economy, one that is used and expanded on in this dissertation, begins with the tension between the political and economic benefits of deep and wide credit markets and their potential for instability. The conclusion that emerges from this literature review is that this tension is fundamentally *political* and has domestic and international dimensions. The remainder of this literature review traces the evolution in thinking about the political economy of financial stability

and how this literature has been shaped by the major international financial crises of the past century.

2.2 Politics and International Financial Stability

2.2.1 The Gold Standard and Bretton Woods

Conventional wisdom has it that financial stability, whether domestic or international, can be achieved if markets operate on a sound political foundation. In practice this means coordinating the efforts of regulators, central banks, and Treasury departments towards the common goal of reducing the probability of a crisis and minimizing its costs should one occur. While the existence of these institutions is no guarantee of financial stability, as a cursory look at the distribution of recent financial crises attests, most agree that their collective efforts provide the best chance for achieving domestic financial stability in a world of global capital markets. Indeed, the alternative of imposing such onerous regulation that capital markets become nationally balkanized seems unpalatable to contemporary policymakers, despite compelling evidence that continuously expanding financial markets are not always and everywhere beneficial (Kose, Prasad, and Taylor, 2011; Cecchetti and Kharroubi, 2012). Therefore, the construction of institutions for domestic financial stability is a critically important political project, especially for states that continue to wrestle with fundamental questions of political legitimacy.

One of the earliest attempts to organize the international financial system around precepts of free capital movement and financial stability was through the gold standard. The gold standard was a system of fixed exchange rates governed by monetary authorities agreeing to exchange their currency for gold at a fixed price. While not all currency in circulation would necessarily be backed by an equivalent value of gold, a fixed exchange rate for gold acted as a strong anchor that prevented excess money printing to cover

short-term needs. If too much money was being printed, gold stocks held at the central bank would deplete as people feared a coming devaluation.

The gold standard of the nineteenth and early twentieth century was centered on the British currency, the pound sterling. This endowed the Bank of England with considerable power to manage the international financial system, which it used to promote an open system of international trade and payments. The key stabilizing mechanism at the core of the system was a commitment by participating central banks to facilitate the flow of gold from states with international trade deficits to those with surpluses. Although in practice very little gold was transported across borders to settle payments, the commitments embedded in the gold standard pressured deficit states to adjust in other ways to preserve the system as a whole, and with it international financial stability. The normal practice of central banks was to alter their domestic interest rates to rebalance their external payments position. If external and internal demands on monetary policy pushed in opposing directions, external stability tended to take precedence.

This preference was tested following the economic disruptions caused by World War One (WWI) and the deflating of the credit bubble in 1929. Massive unemployment and a collapse in output and world trade fed into domestic political turmoil, which was exasperated in states that had recently expanded their franchises. Despite the turmoil, many states initially wanted to maintain the gold standard and its implied preference for external balance. However, states soon became unable to bear the severe economic and political burdens it required and one by one states abandoned the gold standard (Eichengreen, 1992; Simmons, 1997).

In his analysis of the international economy during the Great Depression, Kindleberger (1986) outlines one of the earliest theories of the requisites of international financial stability. Later dubbed the Hegemonic Stability Theory (HST), Kindleberger argued that the Great Depression could have been avoided had there been a clear hegemonic power to stabilize the international economic system. Kindleberger argues that a sta-

bilizing hegemon should provide a market for distressed goods, provide counter-cyclical long-term lending and emergency liquidity during financial crises, coordinate international macroeconomic policy, and enforce a relatively stable system of exchange rates.[1] In Kindleberger's view, the Great Depression was so deep and long lasting because Britain was unable to be the stabilizer it had once been while the United States, the only alternative hegemon during the interwar period, was unwilling to accept the burdens of leadership.

The HST has undergone numerous critical analyses.[2] For example, Broz (1997) argues that the HST does not adequately explain the events of the Great Depression or the breakdown of the interwar gold-exchange standard. For Broz, the behaviour of the key European states of the interwar period, Britain, France, and Germany, are best explained by their responsiveness to domestic coalitions in favour of maintaining the gold standard. In particular, central banks in France and Germany were less enthusiastic supporters of the sterling dominated gold standard than is commonly recognized. Their acquiescence to the strictures of the gold standard owed more to pressures from domestic interest groups than concerns for the maintenance of the gold standard for its own sake. Broz concludes that international financial stability is more likely to be sustained if states are permitted to pursue their own national interests in ways that generate systemic benefits. Eichengreen (1997) also argues that the HST is an inadequate explanation for the Great Depression. While Eichengreen does acknowledge that HST has some explanatory power during the early years of the gold standard, the first decade of the Bretton Woods system, and some features of the interwar period, stability was always premised on international coordination and not an inherent stabilizing mechanism reducible to economic size.

In more recent work, Eichengreen has argued that domestic stabilization efforts are crucial to understanding the Great Depression. A telltale event for Eichengreen is the

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[1]HST also features prominently in the work of Gilpin (1983). However, Gilpin is less sanguine on the idea that the hegemon will rescue the global economy since under many circumstances it may not be in its interest to do so. See also Krasner (1976) and Webb and Krasner (1989).

[2]For a well cited general critique of HST see Snidal (1985).

successful stabilization efforts that took place during the banking crisis of 1930 in the American South. For Eichengreen this crisis was relatively benign not, as many historians have argued, because the crisis was confined largely to one chain of banks or that the panic originated in the peripheral states of Tennessee, Arkansas, Kentucky, and North Carolina. Instead, it was prevented because of

> *...the rapid response of the Atlanta Fed. The limited extent of the 1930 crisis reflected not so much its idiosyncratic nature as the quick reaction of the Atlanta Reserve bank. This prevented the insolvency of a limited number of banks from exiting a panic and liquidity crisis that could have engulfed the banking system. That the events of 1930 are not always viewed as rising to the level of a banking crisis, in the true sense of the term, does not indicate an absence of serious problems capable of igniting a major crisis, but rather the ability of a powerful central bank response to prevent the worst.*

> Eichengreen (2014b, p. 128-129)

A similar sentiment runs though Friedman and Schwartz (1963), who argue that by withholding liquidity to the banking system in the early 1930s, the Federal Reserve unwittingly amplified existing economic weakness and arguably produced the Great Depression.[3]

While the details of the causes and consequences of the Great Depression are complex and still debated, the example of the non-crisis of the early 1930s shows that the foundation for international financial stability lies in the actions of domestic institutions responding to domestic political and economic pressures. Following the shock of 1929 stabilization efforts by all states, hegemons included, were aimed internally. While the stabilization efforts by large states had positive spillover effects internationally, and these

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[3]Bernanke (2013) justified the lending decisions by the Federal Reserve during the global financial crisis as necessary to avoid a similar fate.

spillovers grew following the break with gold, the experience of the Great Depression reveals that the political foundations of international financial stability are to be found at the domestic level.

Despite its simple mechanism and intuitive appeal, most scholars today agree that the HST cannot on its own explain the Great Depression. Yet to dismiss the HST entirely would be shortsighted because it serves as a basic framework through which an international financial safety net can contribute to international financial stability and why the politics of its provision are so contentious. Indeed, a common thread that runs through the various explanations for the Great Depression is that states of all types find it politically unpalatable to bear the costs of crises abroad. As a consequence, financial safety nets are aimed internally and stop short at the border.

This lesson from the Great Depression was not lost on the architects of the international monetary system following World War Two (WWII). Negotiations on the terms of the post-war global financial order were held at a conference in Bretton Woods, New Hampshire in July 1944. At Bretton Woods, the leaders of the two major delegations, Henry Dexter White from the Untied States and John Maynard Keynes from the United Kingdom, understood that the political foundations of the post-war order would be founded on the restoration of international trade and finance. The main debate was whether the American plan or the British plan would serve as that foundation. White and Keynes both agreed that a system of fixed, but adjustable exchange rates was the most appropriate system to promote global economic integration and prevent disorganized beggar-thy-neighbour devaluations (Bordo, 1993). However, the negotiators disagreed on how trade imbalances would be managed in the context of the fixed exchange rate system.

At the core of Keynes' plan was an International Clearing Union (ICU). The ICU was designed to clear international payments in the manner of a traditional clearing house, whereby cross-border debts and credits would be netted in a new currency Keynes dubbed

the "bancor." This system permitted states with an international trade deficit to avoid increasing domestic interest rates in order to rebalance its external payments imbalance. Furthermore, Keynes proposed that the ICU maintain a generously funded overdraft facility that could be tapped to finance short-term trade deficits. Initial deposits by member central banks were to provide the capital base of the ICU and countries could adjust the value of their domestic currencies in terms of bancor in order to maintain a balanced international payments position. However, policy adjustments of one form or another would be required eventually if a country's trade deficit persisted. An important advantage of the ICU was that states maintained control over their domestic monetary policy, implying that the ICU did not subordinate internal adjustment to the requirements of external adjustment. In addition, persistent surpluses or deficits would trigger financial penalties to nudge states to adjust their macroeconomic policies. A key disadvantage of the ICU system, from the perspective of the American delegation, was that the Americans would be the primary supplier of capital to the ICU. The American delegation objected to this since the relatively automatic adjustment process accorded them no offsetting increase in influence over states with trade imbalances. For Keynes, the need for adjustments to be relatively automatic was attractive on economic grounds given that adjustment costs could be spread between creditors and debtors alike. However, the impossibility of Congress agreeing to act as the world's creditor with few strings attached meant that Keynes' ICU was a political non-starter from the beginning (Bordo, 1993).

The adjustment mechanism agreed to at Bretton Woods was closer to the proposal of White. The International Stabilization Fund (later renamed the International Monetary Fund) was the centerpiece of White's proposal for adjusting to payments imbalances. In exchange for subscribed capital, loans would be disbursed by the IMF to finance trade deficits as needed. In principal, a state was able to access IMF resources in proportion to its paid-up capital (i.e. its quota). In practice, access to IMF resources was made

proportional to the willingness of states to accept the conditions imposed by the IMF. The collective understanding that the IMF could, and would, attach conditions to its lending was a key breakthrough that helped overcome Congressional misgivings regarding the delegation of its authority to an international institution.

The Bretton Woods system and the institutions created to govern international financial markets were successful in creating the financial stability desired by its chief architects. Banking crises during the Bretton Woods era were rare. While balance of payments stresses were not uncommon, these crises were comparatively benign relative to a typical banking crisis, which have the tendency to envelop the entire economy. This can be attributed to the restrictions on short-term capital movements, which both White and Keynes viewed as an appropriate policy tool to mitigate disorderly capital flow imbalances typical of open capital markets. Crises were also mitigated by the tighter regulation of domestic financial markets.

Many have argued that the stability of the Bretton Woods decades reflected a deep willingness by states to cooperate on macroeconomic matters (James, 1996). While this cooperation was remarkable in many ways, it was also limited in a very importance sense. Macroeconomic coordination can take many forms and the shape it took during the Bretton Woods era was only one of many possible types. Indeed, the mutual conclusion reached by Keynes and White that capital controls were necessary for international financial stability was not borne out of a desire to keep a lid on international financial activity for its own sake. Instead it was deemed the best available option given that there existed no political will to actively manage destabilizing international capital flows (Helleiner, 1994). Had such a will existed, perhaps the Bretton Woods negotiations would have ended differently. Although this alternative history cannot be known, it is clear that the political context shaping the Bretton Woods compromise, that being a general unwillingness by states to aid another in difficulty, set firm bounds on the feasible types of macroeconomic cooperation that could have arisen following WWII.

2.2.2   The Liberal Era

By the late 1960s the growth of the Euromarkets[4] and the dissatisfaction with the lost investment opportunities that accompanied capital controls eroded the political compromise sustaining the Bretton Woods system (Helleiner, 1994). The system ultimately collapsed in 1971 when Richard Nixon suspended the dollar's convertibility into gold. From that point forward the value of the dollar, and many of the currencies that were pegged to it, were set by market forces. Although states have always maintained a keen interest in the purchasing power of their currency and never completely let markets set its value, the flexibility of currencies following the Nixon Shock inaugurated a new era in the politics of international finance. Although states remained as reluctant as ever to incur costs for the benefit of others, with the breakdown of the Bretton Woods system states started down the road of greater financial deregulation, and the risks this entailed, so that global capital markets could be reconstructed on a scale not seen since before WWI.

The consequences of this new politics of international finance did not take long to surface. In 1974, Bankhaus Herstatt, a small German bank, ran into trouble following heavy foreign currency losses owing to adverse currency movements in the immediate post-Bretton Woods period. Given the size of its losses, German regulators sensed the inevitable and closed Herstatt on June 26. Although Herstatt's closure took place at the end of the day in Germany, its effects were immediately felt internationally because Herstatt's New York creditors, who were in the middle of their trading day, suddenly faced significant losses. While the small size of Herstatt meant that it ultimately posed little systemic risk, the disruption to markets around the world from the failure of such a small institution was sufficiently alarming that advanced country central banks devised the

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[4]A Euromarket is the name given to any financial market that deals in a currency other than its own. The largest Euromarkets to develop in the decades after WWII were European, and in particular British, markets for US dollars.

Basel Committee on Banking Supervision, a body tasked with harmonizing the regulation of internationally active banks.

The realities of increasingly globalized financial markets led to new thinking regarding the requisites of international financial stability and how institutions for domestic financial stability might be recreated at a global level. One of the first such proposals was devised by economist Herbert Grubel, who argued that an international deposit insurer could reduce the liquidity risks faced by global banks (Grubel, 1979). The problem Grubel identified was that while the Federal Reserve and other central banks stand ready to supply emergency liquidity to their financial institutions facing a liquidity crunch abroad, deposit insurers offer no similar guarantee. Given that deposit insurers, which are usually funded by Treasury departments, insure domestic depositors (and therefore only indirectly financial institutions) the extension of deposit insurance to foreigners is politically difficult. Only through an international deposit insurer, Grubel argues, can the stabilizing role of a domestic deposit insurer be realized internationally. However, despite its attractiveness on economic grounds, at no time has the political will for such an institution existed. Nevertheless, while modest compared to subsequent proposals for a stability enhancing international financial institution, Grubel's call for a more robust international financial safety net was prescient given that it occurred just prior to the Latin American debt crisis of the early 1980s, the first in a series of major emerging market financial crises in the liberal era.

The origin of the Latin American debt crisis lie in the response by states to acute balance of payments problems following the oil shocks of the 1970s. The initial oil shock saw the IMF support deficit states with longer-term and more generous lending facilities (De Vries, 1987). But these additional resources were limited and came with strings attached, so states turned to large, primarily American private banks to finance their current account deficits. The easy financing conditions, made possible by the petro-dollar recycling mechanism, saw most Latin American governments borrow at unprecedented

levels. Although many borrowing governments were not known for their fiscal prudence, creditors felt that these loans were worth the risk given their high rates of economic growth and the recent discovery of oil in places such as Mexico. However, when oil prices crashed in the early 1980s and the Federal Reserve unexpectedly increased interest rates to tame inflation, Latin American governments began defaulting on their debt.

The Latin American debt crisis called for a policy response that simultaneously stabilized American banks and preserved the new political turn towards open capital markets. The importance to the United States of achieving both meant that the task was not going to be delegated to an international financial institution (Oatley and Nabors, 1998). Although the Bank for International Settlements (BIS) would extend Mexico and other Latin American governments bridging facilities and the IMF provided some additional loans, the resources provided by these institutions were insufficient given the scale of the crisis (Thirkell-White, 2005). Instead, new loans from the American Treasury and cash from the Federal Reserve were the main tools used to manage the Latin American crisis, although these too fell short of providing the stability Latin American countries desired. These shortfalls led to the Baker Plan in 1985 which advanced new loans from the World Bank and commercial banks in exchange for structural adjustments. Although the plan was ultimately deemed unsuccessful and was replaced by the Brady Plan in 1989, the successive rounds of capital injections successfully mitigated the cost of the crisis to key financial institutions (although not the American public) and signaled that the spread of the crisis into the American financial system would be avoided.

The politics of international financial stability was greatly affected by the debt crisis. Notable responses included American banking regulators recommending capital adequacy standards for the first time and empowering banking supervisors to impose minimum capital requirements for internationally active banks (Singer, 2010). The primary international response was through the Basel Committee as it began work on what came to be known as the Basel Accord, the formal agreement between Basel Committee mem-

ber states to harmonize banking regulation internationally. Although the Accord is not a formal treaty, its recommendations carry significant weight with domestic regulators (Singer, 2007; Brummer, 2011). The first Basel Accord was singed in 1987 and was representative of the broader trend of financial reform during the 1980s and 1990s. This trend consisted of a dual movement towards greater financial deregulation and increased international coordination on some of the basic regulatory building blocks of internationally active financial institutions, the most important being minimum capital adequacy standards. The net effect of these moves was to reinforce the trend towards greater international financial integration.

Among the advanced states, financial liberalization and policy coordination served the goal of leveling the playing field so that private sector financial institutions in lightly regulated jurisdictions were not granted an undue competitive advantage (Kapstein, 1994). Not only would states with more stringent regulation lose out in the competition for investment but they may also suffer from a rise in international financial instability if the firms in lightly regulated jurisdictions turn out to be as fragile as their light-touch regulation suggests.[5] Collaboration and information sharing between the various standard setting bodies also began in earnest under different forums in the early 1990s, beginning with the Tripartite Group in early 1993. The Tripartite Group brought together national regulators in the banking, insurance, and securities industries and produced an influential report highlighting the unique regulatory challenges that arise from international financial conglomerates that do business across multiple financial service industries. Their work was passed onto the Joint Forum, which brought together in a more permanent

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[5]An alternative interpretation of the Basel Accord is given by Oatley and Nabors (1998), who argue that the Basel Accord was first and foremost a product of American domestic politics. Oatley and Nabors argue that it was the American Congress that wanted the Accord mainly as a way to constrain and extract profits from Japanese and European banks. This profit squeeze, which would come about mainly by shifting future profits away from Japanese and European banks towards American banks, would contribute to the recapitalization of American banks and satisfy American voters which found themselves on the hook for the banks' profligacy in the run up to the Latin American debt crisis.

fashion members from the Basel Committee, the International Association of Insurance Supervisors, and the International Organization of Securities Commissions.

For emerging market governments the deregulation trend in advanced states increased the pressure on them to follow suit, especially since international financial institutions increasingly included liberalization measures in their structural adjustment programs. A second important factor favoring financial deregulation in emerging market economies was the ideational boost given to the American economic model that accompanied the end of the Cold War (Abiad, Detragiache, and Tressel, 2008). With the rise of this new Washington Consensus emerging market economies were increasingly encouraged to privatize their state-owned firms and banks, lift regulations that insulated failed national champions, reduce barriers to international trade and capital flows, and remove price and quantity restrictions on all manner of financial activities. Many reform efforts were pursued in the belief that emerging market economies would over time achieve levels of financial depth and stability comparable to advanced states. Yet when the positive aspect of reform proved insufficient to persuade policymakers, financial crises often played their part. For example, balance of payments crises resulted in an increased need for foreign capital and loosening restrictions on the capital account was often the only way to do so (Haggard and Maxfield, 1996; Martinez-Diaz, 2009). For others, the sway held by influential teams of liberal economists successfully pushed open the door to a more internationally oriented development model (Blyth, 2002; Chwieroth, 2007). Others still focused on how learning and competition between states shaped motivations for liberal reforms (Simmons, Dobbin, and Garrett, 2008).

Whatever the motivations of individual states, the liberalization trend that accelerated in the early 1990s coincided with a marked increase in financial crises in emerging market economies. Limiting the analysis to banking crises (which often coincided with currency and sovereign debt crises), Laeven and Valencia (2013) list thirty-three systemic banking crisis occurring between 1990-2002. All but a handful took place in emerging

market economies.[6] The banking crises of the 1990s differed substantially from the Latin American debt crisis of the 1980s. While painful, the sovereign debt crises did not have the same systemic character as the banking crises of the 1990s and were instead long, drawn out affairs. What distinguished many of the crises of the 1990s was the sharp collapse of many private banks and credit markets, whose risky capital structures were exposed when foreign capital inflows suddenly stopped. The speed and depth of the crises caught many emerging market governments off guard and political turmoil quickly infected many states. Most states that fell into crisis took years to recover. At a cognitive level, the collective impact of these crises led many to question the wisdom of the Washington Consensus (Stiglitz, 1998).

Out of the emerging market crises of the 1990s emerged a literature on the politics of financial crisis management. Unsatisfied with economists who view crisis management as a purely technocratic matter and by globalization's critics who complain of an overbearing IMF, MacIntyre (2001) and Pepinsky (2008) each argue that domestic political structures can explain policy choices during financial crisis. MacIntyre (2001) argues that the structure of veto authority influenced how well states managed the shock of the Asian financial crisis. In particular, MacIntyre finds that financial crisis management was best in states with a moderate number of veto players. Using case studies, MacIntyre shows that states with few veto players suffered from a concentration of power which resulted in excessive policy uncertainty since the whims of these few leaders were difficult to discern. On the other hand, states with many veto players suffered from policy rigidity and were not capable of adjusting to the new circumstances posed by the crisis in a timely manner. It was only in states with a moderate number of veto players that the balance was struck between policy volatility and policy rigidity.[7]

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[6]Crises in important emerging market economies include: Argentina (1990, 1995, 2001), Brazil (1990, 1994), Mexico (1994), Czech Republic (1996), Indonesia (1997), Thailand (1997), Korea (1997), Malaysia (1997), Russia (1998), and Turkey (2000). Crises in advanced states include Sweden (1991), Finland (1991), Norway (1991), and Japan (1997).

[7]Angkinand and Willett (2008) corroborate the main findings of MacIntyre (2001) using a "large-n" quantitative study.

Pepinsky (2008) traces the policy responses by Malaysia and Indonesia, both non-democratic states, during the Asian financial crisis and finds that they varied considerably. Pepinsky attributes this variation to the preferences of regime supporters. In Indonesia, key regime supporters included holders of both fixed and mobile capital. Indonesia's policy response included seeking IMF funding, abandoning its currency peg, maintaining an open current account, and tightening macroeconomic policy. This represented a significant breakdown in the previous policy regime and reflected the state's inability to meet the ultimately irreconcilable preferences of fixed and mobile capital holders. In contrast, Malaysian policymakers responded to the crisis with monetary stimulus and eventually broke with IMF orthodoxy by imposing new capital controls. This policy response reflected the complementary preferences of the regimes key supporters, labour and holders of fixed capital.

Another well cited account of the Asian financial crisis is given by Haggard (2000), who argues that the structure of government-business relations explains both the susceptibility of South East Asian economies to crisis and their subsequent reform efforts. The strength of government-business relations, Haggard argues, not only determined the external debt position of each country but also their degree of international financial openness. The structure of these relations also created significant pockets of moral hazard within the private sector, which contributed to the depth of the crisis. Following the crisis the pressures of democratic politics made subsequent reforms politically necessary, although the quality of these reforms was conditioned by the domestic institutional context and the transparency of government-business relations.

The lessons learned from the emerging market crises of the 1990s were not lost on international financial policymakers. For example, in 1998 the IMF published its Framework for Financial Stability (Folkerts-Landau and Lindgren, 1998). The framework extended the IMF's oversight mandate to include the banking systems of member states which were at the core of many emerging market crises. While concerns with the banking sys-

tem in many member states were a regular feature of the surveillance reviews conducted by IMF staff, the crises in emerging markets made it clear that a formal framework for monitoring the vulnerabilities in member state's banking systems was desirable. Another innovation to emerge from the Asian financial crisis was the Financial Stability Forum, which was established in 1999 at the request of G7 finance ministers and central bank governors. It had a mandate to promote financial stability by bringing national regulatory and supervisory bodies together with major international financial institutions and standard setting bodies. With these developments, the political foundations of the liberal era for international capital markets were clear. Its main contours consisted of a mosaic of international financial institutions that collectively pushed for various risk reduction strategies. Despite the string of emerging market crises, proposals pushing international financial safety nets and a broader regime of sharing and transferring risk internationally went nowhere. This is despite some widely discussed proposals from high ranking officials at the IMF.

One such proposal came from former First Deputy Managing Director of the IMF Stanley Fischer, who put forward a widely discussed proposal for an international lender of last resort. Fischer (1999) argues that an international lender of last resort is desirable for the same reasons that a domestic lender of last resort is desirable. That is, the provision of liquidity to markets and firms in distress not only contributes to financial stability but also reduces the cost of crises when they occur.[8] In addition, Fischer argues, if used deftly and judiciously, a lender of last resort can even prevent some crises from even occurring. An international lender of last resort is particularly relevant in a world of global capital flows because international liquidity can only be supplied by central banks which supply global currencies, most prominently the Federal Reserve and to a lesser extent the European Central Bank (ECB) and the Bank of Japan. Central banks outside of these jurisdictions can supply liquidity in global currencies only if they have it

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[8]See also Bignon and Jobst (2017).

on reserve. Relative to this arrangement, an international lender of last resort can be a more efficient provider of this liquidity, which would in turn help stabilize global financial markets (Goodhart and Huang, 2000).

Aside from political will, Fischer cites two problems preventing the creation of an international lender of last resort. The first is that states do not declare bankruptcy in the same manner as firms. Since state revenues consist of tax receipts, in principle states can always extract enough revenue from its citizens in order to meet its obligations to creditors. Sovereign default is therefore in some sense always a choice to forego ones obligations. This leads to the second problem identified by Fischer, which is moral hazard. Fischer distinguishes between moral hazard on behalf of states and investors and concludes that investor moral hazard is a more serious concern. While moral hazard would exist for both investors and states that have recourse to an international lender of last resort, the behavioural change on behalf of investors is likely to be more disruptive. While the incentive for states to over-borrow may be mitigated through persuasion and coercion, excess investor risk taking in states covered by an international lender of last resort will be a harder to curtail. Mitigating these risks therefore requires improved regulation and oversight.

A second proposal for an international financial safety net concerns an international sovereign debt restructuring regime. As Miller and Zhang (2000) argue, if such a regime were in place the IMF would be able to "bail-in" sovereign creditors and not feel "forced to provide bailouts which have effectively guaranteed the creditors investment in sovereign debt," (Miller and Zhang, 2000, p. 1). Anne Krueger, Fischer's successor as First Deputy Managing Director of the IMF, has put forward a widely discussed proposal on sovereign debt restructuring (Krueger, April 2002). The mechanism she proposes aims to prevent some of the financial disorder associated with the Mexican and Asian financial crises by providing sovereigns and their creditors a legal framework within which to negotiate alternative payment arrangements. Kruger argues that such a mechanism would aid

36

the management of financial crises since IMF resources could be used to incentivize participation in the restructuring mechanism.

These are only some of the more widely debated proposals to strengthen the international financial architecture with an eye towards enhancing international financial stability. Many of these proposals call for greater burden sharing and the provision of at least some components of what one would recognize as an international financial safety net. However, none of the proposals outlined here have been implemented to date. While technical hurdles such as determining when a state can no longer service its debt and the problem of moral hazard are very real, none of these problems are insurmountable. As discussed further in the next chapter, the primary reason for the lack of fundamental reform, especially of the kind that would provide a robust international financial safety net, is the low appetite among the world's leading financial powers to commit funds to fight crises in other states.

2.2.3 The Global Financial Crisis

In the aftermath of the dot-com bubble, the twin forces of financial innovation and loose monetary conditions in many of the world's key international financial centers, most importantly the United States, combined to fuel an unprecedented expansion in gross and net international capital flows (Wolf, 2014). The majority of these flows were of private capital seeking investments in advanced and emerging economies (Bluedorn et al., 2013). This period was also unusually quite in terms of international financial volatility and many began to describe the world economy as having entered into a Great Moderation. However, with hindsight, significant risks were building in the international financial system which burst during the global financial crisis of 2007-2008.

Following the failure of Lehman Brothers in September 2008, the United States led a coordinated response through the G-20 that included packages of monetary and fiscal stimulus and commitments to avoid beggar-thy-neighbor policies (Pauly, 2009; Drezner,

2014). But there is widespread agreement that the single most important mechanism that stabilized global financial markets were unilateral actions by the United States (Helleiner, 2014). In particular, ample short-term liquidity was provided through bilateral swap-lines from the Federal Reserve to selected central banks around the world. These swap-lines allowed privileged central banks to borrow dollars from the Federal Reserve, collateralized with stocks of their own national currency. This proved to be a key mechanism that supplied the world with scarce dollar liquidity and turned the Federal Reserve into a *de facto* global lender of last resort (Broz, 2015). However, Broz and others acknowledge that the Federal Reserve's swap-lines were not the actions of a benevolent hegemon intent on providing a global public good. Instead they were a means to support the foreign operations of American financial institutions (Broz, 2015; Aizenman and Pasricha, 2010; Prasad, 2015).

After the dust from the global financial crisis settled, global financial governance reform started almost immediately. In an implicit recognition that financial crises were now truly global in scope, out of the April 2009 G-20 meeting the Financial Stability Forum was rebranded the Financial Stability Board (FSB). With a broadened mandate to promote financial stability, the FSB has been tasked with developing policy recommendations to address the problem of resolving systemically important financial institutions. In conjunction with the IMF, the FSB also conducts periodic peer reviews of member states to assess the strength of their regulatory and supervisory regimes (Eernisse, 2011–2012). Work also began on Basel III, the third round of banking reforms aimed at globally active banks. As with previous rounds of Basel negotiations, the primary focus has been on the development of improved capital and liquidity adequacy requirements.

With respect to international financial safety nets, some movement is evident in the various regional reserve pooling arrangements that currently exist, such as the Chiang Mai Initiative (Henning, 2009), the European Stability Mechanism (ESM) (Lane, 2012), and the BRICS Contingent Reserve Arrangement (Eichengreen, 2014a). However, the

amount of *de facto* risk sharing these arrangements provide remains uncertain. The Chiang Mai Initiative, which was implemented following the Asian financial crisis, largely failed its first test during the global financial crisis as many states instead sought recourse through Federal Reserve swap-lines (Sussangkarn, 2011). And despite reforms and enhancements following the global financial crisis its future remains in doubt (Grimes, 2015). On the ESM, Donnelly (2014) has argued that the behaviour of the leading European financial powers, Germany in particular, but also the Netherlands and Finland, blocked the ESM from evolving into an effective mechanism for managing crises in the Eurozone. For example, accessing the ESM was to be the last resort for bank bailouts, following contributions from private sources (i.e. bail-ins) and national taxpayers. But even then, questions remain whether the resources committed to the ESM will be sufficient should a large European country come under stress. Lastly, given that the BRICS Contingent Reserve Arrangement has yet to be tapped and the questionable commitment each member has with respect to assisting others should a crisis erupt, its ability to provide a financial safety net for the BRICS remains in serious doubt.

Lastly, at the global level the IMF introduced more flexibility into its lending framework designed to address the financial stability concerns of emerging market economies. Two new credit facilities, the Flexible Credit Line and the Precautionary and Liquidity Line were established to give emerging market economies with strong macroeconomic and political fundamentals continual access to a revolving line of credit. Access to pre-approved limits allows states to better manage fluctuations in market liquidity without seeking a traditional Stand-By Arrangement. As will be discussed in greater detail in the following chapter, the very low uptake of these facilities indicates that these facilities not only provide very meagre assistance to states in crisis but that the process of approval acts as a barrier to the provision of a robust international financial safety net.

2.3 Conclusion

The politics of international financial stability in the twentieth and early twenty-first century can be broken down into three phases. The first phase occurred under the gold standard as central banks supervised and adjusted their external payment imbalances in tandem. This system ended during the Great Depression when the desire of central banks to stabilize their domestic markets clashed with their international obligation to maintain a balanced international payments position. The second phase began when the architects of the Bretton Woods system prioritized a system of fixed exchange rates and domestic control over monetary policy as their preferred system to restore international trade and economic integration. However, in light of the politics of international financial safety nets, it becomes apparent that capital controls were not imposed because of an inherent bias against cross-border investment, but because the politically feasible set of international institutions that could enhance international financial stability precluded mutual insurance schemes that committed the large financial powers to assisting others that fell into crisis. The third phase began with the breakdown of the Bretton Woods system. Under this phase financial markets regained their global scope and domestic financial stability has again been an ongoing concern for states. Attempts to construct international financial safety nets have mostly come to naught and international coop- eration has focused on risk reduction measures such as strengthening and harmonizing regulation and information sharing among the leading central banks.

The dominant theme to emerge from the literature on the politics of international finance is the a general unwillingness by states to incur costs for crises abroad. Some have argued that notable exceptions to this pattern include the American response to the Latin American debt crisis and the global financial crisis and the expanded mandate and resources of the IMF. But these exceptions demonstrate the rule because the primary motivation for the American response was to rescue its own financial institutions that had operations abroad. This understandable reluctance will be a recurring theme in this

dissertation as it is one of the main obstacles to the formation of a robust international financial safety net.

Chapter 3

International Last Resort Lending as a Global Club Good

From the literature review it was evident that international financial safety nets remain more potential than fact and the main reason why is because states have a general distaste for international risk and burden sharing arrangements. This is despite the fact that such arrangements can, in theory, provide a global public good. This chapter builds on this literature by showing that states have been especially resistant to the creation of an international lender of last resort.

It is widely accepted that a lender of last resort has a prominent role to play in managing and containing financial crises (Kindleberger and Aliber, 2011; Goodhart, 1988). A state's central bank usually fulfils this role domestically, and when they do their actions are often lauded as having provided a public good. The widespread consensus on this issue has prompted many to argue for the provision of a global public good through an international lender of last resort (Fischer, 1999; International Monetary Fund, 1999; Sau, 2004; Goodhart and Schoenmaker, 2009; Fernández-Arias and Levy-Yeyati, 2012; Frieden, 2016). However, after decades of proposals and incremental reform to existing global financial institutions, global capital markets remain without such an institution. The closest the world has come has been through the collective efforts of the IMF, regional reserve pooling arrangements, national self-insurance, and ad hoc use of the Federal Reserve's swap-lines. Although some argue that this mosaic provides at least some of what one would expect from a global public good, most agree that current efforts fall short (Henning, 2009; Pauly, 2009; Rana, 2012; Hale, Held, and Young, 2013; Drezner, 2014). The first puzzle addressed in this chapter is therefore why multiple institutions that resemble international lenders of last resort exist when each, from the perspective of the borrower, is a close substitute for the other. The issue of multiple lenders is especially puzzling given that the United States dominates nearly all contemporary forms of international last resort lending.

A second, and related, puzzle addressed in this chapter is the issue of just how strikingly different these institutional arrangements are from one another. For example, dur-

ing the global financial crisis why did the Federal Reserve lend only to select states under relatively easy financing conditions while the IMF stood ready to lend to any member state but under relatively heavy conditions? This variation is especially puzzling given that each of these sources of international last resort lending serves the common end of supplying states with scarce foreign currency during a crisis. What explains these various lending arrangements and why do none of them appear to be consistent with the provision of an unambiguous global public good?

This chapter resolves these puzzles by first showing that none of the international lasts resort lenders mentioned above provides a global public good, even approximately. Instead, what the collection of international last resort lenders each provide is a *global club good*. This chapter then extends the existing literature on club governance by showing that multiple types of club structures exist, each with its own implications for how the club good is provided.

3.1 Public Goods, Club Goods, and International Last Resort Lending

In much of the economics and political science literature, a public good is defined as being *non-rival* and *non-excludable*. A good is non-rival if one agent's consumption does not lower the consumption of others. A good is non-excludable if consumers cannot be prevented from consuming it.[1] (Cornes and Sandler, 1996). Despite their capacity to deliver significant public benefits, public goods are generally under-produced by profit maximizing firms because the consumption of non-excludable goods is susceptible to free-riding. In short, the provision of public goods suffers from a collective action problem. For this reason, arguments in favor of the state provision of public goods are persuasive.

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[1]Examples of non-rival goods include roads, intellectual property, and television programs. Natural resources held in common are examples of non-excludable goods.

Many argue that international financial stability meets the criteria of a global public good because its benefits cannot be withheld from anyone (non-excludable) and do not vary with the size of the consuming population (non-rival) (Frieden, 2016). This has led many scholars to examine the theoretical potential and empirical record of international financial institutions that purport to supply global public goods (Keohane and Nye, 1977; Keohane and Nye, 2000). Not surprisingly, the bulk of the literature has focused on the IMF. For some, the IMF's lending framework does in fact approximate an international lender of last resort that provides a global public good (Boughton, 2000; Roubini and Setser, 2004; Obstfeld, 2009). However, for many this is a step too far. For example, scholars have pointed to the slow pace of IMF reform as evidence that its preferences are over-aligned with the G-7, and the United States in particular (Woods, 2010; Lesage et al., 2013; Hale, Held, and Young, 2013). These operational constraints have led to a low demand for IMF loans and a persistent stigma against them (Helleiner, 2014). These political features of the IMF's lending framework are not features one would generally expect from the provider of a global public good. Nevertheless, if there is a consensus in this literature it is that contemporary international financial institutions like the IMF fulfill some, but not all, of the criteria for a global public good.

The question then arises, if these political barriers fell and a strong, inclusive international lender of last resort emerged, would its contribution to international financial stability rise to the level of a global public good? Surprisingly, the answer to this question depends on what one means by international financial stability. One notion of international financial stability is synonymous with crisis prevention. When international financial stability is defined in this way, it is arguably non-excludable because no one can be denied its benefits. Crisis prevention is also non-rival because its benefits are not diluted over a larger population. International collaboration in setting prudential regulation, standards for information sharing, and international best practices all qualify as crisis preventing global public goods (Joyce and Sandler, 2008). However, few would

argue that any international lender of last resort with significant crisis prevention powers has ever existed.

Modern deposit insurance provides an example of how an international lender of last resort could provide such a global public good. In a fractional reserve banking system without state-sponsored deposit insurance, a small bout of financial instability has the potential to spiral into a full blown bank run. The fundamental cause of this run is the inability of depositors to fully verify that the bank holding their deposits is both liquid and solvent. State-sponsored deposit insurance solves this asymmetric information problem by assuring depositors that even if their bank fails, their deposits are secure. For this reason many argue that deposit insurance can prevent a bank run from occurring in the first place, even if the solvency of the banking system is uncertain (Gorton and Pennacchi, 1990). When one compares the domestic crisis prevention powers of a modern deposit insurer to the international crisis prevention powers of contemporary international financial institutions, it becomes clear how far short the latter falls in providing the global public good of crisis prevention.

A second notion of international financial stability is through the management and containment of crises after they have begun (Johnson, 1983). States generally have significant powers in this regard (Gelpern, 2009). However, international crisis management, even when it is successful and reduces the overall political, economic, and social costs of a crisis, does not constitute the provision of a global public good. The reason is that, unlike crisis prevention, crisis management requires the allocation of real resources and this process is necessarily excludable. Consider the example of a banking crisis that begins in state A and spreads to state B. If both states are emerging market economies, both may seek recourse to an international source of finance to help manage the crisis. Unfortunately, states face no enforceable obligation to assist. An international last resort lender may offer liquidity support to state A, state B, both, or neither. It may also decide that its assistance is available but only at a price above what state A and state B are

willing to pay. In this simple example, the power of creditors to select which borrowers to lend to and under what conditions is clear. This implies that although the loans that constitute international last resort lending are arguably non-rival,[2] because they are excludable, they do not meet the definition of a global public good. Instead, international last resort lending meets the definition of a global club good.

Club models of global financial governance are gaining acceptance in the international political economy of finance literature. In particular, they are used to explain the emergence of like-minded coalitions during the formation of international financial regulation (Drezner, 2008; Cerny, 2014; Tsingou, 2015). For example, club models have been used to explain why small states sometimes voluntarily incur a cost in order to adopt the regulatory standards of the large financial powers. This club structure emerges endogenously from the fact that large states have the power to present a take-it-or-leave-it offer to small states to either adopt the club's preferred set of regulations or retain the status quo and forego the benefits of club membership (Drezner, 2008).[3]

Despite the growing popularity of club models to explain features of global financial governance, these models remain under-explored. This is rooted in a tendency to motivate a club model by holding it up against non-club models of governance, a situation which has resulted in a general neglect of the different types of clubs that can exist. For example, in the club models outlined above, the core financial powers are instrumental in banding together to set international financial regulation, which then leave it to periphery states to decide for themselves if they wish to incur an adjustment cost (real or social) in order to access the club good. What is missing from the existing literature is a recognition that this club structure is only one of many possible types. The task taken up in the following section is to show that many alternative club structures exist and that these

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[2]Few goods are purely non-rival and international last resort lending is no exception. However, for all intents and purposes, international last resort lending is non-rival because lenders rarely, if ever, face substantive barriers to assisting a state because their resources are tied up elsewhere. This is especially true for lenders that create their own liquidity such as central banks.

[3]A similar use of club models is evident in the literature on the international political economy of trade. Examples include Keohane and Nye Jr (2002) and Gowa and Kim (2005).

club structures contain significant variation in which states may access the club good, on what terms and conditions, and the expected benefits for those which eventually gain access.

3.2 A Theory of Clubs for International Last Resort Lending

For lenders of all stripes, screening potential borrowers is an exercise in exclusion. Indeed, it must be, because lending is inherently risky and the probability of a borrower not meeting their obligations in full is never zero. To mitigate this risk lenders conduct due diligence on potential borrowers and think carefully about the terms and conditions under which any loan would be granted. When the lender is a private commercial bank, these decisions are based on the expected profit from a given loan. When the lender is a state or international institution, profit calculations are less useful since other motivations are at play. Nevertheless, what private and public lenders share is the absence of an obligation to lend to any borrower and the power to limit their lending to only those that meet their specific benchmarks. This gives lenders strong incentives to disburse only those loans that are in the lender's self-interest.

The process of excluding potential borrowers occurs along two dimensions. The first is through lenders establishing a list of *veto criteria* to automatically exclude certain borrowers from consideration. Veto criteria come in two types. The first is when a loan is denied because the loan contains only downside risk for the lender. In this context lenders simply stay on the sidelines because the risk of losses is not offset by potential gains. The second, distinct, but more rare, type of veto criteria occurs when a lender denies a loan in order to punish a potential borrower. This type of veto criteria is especially rare in the context of commercial banking, although states have been known to use it when the political benefits of withholding a loan outweigh the economic benefits

of granting it. As shown in greater detail in the case studies, veto criteria typically consists of the degree of financial integration and political closeness between the lender and borrower.

The second method of exclusion occurs through setting *terms and conditions.* These refer to the constraints borrowers must accept in order to receive a loan. Terms and conditions vary widely and may include an upper bound on how much credit may be accessed, the interest rate, associated policy conditionalities, collateral requirements, restrictions on how the loan may be spent, and the allocation of the risks associated with the loan. Critical to the theory developed here is that a failure by the borrower to meet *either* the lender's veto criteria or the terms and conditions will result in a borrower's loan application being denied.

Although states have strong incentives to screen borrowers using well designed veto criteria and terms and conditions, both are rarely used together to their fullest extent. Indeed, as the case studies show in greater detail, there is a trade-off between the two. This trade-off is depicted as the dashed line in Figure 3.1.[4] To visualize this trade-off, consider a lender which first uses a set of stringent veto criteria. By limiting its lending to a select group of borrowers it would be counterproductive for the lender to impose stringent terms and conditions on these loans. The reason is because the lender risks alienating those which it has a self-interest in lending to and the imposition of stringent terms and conditions risks pushing the borrower to look elsewhere for a better deal. This is not to say that when a borrower passes a given lenders veto criteria that loans will be given unconditionally. Rather, relative to other club types, the stringency of loan terms and conditions is expected to be less when a lender screens borrowers using strict veto criteria. Conversely, for lenders that choose weak veto criteria the response will be more stringent terms and conditions given that without some method of exclusion the

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[4]Note that the stringency of the lenders veto criteria and terms and conditions increase at locations farther from the origin. Given that both of these mechanisms of exclusion are weakest at the origin, the already non-rival good also becomes non-excludable and therefore becomes a public good.

resources of the lender may be swamped by demand.

Figure 3.1: Club Types for International Last Resort Lending
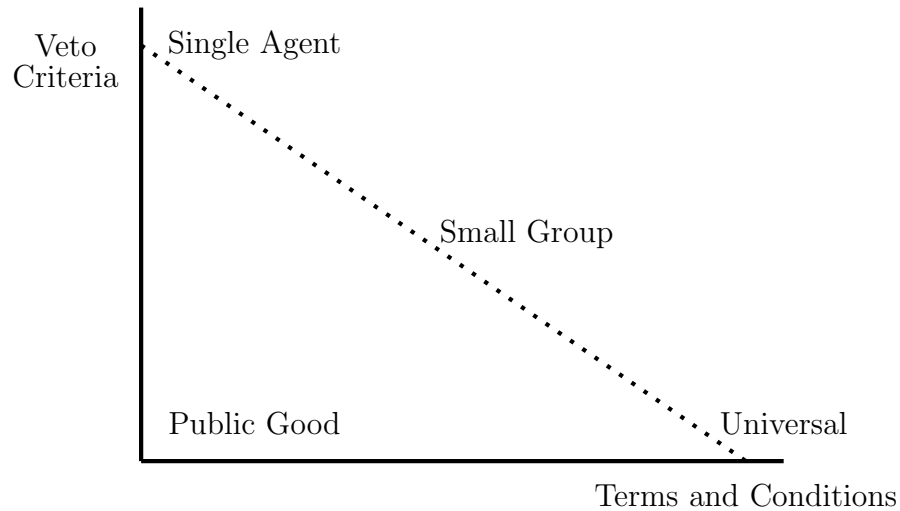
The theory developed here argues that the trade-off between a lender's veto criteria and terms and conditions is determined by the number of agents that police access to the club good. Not only does this offer an intuitive way to distinguish different international last resort lenders from one another, it serves as a proxy for the degree to which a club's lending framework must accommodate a narrow or diverse set of preferences. To put this point in concrete terms, while the United States is clearly the dominant actor in all forms of international last resort lending, we nevertheless observe significant variation in the lending frameworks across different international last resort lenders. What the number of agents with policing power over access to the club good provides is a rough proxy for how diluted the power of any single agent, such as the United States, will be in setting the club's overall lending framework. To be clear, what the number of agents with policing power over the club good does not do is explain the specific veto criteria or the specific terms and conditions chosen for any particular loan. Instead what it does do is provide an accurate indicator of the relative emphasis a club will place on either the

veto criteria or the terms and conditions when setting its lending framework. From this analysis three types of international last resort lending clubs emerge: universal, small group, and single agent.

When access to a club good is policed by all potential consumers of the club good, it is called a *universal club*. This type of club is currently found in the literature on international financial regulation as both Drezner (2008) and Tsingou (2015) are variations of the universal club type. The defining feature of a universal club is that access to the club good is in principle universally available. Under these conditions criteria for exclusion must be set so that free-riding does not dilute the benefits of club membership and transform the club good into an over-utilized public good. This sets the political problem of how potential consumers of the club good are to be excluded. For Drezner (2008) exclusion is policed by the leading financial powers adopting a de facto global regulatory standard that small states may adopt if they decide that the benefits of club membership outweigh an adjustment cost. For Tsingou (2015) exclusion is policed through a socialization process that clearly demarcates club insiders from outsiders. Despite their many differences, what these club models have in common is that access to the club good is not policed through strong veto criteria. In both of these models, and under a universal club structure more generally, in principle club membership is open to all that are willing to abide by the clubs membership guidelines (i.e pay the price). In other words, exclusion in a universal club is governed by setting terms and conditions and allowing potential club members to self-select out of the club.

At the opposite end of the spectrum from a universal club is the *single agent club*. Under this club structure, the veto criteria and terms and conditions are set by a single agent according to their preference alone. This gives the single agent significant power over governing access to the club good. In the single agent club model, it is expected that veto criteria will play a more important role relative to a universal club. The reason is that veto criteria allows the agent to limit access to the club good to only those for which

the agent will be made strictly better off. Filtering out unwanted borrowers becomes far more difficult for the agent if the agent simply posted the club's terms and conditions and left the decision to join the club up to potential members. The ability to use veto criteria also leads the single agent to prefer weak terms and conditions. As discussed above, having determined the list of borrowers which meet the veto criteria, imposing stringent terms and conditions on these club members may leave the single agent worse off if borrowers baulk at the stipulated terms and conditions. Therefore, in a club provided by a single agent there are strong incentives to police entry with stringent veto criteria and weak terms and conditions.

The final club structure is a *small group club*. This club type falls between the extremes of a universal club and single agent club. With a small group, there are a few actors that police access to the club good and set its veto criteria and terms and conditions. The result is a use of both veto criteria and terms and conditions, but with values for each set at an intermediate level.

The benefits to those with access to the club good is also expected to vary according to the club type. In a universal club accessing the club good is expected to bring minimal benefits. While access to this type of club may be preferable to not having access at all, the reliance on stringent terms and conditions is likely to leave club members unsatisfied. The opposite is expected for a single agent club. Under this club structure, the club good is accessible because it is in the self-interest of the single agent. This implies that there will be a positive relationship between how important a borrower is to a lender and much of the club good a borrower may access. Therefore, the expected benefits for those privileged enough to gain entry into a single agent club will be high overall and highest for those deemed most important to the lender. Lastly, for those that can access a club good governed by a small group, the expected benefits are expected to be between those of a universal club and a single agent club. Details regarding the three club types, expectations regarding their operation and expected benefits, and their associated case

Table 3.1: Club Structures for International Last Resort Lending

Club Structure	Veto Criteria	Membership Conditions	Membership Benefits	Case Study
Universal	Low	High	Low	IMF
Small Group	Medium	Medium	Medium	BIS
Single Agent	High	Low	High	Federal Reserve

study are summarized in Table 3.1.

3.2.1 The International Monetary Fund

Recall that in Chapter 2 the origins of the IMF lay in the memories of the Great Depression and the desire to prevent a return to the chaotic international atmosphere of the 1930s. As the central pillar of the new international financial architecture, the IMF sought to stabilize the Bretton Woods system of fixed exchange rates by channeling loans to states with current account deficits. One of the key factors leading to this outcome was the status of the United States as the world's premiere creditor nation. The United States used this position to disparage proposals that required symmetrical adjustments by surplus countries and those that did not permit some degree of policy leverage over deficit countries (Bordo, 1993).

From this beginning the international last resort lending of the IMF has evolved into a universal club model. In order to borrow from the IMF, states must first be members of the institution. However, states are encouraged to join the IMF as the process is straightforward and requires few policy adjustments. States must abide by the Articles of Agreement, which requires that states share with other members information regarding their fiscal, monetary, and exchange rate policies. The Articles also spell out how large a state's quota will be and how it is to be paid. Lastly, the IMF encourages states to

pursue economic openness and refrain from impeding foreign currency transactions. In short, the veto criteria for entry into the IMF are minimal, a fact that explains why nearly every state is a member of the IMF today. However, accessing the IMF's lending facilities is a far more onerous process.

From the beginning, despite not appearing in the Articles of Agreement, members implicitly understood that terms and conditions would be attached to IMF loans if their borrowing exceeded their reserve tranche[5] (Diz, 1984; Pauly, 1997). This quid pro quo remained in place after the breakdown of the Bretton Woods system and the IMF shifted away from financing international payments imbalances and towards assisting states in crisis (Boughton, 2001). Typical loan conditions include restrictions on new domestic and foreign credit, the privatization of state-owned assets, tax reforms, and the imposition of targets for public spending and foreign currency reserves (Stone, 2008). Given that states in crisis typically find these terms and conditions demanding, they are highly unpopular (Stiglitz, 2002; Sachs, 2004).

The preference for minimal veto criteria and stringent terms and conditions led to the creation of new lending facilities in the wake of the global financial crisis. For example, the Flexible Credit Line (FCL) and the Precautionary and Liquidity Line (PLL) were designed to give states access to a pre-approved line of credit that would allow states to better manage drops in market liquidity (Presbitero and Zazzaro, 2012). However, to date only Mexico, Columbia, and Poland have accessed the FCL while only Macedonia and Morocco have accessed the PLL. Yet despite efforts by IMF officials to lessen the stigma attached to IMF lending, the setting of relatively challenging terms and conditions, the fundamental source of stigma, on both the FCL and PLL nevertheless remains a core priority. For example, qualification requires that states meet fairly stringent macroeconomic

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[5]States "borrow" (i.e. purchase foreign currency with their own currency with an agreement to repurchase it at a future date) from the IMF unconditionally up to their reserve tranche, which is typically no more than 25% of their quota. A state's reserve trance represents that state's contribution of foreign currency to the IMF's resource pool. Conditions are applied on loans greater than a state's reserve tranche. At this stage loans are disbursed from a state's credit tranche.

criteria that are subject to regular review.[6] Conditionality was therefore not eliminated with these facilities, but front-loaded.

The example of Macedonia, to date the only state to draw on either the FCL or the PLL, is illustrative of the hurdles and pitfalls states face when accessing these credit facilities. Macedonia was granted a PLL in January 2011 and drew on it shortly after. But when undergoing a periodic review one year later IMF officials concluded that Macedonia was no longer meeting its benchmark regarding the sustainability of government spending. IMF officials also noted that Macedonia drew on its PLL in response to an internal shock rather than external shock as required (International Monetary Fund, February 26, 2014). These reasons prompted IMF officials to recommend that Macedonia be denied a renewal of its PLL, a stance that led Macedonian officials to let their PLL expire in January 2013 (Birdsall, Rojas-Suarez, and Diofasi, 2017).

In a universal club such as the IMF, access to the club good is governed through weak veto criteria and stringent terms and conditions and borrowers are left to decide for themselves whether abiding by the terms and conditions is a price worth paying. However, this setup ensures states will receive few benefits when they are willing to do so. While it may be the case that states willing to abide by the club's terms and conditions are nevertheless better off for having the option, the imposition of stringent terms and conditions ensures that for those with access to the club good, their experience will be less than they hoped for.

3.2.2 The Federal Reserve's Swap-lines

While the status of the IMF as an international lender of last resort continues to be debated, few seem to disagree that the swap-lines of the Federal Reserve during the global financial crisis amounted to anything less (Goldberg, Kennedy, and Miu, 2011; McDowell, 2012; Baker, 2013; Helleiner, 2014; McDowell, 2016). At their most basic

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[6]The PLL is designed for less developed economies and qualifications are less stringent relative to the FCL. However, the amount states may borrow under a PLL is correspondingly lower.

a swap-line is a conduit through which the Federal Reserve can supply dollar liquidity abroad. The arrangement begins with a foreign central bank swapping a set amount of its own currency for dollars from the Federal Reserve. With these newly acquired dollars the foreign central bank can supply dollar liquidity to firms in its jurisdiction. The swap arrangement is closed at a set date in the future when the foreign central bank remits its borrowed dollars back to the Federal Reserve and receives its own currency in return. By the end of 2008 swap-lines had been extended to the ECB and central banks in Switzerland, Japan, the United Kingdom, Canada, Australia, Sweden, Norway, Denmark, New Zealand, Mexico, Brazil, South Korea, and Singapore. There is an overwhelming consensus that these swap-lines contained the crisis by minimizing disruptions in overseas dollar funding markets.

The Federal Reserve's use of swap-lines adheres closely to a single agent club model. In particular, the Federal Reserve appeared to set its veto criteria according to how exposed American financial institutions were to instability in a given jurisdiction (Aizenman and Pasricha, 2010; Broz, 2015; Prasad, 2015). Foreign exposures were salient for the Federal Reserve because they represented potential losses for American firms should institutions in these states fail. Consistent with the desire to aid American financial institutions, a country was also more likely to receive a swap-line if it had low reserve stocks and a record of sound macroeconomic management. Countries were not more likely to receive a swap-line if their capital account was open, they had a trade surplus with the United States, or if the had few sovereign defaults historically (Aizenman and Pasricha, 2010). The importance of this veto criteria is also evident from the list of states which approached the Federal Reserve for a swap-line, but were subsequently denied. There is evidence that policymakers from Peru, Chile, Indonesia, the Dominican Republic, India, and Turkey are on such a list (Steil, 2014; Harris, 2015). The club of states with access to a swap-line narrowed further after the immediate crisis phase was over as the arrangements with the

ECB, the Bank of Canada, the Bank of England, the Swiss National Bank, and the Bank of Japan were made permanent. All others were allowed to expire on schedule.

A second feature of the swap-lines consistent with the single agent club model was their minimal terms and conditions. However, this is not to say that Federal Reserve policymakers attached no conditions to its swap-lines. As the single agent controlling access to the club good, the Federal Reserve stipulated that borrowing central banks bore many of the costs and risks associated with their swap-line. This occurred in three ways. First, the borrowing central bank bore the credit risk for the dollars it lent. When a foreign central bank drew on its swap-line, the dollars it acquired were lent on to its domestic institutions however it saw fit. But a stipulation of the swap arrangement meant that the borrowing central bank was made liable for the repayment of its swap-line irrespective of the solvency of the ultimate borrowing institution. Second, the borrowing central bank forfeited any interest it earned on its dollar lending as this was remitted to the Federal Reserve. In addition, the Federal Reserve did not pay interest on the foreign currency it acquired. Third, when swap transactions were initiated, the borrowing central bank agreed to close out the swap at the same exchange rate. Although exchange rates would fluctuate in the interim, this proviso ensured that the foreign exchange rate risk would be borne by the borrowing central bank and not the Federal Reserve (Fleming and Klagge, 2010). Together these terms and conditions meant that the Federal Reserve earned interest on its swap-lines without having to incur any credit or foreign exchange rate risk. While the interest income earned by the Federal Reserve was in all likelihood economically immaterial, for the purposes of the club theory developed here the relevant fact is that, despite having the power to do otherwise, the Federal Reserve imposed relatively benign terms and conditions on its swap-lines, especially relative to the typical bundle of conditionalities imposed by the IMF.

The structuring of the swap-lines as a single agent club, with its strong veto criteria and weak terms and conditions, proved highly beneficial to the states granted access to

the club good. This is seen most readily in the ability of the swap-lines to reestablish international financial stability fairly quickly, especially given the seriousness of the global financial crisis. Also beneficial was the willingness of the Federal Reserve to expand the amount central banks could borrow on short notice and according to the depth of the crisis. Indeed, in October 2008 the Federal Reserve temporarily removed all upper limits on its swap-lines with the ECB, the Bank of England, the Swiss National Bank, and the Bank of Japan (Fleming and Klagge, 2010). The benefits embedded in this flexible response is not something the IMF's lending framework is currently capable of doing.

3.2.3 The Bank for International Settlements

A third institution with a history of international last resort lending, and the one least studied, is the BIS. Based in Basel, Switzerland, the BIS was originally created to facilitate German reparations from WWI. Today the BIS is better known for housing the secretariat of the Basel Committee on Banking Supervision, a committee of banking supervisors from advanced and major emerging market states for the purposes of developing international financial regulation. The regulatory aims of the BIS align with its broader mandate to assist member states in their pursuit of monetary and financial stability. But its ability to accept deposits and make loans has also made the BIS, on occasion, a prominent international lender of last resort.

The BIS has a history of lending internationally when a multilateral response is called for by a group of advanced states seeking to support a smaller and financially troubled ally. Because of this the BIS's last resort lending follows a small group club model with the stringency of its veto criteria and terms and conditions set at an intermediate level. This pattern is most clearly seen through a number of examples of BIS international last resort lending. The earliest example of BIS international last resort lending was its loan to Britain in 1966. The BIS credit, structured as a bridge loan,[7] was a key part

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[7]A bridge loan is a short-term loan used to "bridge" over a period of illiquidity. For example, a bridge loan could be used when an agent expects to receive funds in period $t+1$ but has obligations to meet in

of an international rescue package designed to assist Britain with the management of its problematic sterling balances.[8] However, these sterling balances proved difficult to clear and the stagflation of the 1970s made matters worse. Things reached a tipping point in 1976 and Britain sought recourse to the IMF. But before an IMF agreement could be put in place, another significantly larger bridge loan was arranged jointly by the BIS and the central banks of the world's major industrial countries. The terms and conditions of the bridge loan stipulated that Britain satisfy the requirements of its Stand-by Arrangement then under negotiation (Burk and Cairncross, 1992). Britain's BIS loan set a precedent for further lending in the 1970s, although these would be far smaller in size. For example, the BIS advanced a credit to Portugal to help it manage the economic fallout from its 1976 revolution (Bederman, 1988). The BIS also advanced a small credit to Turkey in 1978 to help it manage the fallout from its ill-fated convertible lira deposit account scheme (Wicks, April 10, 1978).

International last resort lending by the BIS greatly expanded in the 1980s. Hungary was the first to borrow. Hungary had been caught up in a general withdrawal of creditors from Eastern Europe, a withdrawal sparked by investor fears over the potential for Poland's political and economic turmoil to spread (Fallon and Shirreff, September, 1982). Facing a severe foreign currency crunch, the National Bank of Hungary approached the BIS for a short-term bridge loan of $100 million in February 1982. For Hungary the BIS was the most promising source of international credit given that negotiations for its entry into the IMF were not yet complete. The Bundesbank, the Banque de France, and the Bank of England were receptive to Hungary's request and agreed to act as a guarantor for Hungary's loan. This meant that if Hungary defaulted, these central banks would

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period t. In this case the agent could use a bridge loan to meet their period t obligations and use their funds acquired in $t + 1$ to repay the bridge loan. In a very general sense, all last resort lending can be thought of as bridge financing.

[8]Britain's "sterling balances" were deposits held in London and the Bank of England by foreign governments and private agents. These liabilities were essentially deferred payments by Britain for imports during WWII. The large overhang of sterling balances following the war represented a significant risk to the value of the pound.

guarantee repayment to the BIS. The leadership of these central banks was no coincidence since financial institutions in these states were Hungary's major international creditors (Bartel, 2017). Hungary would go on to secure two more credits from the BIS in 1982, the second being a $110 million credit in May and a third for $300 million September. These latter credits were guaranteed by a consortium of thirteen central banks (Bank For International Settlements, 1982).

Despite its modest size, the Hungarian credit set the stage for a rapid expansion in international last resort lending by the BIS. Driving this expansion was the onset of the Latin American debt crisis following Mexico's default in August 1982. Mexican officials approached the BIS in the summer of 1982 and were successful in securing a short-term credit of $925 million. As was the case in the loan for Britain, the BIS required that Mexico repay its credit with proceeds from the IMF Stand-By Arrangement it was negotiating. On top of this the BIS also secured repayment guarantees from all of the G-10 central banks, the Banco de España, and the Swiss National Bank. The distribution of these guarantees was set according to how exposed each state's financial system was to a Mexican default (Boughton, 2001).

The use of bridging facilities by the BIS sparked significant debate on whether it would soon formalize its new found role as an international lender of last resort. Given that the BIS is referred to as the central bank for central banks, many wondered whether this was not a natural step for the BIS in a world of increasingly globalized finance (Montagnon, November 25, 1982). Commentators could be forgiven for speculating that the BIS would evolve this way given that, in addition to the aforementioned loans to Britain, Portugal, Turkey, Hungary, and Mexico, the BIS would go on to provide similar bridging facilities to Argentina, Brazil, Guyana, Nigeria, Poland, Romania, and Venezuela throughout the 1980s and early 1990s (Bederman, 1988; Toniolo, 2005). Yet despite the fact that in many

of these cases multiple rounds of support were provided,[9] the BIS consistently rejected the notion that they were evolving into an international lender of last resort. Indeed, BIS bridge loans became increasingly rare as the 1990s wore on and its loan to Brazil in 1998 would be its last.

Despite its eclectic range of borrowers, the BIS did not extent credit to all those which applied. For example, the BIS rejected Poland's request for a bridge loan in 1981.[10] Poland owed over $25 billion to foreign creditors at the time, mostly to western governments and a wide range of western commercial banks (Boughton, 2001). Seeking to avoid imminent default, Polish officials requested a bridge loan from the BIS. However, the BIS denied Poland's request because the risk of lending to Poland were deemed too high. Bilateral lending was also withheld by the Americans, despite the modest exposures of increasingly fragile American banks, in order to pressure the Soviet Union into bailing out Poland in the hopes that this would divert resources away from their war in Afghanistan. In the end, western governments decided to balance their desire to support Poland's emerging opposition, and especially the Solidarity movement, with their desire to maintain pressure on the Soviet Union and agreed to reschedule Poland's foreign debt (Cohen, 1985).

Overall the international last resort lending by the BIS conforms to a small group club. As with the Federal Reserve during the global financial crisis, the BIS used financial exposure as a veto criteria to filter out potential borrowers. However, the wider set of actors with input into the BIS meant that European and American financial interests were taken into equal consideration. Indeed, European banks and governments were the key creditors to Eastern European states while American banks took the lead in lending to Latin America and the BIS would lend to troubled states in both regions.

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[9]Throughout the 1970s, 1980s, and 1990s, the BIS participated in four loans each to Argentina and Mexico, three for Brazil, two each for Hungary, Romania, and Yugoslavia, and one each for Guyana, Nigeria, Poland, Portugal, Turkey, and Venezuela.

[10]Poland would eventually receive a $500 million credit in December 1989 (Toniolo, 2005).

This arguably places the stringency of its veto criteria at an intermediate level, between that of a single agent club and a universal club.

The BIS also set moderate terms and conditions. In all of its lending, the highest priority for the BIS was to ensure it was paid back in full. This led the BIS to require the posting of solid collateral, a condition more stringent than the absorption of risk, as with the swap-lines of the Federal Reserve, but less so than the policy conditionalities of the IMF. In the majority of cases, the BIS accepted a future IMF payout or guarantees from western central banks as sufficient collateral. This was the case for all Latin American borrowers as well as Hungary, Yugoslavia, and Nigeria.[11] When states were unable or unwilling to pursue a Stand-by Arrangement, alternative sources of collateral were sought. Loans to Portugal were collateralized almost entirely by it pledging a portion of its gold stock (Bederman, 1988). Yugoslavia also pledged gold, albeit for less than the full amount of its loan (Prickett and Adamović, 1990). For its first loan to Argentina the BIS also requested gold as collateral, but Argentinian policymakers objected and their loan was delayed as a result. In the end it took an IMF agreement to unlock Argentina's first BIS credit (Montagnon, January 28, 1983).

The benefits of borrowing from the BIS also fell into an intermediate range between those of the Federal Reserve's swap lines and the IMF. Unlike borrowing from the IMF, a BIS bridge loan could be arranged on short notice and largely behind closed doors. In this manner they closely resembled a swap-line, although the amount of credit available to borrowers was considerably less than that offered by the Federal Reserve. The result was that BIS credit could plug relatively small short-term liquidity gaps, but not to the same degree that a Federal Reserve swap-line could. Indeed, it is telling that in almost all cases, borrowers needed further recourse to the IMF down the line.

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[11]Note that the content of the Stand-by Arrangement's conditionalities were of no concern to the BIS. The only requirement was that a future disbursement from the IMF would be allocated directly to the repayment of the BIS loan.

3.3   Conclusion

Even though the world has witnessed dozens of financial crises across a wide range of states, the world continues to operate without an international lender of last resort, one of the basic institutions that could contribute significantly to international financial stability. This is despite decades of proposals and widespread agreement that such an institution could provide a global public good. Many reasons explain this non-existence. The one detailed in this chapter concerns the political incentives for the world's leading financial powers to restrict their international last resort lending to the point that it becomes a global club good. This chapter has also shown that three types of international last resort lending clubs are evident, each structured according to how potential club entrants are excluded.

The mechanism driving the club good outcome is the excludability of international last resort lending. When states control the resources used to assist others in crisis, such as the Federal Reserve's swap-lines, exclusion is enforced through strict veto criteria and those deemed insufficiently economically or politically important are simply barred from accessing the club good. When international last resort lending is housed within an international institution such as the IMF, where borrowing is in principle open to any member state, the result is exclusion by conditionality. A middle outcome between these extremes occurs when international last resort lending is controlled by a small group, as was the case with the BIS.

The majority of emerging market economies do not have recourse to a reliable, timely, and generous source of international credit that could be tapped when crises strike. As shown through a formal model in Appendix A, the absence of such a backstop has numerous negative consequences for the development and potential stability of emerging market financial systems. In particular, the model shows that in the absence of an international financial safety net, emerging market economies face larger risks than they otherwise would and adopt a more defensive posture towards international financial mar-

kets. Yet this defensive posture is not the only response by emerging market states to the weak institutional setting they confront. As detailed in the following chapter, states have many options for developing their own domestically focused financial safety nets.

Chapter 4

Financial Safety Nets

Chapters 2 and 3 argued that international institutions devoted to international financial stability have consistently shied away from structures that transfer risk between states. The remainder of this dissertation concerns the political response by emerging market economies to being in this unfortunate context. This chapter briefly discusses seven possible strategies, which all states pursue to varying degrees. Collectively these strategies comprise a state's financial safety net. Its components consist of: state ownership of key financial institutions, bailout guarantees, lender of last resort facilities, deposit insurance, foreign exchange reserves, payment system liquidity provision, and reliable resolution authority. As with international financial safety nets, how effective each aspect is in practice is a function of the willingness and ability of states to burden themselves with the contingent liabilities produced by each.

4.1 The Financial Safety Net

4.1.1 State-Owned Banks

The state ownership of banks is a controversial subject. Following the seminal work of Gerschenkron (1962), state-owned banks have sometimes been seen as necessary for economic development when capital is scarce, a situation that occurs when a state lacks the institutional capacity to support private banking. For Gerschenkron, Russia lacked investment capital because the generalized lack of trust among citizens prevented banks from developing the capacity to lend for long-term projects. Instead, when capital was raised it "...required the compulsory machinery of government, which, through its taxation policies, succeeded in directing incomes from consumption to investment," (Gerschenkron, 1962, p. 20). Similar guidance by governments has been cited by Wade (1990) as the primary means by which the East Asian Tigers developed from one of the poorest regions of the world in the immediate aftermath of WWII to one of the wealthiest today.

Despite these well known examples supporting the existence of state-owned banks, their appeal has generally waned since the 1970s and 1980s, coinciding with the declining influence of Keynesian economic thinking. The result was the rise of a Washington Consensus that promoted privatization as a cure to the inefficiencies (both real and perceived) of state ownership. Solidifying the case against the state ownership of banks was a seminal work by La Porta, Silanes, and Shleifer (2002) which provided the first cross-country evidence that state-owned banks are associated with slower financial development and lower rates of per capita income and productivity growth. Similar results have been found in studies by Micco, Panizza, and Yanez (2007) and Cornett et al. (2010), although the latter find that there has been some improvement in the performance of state-owned banks following the Asian Financial Crisis.

Prior to La Porta, Silanes, and Shleifer (2002), many scholars had recognized that state-owned banks open up the possibility for politicians to channel resources to their clients. Maxfield (1991) argues that the existence of state owned banks is less about their ability to produce economic growth and more about their ability to channel patronage. For Maxfield politicians set up state-owned banks when opposition to these plans are sufficiently weak, which occurs when the coalition of private banking interests is fractured. In a similar vein, Hutchcroft (1998) argues that the Philippines' perennially weak bureaucracy allows private bankers to continually extract rents from the state and keep the financial system small and uncompetitive. Hutchcroft also argues that corruption was so entrenched that the major state-owned bank, the Philippine National Bank, had to be bailed out numerous times throughout its history due to gross mismanagement. Efforts to revive the Philippine National Bank were finally abandoned in the 1980s after loan losses ballooned beyond the willingness and ability of the Philippine state to absorb. As a result, it was eventually privatized.[1]

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[1]Further arguments on the corrupt use of state-owned banks can be found in Calomiris and Haber (2014).

A third view explaining the existence of state-owned banks is found in Von Metten-heim (2015), who argues that in Brazil state-ownership of three large banks is maintained because they fulfill key political economy functions. Examples include fostering financial and social inclusion, lending counter-cyclically during economic downturns, and somewhat paradoxically, pressing on the private banks in order to boost their lending. For these reasons Von Mattenheim argues that evaluating banks according to economic efficiency criteria alone is misguided.

That achieving these political goals is easier with state-owned banks may explain the puzzling persistence of state ownership around the world. Using data from World Bank surveys on bank regulation, Figure 4.1 shows the average share of the banking system's assets owned by the state since 1999.[2] To many it will not come as a surprise that the asset share of state-owned banks increased in the advanced states following the global financial crisis. But what is surprising in Figure 4.1 is the persistence of state-ownership in emerging market economies. Indeed, following a decline in line with that of advanced states between 1999 and 2003, the average asset share of state-owned banks in emerging market economies *increased* until 2007. Surprisingly, this persistence coincided with an explosion in gross and net international capital flows to emerging market economies.

State-ownership of banks may also support financial stability. During crises it has been observed that depositors migrate from domestic private banks to state-owned and foreign institutions on the assumption that deposits at these institutions are more secure (Laeven and Valencia, 2008). By providing a safe haven during times of crisis, state-owned banks appear to provide something akin to traditional deposit insurance. State-owned banks also appear to lend less pro-cyclically than private banks, especially in states where governments are regarded as effective (Bertay, Demirgüç-Kunt, and Huizinga, 2015). By lowering the volatility of aggregate credit volumes, smaller booms and shallower troughs in the credit cycle can lead to smoother business cycles

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[2]Each plot contains four points, one for each survey completed in 1999, 2003, 2007, and 2011.

Figure 4.1: State Ownership (%)

Source: Barth, Caprio, & Levine (2013)
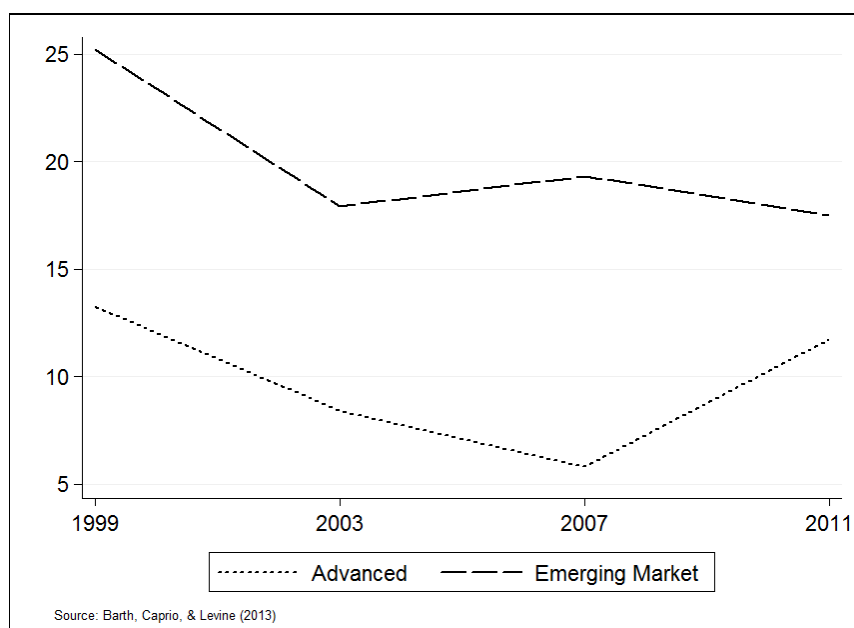
and fewer disruptions in credit access for firms. As a de facto arm of the Treasury, state-owned banks have also found themselves involved in the resolution of insolvent private banks (Glaessner and Mas, 1995). Despite being an inelegant and inefficient solution to a serious problem, for emerging market economies yet to develop a sophisticated resolution regime, the existence of large state-owned banks provides a means through which a crisis can potentially be contained so that its effects are less likely to spiral completely out of control.

By providing a safe haven for depositors during crises, counter-cyclical credit during general economic downturns, and a mechanism to resolve failed banks, state-owned banks contribute to satisfying a number of political goals related to financial stability. In this sense, state-owned banks in emerging market economies are providers of insurance for the banking system that can stabilize markets following the outbreak of turmoil. It is an open question whether these benefits are outweighed by the moral hazard this insurance induces and the crony ends to which state-owned bank credit is often used. However, the value for the economy and the state that is created through the transfer of insolvency,

credit, and liquidity risk onto a state-owned bank's balance sheet is largely independent of their role as distributors of rents to favoured interest groups. This may explain the persistence of state-owned banks and their generally improved management in recent years.

This transfer of risk onto the state and the generally sound management of these risks is what characterizes many state-owned financial institutions in advanced states. While states in the advanced world generally have few state-owned banks (the major exception being Germany), many own and operate institutions in support of home ownership. In Canada, the Canada Mortgage and Housing Corporation (CMHC) is a state-owned corporation that sells insurance to mortgage issuers, which are primarily the large commercial banks. Mortgage insurance is mandatory in Canada for any mortgage in excess of 80% of the value of the home. Banks benefit from this scheme in two ways. First, the cost of this insurance is paid by the borrower, ensuring that the insurance coverage for the bank is provided free of charge. Second, banks are protected by CMHC being a state-owned entity, with the explicit backing of the federal government. The other major player in the mortgage insurance business in Canada is the privately owned Genworth MI Canada. While CHMC has been the traditional mortgage insurer of choice for Canadian banks and insured 90% of new mortgages prior to the 2008 global financial crisis, Genworth has been gaining market share as CHMC has sought to reduce its exposure to Canada's booming housing market. Currently only about 50% of new mortgages are insured by CMHC (The National Post, May 28, 2015). However, while Genworth MI Canada is a private firm, it is covered by a "90% Guarantee" whereby 90% of Genworth's insurance payouts are explicitly guaranteed by the Federal government[3]

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[3]See http://investor.genworthmicanada.ca/English/glossary/default.aspx.

4.1.2 Implicit Bailout Guarantees

Guarantees Under Financial Repression

When WWII ended, wartime economies around the world began their slow recovery. In the industrialized world this meant retooling factories for peacetime production. In the periphery where the industrial base was thin, states took it upon themselves to build up their industrial base in an effort to reproduce the successful development observed in the west. These efforts led to regimes of import substitution industrialization (ISI), regimes which were supported by a global political climate that looked favourably on Keynesian-inspired state intervention in the economy. As the name suggests, ISI was a type of industrial policy that aimed to replace imported manufactured goods with those produced locally. Common ISI policies included an overvalued exchange rate to cheapen intermediate good imports, tariff protection for "infant industries", and subsidies to domestic manufacturers and heavy industry.

Banking systems under ISI were heavily regulated. Governments regularly set aggregate credit ceilings to tame inflation that may threaten their targeted exchange rate and directed bank credit to selected industries at subsidized interest rates. Banks were also subject to high reserve requirements and governments often mandated that banks hold a minimum level of government debt. These policies greatly constrained the freedom of banks to operate their businesses as they saw fit. Compensating for these burdens were offsetting regulations that boosted the fortunes of the banks. While loans to firms and the state were commonly made at subsidized interest rates, the state matched these with caps on deposit interest rates, a price ceiling that effectively subsidized the borrowing cost of banks. Banks were also shielded from competition through a wide range of entry barriers including restrictions on the lines of business certain financial institutions could undertake, restrictions on foreign bank entry, and restrictions on licensing. The cumulative effect of these policies is generally regarded as a net negative by economists

and has led these economies to be characterized as suffering from "financial repression"[4] (McKinnon, 1973; Shaw, 1973).

Similar, although less restrictive, regulatory regimes were in place in many of the advanced states during the ISI period. Regulation Q in the United States is the most well known example of interest rate regulation outside of an ISI context. Implemented during the Great Depression, Regulation Q restricted competition for bank deposits by imposing a ceiling on the rate that could be paid to depositors. Other common advanced country regulations included controls on many types of international payments and regulations on the types of activities financial institutions could participate in.

The quid pro quo compensating for heavy banking regulation was a generous financial safety net. Deposit interest rates kept at "artificially" low levels comprised one of the major sources of stability for the banking system under ISI. The reason is because they generated a steady, if unspectacular, stream of profits to banks which provided a *de facto* buffer against non-preforming loans (Reinhart and Rogoff, 2011; The Economist, March 23, 2013). Indeed, bank failures under ISI were rare (Brock, 1998). However, stability was achieved at the expense of households and this expense has been estimated to be large. Using interest rate spreads between international and domestic lenders to the central government as a proxy for how repressed the domestic financial sector is, Giovannini and De Melo (1993) find that in the 1970s and 1980s, the average emerging market government raised 9% of their revenue from financial repression. In seven emerging market economies the financial repression tax exceeded 20% of government revenues (Giovannini and De Melo, 1993, p. 959).

Banks under financial repression were also perceived to be operating with an implicit bailout guarantee. Even though banks were directed by the state to support ISI and credit markets remained shallow, banks were integral to the development plans of many

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[4]The economic effects of financial repression are well studied and include low economic growth (Roubini and Martin, 1992; Rajan and Zingales, 2003); lower productivity (Demetriades, Devereux, and Luintel, 1998); increased international capital flight (Dooley, 1988); international structural imbalances (Johansson and Wang, 2011); and credit rationing (Temin and Voth, 2008).

states. Their importance meant that most financial institutions were likely too-big-to-fail. While the relative absence of banking crises between the end of WWII and the breakdown of the Bretton Woods system in the 1970s meant that there are few bank bailouts to study in this period, bailouts in other sectors during the ISI period were common.[5] Therefore, it is reasonable to suppose that banks around the world during the Bretton Woods period operated under a soft budget constraint because they could reasonably expect states to step in and support their operations in the event of a crisis (Kornai, 1986). The rarity of banking crises and the absence of explicit bailouts might obscure the existence of such a guarantee, but it should be clear that state policies under ISI constituted an ongoing transfer of risk away from banks and onto the state.

Guarantees After Liberalization

The provision of implicit state guarantees for the survival of the banking system, if not particular institutions, continued following the liberalization of financial systems worldwide. Although the characteristics of implicit guarantees has changed since the era of financial repression, their size and ubiquity give them a prominent place in the financial safety nets of states.

One type of implicit guarantee has come to be known as the "Greenspan put." A put option is a type of financial contract that gives its owner the right, but not the obligation, to sell a security to a buyer at a specified date in the future. On the date of the option's maturity, if the market price of the security is lower than the selling price agreed to in the put option, the owner of the put option will buy the security on the open market and immediately sell it to the seller of the put option, pocketing the difference as profit. Put options are generally bought by speculators who believe that the price of a security may fall in the future and by investors who seek a form of insurance against steep falls in the price of securities they currently own. Monetary policy at the Federal Reserve under Alan

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[5]On bailouts of firms under ISI, see Adelman and Yeldan (2000), Musacchio and Lazzarini (2016), and Bennett and Sharpe (1980).

Greenspan was said to have the characteristics of a put option because Greenspan was quick to ease monetary policy in the face of market turbulence. By placing an implicit floor under falling markets, Greenspan was said to be selling a put option to market participants free of charge. The continuation of Greenspan's policies by his successors Ben Bernanke and Janet Yellen has led others to ponder the existence of a Bernanke put and a Yellen put (The Economist, October 18, 2007; Dimson, Marsh, and Staunton, 2016)

A second type of guarantee comes from certain financial institutions being too-big-to-fail (TBTF) (Moenninghoff, Ongena, and Wieandt, 2015). The TBTF doctrine was popularized in 1984 during Congressional testimony on the Treasury Department's response to the failure of Continental Illinois, at the time the largest ever bank failure in the United States. In order to secure the stability of the American financial system, the Comptroller of the Currency said that it would provide full deposit insurance to selected large financial institutions if the situation warranted. This move was seen as necessary given that further failures of large, complex, and interconnected financial institutions could have triggered a widespread and costly financial crisis. However, some interpret the guarantees embedded in the TBTF doctrine as unfair subsides (O'Hara and Shaw, 1990). For this reason policymakers have since tried to proclaim that no institution is TBTF, although the politics around TBTF may make these statements not credible (Stern and Feldman, 2004). Indeed, many scholars have estimated positive benefits from being TBTF during the global financial crisis (Balasubramnian and Cyree, 2011; Ueda and Mauro, 2013).

The benefits collected by banks through state guarantees, whether explicit or implicit, do not constitute ongoing transfers of real resources from governments and banks. Instead, banks benefit from the existence of a contingent liability for the viability of the financial system, if not particular institutions, that states cannot credibly disavow. While unobservable during times of financial stability, one can glimpse evidence of this

contingent liability coming due in the actual liabilities incurred by states following banking crises. Tables 4.1 and 4.2 list average increases in three types of state liabilities in the year of a banking crisis and during non-crisis years in advanced and emerging market states respectively.[6] The three measures include central bank claims on the non-financial sector, domestic public debt, and credit to government.[7] All figures are listed as a percentage of GDP. In Tables 4.1 and 4.2, central bank assets and domestic public debt increase markedly on average following a banking crisis relative to non-crisis times. For example, in advanced states public debt increases on average by 2.63% of GDP in the year of a banking crisis while increasing only 0.31% of GDP on average in non-crisis years. In emerging market economies domestic public debt increases on average by 1.3% of GDP in the year of a banking crisis and 0.29% in non-crisis years. The one exception to this pattern is credit to governments in emerging market states which appears to be very small in both crisis and non-crisis years.

Table 4.1: State Support During Crises (Advanced, % GDP)

| | Non-Crisis | | | Crisis | | |
	Obs	Mean	Std	Obs	Mean	Std
Central Bank Assets	746	-0.17	1.19	103	0.38	1.37
Domestic Public Debt	459	0.31	4.03	102	2.63	5.57
Credit to Government	660	-0.21	5.19	103	1.06	6.51

Source: Global Development Finance

4.1.3 Lender of Last Resort Facilities

During a banking crisis one of the most important and visible state responses is an injection of liquidity into the banking system. These injections provide banks with emergency funding to meet their obligations to creditors, including depositors. This emergency liquidity assistance allows banks to avoid calling in loans, which can be damaging to their

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[6]Dates for banking crises are taken from the Laeven and Valencia (2013).

[7]See Chapter 5 for a detailed analysis of central bank claims on the banking sector following a banking crisis.

Table 4.2: State Support During Crises (Emerging, % GDP)

| | Non-Crisis | | | Crisis | | |
	Obs	Mean	Std	Obs	Mean	Std
Central Bank Assets	3825	-0.21	4.00	294	1.21	9.01
Domestic Public Debt	407	0.29	4.84	55	1.30	5 .89
Credit to Government	3620	0.01	3.53	297	-0.07	7.24

Source: Global Development Finance

business and even spark further withdrawals in a self-fulfilling spiral into insolvency. When no other agent is willing to supply the funds needed by a bank with liquidity problems, the central bank becomes the lender of last resort.[8]

A central bank's tool is its balance sheet, which most commonly expands and contracts through the buying and selling of securities on secondary financial markets. However, during financial crises central banks can create their own liquidity by lending directly to financial firms, typically commercial banks, with terms measured in days or weeks.[9] These operations help stabilize markets by supporting bank balance sheets, maintaining payments systems, and boosting overall confidence (Cecchetti and Disyatat, 2010).[10] As a crisis-mitigation strategy with a long pedigree, central bank liquidity provision can be a deciding factor in the breadth, depth, scope, and cost of financial crises (Thornton, 1802; Bagehot, 1873). Walter Bagehot's classic description of how central banks can arrest a bank run remains the definitive statement justifying emergency liquidity provision. In the words of Bagehot:

> *A panic, in a word, is a species of neuralgia, and according to the rules*
> *of science you must not starve it. The holders of the cash reserve must be*
> *ready not only to keep it for their own liabilities, but to advance it most freely*

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[8]On the risks, limits, and potential for unintended consequences of financial safety nets, and last resort lending in particular, see Congleton (2012) and Calomiris (1997b).

[9]In severe crises, central bank lending terms may extend to a few months.

[10]A market exhibits high liquidity when assets are bought and sold quickly at no discount. Central bank liquidity provision therefore enhances the ability of banks to meet their liabilities, preventing their collapse.

for the liabilities of others. They must lend to merchants, to minor bankers, to 'this man and that man,' whenever the security is good. In wild periods of alarm, one failure makes many, and the best way to prevent the derivative failures is to arrest the primary failure which causes them.

Bagehot (1873, p. 51)

To Bagehot, the failure by the Bank of England to use its power to stabilize the English financial system was a source of consternation because while "...the Bank of England certainly do make great advances in time of panic, yet as they do not do so on any distinct principle, they naturally do it hesitatingly, reluctantly, and with misgiving...To lend a great deal, and yet not give the public confidence that you will lend sufficiently and effectually, is the worst of all policies; but it is the policy now pursued," (Bagehot, 1873, p. 65). Instead, "the holders of the Bank reserve ought to lend at once and most freely in an incipient panic, because they fear destruction in the panic. They ought not to do it to serve others; they ought to do it to serve themselves. They ought to know that this bold policy is the only safe one, and for that reason they ought to choose it," (Bagehot, 1873, p. 65).

The power of this risk transfer mechanism to establish financial stability following a crisis is observed during most financial crises. A well known example occurred on July 26, 2012, when ECB President, Mario Draghi, famously declared that "within our mandate, the ECB is ready to do whatever it takes to preserve the Euro. And believe me, it will be enough," (The Financial Times, July 27, 2012). Draghi's now famous pledge had the intended effect of bringing about a semblance of financial stability through the construction of an implicit, but credible contingent liability to supply troubled Eurozone banks with near unlimited assistance if necessary. While Eurozone economies continue

to experience difficulties, many have pointed to Draghi's statement as the beginning of the end of the Eurozone crisis (Wolf, May 14, 2014).[11]

A second example took place following the referendum in the United Kingdom on leaving the EU. On the first trading day following the Leave win, stock markets, the pound sterling, and commodity prices plunged. The severity of the drop prompted the Governor of the Bank of England, Mark Carney, to issue a statement live on national television regarding the market turmoil. He stated that

> ...as a backstop, and to support the functioning of markets, the Bank of England stands ready to provide more than 250bn of additional funds through its normal facilities. The Bank of England is also able to provide substantial liquidity in foreign currency, if required. We expect institutions to draw on this funding if and when appropriate, just as we expect them to draw on their own resources as needed in order to provide credit, to support markets and to supply other financial services to the real economy.

Carney (2014)

Governor Carney's statement was profound in many ways. At a stroke, he committed the Bank of England to provide a semblance of stability to financial markets by extending liquidity facilities in domestic and foreign currencies. Indeed, he made it clear that he expected these resources to be used. Governor Carney concluded his statement by reiterating that the Bank of England had "taken all the necessary steps to prepare for today's events." With this statement, Governor Carney sought to align the expectations of market participants around timely and reliable, as opposed to ad hoc, support from the Bank of England. But the most remarkable thing about Governor Carney's statement was that he made it in his capacity as the Governor of the Bank of England, and not as

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[11]Other crises response measures such as the relaxation of collateral requirements (Chailloux, Gray, and McCaughrin, 2008), the extension of deposit insurance (Schich, 2009), and forbearance (Mishkin, 1997) also derive their stabilizing power from the construction of contingent liabilities. In each case central banks assume the possibility of greater losses if borrowers default.

the Chair of the Financial Stability Board, a position Carney has held since 2011. The Governor therefore made it clear that England's central bank would be spearheading the financial stability of the British financial system, not an international institution.

Statements by central bankers during times of financial instability are commonplace, if not expected. It is not hard to imagine various scenarios, all of them negative, that would ensue if a serious financial shock was met with a prolonged silence from the world's central bankers. Expectations that central banks will follow with looser monetary policy at levels sufficient to restore short-term stability are so widely felt that setting policy against these expectations has become a source of market volatility in itself (Wolf, December 13, 2013; The Guardian, May 4, 2016).

This rise of central banks as key institutions in global financial governance has transformed them into key arbiters of financial risk within their states. By loosening monetary policy and agreeing to supply the British financial system with ample liquidity, Governor Carney was fulfilling this risk management role by partially relieving market actors of the risks that accompanied the unexpected decision to leave the EU. The Bank of England decided that it would assume some of those risks by lending to financial institutions and lowering their counter-cyclical capital buffer, both of which opened up a contingent liability for the Bank of England, and by extension the citizens of the United Kingdom, to real losses should a bank rescue be needed.

As a lender of last resort, central banks act as a reliable, deep-pocketed supplier of liquidity to banking systems when private sources evaporate. Last resort lending is therefore a form of liquidity insurance for the banking system[12] (Tucker, 2009). Aware that this liquidity insurance may induce moral hazard on the part of banks, central banks have traditionally sought to mitigate their losses by lending at a high interest rate and against good collateral. However, irrespective of how successful these policies are in mitigating moral hazard, last resort lending necessarily entails the transfer of bank-

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[12]Unlike deposit insurance in many jurisdictions, banks pay no premium for this insurance coverage.

generated liquidity risk onto the balance sheet of the central bank. This risk transfer produces a contingent liability for a central bank and provides an under-recognized source of value for the banking system, value captured even if last resort lending is never called upon (Brunnermeier and Sannikov, 2012; Calomiris, 1997a; Alessandri and Haldane, 2009).

4.1.4   Deposit Insurance

Recall the stylized example of a bank run discussed in Chapter 2. As the primary liability of most commercial banks, deposits are subject to runs because banks hold on reserve less than the full amount of their deposit liabilities. During a banking crisis, when the solvency of a bank is in question, depositors can trigger a run on the bank as each tries to be the first in line to recover their deposit (Diamond and Dybvig, 1983). Deposit insurance can prevent bank runs though its reassurance to depositors that their savings are secure even if their bank becomes insolvent. Aside from preventing bank runs, deposit insurance also protects the savings of individuals, especially those of limited means who generally lack the financial literacy to judge the risk they are taking when they place their savings with a particular institution.

In 1829, New York state became the first jurisdiction to adopt a "bank-obligation" insurance program. Modeled on a mutual insurance scheme used by Cantonese merchants, the insurance arrangement was designed to cover all circulating banknotes and deposits (later curtailed to only circulating banknotes) (Golembe and Warburton, 1958). Membership in the deposit insurance arrangement was enforced by making it a requirement for the renewal of a bank's charter. Given that at this time banknotes and deposits were produced by the banks themselves and there was no public money issued by the state, the deposit insurance fund made banks liable for one another's debts. As the insurance scheme's designer put it at the time, "the case of our banks is very similar; they enjoy in common the exclusive right of making a paper currency for the people of the state,

and by the same rule should in common be answerable for that paper," (White, 1911, p. 340).

Between 1831 and 1958 Vermont, Indiana, Michigan, Ohio, and Iowa followed New York's lead and set up deposit insurance schemes of their own. As in New York, banks in Vermont and Michigan contributed to an insurance fund that would be tapped if a bank fell into insolvency. This type of deposit insurance contrasted with those of Indiana, Ohio, and Iowa, where banks were mutually obliged to guarantee the banknotes and deposits of other banks operating in the state. While the schemes in Ohio and Iowa also operated insurance funds, these funds were reserved for special circumstances where payment to creditors was deemed necessary immediately following a failure (Federal Deposit Insurance Corporation, 1998). Many scholars cite the supervisory incentives embedded in these mutual guarantee systems as a key driver of systemic stability in these states (Weber, 2010). Indeed, the most successful program was Indiana's, which was the only state to operate a deposit insurance scheme without an explicit insurance fund (Calomiris, 1990). State-level deposit insurances schemes declined following the National Bank Act of 1863, which granted banks the right to obtain a charter from the Federal government. Tax incentives led a large majority of state-chartered banks to obtain national charters, and with it the shuttering of state-level deposit insurance schemes.

Similar deposit insurance schemes developed elsewhere. In Canada, following a string of costly bank failures in the late nineteenth century, bankers began to fear that their operational autonomy was under threat. In 1890, during one of the Bank Act's regular renewals, a group of senior bankers proposed the creation of a Bank Circulation Redemption Fund to insure deposits. The new fund required all banks to deposit 5% of their annual note circulation at the Finance Department to be used to compensate depositors in the event of a failure. To monitor and protect the assets of the Fund, the Canadian Bankers Association was instituted in 1891 (Turley-Ewart, 2000).

The first national deposit insurance scheme was introduced in Czechoslovakia in 1924. Having won independence in 1918 following the defeat and breakup of the Austro-Hungarian Empire, Czechoslovakia was composed on many diverse populations including Czechs, Slovaks, and significant German and Hungarian minorities. Although Czechoslovakia's first two decades were largely stable politically thanks to the towering figure of Tomáŝ Masaryk, an economic recovery from war and a desire for national reconciliation were deemed necessary for national survival. It was within this environment that the Czechoslovakian state set up two funds, a Special Guarantee Fund (SGF) to help the banks recover losses owing to WWI and a General Guarantee Fund (GGF) to insure deposits going forward. The SGF's administrators at the Ministry of Finance were given powers to reorganize any bank, either commercial, cooperative, or savings, that accessed the SGF. The GGF covered only institutions that accepted savings and demand deposits and was intended to assist banks that were illiquid, but solvent. While only the SGF was intended to receive partial funding from the state, in practice both the SGF and GGF received significant state support as demands on their resources quickly outstripped its capacity to pay (McCarthy, 1980).

It was in a different, but similarly trying political atmosphere that the United States implemented its program of national deposit insurance. Between 1866 and 1933, when the Federal Deposit Insurance Corporation (FDIC) (temporarily) came into being with the Banking Act of 1933, 150 proposals for deposit insurance and mutual guarantee schemes were proposed in Congress (Federal Deposit Insurance Corporation, 1998). All of these proposals failed and it took the calamity of the Great Depression to finally bring the FDIC into existence. Indeed, such was the public outcry that the vote to institute the FDIC was passed with near unanimity, despite opposition from President Roosevelt, the Secretary of the Treasury, and the Chairman of the Senate Banking Committee (Calomiris and White, 1994). Arguments against the creation of federal deposit insurance were that it would be too expensive and it would subsidize poorly managed banks. Despite these

objections, deposit insurance was deemed successful by the public and restored confidence in the banking system, a result driven by the fact that only nine banks failed in 1934, a paltry sum compared to the more than 9,000 banks that failed in the preceding four years (Federal Deposit Insurance Corporation, 1998). Coverage was initially set at \$2,500 per depositor, but when federal deposit insurance was made permanent in 1935 these were raised to the full protection of the first \$10,000 for each depositor, 75% coverage for the next \$40,000, and 50% coverage on deposits above \$50,000.

Figure 4.2 shows the number of states with explicit deposit insurance since 1933.[13] Until 1961, when India and Norway adopted adopted their plans, the United States was the only country with an explicit deposit insurance scheme. Throughout the 1960s and 1970s the number of explicit deposit insurance schemes grew at a modest rate. Widespread adoption began only during the 1980s, with the decade of the 1990s seeing the highest numbers of states adopting formal deposit insurance. By 2013, 112 states had adopted explicit deposit insurance. The global financial crisis also led many formerly reluctant states to adopt explicit deposit insurance, most notably Australia in 2008. As of 2013, only eight high income countries did not have explicit deposit insurance.[14]

In addition to states adopting explicit deposit insurance for the first time following the global financial crisis, 48 jurisdictions enhanced their existing deposit insurance schemes. Of these 48, 19 provided blanket guarantees covering all deposits, 22 permanently increased the limits of their coverage, and 7 temporarily increased their coverage (Financial Stability Board, 2010). As seen during the Great Depression in the United States, the extension of deposit insurance during a financial crisis is a common response by states seeking to transfer the risk of lost deposits onto themselves in order to restore confidence.

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[13]See Demirgüç-Kunt, Kane, and Laeven (2014) for the full deposit insurance database.

[14]These states are Israel, Kuwait, New Zealand, Qatar, San Marino, Saudia Arabia, St. Kitts & Nevis, and the United Arab Emirates. However, as Demirgüç-Kunt, Kane, and Laeven (2014) argue, almost all states today operate with some form of deposit insurance, with implicit guarantees understood to exist in states that lack explicit deposit insurance.

Figure 4.2: States with Formal Deposit Insurance
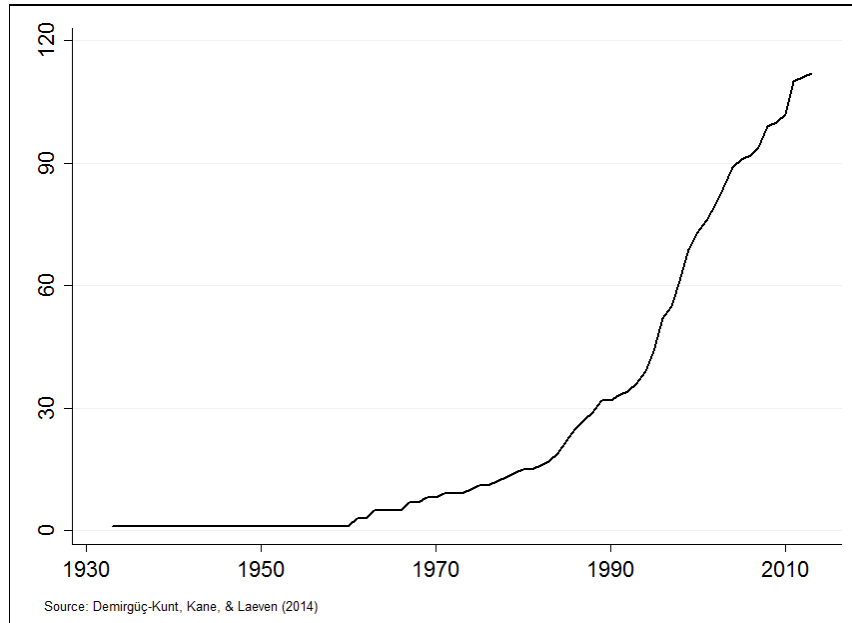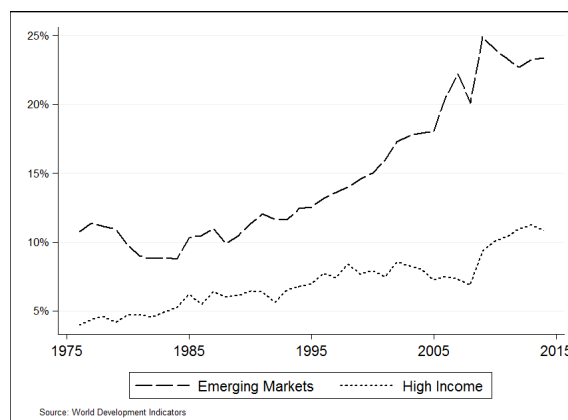
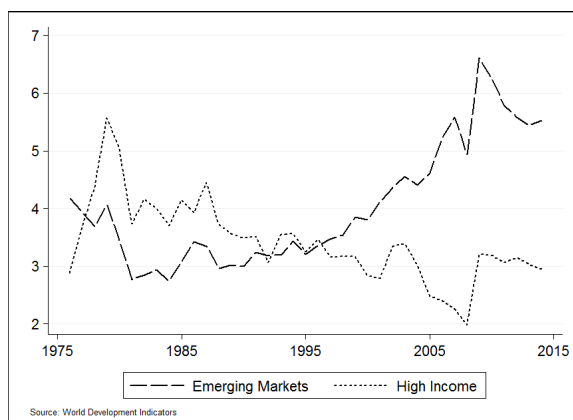### 4.1.5 Foreign Currency Reserves

According to the Mundell-Fleming model, a country cannot simultaneously fix its exchange rate, open its capital account, and pursue an autonomous monetary polity. Market pressures dictate that in the long-run states must choose at most two of these policy goals (Fleming, 1962; Mundell, 1963). With deepening global financial integration since the breakdown of the Breton Woods system, many states have increasingly sought to capture the benefits of financial globalization by opening up their capital accounts and promoting domestic banks to integrate internationally (Goodman and Pauly, 1993; Helleiner, 1994). For states with open capital markets, there is no consensus on whether a fixed exchange rate or an autonomous monetary policy is optimal. Much depends on the circumstances of the state in question, but an increasingly popular choice by states is to adopt a soft-peg exchange rate where the national currency floats within limits (International Monetary Fund, 2014a). By managing, but not strictly fixing the exchange rate, states retain a degree of monetary policy autonomy while preserving the benefits of predictability of the exchange rate. However, irrespective of where on the trilemma states find themselves,

ample foreign currency reserves give states a far greater chance of achieving their policy goals and maintaining autonomy in a world of volatile global capital markets.

Foreign currency reserves are holdings of financial assets by a state's monetary authority typically comprising foreign government treasury bills and other government bonds, foreign bank deposits, special drawing rights, gold, and the state's reserve position with the IMF. Denominated mostly in American dollars, and to a lesser extent Euros and Japanese Yen, foreign currency holdings fluctuate on a daily basis in response to international payments imbalances. Figures 4.3 and 4.4 show the evolution of foreign currency reserves holdings since the mid-1970s. When measured in terms of months of imports or as a percentage of GDP, foreign currency reserves have risen in emerging market economies since the 1990s. The buildup in reserves has been attributed to a mix of motivations, the most popular being as a by-product of international trade imbalances fueled by currency manipulations and concerns over sudden stops in international capital flows (Tsangarides, Ghosh, and Ostry, 2012). For high income economies, where international trade has expanded faster than GDP in recent decades, reserve holdings have fallen as a percentage of imports but risen modestly as a fraction of GDP, although both series show large increases following the global financial crisis.

Figure 4.3: Total Reserves, excluding gold (Months of Imports)

Figure 4.4: Total Reserves, excluding gold (% GDP)

The most important advantage of having ample foreign currency reserves is having the flexibility of where and when to use them. States wishing to maintain their position on the trilemma can use their reserves to manage the value of their currencies (Leblang, 2003). During financial crises however, foreign currency reserves can be prioritized for firms needing to make international payments, either for imports or debt repayments. Foreign currency reserves therefore act as a key source of foreign currency liquidity to domestic firms when private sources have either dried up or become prohibitively expensive (Maxfield, 1998b; Cecchetti and Disyatat, 2010). With the potential for financial crises originating from and spreading through international payments imbalances, holding ample reserves provides states with one of the most reliable means to self-insure against financial instability (Feldstein, 1999; Chin, 2010). As shown in the previous chapter, this motivation is driven in part by the inability of states to achieve a credible mechanism of collective insurance at the global level.[15] However, liquidity provision out of foreign currency reserves is unlike last resort lending in domestic currency because monetary authorities cannot print foreign currency and must rely on the currency they hold on reserve.

The insurance against currency and capital flow volatility afforded by foreign currency reserves qualifies them as key components of a state's financial safety net as they can absorb some of the shocks that international financial markets periodically transmit to emerging market economies. For financial firms, especially those that borrow abroad, the ability to purchase or borrow foreign currency from ones central bank during a financial crisis can make the difference between survival and bankruptcy. For example, following the dramatic fall in oil prices in 2015, the Russian central bank prioritized its foreign currency reserves for the foreign debt payments of its energy and financial companies. By not defending the value of the rouble, the Russian currency, central bank officials have moderated the fall of the oil-dependent Russian economy (The Economist, April

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[15]On this point, see also Obstfeld (2013).

16, 2016). However, as with other aspects of the financial safety net, these benefits come with costs.

Firms that borrow in foreign currency and earn revenues in local currency can earn extra profits because interest rates on foreign loans are usually lower than domestic loans. However, this strategy is risky because a local currency devaluation will reduce the value of local revenues in foreign currency terms, making foreign debt payments more expensive. In extreme circumstances, when adverse currency movements are large enough, they can bankrupt a firm even if its underlying business is preforming well. Having the ability to borrow from ones central bank reduces some of these foreign currency risks since firms are less likely to be denied foreign currency loans from ones central bank relative to foreign firms. Firms may also be able to access foreign currency at a cheaper price if the central bank decides, at its discretion, to sell or lend to local firms at a below-market exchange rate.

As with domestic currency last resort lending, a central bank's foreign currency reserve holdings provide a degree of insurance for the domestic financial sector. This in turn implies that a portion of the foreign currency risks taken by banks and other firms are transferred to the balance sheet of the central bank. Whether used to defend the exchange rate or to help facilitate foreign debt repayments, the size of the risk transfer, and the size of a central bank's contingent liability, is conditioned by a central bank's willingness to allocate its reserve holdings towards the domestic banking sector. The accumulation of foreign currency reserves over the last decade, and especially following the global financial crisis, indicates that this arm of the financial safety net has grown considerably.

4.1.6   Payment System Liquidity Provision

A central aspect of a state's financial architecture is its payment system. As a system designed to facilitate and settle payments between buyers and sellers, payment systems allow financial institutions, typically banks, to exchange money among themselves safely

and efficiently. A classic method of organizing inter-bank payments is to settle them through a clearing house. As the name suggests, a clearing house is a centralized institution that clears inter-bank transactions each day on a net basis. A bank's net position is calculated as the sum of the transfers it has received minus the sum of the transfers it has sent. The difference between these values over a period of time, typically one day, sets the net position to be settled by one final transfer. For example, if Bank A and Bank B transacts with each other twice in one day, once when Bank A sends Bank B $100 and once when Bank B sends Bank A $80, the net position of Bank A is -$20 and the net position of Bank B is $20. These positions would be cleared at the end of the day when Bank A sends Bank B $20 so that all institutions achieve a zero balance at the clearing house.

The primary advantage of clearing inter-bank payments on a net basis is that it drastically reduces the amount of money needed to support a given volume of payments. In the above example, only $20 in actual currency needed to change hands to support $180 worth of payments. However, this system contains its own risks. In particular, settlement risk increases because participating institutions may fail prior the completion of the netting process, thereby producing losses for other members of the clearinghouse. Settlement risk for the transacting parties can be reduced by having the clearinghouse maintain its own capital as a buffer against payment disruptions. However, the capital of the clearinghouse may be insufficient to prevent the default of one bank from cascading through the entire clearing system, potentially disrupting payments multiple steps removed from the source of the original disruption.

The losses incurred due to the failure of Bankhaus Herstatt vividly demonstrated the settlement risk associated with transactions settled on a net basis. Recall from Chapter 2 that Herstatt was a small German bank closed by regulators in the middle of the New York trading day in June 1974. Its abrupt closure by German regulators left some of Herstatt's trades unsettled, leaving Herstatt unable to fulfill its side of some foreign

currency transactions with its Net York based creditors. Because these New York based banks had transferred to Herstatt Deutschmarks, but did not receive the promised US dollars in return, these New York based banks had to take losses on the transactions.

In the decades following the Herstatt crisis, a sense grew that a safer method to settle large inter-bank payments, both domestic and international, was needed (Galati, 2002). Multiple new payment systems have developed in response, with two prominent examples being the domestically oriented Real-Time Gross Settlement (RTGS) payment system for large payments and the internationally oriented Continuously Linked Settlement Bank (CLSB).[16] In the RTGS system, transactions are settled on a transaction-by-transaction basis in real time at the central bank. Because transactions are settled individually without netting, the RTGS system eliminates the risk that sellers of an asset deliver it, but not receive payment (or vice versa), which would leave one of the parties to the transaction with a loss.

By settling large payments one-by-one in real time, the RTGS system greatly reduces settlement risk associated with large payments. In theory, with no time lag between the two sides of a transaction, settlement risk is eliminated since all payments in a trade occur simultaneously. If one party does not fulfill its obligation, no money changes hands and institutions are no worse off than if the transaction was never initiated in the first place. However, in practice the RTGS system does not work as well as it does in theory. If it did, private firms could settle all payments in real-time for profit. And indeed, there are private RTGS clearing banks and the CLSB (described in greater detail below) is a prominent example. What brings the settlement of large payments onto the balance sheet of a central bank is that the RTGS system does not eliminate settlement risk in the aggregate, it only reduces it overall and completely for the transacting banks. The residual settlement risk is assumed by the central bank and constitutes another example of the state transferring risk onto itself in the interest of maintaining financial stability.

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[16]In most jurisdictions, small payments such as credit card and retail payments continue to be settled on a net basis in modern clearing houses.

The settlement risk in RTGS systems is traceable back to the relative inefficiency of settling payments on a gross basis since it requires participants to carry relatively large levels of capital to ensure the smooth functioning of the system. Given that payments between financial institutions can be in the billions of dollars, the concentration of large payments in a short time can stress a bank's liquidity position, potentially disrupting future payments.

To avoid payment disruptions, RTGS payments are settled on the central bank's balance sheet using central bank money.[17] Effectively this transforms the central bank into a broker for the transacting parties because it acts as the *de facto* counterparty to the institutions engaged in a transaction. As such, there remains a residual amount of settlement risk in the RTGS payment system, especially when central banks decide to extent credits to the transacting parties in the manner of a traditional clearing house.

Table 4.3 shows that the number and value of transactions settled though central bank sponsored payment systems is large.[18] For example, Fedwire is a RTGS payment systems operated out of the Federal Reserve Banks in the United States. Fedwire facilitates electronic payments between American financial institutions by crediting or debiting its account at a branch of the Federal Reserve system. In 2014, 135 million transactions with a value of over 5,000% of GDP were processed using Fedwire. The value of transactions, relative to GDP is also large in less financially developed such as Turkey and Mexico. In 2014 the Banco de México's Interbank Electronic Payment System processed 262.9 million payments valued at 1,301.6% of GDP and the Central Bank of Turkey Electronic Fund Transfer system processed 269.46 million payments valued at 2,672.7% of GDP.

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[17]Central bank money includes all of the liabilities of a central bank. Banknotes comprise the most important source of central bank money is an economy. In contrast, commercial bank money consists mainly of bank deposits which in most jurisdictions are convertible into central bank money at par (Bank for International Settlements, 2003).

[18]Not all of the listed systems are technically RTGS systems. For example, Canada's Large Value Transfer System settles transactions in real-time at the Bank of Canada, but positions between the banks are settled on a net basis at the end of the day. Nevertheless, the Bank of Canada guarantees all transactions settled through the Large Value Transfer System (Bank of Canada, 2012). See Bank for International Settlements (2003) for further details regarding the payment systems listed here.

Table 4.3: RTGS Payment Statistics

	Number of Transactions (millions)			Value of Transactions (% GDP)		
	2012	**2013**	**2014**	**2012**	**2013**	**2014**
Canada						
LVTS	7.03	7.58	7.92	2,075.0	1,960.5	1,939.8
Japan						
BOJ-NET	15.30	16.28	16.69	5,729.5	5,956.5	6,269.2
FXYCS	6.29	6.70	6.49	517.6	608.0	627.4
Zengin System	1,460.9	1,480.7	1,514.9	557.9	596.1	595.4
Tokyo Clearing House	24.97	23.48	22.03	57.3	56.3	49.0
Mexico						
SPEI	171.74	217.58	262.90	1,274.6	1,288.1	1,301.6
CECOBAN	149.7	142.6	137.4	24.4	22.2	19.6
Switzerland						
SIC	410.2	420.0	428.8	4,847.2	5,031.9	4,632.4
Turkey						
EFT - large	182.18	2.95	2.85	2,308.3	2,204.8	2,293.3
EFT - retail	14.93	229.53	266.61	27.0	363.0	379.4
Interbank Card Center	1,459.1	1,654.0	1,838.9	11.9	12.1	12.5
Interbank Clearing House	18.48	17.19	17.39	22.4	22.3	23.1
United Kingdom						
CHAPS Sterling	33.94	34.98	36.52	4,306.8	4,042.7	3,741.7
Cheque/credit	667.4	587.3	518.5	38.8	33.2	29.6
BACS	5,616.4	5,695.0	5,841.2	246.9	243.2	243.4
Faster Payment Service	811.1	967.6	1,100.9	37.1	44.5	49.8
United States						
CHIPS	97.10	103.05	109.41	2,258.2	2,280.4	2,252.1
Fedwire	131.6	134.2	135.0	3,709.0	4,280.8	5,098.8

Source: Bank for International Settlements (2014)

While the world's RTGS payment systems settle local currency payments between domestic actors, the CLSB, in conjunction with central banks around the world, settle foreign currency transactions. Since foreign currency transactions usually involve parties in different countries, the CLSB was instituted as a private institution by the world's largest banks in 2002 to reduce settlement risk worldwide.[19] Based in New York and regulated by the Federal Reserve, the CLSB's balance sheet contains accounts for each

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[19]See https://www.cls-group.com/About/Pages/Shareholders.aspx for a list of CLSB's shareholders.

financial institution it does business with. The CLSB also has accounts at the central banks which permit their currency to trade through the CLSB.[20] Upon receiving payment instructions from transacting institutions, the CLSB settles the payments immediately on a gross basis on its own balance sheet. These payments are final and irrevocable. However, since these payments are first settled in CLSB money, transacting firms do not provide the full amount of the payment as in a RTGS system. Instead, adapting the traditional clearing house model, credits and debits are accumulated and imbalances are settled with one final transaction at the close of business. These final transactions are settled between transacting institutions and the CLSB using local RTGS systems at central banks around the world (Bank for International Settlements, 2003).

Many analysts hold up the stability of the CLSB during the global financial crisis as a private sector model for how settlement systems could be made to work in other financial markets, in particular the over-the-counter derivative market (Mägerle and Maurer, 2009; Levich, 2009). The stability of the CLSB is a joint effort of the design of its payment infrastructure, its own capital base, its relationships with the world's largest banks that stand ready to supply it with liquidity, and the central banks which supply it with liquidity though their RTGS systems. There is also little doubt that these same central banks, and the Federal Reserve in particular, which designated the CLSB as a Designated Financial Market Utility in 2012, act as a final backstop for the CLSB should it come under stress. The management of settlement risk by central banks, achieved by housing systemically important transactions on their balance sheets, serves as another mechanism through which states transfer risk onto themselves in the interests of domestic and international financial stability.

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[20]As of June 2016, the following currencies are traded through the CLSB: Mexican peso, Canadian dollar, British pound, Israeli shekel, Japanese yen, Korean won, Danish krone, the Euro, US dollar, Hong Kong dollar, Hungarian forint, Singapore dollar, Norwegian krone, Australian dollar, New Zealand dollar, South African rand, Swedish krona, and Swiss franc.

4.1.7 Resolution

As discussed above, international best practice holds that central bank liquidity support should be provided only against good collateral to solvent institutions. By withholding liquidity provision from insolvent firms, the state is said to be acting in the best interests of the taxpayer since lending to an insolvent bank risks throwing good money after bad. However, implicit in Bagehot's dictum is the assumption that winding down an insolvent institution can be done without deepening the crisis further. History teaches us that this is not always the case since the failure of one institution produces losses for its creditors, a process that can cascade into multiple failures.

To prevent the failure of one financial institution from spreading and causing the failure of other institutions, states have developed sophisticated resolution regimes. The goals of a resolution regime, according to recommendations from the BIS, are to "promote financial stability, minimize systemic risk, protect consumers, limit moral hazard and promote market efficiency," (Bank for International Settlements, 2010, p. 1). Despite the shared goals of resolution regimes worldwide, the BIS has categorized resolution regimes into two broad types. The first is a special resolution regime that is granted specialized administrative powers to resolve failed institutions. The second is a special administration or management regime, which relies more on the judicial process and is more akin to corporate bankruptcy procedures.

The FSB recommends states adopt a special resolution regime because of how rapidly the failure of one financial institution can contaminate others (Financial Stability Board, 2014). Indeed, the risks of contagion are so great in the estimation of the the FSB that it recommends that "resolution...be initiated when a firm is no longer viable or likely to be no longer viable, and has no reasonable prospect of becoming so. The resolution regime should provide for timely and early entry into resolution *before* a firm is balance sheet insolvent and *before* all equity has been fully wiped out," (Financial Stability Board, 2014, p. 6-7, emphasis added). In the resolution of financial firms, speed and

decisiveness of action are prized over thorough, but slower, court-based procedures. The FSB also recommends that all resolution regimes should have the power to replace senior management, terminate and sign new contracts, transfer assets and liabilities to third parties, override shareholder rights, and bail-in private creditors. In short, the FSB recommends that states have the power to do whatever is necessary to contain financial fires once they begin.

Irrespective of which resolution regime is in place, the resolution process can be broken down into three phases. The first phase is to stabilize the firm in the short-term so that payment systems for retail and institutional clients are not disrupted. Stability can be achieved by injecting capital or liquidity into the bank, placing deposits at the institution to stabilize its funding, shielding the firm from legal proceedings, writing-off losses, or preforming a bail-in of bondholders and large depositors. The goal of these interventions is to ensure the continuity of business over the short-term so that the failed bank causes as few disruptions to other firms and customers as possible. Senior management is often replaced and shareholder rights are suspended to permit resolution authorities to direct the troubled firm unencumbered.

With stability established authorities can begin a restructuring phase for the failed institution. With state intervention largely over and a detailed audit completed, asset sales and the reorganization of liabilities can occur. The goal of restructuring is to rehabilitate the institution either as a standalone entity or in preparation for its sale or liquidation. Following restructuring a final exit phase commences where it is determined whether the institution is to be sold, merged into another institution, or liquidated.

The granting of additional powers to resolution authorities has been a discernible trend in the post-Bretton Woods era, one that has accelerated following the global financial crisis. For example, since its establishment in 1934 the FDIC had been granted wide discretion in the manner in which bank interventions would take place. Following the crisis in the savings and loans industry in the 1980s, Congress enacted the Federal Deposit

Insurance Corporation Improvement Act of 1991. Under this new mandate, discretionary actions by the FDIC would for the first time be partially curtailed as the FDIC was required to pursue resolution in the least costly manner for the FDIC.[21] However, this bill also included the well known systemic risk exemption. This exemption allows the FDIC to wave the least cost resolution requirement when a failing bank poses a systemic risk to the wider financial system (Fitzpatrick, Kearney-Marks, and Thomson, 2012). The powers of the FDIC were expanded again following the global financial crisis with the passage of the Dodd-Frank Act. Prominent examples included an increase in the limit for insured deposits to $250,000 USD and the creation of the Orderly Liquidation Authority. As a replacement for the bankruptcy procedures for non-bank financial institutions and bank holding companies, the Treasury Secretary can now channel the resolution of financial institutions deemed too big to fail through the Orderly Liquidation Authority and appoint the FDIC as the receiver (Cohen, 2010).

The enhanced powers of resolution authorities are evident internationally as well. Figures 4.5 and 4.6 show the evolution of average resolution powers in many emerging market economies and developed economies respectively.[22] Since the late 1990s, the formal powers of bank supervisors have steadily increased in both emerging market and advanced economies. The most noticeable jump in the powers of bank supervisors has been the enhancement of prompt corrective action legislation. This type of legislation sets an early intervention framework whereby resolution authorities step in if certain regulatory thresholds are breached. At the same time the power to forbear has increased and the degree to which court decisions are either required or supersede the decisions

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[21]For a discussion of how regulatory forbearance increased the cost of the savings and loans crisis, see Romer and Weingast (1991).

[22]The World Bank has conducted surveys in 1999, 2003, 2007, and 2011 on bank regulation with central bank's around the world. The full results of the survey can be found in Barth, Caprio Jr, and Levine (2013). Figures 4.5, 4.6, 4.7, and 4.8 display measures of the supervisory powers and degree of independence of resolution authorities, averaged for emerging market economies and developed economies. All indicies have been normalized onto a 0-1 scale. The supervisory forbearance index has been reversed so that higher values indicate greater supervisory forbearance powers.

of resolution authorities has decreased in emerging market economies and in advanced states following the global financial crisis.

Figure 4.5: Resolution Powers (Emerging)   Figure 4.6: Resolution Powers (Advanced)
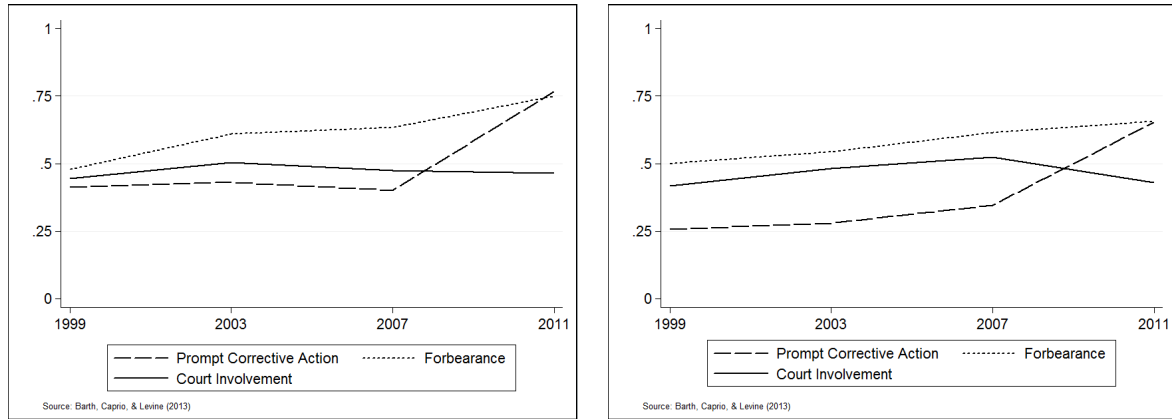
Figures 4.7 and 4.8 show the parallel rise in the degree of independence for resolution authorities. According to the Independence from Politics index, a resolution authority is more independent when they are legally accountable to a legislative body instead of a single authority such as a President or Prime Minister, Minister of Finance, or other cabinet level minister (Barth, Caprio Jr, and Levine, 2013). Independence from the banking sector has also been increasing, as measured by the insulation supervisors have from legal challenges. These advances in the average level of political and banking sector independence have occurred in parallel with the growing experience of resolution authorities as measured by average tenure of a banking supervisor.

The extension of greater powers to more independent resolution authorities marks an important contribution to financial safety nets around the world. In aggregate, these developments have made the resolution process more predictable, if not more generous. Additionally, because resolution authorities are becoming increasingly independent, they have gained greater leverage over the use of the resources at their disposal because their independence insulates them from any backlash their actions may encourage. While this may be of little solace to failing firms, which nevertheless lose significant sums despite any bailout they may receive, it is of substantial benefit to the financial institutions
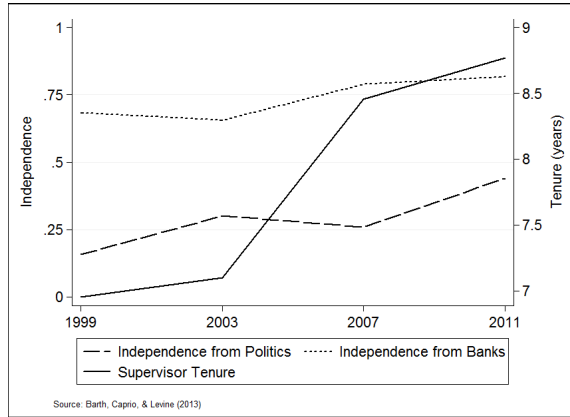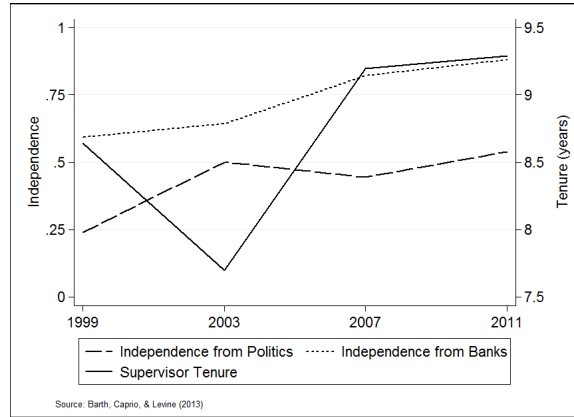
Figure 4.7: Resolution Structure (Emerging)

Figure 4.8: Resolution Structure (Advanced)

which survive the crisis because a sound resolution regime minimizes the probability that disturbances in other firms will come to infect their own.

4.2 Conclusion

The transfer of bank generated risk onto the state constitutes an important, and under recognized, benefit collected by banks. Like the provision of crop insurance during good weather, the willingness of the state to transfer risk onto itself does not involve an ongoing transfer of public resources to banks. However, when a crisis occurs and banks need help to remain afloat, the contingent liabilities that states were accumulating on behalf of banks come due, often in spectacular fashion.

This chapter discussed seven methods states use to transfer bank generated risk onto their own balance sheet which collectively constitute a state's financial safety net. These safety nets are diverse and many of its components are well known, such as the existence of formal deposit insurance, lender of last resort facilities, and the holding of foreign currency reserves. Others components such as payment system liquidity support and a state's resolution framework are less well known, although for states they are no less important to the stability of their banking system. The following three chapters explore

97

the international and domestic politics that shapes the use, size, and scope of financial safety nets in emerging market economies.

Chapter 5

Last Resort Lending During Banking Crises

This chapter concerns how politics structures one particular aspect of a state's financial safety net: central bank liquidity provision. As the lender of last resort, central banks form the backbone of a state's financial safety net and as the monopoly issuer of a state's domestic currency are uniquely capable of moderating the ultimate cost of banking crises. But what explains variation in central bank liquidity provision during banking crises and how does politics structure this response?

Existing answers to this puzzle are grounded in the literature on central bank independence and the time-inconsistency framework of monetary policy. The time-inconsistency framework says that the subordination of monetary policy to short-term political interests tends to result in an excessively loose monetary policy. The solution to this problem is to delegate monetary policy to an independent central bank that is willing and able to target a low and stable rate of inflation.[1] From this framework a consensus has emerged that political independence gives central banks the freedom to act as agents of monetary restraint. Rosas (2006, 2009) has imported this framework into a banking crisis context and found supporting evidence that central bank independence reduces the propensity for excessive liquidity support. However, the time-inconsistency framework is an awkward fit for studying the politics of banking crisis management because liquidity provision need not be inflationary. Crisis managing liquidity provision will be inflationary when injections of new central bank money are permanent and not counteracted by either increased domestic production or equivalent liquidity withdrawals as these loans are repaid. However, commercial banks that borrow from the central bank have a very good repayment record (Bindseil, 2016). This suggests that political economy explanations for liquidity provision are not fundamentally grounded in concerns over inflation or the time-inconsistency framework that motivates much of the central bank independence literature.

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[1]A pegged exchange rate may also solve the time-inconsistency problem. See Clark (2002).

This chapter proceeds by building, to the best of my knowledge, the first formal model of central bank independence grounded in the conflict between a government and the banking sector over access to the resources of the central bank, a conflict that remains acute in emerging market economies even after substantial reform and the emergence of a strong norm in favor of central bank independence (Dombey, 2014; Johnson, 2016). Following Rogoff (1985), existing models have incorporated this conflict only indirectly since the motivating conflict of these models is over a preferred rate of inflation. While this latter conflict is important during times of financial stability, it is less so during a banking crisis. During a crisis, the salient conflict is between institutions and over what type of borrowing privileges each has from the lender of last resort. From this starting point, the aim of the model is to study the implications for the banking system's financial safety net when central banks are granted independence and governments can no longer borrow directly from them. The primary finding of the model is that when governments are bound by central bank lending limits, central banks increase their liquidity support to the banking system during a crisis. Numerous secondary findings follow from this result. For example, the *ex-ante* probability of a banking crisis is lower and the expected welfare of banks is higher when central bank lending limits to the government are binding.

The model is supported by quantitative evidence using an event study on a large sample of emerging market banking crises between 1980-2009. Results show that a statutory limit on the amount a government can borrow directly from its central bank leads to higher central bank liquidity support to their banking system during a crisis. However, as also predicted by the model, this result is mediated by the degree of leverage in the banking system. A placebo analysis also indicates that the expansionary effect of central bank lending limits holds only during banking crises and not during times of stability. The quantitative findings are robust to the inclusion of a number of control variables, alternative event study windows, and numerous alternative econometric specifications that address concerns over endogeneity, dynamics, and omitted variable bias.

5.1 Government Access to Central Bank Lending

To a survival-minded government financing public spending with loans directly from their central bank is tempting. As a method of generating short-term economic growth, central bank financing can be a winning political strategy despite its inevitable inflationary consequences (Nordhaus, 1975; Maxfield, 1994; Akyüz and Boratav, 2003). Because politicians may favor the benefits of short-term economic growth over the benefits of long-term price stability, political scientists and economists have argued that monetary policy suffers from a time-inconsistency problem (Barro and Gordon, 1983; Cukierman, 1992; Maxfield, 1998a; Bodea and Hicks, 2015b). Solving the time-inconsistency problem requires that politicians find a way to signal to financial markets that their commitment to a comparatively restrained monetary policy is credible. Although a fixed exchange rate can send such a signal, the versatility needed to achieve long-term price stability has led policymakers to favor the signal embedded in the delegation of monetary policy to an independent central bank (Fischer, 1995; Fernández-Albertos, 2015).

The time-inconsistency framework has inspired a large literature on the politics of central bank independence. While details vary from study to study, the general approach in this literature is to first infer that certain actors and institutions are in favor of an inflationary monetary expansion and others are in favor of low inflation and monetary restraint. The second step is to argue that features of the political and economic environment shape the outcome of this conflict and determine the prospects for overcoming the time-inconsistency problem. For example, numerous studies find that the achievement of low inflation by an independent central bank is conditioned by broader political variables that reinforce the central bank's independent status. Examples include the presence of democracy (Broz, 2002; Bodea and Hicks, 2015b), a higher number veto players (Keefer and Stasavage, 2003), a strong financial sector preference for low inflation (Posen, 1995), and weak institutions of coordinated wage bargaining (Franzese Jr, 1999).

The time-inconsistency framework has also been used to infer political forces for monetary expansion and monetary restraint during banking crises. Rosas (2006, 2009) argues that democratic states and those with independent central banks have a lower propensity for supplying generous liquidity provision during a banking crisis. The accountability of democratic governments and the conservative preferences of independent central bankers explain these results. In another study, Grossman and Woll (2014) find forces of monetary restraint in the organizational structure of the bailout negotiations in Europe during the global financial crisis. They find that bailouts negotiated by policymakers with close one-on-one ties with bankers resulted not only in more generous liquidity support but more costly bailouts for taxpayers overall. When banks negotiated their bailout as a collective, the result was a more balanced distribution of bailout costs between banks and taxpayers.

Despite these results, there are two reasons to doubt the generalizability of these findings and predictions from the time-inconsistency framework as it applies to banking crisis management. First, Klomp and Haan (2009) find that independent central bank can enhance financial stability because they are more likely to act quickly and decisively during the early stages of a crisis when stabilizing intervention is politically unpopular. This view flips the time-inconsistency problem on its head. Democratic pressures normally expected to bend monetary policy in favor of expansion now act as forces for restraint because politicians have incentives to delay intervention in order to avoid blame for a perceived bailout (The Economist, 2009; Thirkell-White, 2009). Insulated from these political forces of constraint, independent central banks now become forces for monetary expansion. Second, the inflationary consequences of liquidity provision are uncertain and generally overestimated (Ryan-Collins, 2015). Since inflation is fundamentally the outcome of too much money chasing too few goods, the risk of inflation from a liquidity injection is greatly reduced because monetary expansions are almost always followed by subsequent monetary contractions as commercial banks repay their loans (De Grauwe,

103

2013; Bindseil, 2016). Together these results imply that the time-inconsistency framework and its preoccupation with inflation is not an appropriate model to explain central bank lending during banking crises.

An alternative framework can be found in the literature on the origins of central bank independence. Although some studies are set in the time-inconsistency framework of monetary policy,[2] other studies are grounded in the more fundamental political conflict between banks and governments over access to the resources of the central bank.[3] For example, Maman and Rosenhek (2007) argue that the independence of the Bank of Israel grew out of the introduction of limits on how much the government could borrow from the central bank. Öniş and Rubin (2003) also show that the seeds of the independence of the Central Bank of Turkey were planted in the government's excessive borrowing from the central bank in the early 1990s. And Taylor (2009) shows that a similar conflict motivated proponents of greater autonomy for the Central Bank of Brazil.

Recent experience from the global financial crisis suggests that the outcome from such a conflict can structure the central bank's response to a banking crisis. For example, during the Eurozone crisis the ECB faced strict prohibitions on lending to sovereign governments. Yet this may have motivated it to expand its support to the banking system. The reason is that in order to establish stability in the banking system *and* sovereign debt markets, the ECB needed to channel all liquidity support through the banking system. While this support directly stabilized the banks, sovereign credit markets were also stabilized indirectly through two channels. First, Drechsler et al. (2016) show that banks, and especially weak banks, which borrowed from the ECB used the funds to purchase distressed sovereign debt. The authors even suggest that the ECB's actions may have been encouraged by politicians seeking to reduce their debt servicing costs.

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[2]For example, see Goodman (1991), Hallerberg (2002), Farvaque (2002), and Bodea and Hicks (2015a).

[3]The focus on government borrowing limits features prominently in popular indicies of central bank independence. For example, 50% of the index by Cukierman, Web, and Neyapti (1992) consists of measures related to government lending limits.

Second, Crosignani, Faria-e-Castro, and Fonseca (2017) show that just prior to accessing the ECB's Three Year Long-Term Refinancing Operation, Portuguese banks purchased significant amounts of Portuguese government debt because these bonds qualified as eligible collateral needed to access this new facility. Therefore, through both a direct demand channel and a collateral channel, liquidity injections into the banking system resulted in a marked increase in demand for sovereign debt and a significant easing of the Eurozone crisis.
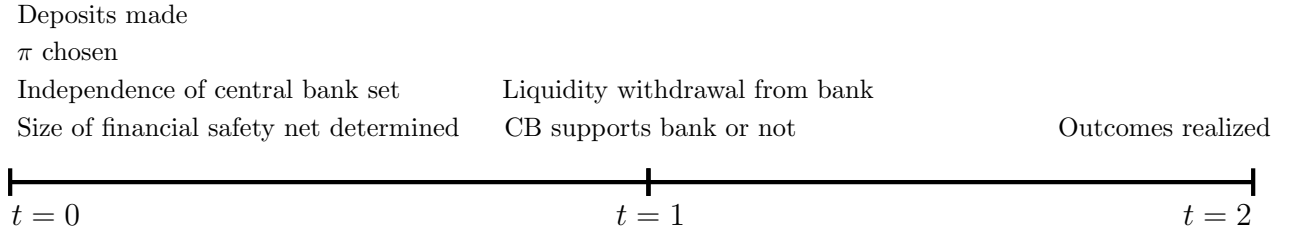
Unfortunately we will never know how large the ECB's liquidity support to the banks would have been if there was no prohibition against direct government borrowing. What we can say is that through the ECB's liquidity programs it found a way to solve, perhaps unintentionally, the dilemma of how to contain the spread of macroeconomic instability coming from distressed sovereign debt markets without lending directly to governments. The question motivating the remainder of this chapter is whether this result holds more generally. Do legal prohibitions on government borrowing from the central bank result in a larger financial safety net for banks during a crisis? The model and quantitative results below suggest that the answer is yes.

5.2 A Model of the Politics of Last Resort Lending

The model developed here extends previous work by Repullo (2005). The model is a full information three period sequential game consisting of interactions between three risk-neutral agents: a commercial bank, a government representing the interests of households, and a central bank. An outline of the timing of the game is shown in Figure 5.1.

In period 0 the bank collects a unit of deposits from households. A random fraction w of these are retail deposits that can be withdrawn on demand and the remaining $1-w$ comprise long-term debt contracts that mature at the end of period 2. The interest rate on retail deposits is normalized to zero and debt contracts pay interest rate r. The more

Figure 5.1: Game Timing

Deposits made
π chosen
Independence of central bank set
Size of financial safety net determined

Liquidity withdrawal from bank
CB supports bank or not

Outcomes realized

$t = 0$ ———————————————— $t = 1$ ———————————————— $t = 2$

the bank relies on long-term debt to fund its investment, the greater the bank's leverage and the greater prospect for household losses should the bank fail.

In period 0 the bank invests the full amount of its deposits in a risky project.[4] A successful investment returns R while a failed investment returns zero and sparks a banking crisis. The bank chooses the level of investment risk, π, where the investment succeeds with probability π and fails with probability $1 - \pi$. Once invested, each unit of the risky investment can be liquidated in period 1 at a cost λ per unit. In period 2 the investment is sunk and has a liquidation value of 0. As in Repullo (2005), the following simplifying assumption is made about the behavior of investment returns.

Assumption 1: $R = R(\pi)$, where R(π) is decreasing and concave, with $R(1) \geq w + r(1 - w)$ and $R(1) + R'(1) < 0$.

Assumption 1 implies that safer investments yield a lower expected return but that even the safest investment still yields a positive profit for the bank. However, the condition $R(1) + R'(1) < 0$ ensures that choosing the safest investment is not optimal for the bank, as its expected profit is maximized when $R(\hat{\pi}) + \hat{\pi}R'(\hat{\pi}) = 0$. Collectively these assumptions on R ensure that the bank's expected profit is maximized when $\hat{\pi} \in (0, 1)$

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[4]Assuming banks carry no capital is without loss of generality. As shown in Repullo (2005), adding a capital requirement to the model reduces the central bank's liquidity provision threshold, but such an effect is independent of the variables studied here.

and that the bank's expected profit is decreasing in π when $\pi^* > \hat{\pi}$ and increasing in π when $\pi^* < \hat{\pi}$.

In period 1, households withdraw a random fraction v of their retail deposits where $v \in (0, 1]$. The total amount withdrawn is therefore wv which equals the liquidity shortfall of the bank. If the central bank does not lend to the bank, it is forced to liquidate wv of the risky asset and incur the cost $\lambda wv > 0$. This leaves the bank with $w - \lambda wv$ in remaining deposits but households still hold deposit claims of $w - wv$ on the bank. This permanent liquidity shortfall, equal to the liquidation cost λwv, leads to a run on the bank by households. This causes the bank's failure in period 1. In order to avoid this fate, the bank seeks to borrow wv from the central bank, which charges an interest rate equal to the retail deposit rate (i.e. zero). When the bank borrows wv from the central bank and its investment is successful, its payoff equals $R(\pi)$, minus the repayment of its liability to depositors and the central bank. Therefore the bank's payoff equals $R(\pi) - 1 - r(1 - w)$ when the investment is successful. By limited liability, the bank receives a payoff of zero if it becomes insolvent, either because there was a bank run in period 1 or the investment fails in period 2. Therefore, in period 0 the bank chooses the level of investment risk, π, that maximizes its profit according to the following equation.

$$\pi[R(\pi) - 1 - r(1 - w)] + (1 - \pi)[0] \tag{5.1}$$

Differentiating (5.1) with respect to π, the bank chooses the level of investment risk in equilibrium that solves the following condition.

$$R(\pi^*) + \pi R'(\pi^*) = 1 + r(1 - w) \tag{5.2}$$

Recalling that the bank's expected profit is highest when its choice of π satisfies $R(\hat{\pi}) + \hat{\pi} R'(\hat{\pi}) = 0$, it follows that π^* is below the optimal $\hat{\pi}$ and that the bank assumes too much risk in equilibrium.

When no banking crisis occurs, household welfare is composed of their retail deposits and a return on their debt contracts, leaving households with a net payoff of $r(1-w)$. When a banking crisis occurs, households keep their withdrawn deposit wv, but lose their remaining deposit of $1 - wv$. To ensure that households receive at least wv back, it is assumed that the liquidation of the investment is not so costly that wv cannot be recovered. That is, $(1+\lambda)wv \leq 1$.[5] Households losses are offset by the consumption of central bank financed fiscal stimulus of $g(x)$, where x is the amount a government borrows from its central bank.[6] Therefore when the bank fails households receive a net payoff of $wv - 1 + g(x)$ where $g(x)$ behaves according to the following assumption.

Assumption 2: $g(x) \geq 0$ if $x > 0$, with $g(x)$ increasing in x and $g(0) = 0$.

Although the model assumes no upper limit on the nominal amount of stimulus a government can leverage from their central bank, governments pay a reputation cost, c, for every unit of their borrowing. The total reputation cost is therefore cx. This condition implies that a government implementing a central bank financed fiscal stimulus will set its borrowing according to $g'(x) = c$ in equilibrium.

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[5]This assumption is not only reasonable in practice, but it serves two functions in the model. First, it is necessary for a liquidity shortfall in period 1 to have a possibility of producing a banking crisis in period 1. If liquidating risky assets is costless, there will be no run on the bank since depositor requests can always be met by the bank. Second, assuming that liquidation costs follow the rule $(1+\lambda)v \leq 1$ greatly simplifies the household's payoff when the central bank does not lend to the bank (i.e. the right hand side of the inequality that produces (5.3)). This assumption is made without loss of generality. If no restrictions are placed on λ, household welfare when the central bank does not lend to the bank is $wv - 1 + g(x) - (\frac{\lambda}{1+\lambda})(wv - 1 + g(x))$ and all the results of the model continue to hold.

[6]This fiscal stimulus can be very general and can include anything from deposit insurance payouts to direct cash transfers to households. To keep the model as simple as possible, fiscal stimulus is assumed to be entirely financed by borrowing from the central bank due to shallow bond and credit markets in many emerging market economies. However, a more relaxed interpretation of $g(x)$ is equally compatible with the model. In particular, it is reasonable to assume that emerging market governments face a binding fiscal constraint in the wake of a banking crisis and they cannot borrow domestically or internationally at the levels of the advanced states. Faced with the prospect of political ruin, emerging market governments may seek to borrow from the central bank, a not uncommon occurrence in the financial history of emerging market economies (Calomiris and Haber, 2014). However, even if we assume that emerging market economies can finance some of their fiscal stimulus measures through market borrowing, $g(x)$ can be reinterpreted as the *extra* fiscal stimulus emerging market governments provide if they are willing and able to borrow directly from the central bank.

A central bank's lending strategy maximizes expected period 2 national welfare, which equals the joint expected wealth of the bank and households. Given that the central bank can print currency at will, their own solvency is not a strategic consideration since a negative equity position can always be covered through inflationary government transfers (Buiter, 2008). Following the deposit withdrawal by households, the central bank lends wv to the bank if it is in the expected aggregated period 2 interests of the bank and households.[7] That is, the central bank lends wv if the expected aggregate welfare from doing so is larger than the certain welfare from not lending and letting the bank fail. This leads to the central bank's lending decision.

$$\pi[R(\pi) - 1 - r(1-w) + r(1-w)] + (1-\pi)(wv - 1 + g(x)) \geq wv - 1 + g(x)$$

which simplifies to the equilibrium decision rule

$$\bar{v}^* \leq \frac{R(\pi^*) - g(x^*)}{w} \tag{5.3}$$

The central bank supports the liquidity shortfall of the bank if the liquidity shock falls below a threshold $\bar{v}$. In this model $\bar{v}$ measures the size a state's financial safety net because it sets the maximum liquidity shock that the central bank is willing to support. Analyzing (5.3), $R(\pi)$ enters positively and indicates that when the bank expects a higher return on their investment the central bank will be more likely to lend to them when they face a liquidity shortfall. Second, the financial safety net is decreasing in $g(x)$. The reason is because $g(x)$ moderates the cost of a banking crisis for households. It follows from this result that the introduction of central bank lending limits (i.e. $g(x) = 0$) expands the financial safety net for the bank. Lastly, the financial safety net is increasing in the credit to deposit ratio, $\frac{1}{w}$, which is a common measure of banking sector leverage. When this

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[7]The model assumes zero opportunity cost to the central bank from its liquidity operations. This assumption is without loss of generality. Indeed, it is trivial to add such costs to the model. See Repullo (2005).

ratio increases, the cost of a bank failure increases, and this prompts the central bank to extend a more generous financial safety net.

In period 0 the government also decides whether to grant their central bank independence by passing a binding law prohibiting themselves from borrowing from the central bank. Governments choose to pass such a law if doing so increases the expected welfare of households net of the reputation costs suffered by the government when it borrows from the central bank. Therefore, the central bank will be granted its independence if and only if

$$\bar{v}_i^*[\pi^*(r(1-w)) + (1-\pi^*)(wv - 1)] + (w - \bar{v}_i^*)(wv - 1) \geq$$

$$\bar{v}_n^*[\pi^*(r(1-w)) + (1-\pi^*)(wv - 1 + g(x^*) - cx)] + (w - \bar{v}_n^*)(wv - 1 + g(x^*) - cx)$$

$$(5.4)$$

where $\bar{v}_n^*$ is the financial safety net provided by a non-independent central bank and $\bar{v}_i^*$ is the financial safety net provided by an independent central bank. Simplifying (5.4), we see that a central bank will be made independent if and only if

$$(w - \pi^*\bar{v}_n^*)(g(x^*) - cx) \leq (\bar{v}_i^* - \bar{v}_n^*)[\pi^*(r(1-w)) + (1-\pi^*)(wv - 1) - (wv - 1)] \quad (5.5)$$

Equation (5.5) contains four components, two probabilities and two payoffs. The left hand side of (5.5) is composed of the probability that governments will resort to fiscal stimulus, $w - \pi^*\bar{v}_n^*$, and the benefit to governments when they do so, $g(x^*) - cx$. The right hand side is also composed of two terms, the probability that an expanded financial safety net will be used, $\bar{v}_i^* - \bar{v}_n^*$, and the extra benefit households receive when an independent central bank does so, $\pi^*(r(1-w)) + (1-\pi^*)(wv - 1) - (wv - 1)$.[8]

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[8]Note that since the decision over central bank independence is made in period 0, governments decide based on the equilibrium, and not observed, values of $\bar{v}_n^*$, $\bar{v}_i^*$, and π^*.

The basic model outlined above contains three equilibrium conditions, a choice of π^* by the bank, the government's decision to prefer fiscal stimulus or an independent central bank, and the size of the financial safety net provided by the central bank $\bar{v}^*$. Numerous implications follow from this basic setup. Three results regarding the political effects of central bank independence are noteworthy. These include a lower *ex-ante* probability of a banking crisis, an unambiguous increase in the welfare of banks, and an uncertain effect on the welfare of households. Details regarding these results are found in Appendix B.

Testable Implications

Five testable implications are drawn from the model. The first three concern the lending behavior of central bank's during crises and are derived from various components of equation (5.3). The first considers the effect of government lending limits on the financial safety net for banks. As discussed in the literature review, existing research predicts that independent central banks are forces for monetary restraint during times of crisis and stability alike. The model above predicts distinct lending behavior to emerge during a crisis. In particular, during a crisis independent central banks that are legally protected from an obligation to lend to the government will provide more support to the banking system. This leads to the first hypothesis.

H1 (Lending Limits): Following a banking crisis liquidity provision will be higher when governments cannot borrow directly from the central bank.

The second hypothesis states that a banking system with higher leverage will receive greater support from the central bank during a crisis. This prediction is corroborated by the performance of various financial systems during the global financial crisis (Ratnovski and Huang, 2009). In the model this hypothesis relates to the fraction $\frac{1}{w}$ in equation (5.3) which predicts that banks funding themselves with more debt (i.e. a lower w) will receive more central bank support during a crisis. Formally the second hypothesis is stated as follows.

H2 (Leverage): Following a banking crisis liquidity provision will be higher when a banking system is more leveraged.

The third hypothesis concerns the interaction between central bank lending limits and the leverage of the banking system. In particular, it says that the strength of the effect of lending limits will be conditioned by the degree of leverage in the banking system. When a crisis occurs and an independent central bank judges how decisively to act to stabilize markets, their initial actions will likely be informed by how fragile they perceive the banking system to be. Measures of leverage are one such indicator, which leads to the prediction that the strength of the central bank lending limits effect will be mediated by the degree of leverage in the banking system. This interaction effect can be seen in the second order partial derivative of (5.3).

$$\frac{d\bar{v}}{dx}\frac{d\bar{v}}{dw} = \frac{g'(x)}{w^2} \tag{5.6}$$

Given that $g'(x) \geq 0$ by assumption, it follows that $\frac{g'(x)}{w^2} \geq 0$. This implies that the interaction between central bank lending limits and the degree of leverage in the banking system will be positive. Formally the third hypothesis is stated as follows.

H3 (Interaction): Following a banking crisis the strength of the effect of central bank lending limits will increase at higher levels of banking system leverage.

The final two hypotheses concern central bank lending outside of a crisis context. In particular they test whether the effects of central bank lending limits and banking system leverage are also observed during non-crisis times.[9] The model contains no predictions regarding the behavior of central banks during times of stability because it is concerned only with crisis lending. Therefore, consistent with the existing literature it is expected that concerns over inflation will be high on the agenda of independent central banks which

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[9]On the differences in central banking during times of stability and times of crisis, see Bindseil (2014).

leads them to act as forces of monetary restraint. However, because banking system fragility correlates with its leverage, higher banking system leverage is still expected to exert a positive effect on central bank liquidity provision in a non-crisis context. Formally the final two hypotheses are stated as follows.

> *H4a (Asymmetry (a)):* Central bank lending limits reduce liquidity provision during non-crisis times.

> *H4b (Asymmetry (b)):* Higher banking sector leverage increases liquidity provision during non-crisis times.

5.3   Empirical Design

In a banking crisis a significant fraction of a state's banking system experiences a rapid deterioration in its financial health. The suddenness of most banking crises leaves a clear demarcation between the pre-crisis period and the crisis proper, which can be exploited in an event study to estimate the amount of central bank liquidity attributable to the crisis. An event study is a unique before-and-after research design that takes advantage of such a discontinuity in the data generating process (Kothari and Warner, 2008).[10]

The dependent variable is constructed in three steps. The first step is to estimate a linear trend in liquidity provision in state i using observations in the twelve-month period prior to the crisis. The second step is to project this trend into the event window, which consists of the date of the banking crisis plus twelve months. This projection forms a counterfactual series of central bank liquidity provision assumed to approximate what central bank liquidity would have been were it not for the crisis. The final step is to subtract the projected series of liquidity provision from actual liquidity provision.[11] The

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[10]Although event studies are relatively rare in political science, examples include Schnietz (2003), Bechtel and Schneider (2010), Guidolin and La Ferrara (2010), and Sattler (2013); and Truex (2014).

[11]This step implies the dependent variable will be measured with error, imparting a well-known downward bias in the estimated regression coefficients (Green, 2003, p. 84).

result is a measure of the "abnormal" amount of liquidity supplied by a central bank due to the crisis.[12]

5.3.1 Data and Methodology

Dates for emerging market banking crisis spanning 1980-2009 are taken from Laeven and Valencia (2013). An event is coded as a systemic banking crisis if the banking system is experiencing financial distress and states are responding with significant remedial policy intervention.[13] Although the database lists 147 banking crises, the short-term nature of central bank liquidity provision requires a focus on the 38 crises in emerging market economies where crises can be dated to a particular month and sufficient data on covariates can be obtained. A list of the banking crises included in the estimations is found in Appendix B. Following Laeven and Valencia (2013), liquidity provision is measured by central bank claims on the banking sector. Using the International Monetary Fund's International Financial Statistics (IFS), the dependent variable is measured as central bank claims on depository corporations (line 12e) normalized by the total deposit base of the banking system, defined as the sum of transferable deposits (line 24) and time, savings, and foreign currency deposits (line 25). Normalizing central bank claims in this way implicitly controls for the massive expansion in banking systems in the post-Bretton Woods era and permits meaningful comparisons of liquidity provision over time.

The main independent variables include a measure of central bank lending limits from Garriga (2016) and the credit to deposit ratio from Beck, Demirgüç-Kunt, and Levine (2010). Increases in the latter indicate that a banking system relies less on retail deposits to fund its loans. Various control variable have been included. The unified democracy

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[12]When the trend in central bank liquidity prior to a banking crisis predicts negative central bank liquidity in the event window, the projected series of claims is set to zero. Although the dataset contains twenty-nine observations of negative central bank liquidity provision (i.e. banks were *net lenders* to central banks), this possibility is precluded in the analysis by restricting projected liquidity to be non-negative. This prevents situations where low levels of liquidity result in positive abnormal liquidity because projected liquidity is negative.

[13]See Laeven and Valencia (2013) for detailed criteria defining a distressed banking system and the list of remedial state interventions.

score from Pemstein, Meserve, and Melton (2010) provides a measurement of a state's level of democracy.[14] Two control variables measure the size and presence of a financial safety net. A dummy variable indicating the presence of formal deposit insurance is taken from Demirgüç-Kunt, Kane, and Laeven (2014) and a state's foreign exchange reserves as a share of GDP is taken from the World Development Indicators. Additional control variables include a measure of economic openness and net capital inflows as a share of GDP. Economic openness is defined as the sum of imports and exports over GDP and this measure is taken from the World Development Indicators. Observations on net capital inflows are from Bluedorn et al. (2013).[15] Variables measured at an annual frequency have been linearly interpolated to produce monthly observations when necessary. A linear interpolation is justified in all cases as the variables are "sluggish" and change only gradually over time. Summary statistics for all variables are included in Appendix B.

In the main event study the sluggish independent variables and the short thirteen month time span for each banking crisis episode leave comparatively little within-unit variation to exploit. For this reason estimators that exploit variation across units are preferred, with results of pooled OLS, random effects, and between effects presented below. The exclusion of a fixed effects estimator for the main event study also aligns with the recommendations of Clark and Linzer (2015) and Bell and Jones (2015). In particular, simulations in Clark and Linzer (2015) show that in a panel with sluggish independent variables, many units, and few observations per unit, the preference for a fixed or random effects estimator hinges on the correlation between the unit effects and the within-unit mean of the independent variable. Given that across a wide range of specifications using the variables in Table 5.1 the highest correlation between the

[14]Appendix B shows very similar results when democracy is controlled for using the polity2 variable from the Polity IV project.

[15]Following a banking crisis, actual capital outflows are arguably a better indicator of the liquidity needs of a banking system than a measure of capital account openness. However, results substituting the capital account openness measure of Chinn and Ito (2008) for net capital inflows are very similar and are shown in Appendix B.

unit effects and the within-unit mean of central bank lending limits is 0.24, the random effects estimator outperforms the fixed effects estimator in terms of total root mean squared error (Clark and Linzer, 2015, p. 406). Likewise, the highest correlation between the unit effects and the within-unit mean of the credit to deposit ratio is 0.12. Thus, the preponderance for small correlations between the unit effects and the mean of the independent variables justify the selection of the random effects estimator.

A between effects estimator has been included to address concerns over endogeneity. While an instrumental variables approach offers one potential soulution to the problem of endogeneity, with an independent variable such as central bank independence, the weak instrument problem will almost surely be binding. A recent study by Hauk (2017) advises that in such situations the choice among alternative estimators requires negotiating the trade-offs between various biases arising from endogeneity, omitted variable bias, dynamics, and others. In Hauk (2017) Monte Carlo simulations show that when endogeneity bias is a concern, average absolute bias is minimized with the random effects and between effects estimators relative to estimators that rely more on within-unit variation such as fixed effects, and the GMM estimators of Arellano and Bond (1991) and Blundell and Bond (1998).[16] Lastly, a series of robustness checks for the first three hypotheses are found in Appendix B. These include a set of alternative econometric specifications and alternative measures of some independent and control variables.

To test H4a and H4b, 1,000 trials of the event study are conducted using dates chosen at random. To ensure selected dates did not fall around banking crises, the randomization process excluded dates twelve months before or after a banking crisis. The randomization process also excluded the first and last twelve months in the dataset. The placebo analyses test whether the estimated effects of the independent variables on central bank liquidity are present outside of a crisis context. In addition to the placebo

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[16]The small number of time periods for each unit in the event study also precludes the use of these, and other, well known "small N, large T" estimators.

analysis, a complementary, non-event study analysis of liquidity provision outside of a crisis context has also been included in Appendix B.

5.4   Results

The results of the event study are shown in Table 5.1. The base results of the event study are listed in columns (1) through (3) while columns (4) through (9) address potential biases resulting from dynamics, endogeneity, and omitted variable bias. In columns (1) and (2) coefficients on central bank lending limits have the expected positive sign and are statistically significant at the 1% level. Given that central bank lending limits is measured on a zero to one scale, a one-unit increase in a central bank's lending limits score is too large to interpret meaningfully. Instead, given a one standard deviation increase, equal to 0.233 units, abnormal liquidity is expected to be higher by 4.45 percent of the deposit base of the banking system using the central bank lending limits coefficient from column (2).[17] Given that Laeven and Valencia (2013) report that median average liquidity support in emerging market economies following a banking crisis is 11.1 percent of the deposit base of the banking system, this result appears to be substantially significant.[18] Together these results support H1, that central bank lending limits raise liquidity provision to the banking system during a banking crisis.

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[17]0.233 units on the central bank lending limits index is roughly the difference in scores between Indonesia (0.212) and Malaysia (0.514) during their respective crises in 1997.

[18]See Laeven and Valencia (2013), p. 17.

Table 5.1: Abnormal Central Bank Liquidity During Banking Crises

	OLS			OLS with Lag DV		Random Effects		Between Effects	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Central Bank Lending Limits	0.180***	0.191***	0.068	0.018**	0.020**	0.092**	0.061	0.166**	0.173**
	(0.046)	(0.039)	(0.069)	(0.007)	(0.008)	(0.036)	(0.043)	(0.068)	(0.062)
Bank Credit (% Deposits)	0.045	0.055**	-0.005	0.008*	0.008**	0.029	0.058**	0.063**	0.065**
	(0.026)	(0.022)	(0.041)	(0.004)	(0.004)	(0.028)	(0.028)	(0.030)	(0.027)
Democracy	-0.011	-0.024*	-0.023*	-0.003	-0.003	0.017*	0.008	-0.006	-0.024
	(0.013)	(0.014)	(0.013)	(0.002)	(0.002)	(0.009)	(0.010)	(0.022)	(0.021)
Reserves (% GDP)	-0.372	-0.696***	-0.662**	-0.033	-0.050	-0.026	-0.113	-0.667***	-1.161***
	(0.236)	(0.241)	(0.240)	(0.030)	(0.034)	(0.119)	(0.141)	(0.230)	(0.283)
Deposit Insurance	-0.059***	-0.067***	-0.068***	-0.008**	-0.008*	-0.043***	-0.056***	-0.074**	-0.067**
	(0.020)	(0.016)	(0.016)	(0.004)	(0.004)	(0.016)	(0.016)	(0.030)	(0.029)
Floating Exchange Rate		-0.030*	-0.030*		0.000		-0.003		-0.032
		(0.015)	(0.015)		(0.005)		(0.022)		(0.029)
Net Capital Inflows (% GDP)		-0.683***	-0.717***		-0.027		-0.700***		-0.597**
		(0.193)	(0.200)		(0.051)		(0.230)		(0.233)
Trade (% GDP)		0.060	0.056		0.004		0.013		0.086**
		(0.037)	(0.036)		(0.007)		(0.040)		(0.040)
Central Bank Lending Limits × Bank Credit			0.101*						
			(0.054)						
Lag Abnormal Liquidity				0.955***	0.947***				
				(0.019)	(0.022)				
Constant	0.004	0.020	0.091*	-0.001	-0.002	0.008	0.022	0.024	0.045
	(0.025)	(0.029)	(0.048)	(0.004)	(0.007)	(0.023)	(0.042)	(0.055)	(0.054)
$Prob > F$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.003
R^2	0.25	0.39	0.41	0.91	0.91	0.17	0.25	0.50	0.66
N	436	436	436	401	401	436	436	436	436

Coefficients estimated with OLS. Errors clustered by country, except in the between effects estimations. Standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

In columns (1) and (2) the coefficients on the credit to deposit ratio have the expected positive sign and are statistically significant at the 5% level when all control variables have been included. The results are also substantively significant. Using the coefficient on the credit to deposit ratio from column (2), a one standard deviation increase, equal to 44.2%, is expected to increase abnormal central bank liquidity by 2.42 percent of the deposit base of the banking system. These results broadly support H2 and indicate that central banks supply higher levels of abnormal liquidity when banks increase their leverage.[19]

Concerns over the dynamic nature of the data, whereby values of the dependent variable at time $t-1$ correlate with values at time t, motivate the inclusion of a lagged dependent variable[20] (Wilkins, forthcoming). To account for this, columns (4) and (5) in Table 5.1 include a lagged dependent variable in the base model.[21] Despite the lagged dependent variable absorbing a significant amount of variation in the data, coefficients on central bank lending limits and the credit to deposit ratio continue to exert a positive and statistically significant effect on abnormal liquidity provision. Columns (6) through (9) of Table 5.1 contain results of panel estimations that account for endogeneity, omitted variable bias, and dynamics. Overall these results provide further evidence in favor of H1 and H2. Coefficients on central bank lending limits and the credit to deposit ratio are positive and statistically significant in three out of four cases each.[22]

With respect to the control variables the effect of democracy is uniformly negative, a result consistent with notions that bank bailouts are politically unpopular and liquidity

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[19]As a robustness check, the effects of the main independent variables were also found to be stable across event windows ranging from one to thirteen months. Details on this robustness check are available in Appendix B.

[20]Tests using the *xtserial* command in Stata 14 rejected the null hypothesis of no first order autocorrelation in all models.

[21]Estimations using Newey-West standard errors, which accounts for serial correlation of the errors, a potential problem in dynamic settings, are very similar to the main results and are found in Appendix B.

[22]Given that the variation to be exploited in this study is primarily cross-sectional, it is unsurprising that the estimated effect sizes and levels of statistical significant are higher under the between effects estimator relative to the random effects estimator. The reason is because the random effects estimator is equivalent to a weighed average between the fixed effects estimator and between effects estimator.

provision can be construed as a bailout by another name (Geithner, 2017). However, democracy coefficients are only weakly statistically significant in a few specification. Foreign currency reserves also enter negatively, but again are inconsistently statistically significant. The presence of formal deposit insurance also enters negatively and is statistically significant across all columns. This result supports the argument that because formal deposit insurance reduces the probability and size of a bank run, it also reduces the need for compensating liquidity provision. Net capital inflows appear negative and are statistically significant across a range of specifications, indicating that greater net capital inflows reduces liquidity provision into the banking system. Finally, neither the presence of a floating exchange rate nor a high level of trade openness appear to impact central bank liquidity provision as these coefficients are substantively small and are rarely statistically significant.

Evidence in favor of H3 is found in Figure 5.2, which has been calculated from column (3) of Table 5.1. Figure 5.2 shows two things. First, it shows that the marginal effect of central bank lending limits is positive and statistically significant across essentially all credit to deposit ratios. Second, the strength of the effect of central bank lending limits increases at higher credit to deposit ratios. This result supports the notion that central bank's that are not bound by government lending requirements respond more decisively at the onset of a crisis if a banking system is highly leveraged.

In the placebo analysis used to test H4a and H4b, the average coefficients on central bank lending limits and the credit to deposit ratio are -0.016 and 0.012 respectively, which are substantively lower than their counterparts in column (2) of Table 5.1. Further summary statistics for the placebo analysis can be found in Appendix B. Histograms showing the distribution of t-statistics over the 1,000 placebo trials for central bank lending limits and the credit to deposit ratio are listed in Figures 5.3 and 5.4 respectively. As expected the distribution of t-statistics resembles a Student's t-distribution and in both figures the vast majority of t-statistics fail to reach conventional levels of statistical

Figure 5.2: Marginal Effect of Central Bank Lending
Limits on Abnormal Liquidity Provision
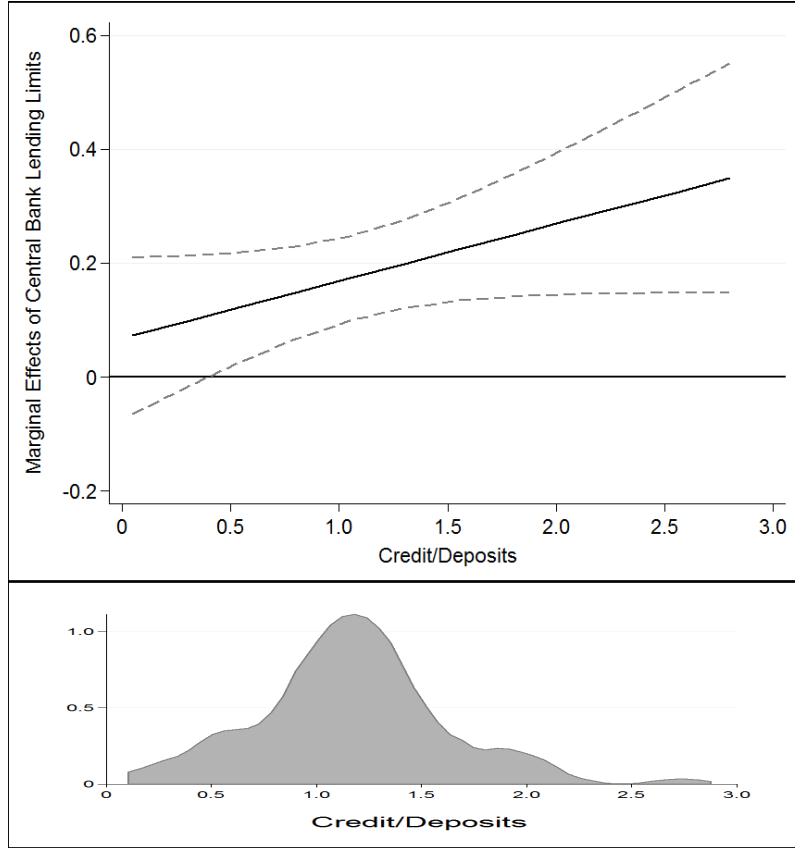
significance. In only 63 and 136 of the 1,000 trials did the central bank lending limits coefficients achieve statistical significance at the 5% and 10% levels respectively. These results are near expected type II error rates. On top of this, 45 of the 63 trials that achieved statistical significance at the 5% level did so with a negative coefficient. Overall the effect of central bank lending limits on liquidity provision appears to be significantly different during times of crisis than during times of stability.

For the credit to deposit ratio 154 and 252 coefficients reached statistical significance at the 5% and 10% levels respectively. These results are arguably not near expected type II error rates. Combined with the relatively even split between positive and negative statistically significant coefficients, (87 of the 154 statistically significant trials were positive), the effect of bank leverage on liquidity provision may in fact exist during during

121

crises as well as during times of stability. However, the size of the average effect of bank credit is significantly lower in the placebo analysis compared to the main event study. These results support the notion that banking system leverage may very well matter for central bank liquidity decisions during crises and times of stability, but that the effect is far stronger and more unambiguous during crises.

Figure 5.3: T-Statistics Histogram for Cen-Figure 5.4: T-Statistics Histogram for Bank tral Credit (% Deposits)
Bank Lending Limits
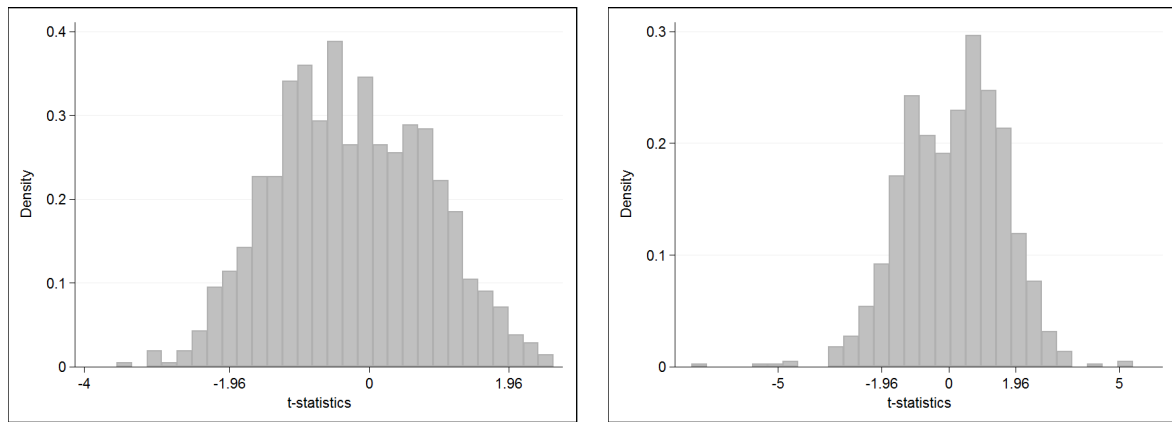
5.5 Conclusion

This chapter has shown that the politics of central bank independence differs during times of crisis relative to times of stability and that this changing politics has implications for the size of domestic financial safety nets in emerging market economies. Through the development of an original model on central bank liquidity provision, this chapter has argued that central banks which are unburdened by obligations to finance their government's spending will respond with added liquidity support to their banking system during a crisis. This result was grounded not in a credible commitment to monetary restraint, but in a commitment to expend real resources as necessary through an expanded financial safety net.

Quantitative results overwhelmingly supported the model's main predictions that central bank lending limits and the banking system's degree of leverage enhance central bank liquidity provision during a banking crisis. These effects were also found to be limited to crisis environments. Central bank liquidity during non-crisis times was found to be constrained by central bank independence, a result consistent with expectations from the time-inconsistency framework. Although the conclusion that independent central banks are superior crisis managers will not come as a surprise to many given the extraordinary actions of central banks during the global financial crisis, the current state of the literature cannot easily explain this because independent central banks are overwhelmingly seen as forces for monetary restraint.

The implication from these results for emerging market economies is that the size of their financial safety nets is determined in part by their own domestic political structures. This result implies that banking systems in these states operate with a more robust form of insurance against liquidity shocks relative to states where governments are able to borrow from their central bank. The cost of this enhanced financial safety net is that the state is assuming more of the banking system's liquidity risk. However, this result is not an aberration. As case studies in the following two chapters demonstrate, the state's willingness to assume ever greater contingent liabilities on behalf of their banking system can be observed across a wide range of safety net components.

Chapter 6

Politics and Financial Stability in Turkey

The story of the evolution and development of the Turkish banking system has been told before and politics has been at the center of all of these accounts.[1] In a typical telling, Turkey's numerous financial crises have stood out as the critical junctures that finally convinced reluctant politicians that reform along free market principles was needed. This chapter covers similar territory, but departs from the mainstream accounts in one important respect. That is, rather than the Turkish state reluctantly reforming the system to promote private sector competition, come what may, policymakers have instead implemented a diverse menu of safety nets that have shielded Turkish banks from many of the risks they take.

The background motivation for this chapter is the puzzle as to why the Turkish banking system has been able to grow so rapidly in recent decades despite the inherent fragility of banking systems that are governed by mediocre political institutions and a generally untrustworthy property rights regime. The answer lies in the state's willingness and ability to use financial safety nets as a means to redistribute risk away from the banks, thereby offsetting the downside risks that are inherent in emerging market banking systems. Moreover, this chapter also highlights the role of financial safety nets in precipitating many of Turkey's numerous financial crises. In particular, all of Turkey's major financial crises can be timed to the exhaustion or removal of a particular aspect of the financial safety net that had been holding back a seemingly inevitable crisis.

6.1 Banks and Politics in Turkey

Like many countries during the 1960s Turkey adopted an ISI development model. This strategy sought to support domestic industrialization in areas where demand was being met by imports. Turkey's ISI policy mix resembled that found in Latin America, which included protectionist trade barriers and subsidies for domestic manufacturers. The latter

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[1] Canonical treatments of the Turkish banking system can be found in Öniş and Rubin (2003) and Akın, Aysan, and Yıldıran (2009).

was accomplished through an overvalued exchange rate to lower the cost of intermediate goods that could not be sourced locally and the forced subsidization of credit to targeted firms.

Banks under ISI faced two competing, and ultimately contradictory, pressures from the state. On the one hand, the state preferred that loans to manufacturers were plentiful since they were necessary to build factories and finance international trade. On the other hand, credit was a cost to manufacturers and state authorities reasoned that if this cost could be reduced, targeted firms would expand even faster. The contradictory expectations of the banks created significant tensions because the banks could not profitably reconcile the twin mandates of expanding credit but at a subsidized interest rate. The solution was to insulate the banks with regulations that transferred the costs of the credit subsidies to taxpayers. This task was made easier by a large fraction of the banking system being state-owned.

The most important regulation that offset the costs and risks of subsidized credit were regulations limiting deposit interest rates. Since deposits were the main funding source for the banking system, interest rate ceilings effectively passed on the cost of the credit subsidies to depositors in the form of foregone interest earnings. Turkey's mix of interest rate and lending regulations, designed to channel cheap credit to targeted industries, met the classic definition of a repressed financial system (Shaw, 1973; McKinnon, 1973).

Scholarly work documenting the role of banks under ISI overwhelmingly focus on the role of the state in directing credit and regulating interest rates (Barkey, 1990). The implication from these studies is that the banks' resources are tapped by the state for rent distribution. What this conventional understanding hides is the under-recognized fact that individual banks fared well under ISI. While it is true that lending was restrained beyond what the banks would have preferred, there were significant offsetting benefits. As shown in Figure 6.1, credit subsidies did not dent the profitability of the banks

throughout the ISI period.[2] As previously mentioned, this was because the deposit interest rate regulation effectively transferred the cost of credit subsidies to depositors.

Figure 6.1: Bank Profits (Million 2012 TRY)
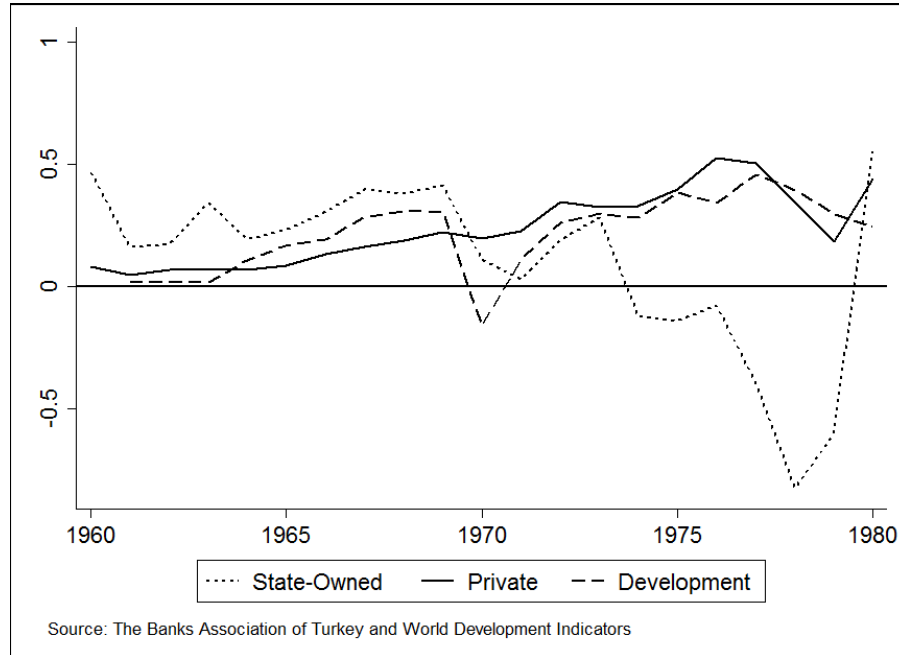
Policymakers had strong incentives to tolerate the steady profits of the private banks under ISI despite its system of financial repression. As previously mentioned, the goal of Turkish authorities was to promote a large and growing industrial sector and to do so banks were called upon to supply them with a steady stream of credit. From the perspective of state authorities, a major threat to this industrial strategy was a collapse of the banking system, and in particular, the large private banks. This fear ensured that whatever pressures policymakers placed on banks, they would nevertheless remain profitable and system wide turmoil would be contained. As one scholar has put it, the

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[2]Moreover, to date the private banks as a whole have recorded only one year of net losses, which occurred during the severe financial crisis of 2001. This performance is in sharp contrast to the state-owned banks which lost money every year from 1974 until the end of the ISI period. The development banks, many of which were partially owned by private banks, were also steadily profitable. Another indicator of the banking system's stability was the low rate of entry and exit by either private deposit banks, state-owned banks, development banks, or foreign banks. The only category of banks to show significant change were the "local banks," which were small single-branch banks. There were only a handful of local banks at the start of the ISI period and all had closed their doors by 1975, their demise tied to the expansion of commercial bank branches in search of subsidized deposits. Indeed, the "big five" banks of the 1960s are the same big five of today.

effect of state controls "has been to make banking in Turkey an extremely lucrative and foolproof occupation. The Central Bank has been so afraid of the possibility of bank failures that such limits as the deposit and loan interest rate limits have been set so as to ensure that the banking system should have ample returns to cover all operating costs. The net result is that the banking system has high costs, is inefficient, and yet still shows fair profits," (Fry, 1972, p. 43).

6.1.1   The Collapse of ISI

As in Latin America, the beginning of the end of ISI in Turkey can be traced to the oil price shock of 1973. Turkey entered the oil crisis period on a sound financial footing following a mini export boom that followed a devaluation of the lira in 1970. Remittance flows from Turkish workers abroad also reached record highs, which allowed the Central Bank of the Republic of Turkey (CBRT) to accumulate relatively large quantities of reserves. However, with few indigenous sources of oil, these sources of foreign exchange were quickly overwhelmed after 1973 as Turkey's import bill grew significantly, which led to sustained balance of payments pressures. Matters were made worse by internal political strife. Between the general election of 1973 and the military coup of September 1980, Turkey had seven different coalition governments, all of which were unstable and prone to infighting.[3]

The strategy devised to finance the large and persistent current account deficit was to motivate the banks to borrow on the Euromarket. The key reform in this regard came in May 1975 when the Ministry of Finance decreed that banks could now open convertible lira deposit (CLD) accounts for non-residents. CLDs originated in the early 1960s to

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[3]Aside from the caretaker government between November 17, 1974 and March 31, 1975, the position of Prime Minister switched back and forth between the left-leaning Bülent Ecevit of the Cumhuriyet Halk Partisi (Republican People's Party) and Süleyman Demirel of the right-leaning (Adalet Partisi (Justice Party). Neither party was willing to work with the other and the coalitions cobbled together from Parliament's other small parties and independents were prone to infighting. Turkey was also besieged by mounting levels of political violence committed by right and left wing extremist groups and martial law was imposed in 13 of its 67 provinces in 1978.

attract the foreign currency holdings of Turkish nationals abroad. The arrangement worked as follows. When foreign currency was deposited into a CLD account, the bank would forward these funds to the CBRT and receive lira in exchange. This arrangement expanded the CBRT's foreign currency reserves and made more lira available for banks to lend domestically. When the CLD deposit was withdrawn the transaction was reversed and the bank would transfer lira to the CBRT in exchange for the foreign currency (Krueger and Aktan, 1992, p. 32).

The CBRT decided to set a high interest rate on CLD accounts to attract deposits from western banks. Because the CLD accounts involved borrowing in foreign currency[4] and lending in lira, currency movements produced gains and losses for the bank. However, the CBRT decided to shield the banks from this risk by guaranteeing them compensation for any foreign exchange related losses they incurred (The Financial Times, May 3, 1976, January 21, 1980). This guarantee ensured that all foreign exchange rate risk was transferred away from the banks and onto the CBRT.

Initially the CLD scheme was successful in attracting foreign deposits. This had the effect of boosting the CBRT's foreign currency holdings at no apparent material cost. However, underneath the surface the CBRT was saddling itself with a sizeable and growing contingent liability in the form of exchange rate risk that would come due in the event of a significant depreciation of the lira. Moreover, the size of this contingent liability was proportional to the depreciation of the lira, meaning that the cost to the state increased linearly as the lira weakened.[5]

The CLD scheme came to an end in mid-1977 when foreign banks began pulling their deposits over worries about the level of Turkey's external debt. Desperate to put a stop to its balance of payments pressures and growing political violence, Turkey reached out to the IMF, the BIS, and western governments for aid. While western governments and the

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[4]CLD deposits were mainly in American dollars and German Deutschmarks. A small amount were also denominated in Swiss francs.

[5]Pettis (2001) has identified this "inverted" liability structure as particularly risky and one that often ends in crisis.

BIS provided modest assistance, the IMF was firm that structural reforms were needed in exchange for financing. The IMF pushed for a depreciation in the lira, cuts in government spending, wage freezes for government workers, and economic growth of no more than 5% all in an effort to temper inflation (The Economist, January 7, 1978; Wicks, April 10, 1978). The Prime Minister, the left-leaning Bülent Ecevit, was hesitant to adopt the IMF-mandated reforms and cited the possibility that a sharp economic contraction could cause the political violence gripping the country to explode. The reasonableness of this argument aside, Ecevit had few financing alternatives and ultimately signed an agreement with the IMF in 1978. However, the pace of reform was slow.

By mid-1979, with an economy contracting and political violence becoming increasingly dire, Ecevit accepted the austerity conditions imposed by the IMF. As a part of the deal, Turkey's debts to international banks were also rescheduled, with bankers agreeing to accept interest only payments for three years. Capital repayments were to resume in 1982 (The Economist, January 17, 1981). As a part of the restructuring program, the CBRT purchased all remaining CLDs from the commercial banks in exchange for new obligations denominated in US dollars, Swiss Francs, and German Deutschmarks. For the banks this was a great benefit because the new CBRT obligations came with a sovereign guarantee (The Globe and Mail, August 8, 1979). Foreign investors also benefited because the CBRT agreed to repay CLD accounts in full. These benefits however came at a cost which has been estimated to be around 2 percent of GNP (Rodrik, 1991, p. 3).

Accepting the IMF's conditions for aid created tensions within Ecevit's coalition and defections eventually sapped him of his Parliamentary majority. In November 1979, the Ecevit government fell after suffering bi-election losses, which paved the way for right-leaning Süleyman Demirel to form a minority government. Demirel was forced to tread carefully as he needed to maintain the support from various factions within Parliament, most notably Necmettin Erbakan's anti-Western Islamist-leaning Milli Selamet Partisi

(National Salvation Party). However, in late 1979, time was running short for both Demirel's minority government and Turkey's ISI development model, both of which were to be sharply upended in 1980.

6.2 Turkey's Liberal Turn

The events of 1980 would mark a dramatic turn in Turkey's political and economic development. On New Year's Day, the Turkish military set the tone for the year when it issued a warning aimed at all leading politicians. Delivered by Kenan Evren, Turkey's Chief of the General Staff, the warning stated that if politicians could not put an end to the political violence racking the country, they would take matters into their own hands. By 1980, street fighting and targeted killings throughout Turkey, including all of its major cities, had resulted in hundreds of deaths each month. Following the warning, Turkish politicians quickly put aside their differences, at least publicly, and tabled new legislation giving the security forces enhanced powers. But it was not enough. On 12 September 1980, Evren seized power in a bloodless coup, citing the need for stability and the inability of successive political leaders to quell the violence. The public greeted news of the coup with relief and within weeks political violence was halted as thousands were arrested across Turkey. Following the coup Evren and the National Security Council imposed martial law throughout Turkey, suspended the constitution, and banned all political parties, major politicians, and trade unions.

About the only major political figure to survive the coup was Demirel's Deputy Prime Minister for Economic Affairs, Turgut Özal, a former civil servant at the State Planning Organization and World Bank economist. Military rulers had little interest in the export-oriented and liberalizing reforms being pushed by Özal, a reform program he began in 1979, but they made it clear that he had their full support. Major early reforms that Özal oversaw included increased prices for the products of state-owned enterprises,

deregulated private-sector industrial prices, relaxed entry barriers into the banking sector, deregulated loan and deposit interest rates, scaled back directed credit schemes, and a managed devaluation of the lira by the CBRT (Ersel, 1991; Arslan and Van Wijnbergen, 1993; Celasun and Rodrik, 1989; Akın, Aysan, and Yıldıran, 2009). The combined effects of these policies was a doubling of the real value of exports between 1980 and 1984.[6]

Attempts to liberalize the banking system were met with resistance, in particular with regards to the deregulation of deposit interest rates. Deposits were far and away the most important source of funding for the banks and the removal of interest rate caps put significant upward pressure on the cost of these funds. This caused the banks to come to a "gentleman's agreement" to limit increases in deposit interest rates. However, the cartel had trouble preventing smaller banks from defecting (Atiyas, 1989). Banks were also squeezed by the falling rate of inflation, which put upward pressure on the real interest rate. This led to a fall in corporate earnings and a steady rise in non-preforming loans.

These stresses pushed many banks, including the large banks, to look for creative ways around the gentleman's agreement to find a solution to their deteriorating balance sheets. The primary mechanism the banks settled on was to sell newly permitted discounted certificates of deposit (CDs), essentially bank deposits that carried a fixed term. Banks marketed their CDs directly and through brokerage houses. CDs were not included in the gentleman's agreement and competition for funding quickly moved to this market. Nearly every bank, including state-owned banks, raised funds on the CD market after 1980. Yet easier access to funding cannot solve a rising non-preforming loans problem and over time many brokerages and smaller banks began paying CD redemption's with newly issued CDs (Ekinci, 1997, p. 247). This meant by the end of 1981, parts the Turkish financial system resembled a classic Ponzi scheme.

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[6]Other economic indicators were also positive. Turkey's current account, while remaining in deficit, shrank dramatically as a fraction of GDP. Inflation, which had taken off in 1978 and topped 110% in 1980 came down in equally dramatic fashion, although it still averaged a stubbornly high 38.4% between 1981-1985 (World Bank, 2016).

A severe liquidity crunch began in 1982 as many brokerage houses and weak banks could not meet their liabilities. After the owner of the largest brokerage house fled the country, authorities stepped in with massive liquidity support. At its peak, liquidity support from the CBRT and the Treasury equalled 71.7% of the banking systems deposits (Laeven and Valencia, 2013, Table A1, p. 254-259). The crisis led Özal to resign in July 1982 and prompted the CBRT to re-regulate deposit interest rates. They were capped at 45% per annum and would not be liberalized again until 1988. As a part of the resolution of the crisis, four small banks were absorbed by Ziraat Bankası, the largest state-owned bank. A fifth bank was taken over by a large private bank.

The 1982 crisis has been called the "bankers' crisis" and is a key event in the politics of Turkey's financial development. The most immediate consequence was that further attempts to liberalize the banking system were pushed back as authorities became pre-occupied with preventing a rerun of the crisis in order to instill a degree of confidence in non-bank financial institutions.[7] A key move in this regard was the creation of the Savings Deposit Insurance Fund (SDIF) in 1983. Administered by the CBRT, the SDIF replaced the previous implicit deposit protection scheme provided through the Bank Liquidation Fund (BLF). The SDIF was put in charge of banks that had entered receivership and took direction from the Ministry of Finance regarding whether a bank should be liquidated or restructured. Prior to 1983, the BLF was only responsible for paying depositors after a bank had failed and had no authority to mitigate liquidity problems straining the banking system. As with the BLF, the SDIF was backstopped by the CBRT, which retained the authority to supply it with funds should its resources prove insufficient (Talley and Mas, 1990, Appendix A, pp. 28-30).

Turkey returned to democratic elections in 1983, although the election that year was only partly-free. Numerous politicians remained barred from politics and the military junta inspected and reserved the right to reject parties and candidates it deemed unqual-

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[7]A major piece of this plan was the creation of the Capital Markets Board (CMB). The CMB became operational in 1983 and was tasked with regulating the issuance of securities.

ified. The result was that only three parties were allowed to compete. The military felt that the outcome of the election was a foregone conclusion with their favored party, the Milliyetçi Demokrasi Partisi (National Democracy Party) winning and the Halkçı Parti (Populist Party) forming the opposition. However, to the complete surprise of the generals, the third party allowed to run, the Anavatan Partisi (ANAP - Motherland Party) led by Özal, won a clear victory and secured a Parliamentary majority.

Parliament soon began working on a major new banking law which came into force in 1985. The goal of the new law was to create a modern regulatory structure that would prevent a recurrence of the 1982 bankers' crisis. Minimum capital adequacy requirements were introduced and were set to increase over time. Turkey adopted guidelines for calculating the capital adequacy ratio from the BIS, non-preforming loans were clearly defined, and banks were required to set aside provisions for non-preforming loans. External audits from accounting firms accredited by the Treasury and CBRT became mandatory and reporting requirements were enhanced.

Despite these reforms the banking system remained unable to grow because it was saddled with a large stock of non-preforming loans, which in turn prevented the emergence of an interbank market.[8] Compounding matters was the great distrust among the private banks and between the private banks and the state-owned banks. To facilitate the creation of an interbank market, the CBRT decided to act as a blind broker for the incipient market. This meant that the CBRT was a counterparty to both the lender and borrower in interbank transactions. Should the borrower be unable to pay back their loan, the CBRT would then be obliged to step in with its own funds to fulfill the transaction. Although the CBRT required collateral to be posted by borrowers, the presence of the CBRT greatly reduced the risk that lenders would face losses in the event of a crisis (Mehran, 1996, p. 76). However, in order to do so the CBRT had to expose itself to

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[8]Interbank loans are a form of short-term lending between banks, typically overnight, and are most often used to manage liquidity and meet reserve requirements. A well functioning interbank market can reduce liquidity risk for banks and aid the functioning of the banking system as a whole.

losses should a bank fail. In this sense the CBRT was transferring onto itself the liquidity and credit risks stemming from the interbank market. Moreover, the CBRT also acted as a *blind* broker, which meant that the identities of the borrower and the lender were kept hidden from each other. This move was especially significant for the weaker banks in the system because they could access the interbank market on the same terms as the more sound banks. This helped facilitate the development of the interbank market as quickly as possible.

These developments notwithstanding, the general election of 1987 came at a time when policymakers were worried about the sustainability of Turkish economic growth. Özal knew that a strong economy was the glue that kept ANAP unified and electorally strong (Öniş and Aysun, 2000). But sources of demand to drive economic growth were becoming more difficult to find as the 1980s wore on. On top of stalled credit growth, external demand was considerably lower after 1986 due to sharply falling oil prices which sent many of Turkey's important Middle East export markets into recession. Özal's solution was to boost public expenditures.

The composition of the state's new borrowing came from short-term international credits and from selling Treasury bills to the domestic banking sector. In this sense, the borrowing strategies pursued by policymakers in the 1970s and 1980s were remarkably similar. In both cases, the formula called for the state to leverage the banking system and tap international capital so that economic growth could be temporarily sustained. Also in both cases, the borrowing was justified because the downturn in the Turkish economy was thought to be temporary. And lastly, in both cases, the borrowing strategy rested on the transfer of significant amounts of currency and credit risk onto the state. The primary difference between the two episodes was that in the 1970s, the banking system was leveraged to finance the initial rounds of foreign borrowing, while in the 1980s foreign borrowing was done directly by the state. During the late 1980s, the state borrowed heavily in lira from the state-owned and private banks, mainly by mandating

them to purchase massive amounts of Treasury bills through a Public Sector Borrowing Requirement (PSBR) Akyüz and Boratav, 2003.

While these measures were sufficient to boost economic growth in the short-run, they could not revive Özal's sagging popularity. Sensing a boiling over of internal party infighting, especially following local election defeats in March 1989, Özal sought out the Presidency and was elected by Parliament in November of that year.[9] Yet despite this political instability, the banking sector remained relatively stable during the late 1980s and early 1990s. Two factors explain this. The first was the active management and occasional rapid intervention by the CBRT to support the lira. The CBRT was wary of the foreign currency risks in the banking system and sought to maintain a predictable monetary policy that matched the lira's rate of depreciation with the rate of inflation. The second source of stability were the healthy margins the banks received on their holdings of government securities. This policy mix meant that although the high PSBR represented an inefficient allocation of credit, the banks were willing partners because real interest rates were high and interest income on Treasury securities was tax free. Banks were therefore able to earn a nearly risk-free profit if they could borrow funds at an interest rate lower than that paid on their portfolio of Treasury securities. Ironically, the situation increasingly began to resemble a modified version of the CLDs scheme (Celasun, 1999)

6.2.1 The 1994 Crisis

The general election of 1991 saw Demirel return as Prime Minister as the leader of Doğru Yol Partisi (DYP - True Path Party). Demirel formed a coalition government with the third placed Sosyaldemokrat Halkçı Parti (Social Democratic Populist Party). The early days of the coalition government were ones of cautious optimism. Although the coalition

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[9]Until recently, Turkey's Presidency was largely a ceremonial position and the constitution required the president to be unaffiliated with any political party. These measures were removed following a nationwide referendum in 2017.

government was Turkey's first since the 1980 coup, Demirel shared much of Özal's center-right economic policies and he vowed to continue the reforms he started. He appointed an economist and political newcomer, Tansu Çiller, as the Economy Minister.

Yet the reform posture of the new government did not dissuade them from using the PSBR and CBRT credits to finance high government spending. Not wanting to cut spending or raise taxes to close the deficit, the new administration instead sought increasingly unorthodox ways of reducing debt. For example, Parliament wrote off the debts that the loss-making state-owned enterprises had to each other and some other short-term credits the Treasury had with the CBRT. The latter write-offs were a way of getting around an agreement between the Treasury and the CBRT, which limited the Treasury's borrowing from the CBRT to 15% of its budget. In response CBRT Governor Rüşdü Saracoğlu almost resigned in protest (Reuters, July 3, 1992). Çiller also mandated an interest rate reduction on three month government Treasuries, the main form of state borrowing. The CBRT immediately criticized the move, arguing that its preference for depreciating the lira at the rate of inflation would be made more difficult. Although political leaders across the spectrum were aware that their fiscal deficits were unsustainable, the difficulty was devising a program of deficit reduction that did not curtail economic growth.[10]

The budget deficit, which at its core was designed to soften the rougher edges of Turkey's liberalization program, posed a dilemma for the CBRT. Since a significant fraction of the budget deficit was financed directly or indirectly abroad, the value of the lira became a preoccupation of the CBRT. On the one hand, a strong lira sustained capital inflows and made foreign currency borrowing cheaper. On the other hand, a strong lira undercut the competitiveness of Turkish exporters. The CBRT decided that sustaining capital inflows and financial stability were more important than giving exporters a competitive edge. The desire to tie the depreciation of the lira to the rate of inflation

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[10]Government borrowing from the CBRT and the PSBR grew from 4.8% of GNP in 1988 to 12.1% of GNP by 1993 (Cizre and Yeldan, 2005, p. 485).

followed from this preference. However, in practice, the lira's depreciation often turned out to be less than the inflation rate and by 1992, a consensus emerged that the lira was significantly overvalued (The Independent, July 10, 1994). The debate over the value of the lira put the CBRT into conflict with Çiller, who preferred to see the lira depreciate faster to spur exports. At this time Çiller had been appointed Prime Minister as Demirel assumed the Presidency following the sudden death of Özal in 1993.

Matters turned serious in the fall of 1993 when the Treasury canceled successive Treasury bill auctions because the banks baulked at the rates on offer. This caused the build up of excess liquidity in the banking system because the banks were receiving more lira from their maturing Treasury bills then they were paying out in new purchases (Celasun, 1999). The demand for foreign currency began to grow in step with the excess lira seeking an outlet. Starting in December the CBRT began to sell reserves to meet this demand and remove the excess lira from the banking system.

Citing the unsustainable budget deficit, both Moody's and Standard and Poor's, two key American credit rating agencies, downgraded Turkey's credit rating in January 1994. The rating downgrades hit Turkish financial markets in multiple ways. For one, Turkey was effectively shut out from international capital markets. This forced the Treasury to rely solely on the banks and the CBRT for funding. However, hastily organized Treasury auctions in mid-January failed as the banks baulked yet again at the rates offered (Brown, February 1, 1994). The Treasury soon found itself unable to raise enough funds to cover its spending and turned to credits allocated to it from the CBRT. However, panic set in after markets realized that the Treasury used half of its annual allotment in only the first three weeks of January (Celasun, 1999, p. 14).

Despite a devaluation of nearly 14% in late January, pressure on the Turkish financial system, and the CBRT, continued to mount. Following the credit rating downgrade the CBRT understood that foreign capital inflows would quickly dry up and further devaluations would be inevitable, implying that banks stood to incur significant losses

owing to their open foreign currency short positions. To minimize total losses the CBRT pressured banks to close their open short positions (Celasun, 1999, p. 17). Despite the CBRT's use of interest rate policy and periodic reserve sales, attempts to support the banking system and stabilize the lira failed and Turkey went through a serious currency crisis in the first half of 1994. However, three moves by the CBRT lessened its impact. The first was the CBRT agreeing to insure the entire banking system's deposit base, irrespective of currency. The CBRT felt compelled to extend deposit insurance following the failure of three small banks. The second move was the negotiation of a Stand By Arrangement with the IMF in July 1994. The arrangement gave Turkey much needed foreign financing but the release of future tranches were made conditional on fulfilling a reform and austerity package. The third move was that the CBRT resumed a major role in the interbank market. By managing the interbank interest rate and by acting as an intermediary in the market, the CBRT actively managed lira liquidity, and indirectly, the value of the lira. The result was that the lira began to stabilize. By the end of 1994, the IMF was singing Turkey's praises, despite the usual cautions that progress on implementing the austerity and reform package remained to be seen.

6.3   Turkey's Lost Decade

The fallout from the 1994 crisis led to the downfall of the Çiller coalition in the national elections of 1995. Building on local election victories in 1994, the Refah Partisi (RP - Welfare Party) led by Necmettin Erbakan, secured top spot with 21.4% of the vote nationwide. ANAP and DYP were both close behind, and secured 19.6% and 19.2% of the vote respectively. The Demokratik Sol Parti (Democratic Left Party) and the Cumhuriyet Halk Partisi (CHP - Republican People's Party) also entered Parliament having captured 14.4% and 10.7% of the vote respectively. Financial markets reacted immediately, and negatively, to the RP victory. The CBRT intervened heavily to support

the lira and pressure only subsided following explicit CBRT assurances that there would no imminent devaluation of the lira. The healthy level of reserves held by the CBRT gave such assurances credibility. Seeking to outflank the RP, an ANAP-DYP coalition was formed. However, it was short lived. RP eventually formed a coalition with DYP, with Erbakan becoming Prime Minister and Çiller becoming his deputy. However, Erbakan's tenure at Prime Minister would likewise be short.

Turkey was plunged into a political crisis in 1997. In February, members of the National Security Council drew up a list of thinly veiled recommendations for Erbakan. The recommendations were designed to curb his allegedly anti-secular activities. Erbakan tried to work within the parameters set out by the National Security Council, but ultimately resigned under sustained pressure from the military. The affair came to be known as the February 28 process and Turkey's post-modern coup. In July a new minority coalition government assumed power composed of ANAP, the Demokratik Sol Parti, the Democrat Türkiye Partisi (Democrat Turkey Party).[11] The next year the RP was shut down and Erbakan was banned from politics for five years. But the pressure did not end there. Civil servants associated with the RP were fired, the government began to oversee courses teaching the Quran at religious schools, and the RP's youth offices were raided. The large media outlets, owned by the secularist business conglomerates, were scathing in their criticism of Erbakan. RP politicians were also monitored closely. In December 1997, Tayyip Erdoğan, Istanbul's mayor and RP member, was sentenced to ten months in prison for reciting a poem that equated mosques to military barracks and minarets to bayonets (Silverman, 2014, p. 140).

With Erbakan as Prime Minister, Turkey's economic picture darkened further and there were regular fears of a rerun of the 1994 crisis, especially following a second credit downgrade by Standard & Poor's in late 1996. However, despite Turkey's many risks, including a high PSBR, high inflation, high real interest rates, a continued reliance on

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[11]The Democrat Türkiye Partisi was a new party formed after the coup from dissatisfied members of Çiller DYP.

short-term foreign currency inflows, and a Treasury still aggressively seeking to lower its interest costs, a crisis did not materialize. The main reason was the growing ability and willingness of the CBRT to manage liquidity in the banking system and its large stock of foreign currency reserves.

An illustration of how the CBRT's liquidity management role aided Turkey's financial stability came in June 1997 when a brief, but serious, panic ensued as Ziraat was unable to meet its interbank obligations. Under normal circumstances, the CBRT closely monitors the interbank market and supplies it with liquidity as needed. However, on June 16 Ziraat found itself in need of liquidity at a time when it was paying government worker salaries, which it regularly did at the end of each work week. When the Treasury's account at Ziraat became overdrawn, Ziraat began to tap the interbank market, and finally the CBRT's discount window. However, the CBRT unexpectedly denied Ziraat's request, reasoning that since Ziraat was a large state-owned bank that also funded the Treasury, by assisting Ziraat it would be effectively subsidizing the Treasury over and above its existing obligations. However, by withholding liquidity to Ziraat, the CBRT inadvertently contributed to a snowballing of payment disruptions. The semi-panic ended a few days later only when the CBRT stepped back into the interbank market and supported Ziraat (Business Wire, July 1, 1997).

Following the downfall of the Erbakan government, a new coalition emerged that saw the return of ANAP's Mesut Yılmaz as Prime Minister. Yılmaz's two previous turns as Prime Minister were of short duration, spanning five months in 1991 and three months in 1996. Following the post-modern coup, the secularist parties in Turkey experienced a rare bout of solidarity against their perceived common enemy of Islamism represented by Erbakan. Yılmaz took full advantage of this opening and implemented a series of economic reforms that would go further than any previous coalition government. One month into his administration Yılmaz had the Treasury and the CBRT sign a protocol that bound them together in their fight against inflation. The agreement gave the upper

hand to the CBRT as it gained more independence in setting short-term interest rates and formally prevented the Treasury from borrowing from the CBRT beyond predefined limits (The Financial Times, October 8, 1997). Work also began on a new banking law which officials linked to their fight against inflation.

Officials also signed an agreement with the IMF in July 1998. The agreement was unique in the history of the IMF given that no funds were committed upfront, although officials at the IMF indicated that Turkey could apply for a Stand By Arrangement if necessary (The Financial Times, July 3, 1999). Instead, Turkey wanted the IMF to act as a partner in planning its reform program and to oversee its implementation. Policymakers intended that an IMF seal of approval would send a strong signal to international investors that Turkey was ready to implement its long delayed reforms. Taming inflation became the centerpiece of the IMF sponsored program. However, a series of external and internal shocks made achieving its goals very difficult.

The first major shock came from the Russian default of August 1998. Given that Russia was Turkey's second largest export market, many feared that the loss of export revenue would lead to the abandonment of the disinflation program. These concerns were accelerated following the downfall of Bank Ekspres after its owner, Korkmaz Yiğit, was caught conspiring with a notorious mafia boss during the bidding process for the state-owned Türk Ticaret Bankası. The scandal would stretch all the way up to Yılmaz and members of his administration which led to the downfall of his government in January 1999 (Bellaigue, November 12, 1998). Ecevit took over as Prime Minister in a caretaker government and led his party's victory in the April 1999 election. Ecevit formed a coalition with the far-right nationalist Milliyetçi Hareket Partisi (MHP - Nationalist Action Party) and the Fazilet Partisi (Virtue Party), the successor to the RP. The new coalition sought to continue the reforms of Yılmaz by enacting a new banking law, the most ambitious to date. The key innovation of the banking reform was the establishment of Turkey's first independent banking regulator. The Banking Regulation and Supervision

Agency (BRSA) was given wide powers to block mergers and acquisitions and to take over the management of troubled banks. On top of this, the BRSA was made politically and financially independent (Boulton, November 20, 2000). The SDIF was also granted significant resolution powers and was also made politically independent.[12] One thing that the new law did not change was the deposit insurance guarantee covering 100% of all deposits.

The second shock came from a devastating earthquake centered in the city of İzmit, one of Turkey's most important industrial centers situated 100km from Istanbul. The earthquake killed an estimated 17,000 people and destroyed billions of dollars of manufacturing capacity. Although the earthquake caused Turkey to slip into recession in 1999, Ecevit was not dissuaded from his reform path and turned to the IMF for a Stand-By Arrangement. Like previous arrangements, it contained a strong anti-inflation component. What was different this time was the IMF's focus on eliminating inflation at its source. Specifically, the IMF required that the CBRT cap its liquidity assistance to the banking system at the level of its net domestic assets and set the path for the lira's depreciation equal to a future inflation target rather than the past rate of inflation (Ozkan, 2005). Both IMF and Turkish officials felt that the success of the program hinged on the credibility of the CBRT's commitment to the anti-inflation program (Çapoğlu, 2004). Their rationale was based on the notion that a firm and credible commitment by the CBRT to a lower rate of inflation would lower inflation expectations, which in turn would feed into lower actual inflation.

Two parallel developments reinforced this renewed commitment to putting the Turkish economy on a sustainable path. The first was granting the SDIF enhanced resolution powers, which it used in short order to acquire five medium sized banks and revoke the license of a sixth. Indeed, Turkish policymakers anticipated some bank failures after

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[12]The SDIF is one of only a handful of politically independent resolution authorities in the world. This move ended Turkey's previous resolution regime which consisted mainly of having failing banks merged with Ziraat or another state-owned bank.

solving its inflation problem. The second was Turkey securing a firm external anchor in the form of becoming an official candidate for EU membership, which Turkey achieved in December 1999 (Öniş and Rubin, 2003).

However, the IMF's efforts to bring about price stability contained the seeds of crisis. The aggregate effects of tying the rate of the lira's depreciation to an inflation target and capping the CBRT's liquidity at its net domestic assets was a significantly tighter monetary policy than Turkish banks had grown accustomed to. Open market operations became very difficult under this program because the CBRT could not effectively control the monetary base.[13] Instead, the monetary base could only grow in line with the CBRT's net foreign currency reserves. This greatly reduced the ability of the CBRT to manage domestic liquidity because the CBRT was hamstrung by the whims of international capital flows. Although this was by design and deemed necessary if Turkey's inflation problem was ever to be permanently solved, it was a very risky strategy given that there were very few financially strong private sector banks and the state-owned banks were weighed down with heavy duty-losses[14] (Alper and Öniş, 2003).

While the first few months of the anti-inflation program were deemed successful by domestic and international observers, problems began to arise in the fall of 2000 when capital began to flow out of Turkey. The structure of the disinflation program meant that liquidity began to drain from the banking system precisely when it was needed most. Then a series of domestic shocks sent the Turkish banking system into its most severe crisis to date. Events began in October when President Ahmet Necdet Sezer's anti-corruption drive revealed that Murat Demirel, the nephew of former president Süleyman Demirel and CEO of Egebank, was caught appropriating millions of dollars from Egebank

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[13]The CBRT's net domestic assets consisted of the monetary base, defined as hard currency and the deposits of the commercial banks held at the CBRT, minus the CBRT's foreign assets which consisted mainly of its net foreign currency reserves.

[14]Duty-losses were financial losses originating from bad loans to state-owned enterprises. Banks were supposed to receive a credit from the Treasury in the amount of their duty-losses, but over time these losses grew so large that the Treasury simply stopped issuing credits. Therefore the duty-losses represented a significant contingent liability for the Treasury that threatened to bankrupt nearly the entire banking system.

in the days before the SDIF took over in 1999. Fears that a wider criminal probe would reveal similar behaviour at other banks under SDIF receivership resulted in the financial health of all small and medium sized banks being called into question. This resulted in a near freezing of the interbank market in late November. Sensing that the unraveling of the banking system was imminent, the CBRT breached the limitations of its IMF program and injected liquidity into the banking system (OECD, 2001). These measures were meant to be temporary and within days the CBRT announced that it would reinstate the disinflation program, but at a higher level of net domestic assets to account for the recent liquidity operation. However, with further liquidity injections ruled out, interbank rates soared again, topping 2000%. Panic subsided in December only when the IMF agreed to a new emergency loan of $7.5 billion, thus permitting some expansion in the monetary base. However, the liquidity squeeze continued to pressure the banks and in December Turkey's ninth largest bank, Demirbank, was put under the control of the SDIF (Akyüz and Boratav, 2003).

Market turmoil returned in February following a public falling out between Ecevit and Sezer. At the heart of the dispute were fears that the coalition government was on the verge of collapse, and with it, Turkey's disinflation program (Aygunes, February 20, 2001). The Turkish banking system tipped over into full blown crisis the next day, which happened to coincide with a major roll over of Treasury debt. However, the Treasury was not able to roll over the entirety of its debt, and in a repeat of the events of 1994, the banks holding excess lira promptly went to the CBRT to purchase foreign currency. This led to a massive drain on its reserves and put the CBRT at a crossroads. Either it could abandon the IMF's disinflation program and inject into the banking system the liquidity it desperately needed or it could hang on and see if markets calmed down on their own accord. The actions of the CBRT mirrored the actions it took in November, and at first the CBRT sought to preserve its credibility by not violating the terms of the IMF's disinflation program. But this decision would seal the fate of the

entire banking system as interbank interest rates soared again, this time past 5000% (Akyüz and Boratav, 2003). Having run out of options, on February 22, the CBRT let the lira float, ending its disinflation program in crisis less than a year and a half after it was inaugurated. The 2000-2001 crisis would turn out to be the costliest financial crisis in modern Turkish history. Laeven and Valencia (2013) estimate that in 2003 Turkish GDP was 37% lower than its pre-crisis trend would have predicted. They also estimate that the recapitalization and restructuring of the banking system cost an estimated 32% of GDP.

The recovery effort began when Ecevit appointed and granted wide ranging powers to a former economic advisor, Kemal Derviş, to steer the Turkish economy through the crisis. Derviş set out for himself two tasks: close insolvent private banks and state-owned banks while restructuring and recapitalizing those that were viable and strengthen prudential regulation. The task of dealing with under capitalized private banks was transferred to the BRSA and in total it would take over 19 private banks. Funds used to recapitalize viable banks were taken from the SDIF. However, the scale of the losses following the crisis meant that the vast majority of funds used to rehabilitate banks prior to going to auction came from newly issued public debt, thereby socializing their losses. For the state-owned banks, the Treasury issued $20 billion in new debt to clear all remaining duty losses. Turkey's two largest state-owned banks, Ziraat and Halkbank, were also put under a joint board of directors that was made politically independent (Economist Intelligence Unit, August 6, 2001). All of Turkey's banks were also subject to a three-stage audit, the first by the BRSA, followed by two more by independent auditors. These audits were necessary for the release of a credit tranche from the IMF. Complementing these audits was an effort to restructure bad debts. Dubbed the "Istanbul Approach," the debt restructuring plan saw banks and large firms come together on a voluntary basis to restructure existing loans. The World Bank pledged $500 million in support of ailing

146

firms during the restructuring phase and the entire process was coordinated by the Banks Association of Turkey (World Bank, 2014).

6.4 The AKP Era

It took less than a year following the dramatic events of February 2001 for political instability to reemerge. The spark was Ecevit's repeated hospitalizations in May 2002. His repeated refusals to resign and emerging differences between his coalition partners led to new elections resulting in a resounding victory for the Adalet ve Kalkınma Partisi (AKP - Justice and Development Party) led by Tayyip Erdoğan.[15] With only two parties crossing the 10% threshold necessary to enter Parliament, the AKP formed Turkey's first single-party government since 1987. Erdoğan's openly supported a continuation of Turkey's involvement with the IMF and he embarked on a European wide tour seeking a firm date to commence accession negotiations. Erdoğan also reiterated that the CBRT would remain independent. In the weeks that followed the election, interest rates on Treasury bills fell 20% and the lira appreciated rapidly. With these developments a sense of optimism returned as fears that Turkey was back under the banner of Erbakan quickly dissipated (The Banker, May 1, 2004).

With political stability and prospects for EU membership, the Turkish economy entered a period of unprecedented growth. Inflation and interest rates also fell in tandem. Sensing that they could no longer rely on income from government debt indefinitely, banks began expanding their consumer and business lending. In hindsight, this would be the start of a historic credit boom in Turkey. A decomposition of the credit boom shows a relative shift towards household credit between 2002 and 2009. Glimpses of this

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[15]The AKP was one of two parties to emerge following the banning of the Fazilet Partisi. The other party was the Saadet Partisi (Felicity Party), which attracted older, more staunch, anti-western followers of Erbakan. In the 2002 election it garnered only 2.5% of the vote. The AKP attracted younger economically liberal Turks and is generally regarded to be moderately Islamic. Although Erdoğan co-founded the AKP, he was not able to stand in the 2002 election because he was still banned from politics due to the poem he recited in 1997. Erdoğan was elected to Parliament in March 2003 following a bi-election and was subsequently appointed Prime Minister.

shift were first observed with the onset of 1999 disinflation program, but the shift became undeniable with the banking sector's recovery after 2003. The shift towards consumer credit had been a goal of the large banks for at least a decade, but the conditions that permitted the extension of credit to households did not firmly materialize until after the 2000-2001 crisis (Rosengard, 2010).

A second pattern that began to emerge after 2002 was the unexpectedly strong performance of the state-owned banks. Having been rehabilitated by the Treasury and no longer weighed down by their duty-losses, the state-owned banks were able to brush off their reputation as unproductive outlets of patronage and actually grow their loan books faster than private banks every year since 2002 but one.[16] This is evident in Figure 6.2. Against all expectations that policies designed to level the playing field for all banks operating in Turkey would lead to the demise of the state-owned banks, since 2002 the opposite has happened.

Figure 6.2: Banking Sector Credit Shares

Source: Banks Association of Turkey

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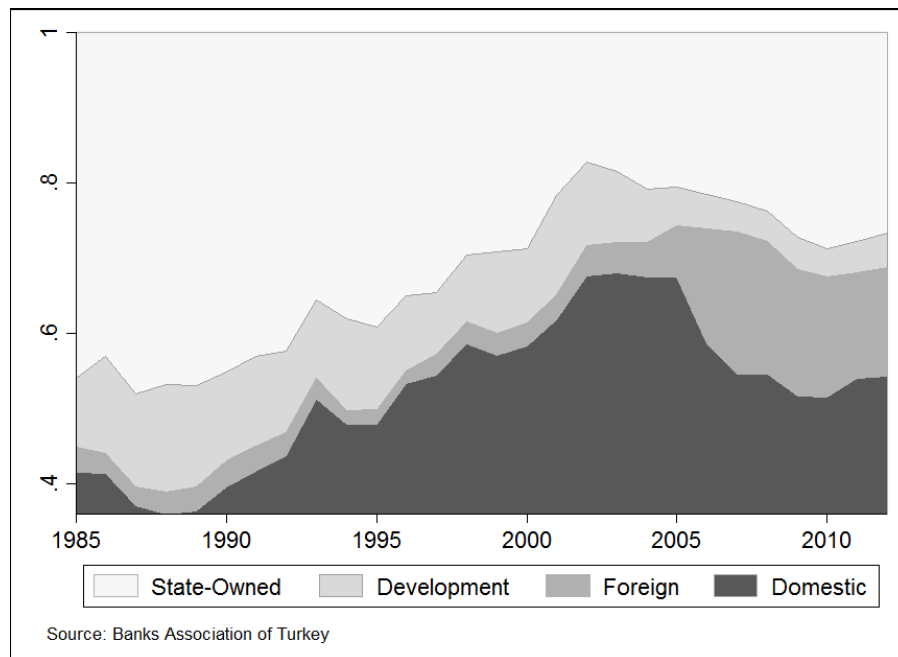
[16]The exception was 2005, when credit growth at private banks (i.e. the sum of domestic and foreign banks) edged state-owned banks 53% to 46%.

148

This economic progress was paired with important democratic reforms, which were crucial in securing a start date for EU ascension talks. In particular, Turkey passed legislation guaranteeing some ethnic and language rights and property rights for non-Muslims. The state broadcaster, the Turkish Radio and Television Corporation, also began broadcasting short programs in minority languages, including Kurdish, for the first time in December 2003. Turkey also passed legislation restricting the role of the army in politics and suspended the death penalty. These reforms have led scholars to include both the IMF and EU as a key external anchors securing Turkey's financial, political, and social reforms (Müftüler-Baç, 2005; Bakır and Öniş, 2007).

The explosive growth and profitability of the Turkish banking sector during the post crisis period began to attract a significant amount of interest from foreign banks. Encouraging their entry were Turkish authorities, both within the political leadership and within the BRSA and CBRT. Although foreign banks have been in Turkey since the days of the Ottoman Empire, their presence expanded significantly during the period of rapid credit growth that accompanied the recovery from the 2000-2001 crisis. The entry of foreign banks as major players in the Turkish banking sector can be seen in Figure 6.2 as the share of credit originating from foreign banks grew significantly after 2003. However, the rapid expansion in market share by foreign banks resulted mainly from their purchase of an existing bank rather than organic growth from the ground up.[17]

The private sector banks also went through a period of significant consolidation starting in 1999. Between 1999 and 2013, the number of private sector banks almost fell in half, from 50 to 28. Private domestic banks saw the largest decline, falling from 31 to 11 while the number of foreign banks fell from 19 to 17. Consolidation was facilitated

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[17]Despite the significant growth of foreign banking in Turkey, it failed to reach the core of the system. Of the seven largest banks, which collectively issued 76% of all loans in 2005, none were purchased out right, and only two entered into strategic alliances with major international banks. These included General Electric's consumer finance unit purchasing a 25% stake in Garanti Bankası in 2005. General Electric's shares were subsequently purchased by Spain's Banco Bilbao Vizcaya Argentaria S.A. (BBVA) in 2011. Citigroup also purchased of a 20% stake in Akbank in 2006, which were subsequently sold between 2013 and 2015.

primarily through the purchase of a bank that had been taken over by the SDIF. Consolidation of state-owned banks began under Özal in 1983. The number of state-owned banks fell steadily from 13 in 1983 to 3 in 2001.[18]

The first few years of the AKP saw a steady stream of reforms and accomplishments. In July 2004, the CBRT removed its blanket deposit insurance guarantee and replaced it with a guarantee of deposits up to 50 billion lira.[19] Both domestic and foreign currency deposits were covered. Inflation also fell into single digits and policymakers celebrated by re-denominating the currency by removing six zeros. With its fight against inflation largely won, in 2006 the CBRT adopted an official inflation target (World Bank, 2014). As with the new currency, the adoption of official inflation targeting had been a goal of the CBRT since at least the mid 1990s, yet the move had to wait for favorable domestic and international financial conditions. The inflation targeting regime complemented a new IMF Stand-By Arrangement in 2005 that replaced the agreement of 2002 and a new banking law which further refined and strengthened its supervisory and regulatory frameworks.

The economic improvements in Turkey, which reflected similar progress in other emerging markets around the world, was similar to previous boom periods in that it was sustained by large volumes of short-term capital inflows. Despite Turkey's progress in attracting significant FDI for the first time in its history, it remained vulnerable to fluctuations in international capital markets. For example, Turkey's pattern of steady inflows took an abrupt turn during the summer and fall of 2006 flowing a surprise interest rate increase by the Federal Reserve. To moderate the slide in the lira and the inflationary pressures that came with it, the CBRT responded with four interest rate increases of its own, each in quick succession. Further bad news came in late 2006 when 8 of 35 chapters in Turkey's EU ascension talks were frozen after Turkey refused to open its airports and ports to Greek Cypriot vessels (Öniş and Güven, 2011).

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[18]Data on the number of banks in Turkey was taken from the CBRT.
[19]Approx 34,000 USD.

Despite the economic and political headwinds experienced during 2006 and during the initial phases of the global financial crisis in 2007, the Turkish economy and banking system preformed remarkably well over the 2003-2008 period. It was for this reason that Erdoğan and the AKP won an even more resounding victory in the 2007 general elections. The AKP won with a 46.6% of the vote nationwide, an increase of 12.4% over their 2002 result. Their seat majority in Parliament was reduced however because two parties, the CHP and MHP reached over the 10% threshold.

6.4.1 The Global Financial Crisis

The Turkish economy entered the global financial crisis from a position of relative strength. After nearly a decade of reforms, Turkey possessed a well regarded and strong banking regulator, a record high stock of foreign currency reserves, and a system of banks that were well capitalized, well managed, and known to be isolated from the credit products causing financial instability elsewhere. One top of this, Turkey had a stable, popular government with room for fiscal expansion if necessary. For these reasons, following the collapse of Lehman Brothers in September 2008, Erdoğan confidently and repeatedly asserted that "the crisis will pass at a tangent to Turkey. We will overcome the crisis with the minimum damage," (The Financial Times, June 9, 2009). The first phase of the global financial crisis began only weeks after Turkey's July 2007 national elections. Like central banks around the world, the CBRT was quick to respond.

As during previous crises, repo auctions were the primary means through which the CBRT injected liquidity into the domestic banking system. Figure 6.3 shows these operations between 1993-2012. These repo's have been normalized by the size of the banking system's loan portfolio to account for the growth of the banking system over time. There are a few notable parts of Figure 6.3. First, the most visible spike in CBRT liquidity provision came in 2001 following the abandonment of the liquidity constraints imposed during the IMF disinflation program. The sheer size of the liquidity operations in early-

2001 give a rough indication of how liquidity starved the banking system had been on the eve of the crisis. Indeed, in the wake of the Asian financial crisis the CBRT had been supplying steadily increasing its liquidity support to the banking system relative to the size of the system's loan portfolio. A second notable feature of Figure 6.3 is that the CBRT has been almost constantly providing some liquidity support to at least some part of the banking system. While this does not imply that the CBRT has been the main source of banking system liquidity, it does imply that credit markets would have been more volatile and crisis prone without it.

Figure 6.3: CBRT Repo Assets to Bank Loans

Source: Central Bank of Turkey
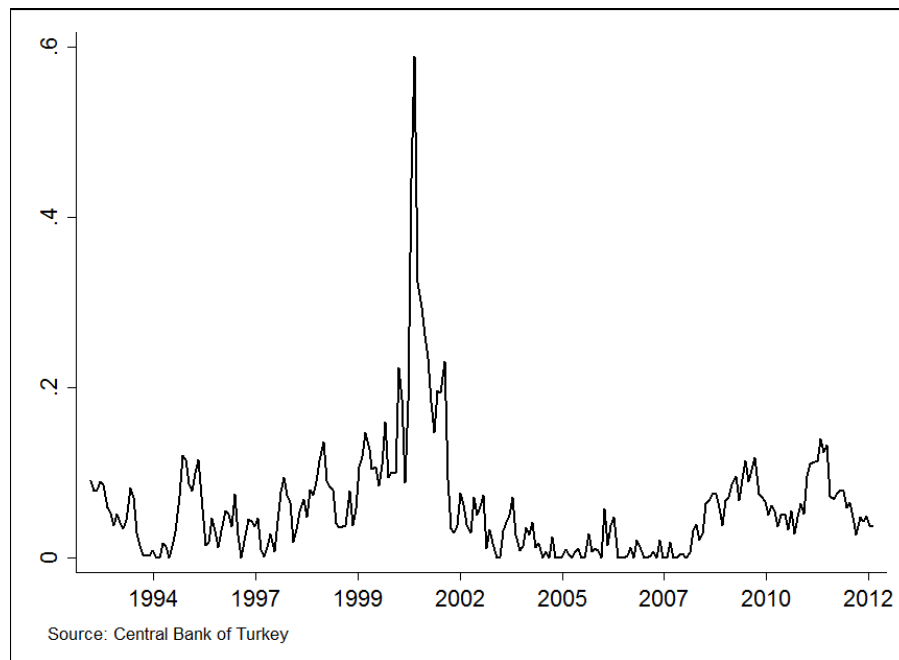
A third pattern that emerges from the repo activities of the CBRT are the generally low levels of liquidity support between 2002-2007. Relative to all other time periods this one stands out as an anomaly. There are two possible interpretations of hands-off approach of the CBRT during this period. The first says that Turkish policymakers had finally learned to stop meddling in the affairs of the banks so that they may rise and fall on their own accord. This period after all coincided with sound regulatory reform, significant foreign capital inflows, and a lending boom of unprecedented scale and depth.

However, the more convincing explanation is that it is only under the most favourable international and domestic financial conditions will banks in an emerging market economy such as Turkey be able to optimally manage their own liquidity without an active central bank. Under normal circumstances, let alone ones of crisis at home or abroad, the state's liquidity backstop remains essential and ubiquitous.

As the crisis deepened in the fall of 2008, additional liquidity support was provided. In particular, the CBRT resumed its role as an intermediary in the foreign currency depot market, essentially a foreign exchange interbank market, a role which it abandoned in 2002. These operations were a lifeline to small and medium sized banks which feared they would lose access to foreign exchange because of the crisis (Agence France Presse, October 9, 2008). The CBRT continued to backstop this market until October 2010 (Reuters, October 15, 2010). The CBRT relied on its own reserves for these operations as discussions between Turkey's Treasury Minister and policymakers at the Federal Reserve on the possibility of setting up a swap-line did not yield positive results (Harris, 2015). The CBRT also doubled the amount of foreign currency banks were able to trade on a given day, held extra foreign exchange auctions at the end of October 2008, lowered reserve requirements, extended the maturity of repo contracts from one week to one month (and eventually three months), and reassured banks that it would lend to them directly if the need arose (Reuters, December 16, 2008). Attracting foreign capital also became an overriding concern for policymakers both at the Treasury and the CBRT. For its part, Parliament enacted a tax amnesty for Turkish citizens repatriating funds held either outside the banking system or in foreign banks. The origins of the repatriated funds, provided that they remained in the banking system, faced no questions from government agencies although they were subject to a small tax.

Perhaps the most significant support to the banking system and the wider economy came from the CBRT's rapid and deep interest rate cuts. Between October 2008 and

October 2010, the CBRT's main policy rate fell from 16.75% to 5.75%.[20] To put these moves into perspective, in October 2008 consumer price inflation stood at 12%, implying a positive real interest rate of approximately 4.75%. By October 2010, consumer price inflation stood at 8.6%, implying a *negative* real interest rate of approximately 2.85%.[21] This produced a profit windfall for the banks during the global financial crisis because it helped the banks preserve their access to the syndicated loan market, which became the primary source for new funds into the Turkish banking system after 2008.

Despite these record profits, credit from the private banks contracted in 2009 by 1.5%, a sharp turnaround from previous years.[22] This contraction in private sector credit, while understandable given the uncertainties unleashed by the global financial crisis, is in complete contrast to the performance of the state-owned banks. During 2009, credit actually increased by 19% from a year earlier. The planned privatization of the state-owned banks was officially shelved around this time as well (World Bank, 2014).

The contraction in credit from the private sector banks was a good indicator of how troubled the wider economy had become in the wake of the global financial crisis. The deep recession in 2009, which saw GDP contract by 4.8%, initially surprised authorities who felt that Turkey's strengths would preserve its strong growth record. This misplaced confidence also explains the delayed response by Turkish politicians (Uygur, 2010). Turkey's ad hoc series of fiscal measures were comparatively modest and late coming. It was only in March 2009, after Turkey's recession was unmistakable, that Turkey rolled out a true fiscal stimulus package, making it the second last OECD country to do so.[23] In March 2010, Turkey also announced that it had cut off talks with the IMF, citing that it no longer needed IMF resources to sustain its economic recovery.

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[20]Prior to April 2010, the CBRT's policy rate was the overnight rate. Since April 2010, the policy rate has been the one week repo lending rate.

[21]Source: CPI: Turkstat; policy rates: CBRT.

[22]Domestic banks and foreign banks contracted by similar amounts.

[23]Only Greece implemented their stimulus package after Turkey.

Coming out of the global financial crisis, Turkey posted strong economic growth, with GDP growing by 9.2% and 8.8% in 2010 and 2011 respectively. The fuel for this growth was strong domestic demand supported by very high rates of credit growth, which regularly topped 30% annually. Household and non-financial firm debt-to-GDP ratios grew 7.1 and 11.4 percentage points respectively between 2009 and 2013. In complete contrast, public sector debt relative to GDP actually fell over these same years by 4.1 percentage points, a feat seen in few emerging markets (International Monetary Fund, 2014b, p. 25).

Recent years have seen policymakers coping with the consequences of this strong domestic demand and new developments in international financial markets. In particular, Turkey began to experience uncomfortably large inflows of short-term capital. While these inflows benefited the Turkish economy and banking system in the short run, the consequences of a sudden stop and reversal of these inflows could yet prove damaging. This is why the CBRT, and other emerging market central banks, sought to dissuade these inflows somewhat. This prompted the CBRT to adopt an unorthodox policy mix, which combined a lower main policy rate (to deter yield-seeking capital inflows) counterbalanced with a higher reserve requirement for banks to curb the rapid rate of credit growth (The Financial Times, January 20, 2011).

The combined effects of the CBRT's policy mix, less favourable international financial conditions stemming from the tapering of quantitative easing, and the Eurozone crisis reduced Turkish economic growth to more moderate levels after 2012. However, concerns over the stability of Turkey's financial markets did not abate, most prominently because of Turkey's continued high current account deficit. Between 2010 and 2014, the current account deficit never fell below 6% of GDP and in 2011 it hit a record setting 9.7%. Indeed, in absolute dollar terms, Turkey had the second largest current account deficit in the world, only behind that of the United States. Only time will tell if Turkey's financial safety net will continue to hold.

6.5 Conclusion

There have been a wide range of financial crises in modern Turkish history. The common element in each has been the varying willingness and ability of the state's financial safety net to contain existing turmoil. In the bankers' crisis of the early 1980s, the CBRT was willfully blind to the fragile balance sheet structures of the brokerage houses. Only after the CBRT realized the systemic risk they posed to the entire banking system did they step in and prevent a far worse crisis. In 1994 the CBRT was simply unable to provide enough foreign currency to meet demand. Instead, scarce foreign currency was prioritized for the banking system and damage from the crisis was diverted elsewhere. In the 2000-2001 crisis, the CBRT withheld liquidity to comply with the IMF disinflation program, even in the face of massive need. The crisis again threatened to bring down the entire banking system were it not for the CBRT dropping the IMF constraints and providing sufficient liquidity to the banking system to prevent its total collapse.

Yet the CBRT and Treasury were also able to prevent periods of turmoil from spilling over into crises proper. Many examples have been listed in this chapter including the role of the CBRT as a blind-broker for the interbank market, the extension of full deposit insurance following the 1994 crisis, the CBRT's support of Ziraat in the mid-1990s when it was unable to meet its liabilities, the creation of the SDIF as an independent resolution authority to socialize the losses of the weak banks, and the CBRT's brokering of the depot market during the global financial crisis. Without these and other actions, developments in the Turkish banking system would have been far different and likely even more volatile than they actually were.

Chapter 7

Politics and Financial Stability in Mexico

The primary organizing principle of Mexican politics since at least the Mexican Revolution in the early twentieth century has been deep and wide patron-client relations (Fox, 1994; Hilgers, 2008). The dominant patron in these relationships has historically been the Partido Revolucionario Institucional (PRI - Institutional Revolutionary Party), a political party which emerged as a stabilizing force following the Mexican Revolution. In a political system held together by networks of personal trust, this initial advantage in access to state resources allowed the PRI to cement and sustain its patron-client network (Camp, 1990). While patron-client relations permeate all political parties in Mexico, the PRI's initial advantage was leveraged into a continual hold on power between 1929 and 2000, leading Peruvian Nobel laureate Mario Vargas Llosa to famously declare in 1990 that the PRI is a perfect dictatorship.

This basic organizing principle has had profound effects on the political organization of the Mexican economy. As the primary distributor of benefits to loyal clients, Mexican policymakers have historically faced fewer pressures to legitimate their rule through the development of private enterprise, and private financial markets in particular. The result has been a tepid pace of financial reform and shallow credit markets relative to peer nations in Latin America and elsewhere. Despite credit booms in many emerging market economies since the turn of the millennium, credit to the private sector relative to GDP in 2015 stood at 35%, only slightly higher than the level it achieved in the mid-1970s.

The modest size of Mexico's credit markets notwithstanding, the state has maintained ongoing and active support for its financial system. In a system dominated by private commercial banks, state support is less characterized as ongoing and visible handouts through patron-client relations than as the provision of insurance via a generous financial safety net (Bennett and Sharpe, 1980). A unique feature of this financial safety net is its international dimension. Unlike the majority of emerging market economies, Mexico's integration into the wider North American economy has given American policymakers in particular reason to value Mexican political and economic stability. The result has been

that when Mexico's financial system has shown signs of stress, American policymakers have intervened seeking to moderate the repercussions for American financial institutions.

7.1 Mexico Enters World Markets

Like many Latin American counties, Mexico transitioned away from import-substitution industrialization in the 1970s. Leading Mexico's integration into the global economy was the significant export potential of its newly discovered offshore oil deposits. Accelerated by the 1973 spike in oil prices, production by Mexico's state-owned oil firm, Petróleos Mexicanos (Pemex), significantly expanded and quickly turned Mexico from a net oil importer into a significant exporter (Riding, February 21, 1982). As oil revenues began to fill the coffers of Mexico and other oil exporters, optimism spread and many hoped that Mexico would soon lift itself into the leading ranks of the world's emerging market economies.

At a global level, the unprecedented revenues flowing from oil consuming nations to producer nations such as Mexico could not be spent fast enough and surplus funds were deposited in western, and especially American, financial institutions. These petrodollar deposits seeded new loans for governments in emerging market economies, and Latin America in particular. However, these funds were generally allocated without sufficient oversight and within a few years calls could be heard that these governments, and the Mexican government in particular, were accumulating unsustainable levels of foreign debt (Crittenden, January 15, 1976). The problem for Mexico was compounded by the swings in global oil prices because oil revenues were the most important source of foreign currency for the Mexican state.

Realizing that its integration into world oil and capital markets contained risks as well as benefits, Mexican officials sought solutions. Initial efforts were aimed at adjusting the exchange rate, which was widely acknowledged to be overvalued. In September 1976 the

Mexican peso was devalued by 39%, ending its twenty-two year parity with the US dollar. Understanding the predicament faced by their southern neighbors, American officials quickly arranged short-term assistance to Mexico, which included immediate assistance of up to $600m that would permit Mexico to manage problems in domestic foreign exchange markets following the peso devaluation. This facility was to be paid back with proceeds from an IMF loan then under negotiation. A $300m swap-line arrangement was also set up between the Banco de México (BOM), the central bank, and the Federal Reserve (Martin, September 20, 1976). Mexican officials hoped that a cheaper peso would boost Mexican exports and dampen imports, thereby narrowing the current account deficit and reestablishing the peso-dollar equilibrium. However, the main effect of the devaluation was higher inflation and a heightened appetite for foreign currency to insure against future devaluations.

American support for Mexico was rooted in the exposure of American banks to potential losses on their loans to Mexico and other Latin American governments. Starting in the mid-1970s American officials grew increasingly concerned about the exposures of their banks to governments of uncertain creditworthiness. A few brave officials even sought to curtail their foreign activities. In particular, John Heimann, the Comptroller of the Currency, publicly proposed a more strict interpretation of existing law that prohibited American banks from lending more than 10% of their capital to any one client (Riding, August 1, 1978). Although many American financial institutions would be found in violation of the law if foreign governments were considered a single client, Heimann ultimately shelved the idea after coming under pressure from Latin American governments and banking sector interests. The petrodollar recycling mechanism therefore continued, in no small part encouraged by the American safety net extended to Mexico and indirectly to its own financial institutions.

Despite the continuation of private commercial bank lending to Mexico, pressures were beginning to mount. The ability of Mexico to borrow on international markets

was influenced by the availability of funds. Two important variables in this regard were the global price of oil and the stance of American monetary policy, neither of which Mexican policymakers could influence. The strategy Mexican policymakers devised was to liberalize Mexican financial markets in order to diversify the channels through which foreign borrowing could take place. Starting in 1974 Mexican banks were permitted to open offices and branches abroad for the first time. In addition to their involvement with London based consortium banks, Mexico's largest commercial banks soon found themselves exporting back to Mexico Eurodollar loans directly (Alvarez, 2015). These activities were supported by reforms permitting Mexican banks to operate as universal banks and the relaxation of controls on capital account transactions, dollar lending limits, and interest rates.

The outcome of these reforms can be see in Figure 7.1, which shows the trajectory of Mexico's aggregate external debt profile between 1970 and 1990. Although the state was far and away the primary borrower during this period, Mexican external borrowing dynamics began to turn starting in 1977 when Mexican banks began to replace declining public sector borrowing. Indeed, net inflows of debt to the Mexican public sector peaked, as a share of Gross National Income, in 1976 at 4.3% and declined in each of the next four years (World Bank Group, 2016). At the same time, foreign borrowing by Mexican banks increased significantly (International Financial Statistics, 2016).[1]

The foreign borrowing of Mexican banks during the latter half of the 1970s and early 1980s was also of a particularly risky type since it came with a significant amount of foreign exchange risk. As seen in Figure 7.2, the fraction of Mexican bank liabilities that originated outside of Mexico increases markedly starting in 1977. Since Mexican banks were domestically focused and earned revenues in pesos, their foreign currency liabilities came with significant foreign exchange rate risk. This risk would convert to real losses in the event of a peso rout. Absent a significant devaluation, Mexican banks stood to

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[1]Commercial bank debt comprises the only source of private, non-publicly guaranteed foreign debt until 1989 when Mexican corporations began issuing bonds.

Figure 7.1: Mexico's Foreign Debt Profile (Net Inflows, % GNI)

Source: International Debt Statistics
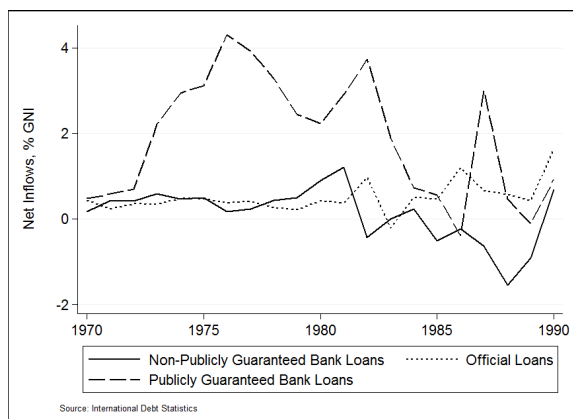
Figure 7.2: Foreign Liabilities and Credit Assets of Mexican Banks

Source: International Financial Statistics and author calculations
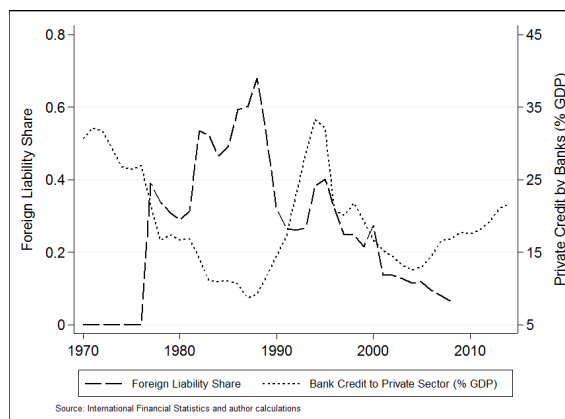
profit from the spread between its high interest rate domestic loans and its low interest rate international borrowing.

While such a funding strategy was risky and actors at the time were well aware of this risk, the assumption of foreign currency risks need not necessarily bring about ruin. Indeed, for many there were reasons for cautious optimism, such as Mexico's record of generally strong economic growth and healthy banking sector profits. Mexico's stable, if uncompetitive, politics coupled with the prospects for future oil revenues also seemed to provide a degree of insurance against economic instability lacking in other emerging market economies. Yet many of these indicators were volatile and had the potential to reverse on short notice. This problem was most clearly seen in the dependence of the Mexican state on the global price of oil for its creditworthiness. As the most important source of state revenue and the primary source of implicit collateral used to tap international markets, a falling price of oil hit Mexico twice, once in decreased revenues and again by reducing the collateral value of its oil stocks. Therefore, rather than oil providing a cushion against economic instability, it amplified Mexico's already high amplitude boom-bust cycle.

Trouble began for Mexico in the late 1970s following a tightening of American monetary policy and by the early 1980s Mexico found itself in an untenable position. Com-

pounding matters further was a retreat in oil prices following a brief upswing in the wake of the Iranian revolution and the outbreak of the Iran-Iraq war. Given that the nominal value of the peso remained unchanged following the 1976 devaluation, it once again became overvalued due to the combined pressures of persistent inflation, high current account deficits, and a creeping dollarization of the banking system. Determined to stem the ongoing capital outflows that threatened to exhaust Mexico's foreign currency reserves, the BOM devalued the peso again in February 1982. The BOM also decided that the peso's value would be adjusted downward on a daily basis to prevent a return to overvaluation. Policymakers paired this move with cutbacks in public spending aimed at closing a widening budget deficit.

These moves did little to ease fears regarding Mexico's shaky finances. By August the peso would be devalued again as speculation against the peso had led to a drain on Mexico's meager foreign currency reserves (Simons, August 7, 1982). Numerous stopgap measures were implemented, the first being a two-tiered exchange rate system that set a preferential rate for foreign exchange for essential imports and interest payments on foreign debt. Having done little to stem the demand for dollars, after one week all foreign exchange transactions were halted and dollar denominated bank accounts were frozen and later converted into pesos. In short, Mexico had run out of dollars and defaulted on its foreign debt.

7.2   Mexico's Lost Decade

In August 1982 Mexican officials met with officials from the United States Treasury, the Federal Reserve, the IMF, and the BIS seeking emergency credit. Within a few short weeks, Mexico announced a three month moratorium on principal payments on its debt to private creditors and that it was drawing on new and existing credits to prevent a complete unraveling of its financial system. These new credits came from

numerous sources. From the United States, Mexico first tapped an existing 90 day $700 million swap-line facility it maintained with the Federal Reserve and a $1 billion credit line it maintained with the Exchange Stabilization Fund at the Treasury Department. Mexico also accepted $1 billion in advance payments for oil destined for the American strategic petroleum reserve and $1 billion in credit guarantees from the Department of Agriculture. Other bilateral support was provided by France, Israel, and Spain through swap-lines totaling $550 million (Boughton, 2001).

Mexico also secured a $925 million emergency bridge loan through the BIS, which was to be paid back with proceeds from a larger IMF credit then under negotiation. At the time a Swiss central banker claimed that rescuing Mexico was necessary to "insure the continued smooth functioning of the international financial system," (The New York Times, August 31, 1982). Concerns for how disruptive a Mexican default would be for the international financial system were not without merit given that Mexico was the largest international debtor among emerging market economies at the time. Yet allocating credit to Mexico through the BIS was indicative of how important political considerations were behind the extension of an international financial safety net.

Colloquially referred to as the central bank for central banks, the BIS rarely engaged in emergency lending of the sort received by Mexico and it does not have the power to enforce conditions on its lending. As mentioned in Chapter 3, the only precedent for the Mexican loan was a similar, but much smaller, credit arranged for Hungary in February 1982. Given the limited resources of the BIS and the fact that its lending is usually conducted in secret, BIS members were reluctant to get heavily involved in international crisis lending. Nevertheless, central bank governors were well aware of the risks building in Latin America and other emerging market economies. Yet many also feared that publicizing detailed plans of a rescue for emerging market debtors could spark the very crisis they feared (Clement and Maes, 2013).

As with its Hungarian loan, the BIS loan to Mexico was guaranteed by many of the world's leading central banks. These included the non-US G-10[2] central banks, the Banco de España, and the Swiss National Bank (The Financial Times, August 26, 1982). This made BIS member central banks liable for any repayment shortfall by Mexico, however unlikely such a situation was. These guarantees were partially allayed by an implicit understanding with Mexico that its oil reserves would serve as collateral. Nevertheless, these guarantees, and the contingent liabilities for the world's central bank's therein, were the power behind the formation of this portion of Mexico's international financial safety net and the distribution of these guarantees was set according to how exposed each state's financial system was to a Mexican default.

The tying of each central bank's commitment to their exposure to Mexico as well as the prominent involvement of the Banco de España showed the political structure behind the Mexican rescue. At the time Spain had significant economic and cultural ties to Mexico and was the second largest purchaser of Mexican oil after the United States. While the involvement of the United States in the Mexican banking rescue is a natural consequence of its close ties with Mexico, the heavy involvement of Spain, hardly a heavyweight in international financial markets, signals that the provision of Mexico's international rescue was done not only reluctantly but as an act of self-defence by its creditor states.

The extension to Mexico of an international financial safety net was also a crucial development in convincing exposed private banks to maintain their lending to Mexico. From the perspective of each individual bank, when faced with a potentially insolvent borrower, the rational strategy is to stop lending. However, while individually rational, the result would have been not only disastrous for Mexico but collectively disastrous for the banks since withholding additional credit would have brought about the very crisis each feared. In a series of meetings organized by the BIS and representatives

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[2]The United States arranged its own loan package for Mexico, so it did not participate in the BIS bridge loan.

of the world's largest commercial banks with exposures to Mexico, officials convinced the commercial bankers that if they acted together, and states supplied Mexico with their promised credits, the banks would play their part and continue lending to Mexico (Clement and Maes, 2013).

The use of the BIS as a conduit for international last resort lending to Mexico sparked questions on whether the BIS would enhance its role as an international lender of last resort. Yet these expectations were firmly rejected in the wake of the Mexican crisis when BIS officials said emergency financing would come only if states were facing liquidity problems, states could provide collateral of the highest quality, and states could point to a clear exit strategy in the form of a future IMF loan. BIS financing was therefore seen at most as a bridge loan that would meet very short-term needs and that subsequent rounds of last resort lending could not be counted on (Montagnon, November 25, 1982).

7.2.1   The Bank's Are Nationalized

Within days of securing its new foreign credits, Mexico announced that it could no longer service its foreign obligations. With its reserves having effectively run out, the extra credits secured by Mexico were still insufficient to meet the needs of the banking system. Faced with no way out, the state nationalized the banking system. This move was controversial, but it has been argued that state-ownership was more "an attempt on the part of the state to rescue the financial system from bankruptcy than a flexing of state policymaking muscle vis-à-vis private banks," (Auerbach, 2001, p. 29). The small number of foreign banks, which had only a marginal presence in Mexico, were not included in the nationalization.

Despite relatively healthy profits prior to 1982, the accumulation of exchange rate and other risks by the banks were significant. This can be inferred from Figure 7.2 because the rising share of foreign liabilities on the banks' balance sheet was not accompanied by deepening credit markets domestically. Mexican banks were therefore accumulating

risks, most importantly foreign exchange rate risk, and relying on high interest rate securities from the state to generate profits. But when the state itself defaulted on its foreign obligations, these risks were converted into real losses and the banking system became effectively insolvent. The decision to nationalize the banks was made behind closed doors and took the domestic and international financial community by complete surprise. Indeed, not even incoming President Miguel de la Madrid was informed until it was announced by President Jose Lopez Portillo in his State of the Nation speech only months before his term ended. While many observers had accurately described Mexico's tenuous financial position in the months and years prior to Portillo's actions in early September, none foresaw the events as they transpired. However, few would have been surprised that the Mexican state held a contingent liability for the survival of its banking system.

The nationalization of the banking system was accompanied by a three month moratorium on principal payments on Mexico's foreign debt. The moratorium initially threw international capital markets into disarray because international investors were unsure whether the liabilities of the newly nationalized banks were included in the moratorium. This prompted the world's major central banks to reiterate their position that the Euromarket would be supported with liquidity if necessary[3] (The Financial Times, September 13, 1982). Nevertheless, within days Mexican policymakers decided to exclude the banks' liabilities from the moratorium, facilitating payments to international creditors (Friedman, September 13, 1982).

While the state's absorption of the banking system's foreign liabilities may have been defensible on economic grounds, as Mexico risked losing access to the credits it negotiated in the preceding months, the political underpinning of the decision was less radical than it appears. Prior to the banking system's nationalization, the vast majority of Mexico's foreign borrowing took place via the state's balance sheet. Recalling Figure 7.1, Mexico's

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[3]It is ironic, and telling of the importance of financial safety nets to the preservation of financial stability, that financial safety nets were rapidly deployed to stabilize the non-regulated Euromarkets.

external debt was largely public, a not uncommon scenario at the time in emerging market economies with significant capital controls. However, in addition to the visible external liabilities of the state, the balance sheet of the Treasury and BOM contained an implicit contingent liability for the liabilities of the banking system. Therefore, while an outright nationalization of the banking system was perhaps not strictly necessary for its preservation, the transformation of the state's contingent liability for the banking system's foreign liabilities into real liabilities would likely have occurred at some point.

The most pressing concern of Mexican policymakers in the aftermath of the crisis was reducing the debt burden on Mexican firms. In this regard, the state began a series of debt rescheduling programs. One of the first was aimed at non-financial firms with large foreign debts. To these firms the BOM agreed to sell foreign currency at below market rates provided that they negotiated new repayment terms with their foreign creditors. Renegotiating preexisting debt contracts had become a priority for policymakers since the significant devaluation of the peso had greatly increased the peso cost of servicing these debts. This scheme was taken up by many international banks because rescheduling debt with the assistance of the BOM offered the best route to minimizing their losses. The rationale for this program was that the partial socialization of the foreign currency losses of Mexican firms would help restore access to international capital markets (Chislett, January 18, 1984). However, selling reserves at below market exchange rates was a method of subsidizing foreign debt repayments because Mexican firms paid fewer pesos to the BOM than would otherwise have been the case. Effectively, this repayment assistance was an ex-post transfer of foreign currency risk onto the state.

Upon assuming office in December 1982, one of the first acts of de la Madrid was to signal to the international and domestic business community that his administration would not be turning the banking system into a de facto arm of the state. Having personally been against the nationalization, de la Madrid ordered 339 private companies previously owned by the banks, but now state-owned due to the nationalization, be

sold. Among these firms were many financial service firms, such as stock brokerages and insurance providers, that were subsequently purchased by former bank shareholders. For much of the 1980s these firm collectively comprised a parallel financial system and were effectively the only source of private credit in Mexico. This sector also grew quickly and by 1987 held one quarter of Mexican savings (The Financial Times, April 24, 1987). Their presence in the Mexican financial landscape provided a much needed conduit for lending to the private sector given that the state was absorbing almost 90% of the credit available from the banks through a combination of high reserve requirements and mandatory public sector borrowing requirements.

De la Madrid also began a state-directed rationalization of the banking system. This included the merger of numerous small and medium sized banks into a single larger entity and the consolidation of small banks into existing large banks. By 1987 this process had reduced the number of banks in Mexico from 59 to 19. New savings instruments were also introduced that permitted Mexican savers to invest in securities that paid interest rates linked to the peso-dollar exchange rate. By offering a return that adjusted for the depreciation of the peso, policymakers hoped that the leakage of dollars north into accounts in the southern United States would slow. However, the impact of the accounts was limited and did not slow capital flight or help build a stronger domestic savings base.

By 1985 financial trouble spread to many countries in Latin America. Fearing that further defaults would send American banks and financial markets into disarray, the American Treasury Secretary James Baker devised a plan to help manage the Mexican debt problem. The Baker Plan called for additional credits to be provided to Mexico and other heavily indebted developing countries by the IMF, commercial banks, and the Word Bank, in exchange for growth-enhancing and export-oriented structural reforms (Wijnbergen, King, and Portes, 1991). However, the disconnect between the short-term burdens of Mexico's debt overhang and the long-term benefits of structural reform doomed the Baker Plan. Despite many reforms and the injection of some new money from

official creditors abroad, the Mexican economy failed to grow and the Latin American debt crisis dragged on.

Structural reform in the financial system began in earnest in 1987 when the first block of shares in the nationalized banks were auctioned. However, the auctions were immediately controversial because nearly the entire block of shares in Mexico's three largest banks, equivalent to 34 percent of their paid-in capital, went to bank executives, employees, and selected clients at steep discounts. For example, within the first few trading days, the share prices of two of Mexico's largest banks, Banamex and Bancomer, rose 244 and 150 percent respectively (Gardner, April 24, 1987). While the state of Mexico's financial system made the pricing of the stock difficult, the failure by the state to get in return the full value of the banks led to considerable criticism at a time when frustrations with the stagnant Mexican economy and inadequate response to the 1985 Mexico City earthquake, which killed an estimated 10,000 people, were high.

Positive news for Mexico began to emerge in the late 1980s. Mexico's lack of economic growth and fragile politics had fed into a high rate of inflation that ranged between 57-130% between 1982 and 1988. Policymakers therefore decided that an anti-inflation plan was necessary, which was implemented in 1988. The plan called for a series of coordinated wage and price freezes, cuts in government spending, and a gradual, managed devaluation of the peso. The plan was largely successful in its aim of permanently reducing inflation which fell to low double digits starting in 1989 and single digits in the early 1990s. Positive news on the inflation front occurred alongside a new debt relief plan initiated by Nicholas Brady, Baker's successor as US Treasury Secretary. Mindful that structural reform and new credit were insufficient on their own to manage the debt crisis, the Brady Plan encouraged debt relief for borrowers over further rounds of debt restructuring and structural reform. An important innovation of the Brady Plan was creation of a menu of options for commercial bank creditors so that banks and states could come to mutually acceptable terms on debt relief. This process would also ensure that bad debts would be

permanently removed from the balance sheets of western commercial banks (Wijnbergen, King, and Portes, 1991).

A parallel initiative concerned the deregulation of the banking sector, a sector which policymakers sought to develop given that directed lending to the government was to be reduced according to the anti-inflation program. The lifting of interest rate restrictions and allowing banks to issue banker's acceptances to compete with the non-bank financial service providers were two important initiatives in this regard (Johns, October 12, 1989). These reforms shifted deposits back into the banking system. But the most important reform was the sequential reduction in Mexico's reserve requirement. Prior to 1987 Mexican banks were required to hold 77% of their peso liabilities at the BOM, which were heavily invested in government securities. With the efforts to reduce the government's access to credit, the BOM reduced the reserve requirement to 50% in 1987, then 30% in 1988, and 15% in 1992 (Vázquez, Reinhart, and Arena, 2007). Collectively these reforms increased the lending capacity of the banks considerably and resulted in a credit boom for the private sector. As can be seen in Figure 7.3, starting in 1988 the stock of Mexican credit began to tilt away from the state and towards the private sector.

Given the strong perception of corruption regarding the privatization process and the slow public sector response to the Mexico City earthquake, the political stakes for the PRI were large going into the 1988 presidential election. The official election outcome saw the narrowest victory for a PRI presidential candidate in its history, although even this outcome was the product of electoral fraud. On the night of the election, vote counting computers crashed unexpectedly. When they came back on, the previously trailing PRI candidate, Carlos Salinas de Gortari, was now well ahead and was later declared the winner (Haber, 2005). This event led to considerable electoral reforms in the mid-1990s, the most prominent being the professionalization of Mexico's election monitoring body, the Instituto Federal Electoral, and the replacement of its PRI-appointed leadership with non-partisan civil servants.

Figure 7.3: Public and Private Credit (% GDP)
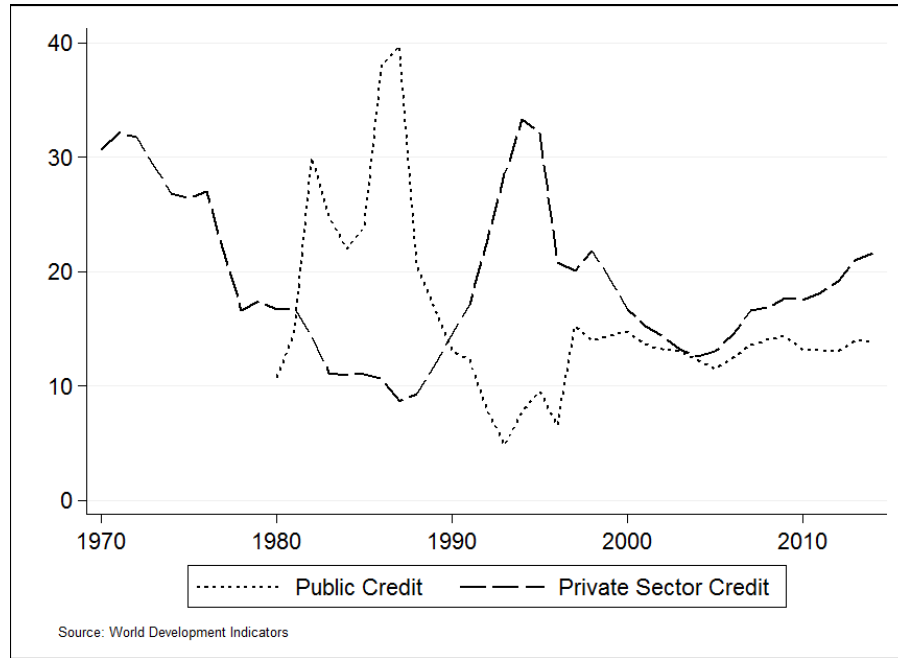
7.2.2 Privatize, Boom, and Bust

After his election, Salinas pushed for the full privatization of the banking system. Following a thorough government initiated balance sheet clean up, auctions of the remaining shares of the banks were completed in six rounds between June 1991 and July 1992. Unlike the previous round of share offerings in 1987 that generated significant political controversy, the auction of the remaining shares was designed to maximize revenue for the state (Haber, 2005). The design worked, especially in the later rounds as investors increasingly realized that purchasing a Mexican bank would be a once in a lifetime opportunity to enter a large, growing, and under-banked emerging market economy (The Banker, August 1, 1992). Prices paid at auction were very high, ranging between 2.5 and 5.3 times book value.[4] However, the banks were left under-capitalized and many of the new owners had purchased the banks with borrowed funds, and in some cases from

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[4]For comparison, in the 1980s in the United States the average book value at which banks were bought was 1.89 (Haber, 2005).

the very banks they were purchasing (Haber, 2005). Yet despite their shaky financial structures, the newly privatized banks drove domestic lending higher.

Seeking to solidify the gains from Mexico's economic turnaround, Salinas granted the BOM operational independence and removed its obligation to fund a portion of the state's budget deficit. However, other institutional reforms were left for the future. In particular, Mexico left in place its system of unlimited deposit insurance and failed to seriously reform its supervisory regime (Reuters, February 15, 1993). The combination of an undercapitalized banking system, lax supervision, and a generous financial safety net meant that Mexico's newly privatized banks operated with few restraints. The result was a proliferation in unscrupulous lending practices. As non-performing loans began to grow, concerns over Mexican financial stability surfaced.

Cracks in Mexico's economic and political systems grew wider over the course of 1994. Beginning in January, in response to the implementation of the North American Free Trade Agreement (NAFTA), an uprising by the Zapatistas, a left-wing militant group, began in the southern state of Chiapas. While the uprising and violence lasted only a few weeks, it garnered worldwide media attention. Forces of economic and political instability resurfaced again in March with the assassination of PRI Presidential candidate Luis Donaldo Colosio. The reaction to the assassination was quick and decisive. Fearing mass capital flight and pressure on the peso, the BOM sought to get ahead of a potential crisis and within hours of Colosio's assassination, the BOM announced that it had reached agreements with the Federal Reserve and the Bank of Canada for swap-line arrangements. These arrangements were valued at $6 billion and $1 billion respectively (Reuters, March 29, 1994). Markets reacted positively to these arrangements as well as the announcement by the OECD that membership talks with Mexico would be accelerated. The net result was that the expected rout of the peso and Mexican financial assets more generally never materialized. However, the cost to Mexico and its neighbors of staving off a crisis in the short-term was a heightened risk that an even larger crisis would result in the future.

By the middle of 1994 the value of the peso, and with it the stability of the Mexican banking system, grew increasingly contingent on the support provided by foreign governments. While the swap-line arrangements were the key mechanism sustaining Mexico's access to foreign currency in the short-term, they constituted politically unpopular contingent liabilities for the United States. While many in the halls of Washington understood the economic rationale for the United States extending support for Mexico, U.S. House Banking Chairman Henry Gonzalez openly asked in a letter to Federal Reserve Chairman Alan Greenspan why the Federal Reserve and Treasury Department had extended what were essentially loans to Mexico without Congressional approval.

Irrespective of whether Congress would have supported Mexico had the issue come up for serious debate, the extension of an international financial safety net to Mexico was made easier by the independence of the Federal Reserve. Despite the not unreasonable concerns of policymakers such as Henry Gonzalez that the allocation of billions of taxpayer dollars be subject to democratic oversight, the Federal Reserve's freedom to act in its dealings with the BOM was paramount to the deal being agreed to in such short order. While the United States did bear some credit risk in their swap arrangements, the Federal Reserve and Treasury did ensure that Mexico bore the foreign exchange rate risk associated with any completed swaps. They did so by mandating that both ends of a swap occur at the same exchange rate, which effectively transferred to Mexico the costs (or benefits) of any interim exchange rate fluctuations.

In addition to the existence of the swap-line arrangements, a second surprising aspect of the agreement was the speed with which they were announced. The rapid signing of the swap-line arrangement was made possible by the existence of a near-identical plan drawn up in the fall of 1993. Despite the long negotiations and great optimism for NAFTA, there remained residual uncertainty over whether Congress would approve it. An important vote on the matter took place in late November 1993 and in the weeks leading up to the vote Treasury and Federal Reserve officials felt it prudent to meet with

their Mexican counterparts to draw up a contingency plan in the event that Congress voted it down (The New York Times, September 12, 1994). Policymakers on both sides of the border feared that if Congress failed to approve NAFTA there would be massive capital flight from Mexico, pushing it into crisis. The plan called for a $6 billion swap-line with the United States and a further $6 billion in swap-lines from the major European industrial powers plus Spain and Japan. In a replay of the events of 1982, the credits were to be organized through the BIS.

In the end, Congress voted to approve NAFTA and the plan was shelved and remained secret. Following Colosio's assassination, Canadian and American policymakers agreed to revive their portions of the plan on short notice. However, given Mexico's desire to implement the plan immediately so that it could minimize the economic fallout from the assassination, and the large time zone differences between Mexico and Europe and Japan, the European and Japanese swap-lines were held back. However, these swap arrangements were activated in the weeks prior to the August 1994 election. Mexican policymakers felt more secure with these swap arrangements in place because they anticipated further post-election political and economic unrest. Indeed, such was the level of anxiety in Mexico at the time that policymakers felt instability could arise either because the PRI candidate, Ernesto Zedillo Ponce de Leon, lost the election or because there would be significant post-election violence in the event that he won (The New York Times, September 12, 1994).

7.3 The Tequila Crisis

While the international financial safety nets extended to Mexico in 1994 were economically and politically significant, the domestic financial safety net was even more so. As with the international financial safety nets, domestic efforts to calm financial markets accelerated following Colosio's assassination. Primary efforts were directed as defending

the peso, for which three instruments were available to the BOM. The two most well known are interest rate increases and sales of foreign currency reserves and Mexico did both of these throughout the year. But officials at the BOM relied most heavily on a third strategy that mirrored in some respects the international financial safety net Mexico was the beneficiary of. This strategy was for the BOM to transfer onto itself significant quantities of financial risk.

The primary means by which this was done was by having the BOM dollarize a large fraction of the public sector debt on behalf of the Treasury. Dollarization occurred by replacing retiring debt with newly issued securities with payments linked to the value of the dollar. These new securities were known as *tesobonos* and they protected investors because a fall in the value of the peso would trigger higher payouts. In short, they provided investors with insurance against foreign exchange rate risk. This meant that the Treasury and BOM bore the exchange rate risk, a situation which BOM policymakers were quick to frame as evidence of their commitment to the peso's peg (Pettis, 2001, p. 8). The amount of exchange rate risk assumed by the Treasury and BOM grew rapidly throughout 1994 as seen in Figure 7.4. Indeed, the conversion of Mexico's debt into *tesobonos* began in earnest following Colosio's assassination and continued right up until the August election.

Delving further into Mexico's domestic financial safety net, consider Figure 7.5, which shows how Mexican foreign currency reserves, *tesobono* stocks, and the interest rate evolved in 1993 and 1994. Prior to Colosio's assassination, interest rates[5] were falling, reserves held steady, although fluctuations to maintain the exchange rate peg are evident, and *tesobono* issuance was negligible. In March 1994 these series change dramatically and for the next two months interest rates rise sharply, reserves are sold, and large placements of *tesobonos* are made. Further changes take place again in May when reserves stop falling, interest rates stop rising, and *tesobono* issuance continue unabated.

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[5]The interest rate in Figure 7.5 is the annualized government funding rate.

Figure 7.4: Mexican Government Debt, USD Billion
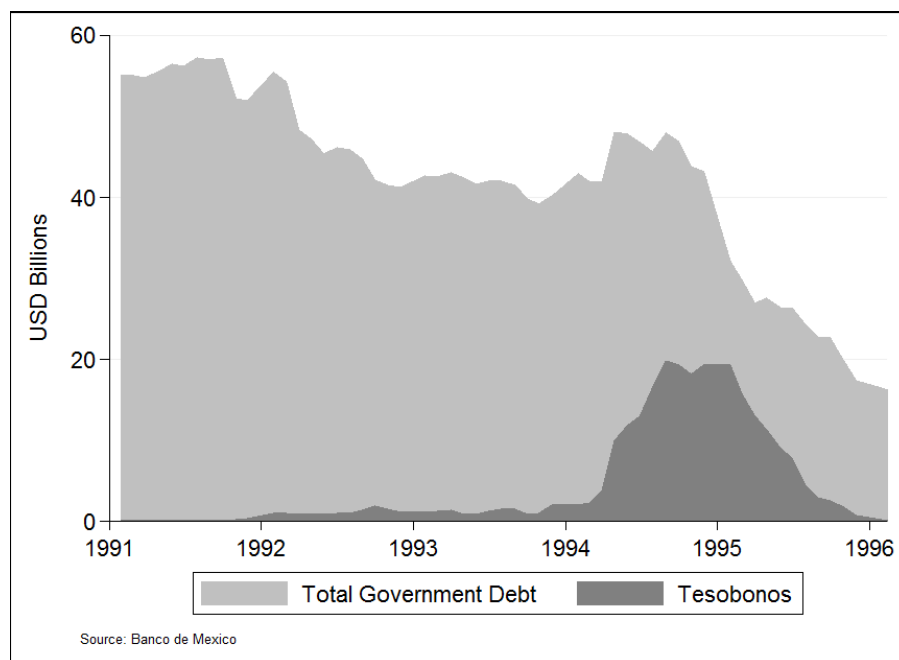
From these trends it is clear that from at least the summer of 1994, the state's main strategy for stabilizing markets was through the transfer of risk onto the balance sheets of the BOM and Treasury. The advantage of this strategy was that traditional measures of emerging market financial instability such as capital flight, inflation, foreign currency reserves, and interest rates were kept in check. The disadvantage was that crises can be sparked if the BOM and Treasury assumed too much risk and were either unable or unwilling to absorb more.

The combination of a steady exchange rate and higher than expected inflation saw the peso become steadily overvalued throughout the early 1990s. This led to high and persistent current account deficits, which by 1994 had become a focal point for foreign investors even after the August election. Indeed, the BOM was compelled to intervene heavily in foreign currency markets and the stock market following a second assassination in late September, this time of the PRI's secretary-general. But the final blows to Mexico's fragile political and financial equilibrium were steadily rising US bond yields and the resumption of hostilities in Chiapas. Sensing the inevitable, the peso was allowed to

Figure 7.5: Response to 1994 Crisis
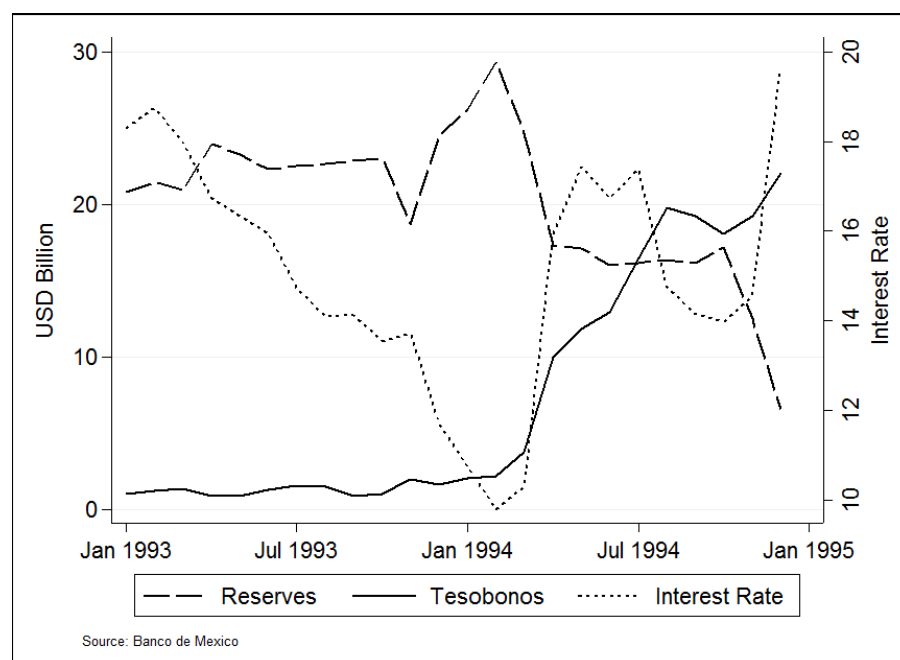
float in December, a move that quickly led to its collapse. Mexico tapped its swap-lines with the United States and Canada in a bid to access as many dollars as possible.

The peso devaluation immediately increased the burden of servicing Mexico's dollar liabilities. Importers, banks, and the Treasury immediately saw their foreign liabilities increase in peso terms. As during previous crises, American aid was forthcoming in the form of a $20 billion line of credit from the Treasury's Exchange Stabilization Fund. Previous attempts by US President Bill Clinton to cobble together an aid package that included up to $40 billion in loan guarantees met resistance in Congress. The smaller package forwarded through the Exchange Stabilization Fund required no Congressional approval. Additional support came from loans from the IMF and another swap-line arrangement through a consortium of central banks at the BIS.

In concert with this international financial safety net were domestic programs aimed at maintaining the viability of the Mexican financial system. In particular, the Fondo Bancario de Protección al Ahorro (Fobaproa - the Banking Fund for the Protection of Savings) was a contingency fund set up by the Mexican state that guaranteed Mexico's

banks access to dollar liquidity so that they could service their foreign currency liabilities, both deposits and foreign loans, in full and on schedule. Fobaproa also assumed large quantities of non-preforming loans, using a 2-to-1 formula whereby Fobaproa would swap $2 in non-preforming loans for long-term government bonds for every $1 in new equity injected by shareholders (The Banker, February 1, 1996[a]). This program was very effective in improving the balance sheets of banks, so much so that it generated significant political scrutiny. In one particular instance, Banamex, Mexico's largest and one of its most financially healthy banks, swapped $2 billion in non-preforming loans for an equal amount of 10 year government bonds.[6] A second program, the Programa de Capitalizacion Temporal (Procapte - Temporary Capitalization Program) aimed to shore up the capital base of weak banks by purchasing subordinated debt issued by the bank. With these safety nets in place, fears that the Mexican banking system would completely collapse receded, albeit at a very high cost to the state.

In March 1995 the BOM also took the exceptional move to eliminate its 15% reserve requirement and implement a zero-average reserve requirement. Following a similar move by the Bank of Canada in 1992, the BOM mandated that Mexican banks were no longer required to continually hold reserves at the BOM, but that they maintain a zero-average reserve balance over a given 28 day period. This mechanism provided the BOM with a novel mechanism through which to signal its monetary policy intentions in a crisis environment.[7] However, the benefits of adopting this system required that the BOM play a central role in meeting all unexpected liquidity needs of the banking system. Following the adoption of the zero-average reserve requirement, liquidity risk is therefore housed much more within the central bank than in comparable states. Because banks are not required to maintain a cash reserve, the responsibilities for the liquidity conditions of the

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[6]It was estimated that 43% of these loans were already past due and the remaining loans would likewise be past due within one year (The Banker, February 1, 1996[b]).

[7]The BOM signalled its monetary policy intentions by adjusting its target for the days accumulated balances. A neutral monetary policy is signaled through a zero accumulated balance, an expansionary monetary policy is signaled through a positive accumulated balance, and a contractionary monetary policy is signaled through a negative accumulated balance.

banking system shift to the BOM. This can be seen in the enhanced repo operations of the BOM after 1998 in Figure 7.6. Indeed, under normal circumstances when a neutral monetary policy is signaled, the BOM is explicitly committed to meeting the entire excess liquidity needs of the banking system at prevailing interest rates. While extraordinary events that stress the BOM are rare, the structure of the zero-average reserve requirements transfers this risk onto the BOM. This is achieved through ongoing open market operations that respond to fluctuations in credit and liquidity needs in order to have the banks achieve their targeted zero-average balance. Banks are permitted to carry an overdraft on their reserve account if they have not successfully achieved a zero-average balance over the preceding 28 days, although an interest penalty was changed. To compensate for the extra liquidity responsibilities of the BOM, interest was no longer paid on positive reserve balances (O'Brien, 2007).

Figure 7.6: Mexican Liquidity Operations

Source: International Financial Statistics
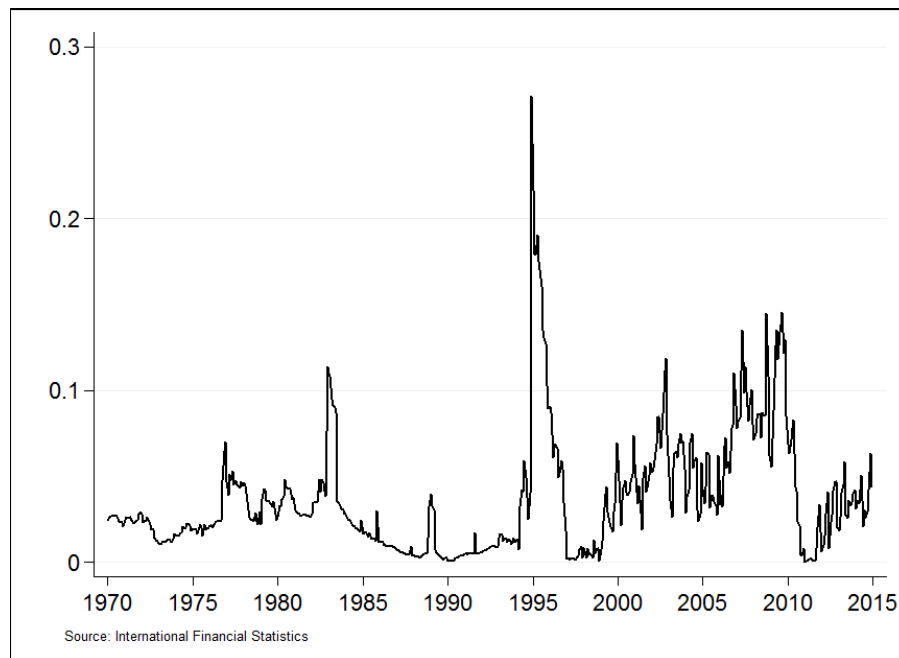
International and domestic efforts to stabilize the Mexican economy and financial system continued into 1996. A key priority for the BOM was to rebuild its spent reserves in order to provide a flexible anchor for the peso. The rebuilding process occurred

180

largely through the adoption of a unique mechanism that again saw the BOM assume a significant amount of foreign exchange rate risk. This time, however, the risk paid off. The scheme devised by the BOM had it sell contracts whereby the purchaser had the right to sell pesos to (i.e. buy dollars from) the BOM at a pre-arranged price at a specified future date. These put options committed the BOM to remove pesos from the market by selling dollars to contract holders, simultaneously supporting the value of the peso and granting the holder of the options contract a profit. However, banks would pay a fee to purchase such a contract, which the BOM would keep if the peso failed to depreciate enough to make the contract profitable. While the majority of the time these options contracts will expire "out of the money" and the BOM's fee income will be positive, it came with the risk of large losses if the peso came under pressure.[8] Despite these risks, the program was initially successful and policymakers doubled the size of the program in 1997. At the same time the BOM used its accumulated reserves to fund another program to provide additional stability to the Mexican currency and banking system. The program saw the BOM pre-commit to auctioning $200 million of its reserves the day following a peso depreciation of 2% or more (The Financial Times, February 21, 1997). This peso support program was in place between February 1997 and June 2001. Although it was only implemented on fourteen trading days during the program's four and a half year life, the existence of the program created a credible contingent liability for the BOM that market participants could rely on to moderate the peso's volatility.

The crisis also led policymakers to fully embrace opening up the Mexican banking system to foreign ownership. Although plans to permit majority foreign ownership in Mexico predate the Tequila Crisis, the need to recapitalize the banks pushed the hands of policymakers to accelerate this opening. As during the privatizations of the early 1990s where domestic investors clamored for a stake in Mexico's banks, many large global banks sensed a once in a lifetime opportunity to acquire a controlling stake in a major financial

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[8]As an investment strategy, collecting a stream of small fees in exchange for the risk of large losses is often compared to picking up pennies in front of a steamroller.

institution in a promising emerging market economy. Demand for Mexican banks was high, especially since foreign banks were permitted to leverage the 2-to-1 debt for equity program of Fobaproa. The result was that foreign ownership of the Mexican banking system jumped from 5% in 1994 to 52.7% by the end of 1996 (Turrent, 2007). By 2003, it was 82% and only one large bank, Banorte, remained domestically owned.

7.3.1 Stability is Achieved

By 1997 efforts by the Treasury and BOM to pull the banking system back from the brink of disaster were regarded as successful, but the costs of these operations were also becoming clear. To recoup some of these costs Fobaproa planned to sell off the massive quantity of assets it acquired in its various operations. Assets included unpaid mortgages, real estate, and nearly half of all loans in the Mexican banking system. The state's portfolio also included significant ownership stakes in many small and medium sized private companies that it acquired when it assumed ownership in an insolvent bank (The Financial Times, September 30, 1997). However, selling these assets proved to be a highly complex process and revenues from these asset sales perpetually fell short of expectations. Politically these costs were taking their toll and in 1997 the PRI lost its majority in both the upper and lower houses of Congress for the first time in its history.

In an attempt to respond to the political crisis brought about by Fobaproa's excesses, policymakers transferred Fobaproa's bonds and the dubious assets that backed those bonds to a new deposit insurer and resolution authority, the Instituto para la Protección al Ahorro Bancario (IPAB - Institute for the Protection of Bank Savings). While in an accounting sense Fobaproa's assets were clearly public assets of doubtful value, their transfer to IPAB made concrete what had previously been implicit: that the bank's losses were to be fully socialized. For months the public heard allegations of fraud, a lax attitude towards connected lending, how banks were permitted to operate with low capital levels, and the generous terms on which Fobaproa purchased distressed bank assets. Despite

attempts to contain the fallout, the PRI saw its electoral fortunes continue to falter and in 2000 lost Presidency to Vicente Fox of the opposition Partido Acción Nacional.

A sustained recovery in the Mexican banking system emerged in the early 2000s. With the steady fall in interest rates and fading memories of the financial shocks in other emerging market economies throughout the 1990s, credit to the private sector in Mexico began to expand. Recalling Figure 7.3, after 2003 Mexico embarked on a steady expansion in domestic credit buoyed by rising international capital inflows and healthy balance sheets owing to injections of foreign capital and control. However, unlike the credit expansion in the early 1990s, this one was underpinned by sound regulation. In September 1999, capital adequacy requirements were put in place, and in 2001 significant resources were allocated towards the Comisión Nacional Bancaria y de Valores (CNBV - National Banking and Securities Commission) for the purposes of training and retaining highly qualified bank examiners. The CNBV was also granted some operational independence.[9] Mexican banks also began operating under Basel rules in 2003 (Aguilera, 2012).

Mexico also modernized its payment system infrastructure in the early 2000s. Mexico's RTGS payment system, Sistema de Pagos Electrónicos Interbancarios (SPEI - Interbanking Electronic Payment System), began operating in 2004 and settles interbank payments in near-real time irrespective of the value of the payment. Payments from non-bank financial institutions, securities dealers, development banks, and the Continuously Linked Settlement Bank are also routed through SPEI. The BOM supplies liquidity to this system via a second settlement system, the Sistema de Atención a Cuentahabientes (SIAC - Account Holders Service System). SIAC is primarily used to settle direct payments between commercial banks and the BOM and is the primary settlement service used to conduct monetary policy. However, end of day balances within the SPEI system are settled using SIAC, which allows the BOM to directly supervise and supply liquidity to the Mexican payment system as needed (Bank for International Settlements, 2011).

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[9]However, political and budgetary independence and full operational independence fall sort of international best practice. See International Monetary Fund (November 2016).

The political and economic costs of Mexico's crisis and the reforms made in its wake meant that Mexican banks were well positioned to weather the storm that came during the global financial crisis. Although Mexico experienced a deep recession following a substantial slowdown in exports to the United States, Mexican banks did not have direct exposures to the toxic assets at the heart of the crisis. Helping matters further was the fact that Mexico was one of the few emerging market economies selected by the Federal Reserve to be granted a swap-line. Therefore, as with its previous swap-line arrangements, the BOM found itself in a privileged position internationally to supply domestic banks with dollar liquidity. This access also allowed the BOM to reinstitute its contingent dollar liquidity facility whereby additional dollars would be automatically auctioned if the peso fell by 2% or more the previous day (Banco de México, 2008).

Mexico also tapped the international financial safety net offered by the IMF's new FCL. The FLC provided Mexico with continual and unconditional access to an IMF financed revolving line of credit to help it meet foreign currency liquidity needs. Although Mexico was required to meet stringent macroeconomic targets in order to qualify for the FCL, conditions which were subject to annual renewal, once approved Mexico effectively added the value of its FCL, equal to $47 billion, to its stock of international reserves.

7.4 Conclusion

The Mexican experience with financial safety nets is in many ways different from most other emerging market economies. Its proximity to the United States as a valued trading partner and country of origin for large quantities of illicit goods and migrants has risen the profile of Mexico in the halls of Washington to the point where Mexican political and economic instability are to be guarded against. Examples of American and internationally sponsored financial safety nets include the Federal Reserve's swap-line arrangement following the peso's devaluation in 1976, the BIS bridge loan and bilateral swap arrange-

ments following the 1982 crisis, the Brady and Baker plans of the 1980s, the swap-lines agreed to in principle prior to the Congressional vote on NAFTA and their use in early 1994, American, IMF, and BIS loans following the Tequila crisis, and the swap-line and FCL during the global financial crisis.

The list of domestically supplied financial safety nets is equally long and includes large scale public borrowing and implicit guarantees to the dollarized banking system in the 1970s, the banking sector nationalization of 1982, the maintenance of unlimited deposit insurance until the late 1990s, the sale of reserves to domestic firms and banks at a discount in the wake of the Tequila Crisis, the socialization of the banking system's bad debts through Fobaproa and IPAB, the put options embodied in the reserve accumulation scheme of the late 1990s, the liquidity support for the Mexican payments system through SIAC, and the liquidity support supplied through Mexico's zero-average reserve requirement. On top of all this are the ongoing implicit liquidity and resolution guarantees supplied through the Treasury and BOM.

The political economy of financial safety nets constitutes a key, and generally under-appreciated, terrain on which Mexican politics and finance interact. The backdrop for these interactions has been efforts since the 1970s to construct along liberal lines a banking system capable of extending credit on a wide scale as a means to secure successive government's political legitimacy. For decades, the political and economic obstacles to achieving this goal have been large. Nevertheless, whether it has been through the bailout of banks following a financial crisis or the support of the macroeconomy and individual banks during times of stability, this chapter has demonstrated that the mechanism policymakers have used more than any other to promote their dual objectives of deep and stable financial markets has been the state absorption of risk.

Chapter 8

Conclusion

From a few simple propositions, this study showed that governments in emerging market economies negotiate the broad trade-off between financial sector growth and stability through a variety of regulatory and non-regulatory means. The first of these proposition stated that, unlike the majority of the literature and its focus on financial regulation, states have increasingly relied on a menu of financial safety nets to manage financial risk. For states the value unlocked by financial safety nets comes from their capacity to transfer risk away from the financial system without any apparent upfront cost to themselves or their banks. However, financial safety nets are no free lunch as they implicitly saddle the state with contingent liabilities that may come due in the event of a banking crisis.

The second proposition says that international and domestic factors combine to shape the size and scope of financial safety nets in emerging market economies. The first international factor is the general absence of a strong international financial safety net. Despite the potential of such a safety net to provide a global public good, it remains under-provided because financial safety nets are costly for states, which in an anarchic world makes their extension beyond a state's border politically contentious. Moreover, even when financial safety nets are extended internationally, whether as bilateral transfers or through an international financial institution, the funds flow according to a club model that strongly favors the lender's interests over the borrower's interests. These political constraints give the large financial powers, which alone have the capacity to supply international financial safety nets, significant leverage over which states may access their safety nets and on what terms.

Among emerging market economies there is significant variation regarding their relative access to international resources should they fall into crisis. Turkey is an example of a country with relatively modest access to an international financial safety net. For example, although Turkey was one of the few countries to borrow from the BIS in the late 1970s, the amount it was able to borrow, especially relative to its brewing convertible lira deposit account debacle, was very modest. During the global financial crisis Turkey

also reportedly tried to open discussions for a swap-line with the Federal Reserve, only to see their request denied. Instead, like most emerging market economies, Turkey effectively only has access to an international financial safety net through the IMF. Mexico on the other hand is an emerging market economy with perhaps the most ready access to an international financial safety net. Located next to the United States, Mexico has been in the fortunate position of being on the radar of American policymakers more than any other emerging market economy. Federal Reserve swap-lines and assistance from the Treasury's Exchange Stabilization Fund have been the primary means through which Mexico has received direct international assistance. And unlike nearly every other major emerging market economies, Mexico has accessed these resources multiple times over the past few decades, with Mexico's first swap-line being arranged as far back as 1976. Since that time, these and similar arrangements have been regularly renewed and expanded as needed, especially following Mexico's many crises.

While it is clear that Mexico's greater access to an international financial safety net was no panacea, the formal model found in Appendix A indicates that states with ready access to an international financial safety net benefit in three ways. The first is that states can access a larger pool of foreign currency resources despite holding a lower level of foreign exchange reserves themselves. For example, Mexico's reported foreign exchange holdings were immediately boosted following the approval of its FCL from the IMF. While it is difficult to know what level Mexico's foreign exchange reserves would have been were it not for the FCL, interviews with Mexican policymakers confirmed that having access nevertheless gave them expanded flexibility against international financial shocks. The second benefit is that banks are able to take greater risks, although their expected payoff from doing so is ambiguous. This effect comes from the expanded safety net banks enjoy when covered by both a domestic and international financial safety net. The final benefit is that states are less likely to experience a currency crisis because a

pegged currency is more easily defended when states are granted expanded access to foreign currency liquidity.

A second international factor shaping the use of financial safety nets is the degree of instability in international capital markets. As seen at various points in the case studies, when international financial markets were volatile states responded with more extensive financial safety nets. Sometimes these efforts were designed to stave off a crisis on the immediate horizon. Key examples of this can be seen in Turkey during the 1970s with the CLD scheme and in the *tesobono* strategy in Mexico in the early 1990s. In both cases the state explicitly took on a significant amount of risk seeking to delay a painful adjustment to deteriorating international financial conditions. Furthermore, financial safety nets were less used during the rapid expansion in international capital flows beginning in the early 2000s. In Turkey and Mexico during this period private institutions could access international capital markets with relative ease which lessened the need for countervailing financial safety nets.

Domestic political forces also shaped financial safety nets in emerging market economies. As shown at various points throughout this study, political independence for the agent in control of a financial safety net was one such factor. All else equal, independence insulated the provider of the financial safety net from a potential political backlash which led to a more generous safety net overall. In particular, this effect was found with respect to last resort lending by central banks following banking crises. But a similar effect was also evident in the case studies with resolution authorities. In both Turkey and Mexico, financial sector losses were heavily socialized when their respective resolution authorities were granted significant powers without the added constraint of being electorally accountable for their decisions.

Another domestic political factor working to expand financial safety nets has been the slow, uneven, march towards democracy in Turkey and Mexico. Recent setbacks in Turkey notwithstanding, over the long-term both states have seen a gradual deepening

in democracy which has led successive governments to increasingly use strong economic growth to legitimize their rule. Indeed, in both Turkey and Mexico incumbents who lead their countries into either a crisis or a period of economic stagnation saw their electoral fortunes rapidly deteriorate. The result has been that with each subsequent government the incentive to provide a robust financial safety net, both as a means to promote credit growth and stabilize domestic markets, grows deeper.

The confluence of strong political incentives for stable economic growth, the explosive growth in international capital markets, and the continued under-supply of international financial safety nets have contributed to the persistent expansion in domestic financial safety nets in emerging market economies. This expansion occurred worldwide, as documented in Chapter 4, through the persistence of state-ownership of key financial institutions, the expansion in liquidity support to payment systems and interbank markets, the expanding powers and resources of resolution authorities, and the widespread adoption of formal deposit insurance. While the development of financial safety nets has occurred alongside regulatory initiatives that aim to lower the probability that these financial safety nets will be actually used, their gradual expansion has nevertheless tightened the bond between states and their financial system through the increasingly important contingent liabilities the former holds for the latter. Not only has this outcome affected the politics structuring state-market relations, but it suggests two key implications for the study of the international political economy of finance.

8.1 The Political Implications of Financial Safety Nets

8.1.1 The Causes of Financial Crises

Widespread agreement exists that financial crises are endemic to market economies[1] and the literature on the causes of financial crises is large. Given that this literature is

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[1]See (Harvey, 2011; Reinhart and Rogoff, 2009).

written mostly by economists, it is not surprising that economic and financial variables feature prominently. For example, Bongini, Claessens, and Ferri (2001) argue that so called CAMEL variables carry the majority of the burden when explaining the distress and ultimate closure of large financial institutions. CAMEL variables include capital adequacy, asset quality, management capability, earnings, and liquidity. While it is almost a tautology that financial fragility can be traced to the structure of bank balance sheets, most scholars go deeper to explain the emergence of these fragilities in the first place. For example, Corsetti, Pesenti, and Roubini (1999) and Burnside, Eichenbaum, and Rebelo (2004) argue that the moral hazard embedded in implicit bailout guarantees incentivizes banks to borrow beyond their capacity, leading to the collapse of the currency and the banking system. Others focus on the role that regulation plays in encouraging banks to assume too much risk. For example, Crotty (2009) argues that crises can be traced back to an over-reliance on the New Financial Architecture and its unjustified faith in the efficient markets hypothesis.

Even political economy explanations focus on how politics shapes these economic variables. For example, Haggard (2000) and Haggard and Mo (2000) argue that a fragile banking system can be traced to political decisions. In the context of the Asian financial crisis, these authors argue that complex government-bank-industry relations can explain not only why some banks lent excessively but also why these economies were open to international financial markets and all of its vulnerabilities. Compounding matters further was the politics structuring the initial crisis management response by domestic governments and international financial institutions (Radelet and Sachs, 1998). Other political economy explanations for financial crises have been developed in light of the global financial crisis. For example, Wolf (2014) argues that persistent international payments imbalances, owing to the currency policies of many large emerging market economies, drove the global financial cycle and incentivized the large global banks to take excess

risks. Others point to the excessive lobbying power of banks (Rajan, 2011; Johnson and Kwak, 2011).

For all of these diverse theories of financial crises, all are in agreement that politics plays a fundamental role. Yet even in the accounts by political scientists, the place of politics in explaining a given financial crisis is in setting the initial economic and financial conditions that ultimately caused the crisis. For this reason the politics causing financial crises tends to occur prior to, and sometimes years prior to, the crisis proper. While this approach is understandable and reasonable at first glance, the evidence presented in this dissertation hints at a much more central role for politics in explaining the outbreak of financial crises. While space precludes a full discussion of the theoretical foundations of this approach, a brief discussion can outline its basic contents.

As shown in the case studies, the beginning and ending of financial crises and Turkey and Mexico occurred in tandem with changes to their respective financial safety nets. Recall that during the bankers' crisis that the CBRT withheld liquidity to the banking system as it felt that markets should govern themselves, only to see the collapse of the brokerage houses threaten the entire banking system. Furthermore, the crisis abated quickly after the CBRT and Treasury intervened to supply liquidity and resolution authority. The 1994 crises in Turkey and Mexico were mainly currency crises that had significant secondary effects on the banking system. In both cases a series of external shocks led to capital flight that accelerated following the exhaustion of the central bank's foreign currency reserves, a key component of the financial safety net. Lastly, the 2000-2001 crisis in Turkey can be directly tied to the withdrawal of liquidity by the CBRT in their attempt to lower inflation. As with the bankers' crisis, only following the resumption of liquidity assistance and the socialization of significant financial sector losses did the crisis truly end.

The chronology of these events suggests that the beginning of a crisis requires two parallel developments. The first is a financial shock of some kind. The case studies

demonstrated that these shocks can be diverse and of various sizes. What seems necessary is only that an event focuses the minds of investors on the health of the financial system. The second is the unexpected withholding of some financial safety net component, either willingly or because the financial safety net has been exhausted. In the majority of cases the withholding of a safety net component is unexpected because for a period of time that same component had been in action preventing the instability that subsequently developed.

While nearly every scholar of financial crises agrees that state intervention cuts short financial crises, the evidence presented in this dissertation shows that the politics of financial safety nets play a crucial role in setting crises in motion as well. In this sense the argument here is the flip side of Corsetti, Pesenti, and Roubini (1999) and Burnside, Eichenbaum, and Rebelo (2004) who argue that government guarantees breed financial instability. The argument that emerges from this dissertation is that through financial safety nets government guarantees stave off instability even if they are a source of moral hazard. Although moral hazard no doubt contributes to excessive, albeit rational, risk taking by banks, on their own this excess risk will not produce a crisis so long as a state's financial safety net can contain its consequences. When financial safety nets are up to the task, a financial panic can be avoided, although the consequences of these distortions will be diverted elsewhere such as in a heightened rate of inflation, capital outflows, exchange rate pressure, reduced economic growth, or simply a slow drawn out crisis that does not produce an outright panic.

8.1.2   Emerging Market Economies in Global Financial Markets

As the world continues to adjust to the shock of the global financial crisis, many argue that the equilibrium sustaining the current regime of global financial governance cannot hold indefinitely (Germain, 2010; Helleiner, 2014; Kirshner, 2014). Central to this equilibrium is the notion of home control even in the face of deepening international interdependence.

Many argue that this global financial interdependence, which accelerated after 2003 and led to persistent international payments imbalances, created a more fragile and vulnerable international financial system which eventually manifested itself as the global financial crisis (Wolf, 2014). Emerging market economies are viewed as particularly vulnerable in this context given that their financial conditions are overwhelmingly viewed as being set in the core, a situation which leaves them with little effective control over their monetary policy (Pettis, 2001; Rodrik, 2011; Fratzscher, 2012; Forbes and Warnock, 2012; Bruno and Shin, 2014; Rey, 2015).

In some respects, pessimistic arguments regarding the state of global financial governance seem warranted. After all, there seems to be no escape from global liquidity cycles which show no signs of easing in the near future. Likewise, there are few indications that emerging market economies are actively retreating from global capital markets. In lieu of having deep domestic currency financial markets built upon strong legal structures and sound financial market infrastructure, none of which can be built quickly, emerging market economies will continue to rely on building financial safety nets with the capacity to deflect global financial shocks. Although emerging market economies have been gradually doing so for the past few decades, it remains an open question whether their efforts have been sufficiently far reaching that their vulnerability has actually reduced over time.

However, there are reasons for optimism. A telling event in this regard occurred in the summer of 2013. At that time, Federal Reserve Chairman Ben Bernanke speculated that the Federal Reserve may soon begin to taper its quantitative easing program in a few months hence. This event quickly set off a "taper-tantrum" in global capital markets as the mere hint of the possibility of a modest tightening in American monetary policy led to a weeks-long flight of capital from emerging market financial systems. Many have argued that this episode laid bare the latent vulnerabilities present in emerging market economies that are integrated into global capital markets (Wolf, December 13, 2013;

Steil, 2014). Yet in light of the arguments and evidence in this dissertation, the wider lesson from this episode is that, despite their vulnerabilities, no states actually fell into crisis. Furthermore, what is most telling about the non-crises of 2013 and since is that the shock from the taper tantrum was arguably far larger than the shocks that set in motion the emerging market crises of the 1980s and 1990s. It would seem therefore that emerging market economies have learned at least some lessons from the past on how to adapt to the ups and downs of global capital markets.

The evolution of global financial governance will continue in the coming decades. Like periods of transition in the past, governments in advanced and emerging market economies alike will no doubt continue to harmonize and strengthen international regulation while strengthening preexisting international financial safety nets when it is politically tenable to do so. As important as these developments will be to the stability of future global capital markets, so too will be the battles within states over the size and scope of their domestic financial safety nets. As these safety nets continue to develop, the contributions of emerging market economies to global financial governance will likewise grow, albeit mostly through unobservable, but politically expedient, contingent liabilities.

Appendices

Appendix A

A Formal Model of International Crisis Lending as a Club Good

A.1 The Model

The model developed here builds upon insights from Repullo (2005) and Goodhart and Huang (2000). In Repullo (2005) a domestic central bank supports a bank facing a liquidity shortfall in order to study how the existence of a lender of last resort alters the propensity of the bank to take risk. Focusing on the international dimension of liquidity provision, Goodhart and Huang (2000) show that banks facing liquidity shortfalls in the global reserve currency are more likely to spark currency and banking crises without access to an international lender of last resort. The model developed here extends these models by considering the political foundations of an international lender of last resort.

The model is a full information three period sequential game consisting of interactions between three risk-neutral agents: a central bank in a large state, a central bank in a small state, and a commercial bank in a small state. Hereafter, the central bank in the small state will be referred to as the domestic lender of last resort (DLLR) and the central bank in the large state will be referred to as the international lender of last resort (ILLR) because it may serve as the lender of last resort to the small state in addition to its normal function as the lender of last resort to its own financial system. An outline of the timing of the game is shown in Figure A.1.

Figure A.1: Game Timing

Deposits made
π chosen
ILLR chooses $\bar{x}$ Liquidity withdrawal from bank
DLLR choose B^* ILLR and DLLR support bank or not   Outcomes realized

$t = 0$ $t = 1$ $t = 2$
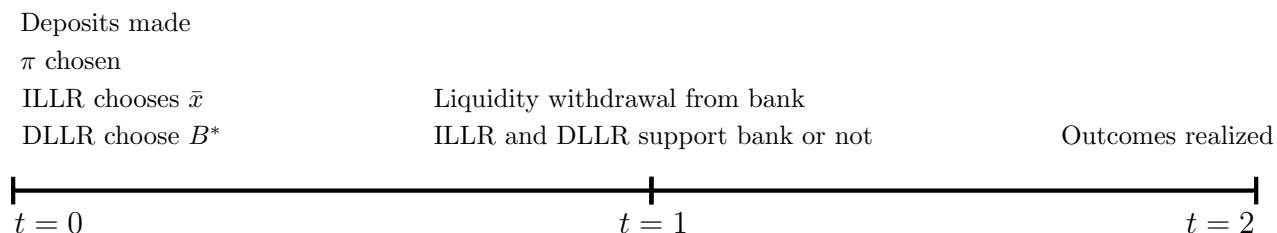
The three period model begins in period 0 with the commercial bank collecting a unit of deposits from households in the small state and the large state. These deposits consist of local currency deposits (i.e. small state) and foreign currency deposits (i.e. large state), the latter of which are liabilities of the central bank in the large state. The local and foreign currency have a fixed one-to-one exchange rate. The fraction of deposits held in local currency is α and the fraction of foreign currency deposits is $1 - \alpha$. While all local currently deposits are owned by residents of the small state, the model incorporates international financial integration through the ownership of foreign currency deposits. Specifically, the fraction of foreign currency deposits owned by foreigners who are citizens of the ILLR, is Ω. This implies that the total foreign exchange deposits in the small state claimed by foreigners equals $\Omega(1 - \alpha)$. This term also represents the international exposure of the small state's banking system. Total foreign exchange deposits claimed by local residents equals $(1 - \Omega)(1 - \alpha)$.

In period 0 the bank invests its local and foreign currency deposits in separate projects. The local currency deposits are invested in a riskless asset and earn a return of 1 with certainty. Foreign currency deposits are invested in an illiquid asset that earns foreign currency export revenues of $R(\pi)$, where π is the probability of success. With probability $1 - \pi$ the foreign currency investment fails, sparking an *insolvency crisis*. Because the bank has limited liability, it receives a payoff of 0 when it fails. Once invested, the foreign currency investment is sunk and has a liquidation value of 0. Interest on all deposits are normalized to zero. Following Repullo (2005), the following simplifying assumption is made about the behavior of the bank's foreign currency investment returns.

Assumption 1: $R = R(\pi)$, where R(π) is decreasing and concave, with $R(1) \geq 1 - \alpha$ and $R(1) + R'(1) < 0$.

Assumption 1 says that safer foreign currency investments yield a lower expected return but that the safest investment still yields a positive profit for the bank. However,

the condition $R(1) + R'(1) < 0$ ensures that choosing the safest investment is not optimal for the bank, which maximises its expected profit when $R(\pi) + \pi R'(\pi) = 0$. Together these restrictions on R ensure that the bank's expected profit is maximized when $\hat{\pi} \in (0,1)$ and that the bank's expected profit is decreasing in π when $\pi^* > \hat{\pi}$ and increasing in π when $\pi^* < \hat{\pi}$.

The DLLR exists to supply liquidity assistance to their commercial bank. Liquidity shortfalls in local currency are covered by printing new money. Foreign currency reserves of $B \geq 0$ in the currency of the ILLR are purchased on the open market by the DLLR in period 0. Since foreign currency reserves are purchased with newly printed money, the opportunity cost of holding B is the chance that this new money may be lost in the event of a crisis. It is from this stock of foreign currency reserves that the DLLR may support its bank in the event of a foreign currency liquidity shortfall. Loans to the bank from the DLLR are charged an interest rate equal to that of the bank's foreign exchange deposits (i.e. 0). Liquidity assistance may also come from the ILLR. The ILLR faces no constraints on the amount of liquidity it can supply. Loans of x from the ILLR are charged interest $\delta \geq 0$. The ILLR may also charge a fixed fee equal to F. This fee is interpreted loosely and may be paid in money or in kind.[1] In this model the ILLR is an international counterpart to the DLLR in that it lends directly to banks and not states.

In period 1 an amount $v \in [0, 1 - \alpha]$ of the foreign currency deposits are withdrawn by depositors. Since the bank's foreign currency assets are illiquid, the bank faces a foreign currency liquidity shortfall equal to v. If the bank cannot secure a loan of v from either the DLLR or the ILLR, a bank run occurs because the bank does not have access to sufficient hard foreign currency to meet its foreign currency liabilities. The run on the bank leads to a *currency crisis* because the demand for foreign exchange will outstrip supply and require the DLLR to break the currency peg and supply households with domestic currency instead. Note that with a currency crisis in period 1, the bank

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[1]An example of an in kind payment would be a policy reform favoured by the large state.

collapses before the return on the bank's investments are known. Therefore, although the bank may in fact be solvent in period 2, it fails in period 1 because it is illiquid.

The strategy of the ILLR is to maximize the expected financial asset holdings of its economy. Assets held by the ILLR and its residents are assumed to be weighted equally. To accomplish this the ILLR supplies liquidity internationally when the expected aggregate benefits of doing so are at least as great as the expected aggregate costs of not doing so. Since the ILLR charges interest δ on its loans and the DLLR does not, the bank will prefer to borrow from the DLLR before turning to the ILLR. That is, the ILLR lends only if $v > B$. When the liquidity shock exceeds the stock of foreign currency reserves of the DLLR, B, the loan from the ILLR, x, equals $v - B$.

When the ILLR lends x to the bank and the bank's investment is successful, its net payoff equals the interest on its loan x plus the fixed fee F. Households in the large state also receive their deposit equal to $\Omega(1 - \alpha)$ back. If the bank fails, the bank is insolvent and the ILLR loses its loan x. Households also lose when the bank fails. Irrespective of how the bank fails, whether it is because $v > B$ and there was a currency crisis because the ILLR chose not to lend to the bank or because there was an insolvency crisis, households of the large state lose their deposit $\Omega(1 - \alpha)$ but receive ΩB from the insolvent bank. Therefore their total payoff is $\Omega B - \Omega(1 - \alpha) = -\Omega(1 - \alpha - B)$ when the bank fails. Under these conditions the ILLR will lend if the expected payoff from lending up to a threshold x is greater than or equal to the certain loss from not lending. The ILLR's decision is made in period 0 and is determined by

$$\pi[-x + x(1+\delta) - \Omega(1-\alpha) + \Omega(1-\alpha)] + (1-\pi)[-x - \Omega(1-\alpha-B)] + F \geq -\Omega(1-\alpha-B)$$

which simplifies to the decision rule

$$\bar{x}^* \leq \frac{F + \pi\Omega(1 - \alpha - B^*)}{1 - \pi^* - \pi^*\delta} \tag{A.1}$$

201

Equation (A.1) is the first equilibrium condition of the model. The ILLR lends up to a threshold $\bar{x}$ and this decision is a function of six variables. The fixed fee F enters positively, implying that when borrowing states are willing to pay a larger fee for access to the ILLR, the ILLR is willing to lend more. The probability of a successful bank investment, π, also enters positively since it raises the probability that the ILLR will be paid back. Ω also enters positively, implying that when households in the large state have more resources at risk in the small state, the ILLR will more willing to supply international liquidity assistance in the hopes of avoiding losing those assets in a currency crisis. The level of foreign currency reserves held by the small state, B, enters negatively, implying that higher levels of self-insurance reduce the need for an ILLR. Finally, the interest rate charged by the ILLR, δ, also enters positively since this increases the expected return on the loan.

Equation (A.1) also gives us the first hints that the ILLR considers its last resort lending facilities to be a club good. In particular, the ILLR will supply no international liquidity unless it can charge a fixed fee or if its citizens have no deposits in the bank (i.e. $\Omega = 0$).[2] To understand why, the model now considers the expected payoff to citizens in the large state when the decision over which states benefits from its lender of last resort is delegated to an independent institution.

A.2   Why International Crisis Lending is a Club Good

The model outlined above shows that when a large state provides liquidity assistance to the small state in the event of a liquidity shortfall, the small state is better off. Households of the ILLR are also better off if they face potential financial losses in the event of a crisis in the small state. However, households only benefit from the provision of this good when international liquidity assistance to given to states in which they have a direct financial

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[2]Alternatively, if $\Omega \neq 0$, but the failure of the bank is certain (i.e. $\pi = 0$), the ILLR will also not lend. However, assumptions on $R(\pi)$ preclude this in equilibrium.

interest. Households in the ILLR are strictly worse off when this assistance is extended to states with which they are not financially integrated.

Consider the decision by the large state whether to delegate to an independent international institution the decision over the allocation of $\bar{x}^*$. Consistent with the logic that an ILLR has the potential to be a global public good, this institution can allocate $\bar{x}^*$ in the interest of international financial stability. From the perspective of households in the state that supplies $\bar{x}^*$ to the ILLR, the delegation of this responsibility to an international institution will make them worse off. To see this, consider the expected welfare of households when its own central bank controls the allocation of $\bar{x}^*$. Expected household welfare is composed of its payoff when the liquidity shock in the small state is covered by the ILLR and its payoff when no such support is forthcoming, weighted by the respective probabilities of each outcome. This equals

$$(\tfrac{\bar{x}}{1-\alpha})[\pi(-x + x(1 + \delta) - \Omega(1 - \alpha) + \Omega(1 - \alpha)) + (1 - \pi)(-x - \Omega(1 - \alpha - B))] + (\tfrac{1-\alpha-\bar{x}}{1-\alpha})(-\Omega(1 - \alpha - B))$$

Compared to this outcome, households in the large state are worse off if the allocation of the same $\bar{x}^*$ is delegated to an international institution with a mandate to preserve international financial stability. That is, the international institution is permitted to lend $\bar{x}^*$ to any institution irrespective of whether households in the large state have resources invested there. For simplicity, assume that there are two states, Y and Z, which face liquidity shortfalls of y and z respectively. Further assume that households in the large state have investments in state Y but not state Z. Since the budget constraint of the international institution satisfies $\bar{x}^* = \bar{y} + \bar{z}$, the expected welfare of households in the large state under this scenario is

$$(\tfrac{\bar{y}}{1-\alpha})[\pi(-y + y(1 + \delta) - \Omega(1 - \alpha) + \Omega(1 - \alpha)) + (1 - \pi)(-y - \Omega(1 - \alpha - B))] + (\tfrac{(1-\alpha-\bar{y})}{1-\alpha})(-\Omega(1 - \alpha - B))$$

If the decision over which states benefits from an ILLR is delegated to an independent institution, depositors in state Z benefit because the international institution adds sta-

bility to their banking system. However, for any $\bar{z} \neq 0$ it also follows that households in the large state are worse off. This is because households in the large state are covered by a smaller financial safety net because $\bar{x}^*$ is spread more thinly than before. This lowers the probability that households in the large state will successfully recover their deposits during a liquidity crisis. This gives households in the large state strong incentives to pressure their government to maintain control over their state's unique ability to act as a global lender of last resort and to not delegate the allocation decision to an independent international institution.[3]

Two notable implications follow from the club model developed thus far. First, the ability of the ILLR to exclude potential borrowers is derived from its monopoly over the production of the global reserve currency. This power to exclude allows the large state to set its own veto criteria and terms and conditions. This is unlike existing club models explaining adherence to international financial regulation. In those models, the large states set the conditions for club membership but cannot exclude small states from adopting those regulations if they are willing to pay the adjustment cost (Drezner, 2008; Tsingou, 2015). The monopoly over the creation of the global reserve currency is therefore the key ingredient in the emergence of the club good model of international last resort lending.[4]

Second, for an international lender of last resort to emerge and provide the global public good it is capable of, the club model suggests an alternative political framework within which the institution will eventually emerge. In particular, the free-rider problem and the difficulty of collecting contributions towards the global public good are often seen as the most serious barrier to its emergence. But as the model and case studies of Chapter 3 show, the world's financial powers have regularly been willing to contribute to the financial stability of other states. The political problem has been one of an unwillingness to delegate to an independent institution the decision over which states

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[3]See also Broz and Hawes (2006).
[4]See also McDowell, 2012.

receive liquidity support during a crisis. In short, the politics of delegation and not the politics of free-riding explains why an international lender of last resort has not been created.

A.3   Implications For Non-Club Member States

A.3.1   Reserve Accumulation

The club model of international last resort lending has significant implications for non-club members. Like the ILLR, the DLLR also seeks to maximize the financial asset holdings of its economy and incorporates the payoff of its banks into its strategy. The strategy for the the DLLR is to chooses a level of reserves consistent with this objective. The lending decision of the DLLR incorporates the probability that the bank loan is successful, π, the lending decision of the ILLR, x, and the probability that total liquidity provision will be able to cover the liquidity shortfall. If the ILLR sets a fee of F, it is assumed that the DLLR pays the fee on behalf of the bank. The expected payoff for the DLLR is therefore

$$\frac{B}{1-\alpha}(\pi[R(\pi)-1](1-\alpha)+(1-\pi)(-B))+\frac{x}{1-\alpha}(\pi([R(\pi)-1](1-\alpha)-\delta x)$$
$$+(1-\pi)(-B))+(-B)(\frac{1-\alpha-B-x}{1-\alpha})-F$$

which simplifies to

$$B\pi[R(\pi)-1]+\frac{B^2\pi}{1-\alpha}+x\pi[R(\pi)-1]-\frac{x^2\pi\delta}{1-\alpha}+\frac{Bx\pi}{1-\alpha}-B-F \qquad (A.2)$$

The second equilibrium condition is derived by differentiating (A.2) with respect to B. Doing so reveals that the DLLR sets B according to

$$B^* = \frac{1-\alpha}{2\pi^*}(1 - \pi^*[R(\pi^*) - 1]) - \frac{x^*}{2} \tag{A.3}$$

Visually inspecting B^*, we see that $B^* = 0$ when $\alpha = 1$.[5] That is, the DLLR will choose to hold no foreign currency reserves if its banks do not hold any foreign exchange deposits. The effect of π on B^* is negative. This is more easily seen by rearranging $B^* = \frac{1-\alpha}{2\pi^*} - \frac{(1-\alpha)R(\pi^*)}{2} + \frac{1-\alpha}{2} - \frac{x^*}{2}$. The first term is decreasing in π, and given that the bank assumes too much risk in equilibrium,[6] an increase in π will lead to an increase in $R(\pi)$, which has a negative effect on B^*. Therefore, the small state will hold fewer precautionary reserves when the bank chooses a less risky investment. B^* is also decreasing in x^*, implying that when the ILLR is willing to supply more liquidity, the DLLR pulls back its own reserve accumulation. Therefore, for states that find themselves outside of the coverage of the ILLR (i.e. $x^* = 0$), the response is to boost ones reserves as a means of self-insurance.

A.3.2 Bank Risk Decision

The expected payoff for banks is a function of the probability of the investment's success, the level of foreign currency deposits invested, and the probability that its liquidity shortfall v will be covered by borrowing from the DLLR and the ILLR. With v assumed to be uniformly distributed on $[0, 1-\alpha]$, the probability of $v \leq B$ equals $\frac{B}{1-\alpha}$. Under this scenario the bank's payoff when the investment is successful equals $(1 - \alpha)[R(\pi) - 1]$. The probability that $B < v \leq B + x$, which sees the bank borrow B from the DLLR and the remaining $v - B$ from the ILLR is $\frac{x}{1-\alpha}$. Under this scenario the bank's payoff when the investment is successful equals $(1 - \alpha)[R(\pi) - 1 - \delta(v - B)]$. Under both of these

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[5]By assumption, $B^* \geq 0$
[6]See equation (A.5) and accompanying discussion below.

scenarios, if the bank's investment fails the bank receives a payoff of zero. If $v > B + x$, the result is a currency crisis and the bank fails and receives a payoff of zero. This occurs with probability $\frac{1-\alpha-B-x}{1-\alpha}$. Together the expected payoff of the bank is

$$\frac{B}{1-\alpha}\pi[R(\pi)-1](1-\alpha) + \frac{x}{1-\alpha}\pi([R(\pi)-1](1-\alpha) - \delta(v-B)) + \frac{1-\alpha-B-x}{1-\alpha}*0$$

which simplifies to

$$(x+B)\pi[R(\pi)-1] - \frac{x\pi\delta(v-B)}{1-\alpha} \tag{A.4}$$

From this equation can be derived the final equilibrium condition of the model, which consists of a choice of π^* by the bank. This is derived by differentiating (A.4) with respect to π.

$$(\bar{x}^* + B^*)[R(\pi^*)-1] + (\bar{x}^* + B^*)\pi^* R'(\pi^*) - \frac{\bar{x}^*\delta(v-B^*)}{1-\alpha} = 0$$

which implies the following equilibrium choice of risk

$$R(\pi^*) + \pi^* R'(\pi^*) = 1 + \frac{\bar{x}^*\delta(v-B^*)}{(\bar{x}^* + B^*)(1-\alpha)} \tag{A.5}$$

Given that the bank's expected payoff is maximized at $R(\hat{\pi}) + \hat{\pi}R'(\hat{\pi}) = 0$, from (A.5) we see that the bank takes a higher than optimal amount of risk irrespective of whether an ILLR exists or not.[7] However, when $x > 0$ we see that the bank takes an even higher level of risk, implying that insolvency crises are more likely with an ILLR. The choice by the bank to assume more risk under an ILLR can be decomposed into three effects. The first effect comes from the interest payments on the loan from the ILLR, equal to $\delta(v - B^*)$. This implies that if the ILLR charges a penalty rate, the bank responds by

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[7] $R(\pi) + \pi R'(\pi)$ is the first derivative of the expected payoff for the bank (i.e. $\pi R(\pi)$).

increasing its risk profile to compensate for this extra cost. This effect is also found in Repullo (2005). The second effect comes from $\frac{\bar{x}^*}{\bar{x}^*+B^*}$, which is the fraction of the bank's financial safety net that comes from the ILLR. This follows from the result that increases in $\bar{x}^*$ result in a less than disproportionate decrease in B^*. This implies that when a larger fraction of the bank's financial safety net is coming from the ILLR, the financial safety net is larger overall. This increases the risk taking by the bank as one would expect under moral hazard. Lastly, the bank's risk taking is decreasing in $1 - \alpha$, implying that the bank takes fewer risks if more of its foreign currency funding is obtained abroad.

Despite the institutional setting impacting the risk profile of the bank, the existence or not of an ILLR has an ambiguous effect on the expected payoff for the bank. This can be seen by comparing the bank's expected payoff when there is only a DLLR (i.e. bank's expected payoff when $x = 0$) to the expected payoff when there is both a DLLR and an ILLR (i.e. expected payoff when $x \neq 0$). Letting B_1 equal to the small state's level of reserves when there is an ILLR the expected welfare of the bank equals

$$(x^* + B_1)\pi_H[R(\pi_H) - 1] - \frac{x^*\pi_H\delta(v - B_1)}{1 - \alpha}$$

Letting B_2 equal to the small state's level of reserves when there is no ILLR, the expected welfare of the bank equals

$$B_2\pi_L[R(\pi_L) - 1]$$

The difference in expected payoffs between not having an ILLR and having one is ambiguous. The difference hings on three interrelated factors. The first is whether the enhanced financial safety net provided to the bank from the ILLR will more than compensate for the reduction in the domestic financial safety net provided by the small state. As shown in the section below, the extra financial safety net provided by an ILLR will more than offset the pullback by the small state, which increases the welfare of the

bank. The second factor affecting the bank's welfare is the bank's decision to assume less risk when there is no ILLR. This effect can be directly tied to the fact that the bank operates with a smaller financial safety net when there is no ILLR. The final factor concerns the specific values of the exogenous variables in the model such as δ and α. These variables determine how valuable an ILLR is to the bank and higher values of these parameters decrease the welfare of the bank when it receives liquidity support from an ILLR. Therefore, although the bank receives an expanded financial safety net when an ILLR exists and is able to assume more risk, the bank may be worse off under certain values of δ and α. The reason is because if accessing the financial safety net of the ILLR is prohibitively expensive, than the expected welfare of the bank may in fact be less than if the bank operated without an ILLR in the first place.

A.3.3 Currency Crises

Under the two institutional settings considered in the model, it can be shown that the probability of a currency crisis is smaller with an ILLR. To see this, consider the probability of a currency crisis to be the segment on the interval $[0, 1 - \alpha]$ not covered by lending from either the DLLR or the ILLR. The probability of a currency crisis under each institutional setting can be calculated as follows.

(1) No ILLR

Outcome   No Crisis   Currency Crisis

v 0 B_1^* $1 - \alpha$

With no ILLR, the bank chooses a lower level of risk π_L[8] and a currency crisis occurs if $v > B_1^*$. With $x = 0$, $B_1^* = \frac{1-\alpha}{2\pi_L}(1 - \pi[R(\pi_L) - 1])$ and a currency crisis occurs with

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[8]Recall that a lower level of risk corresponds to a higher π because π measures the probability of an investment's success.

probability $\frac{(1-\alpha)-B_1^*}{1-\alpha}$. Substituting B_1^* into this probability yields

$$\frac{(1-\alpha) - \frac{1-\alpha}{2\pi_L}(1 - \pi_L[R(\pi_L) - 1])}{1-\alpha}$$

which simplifies to

$$1 - \frac{1}{2\pi_L}(1 - \pi_L[R(\pi_L) - 1]) \tag{A.6}$$

(2) With ILLR

Outcome	No Crisis	Currency Crisis

v 0 B_2^* $B_2^* + x^*$ $1 - \alpha$
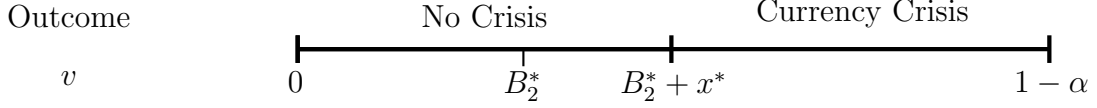
With an ILLR, the bank chooses a higher level of risk π_H and a currency crisis occurs if $v > B_2^* + x^*$. With $x \neq 0$, $B_2^* = \frac{1-\alpha}{2\pi_H}(1 - \pi_H[R(\pi_H) - 1]) - \frac{x^*}{2}$ and a currency crisis occurs with probability$\frac{(1-\alpha)-B_2^*-x^*}{1-\alpha}$. Substituting B_2^* into this probability yields

$$\frac{(1-\alpha) - (\frac{1-\alpha}{2\pi_H}(1 - \pi_H[R(\pi_H) - 1]) - \frac{x^*}{2}) - x^*}{1-\alpha}$$

which simplifies to

$$1 - \frac{1}{2\pi_H}(1 - \pi_H[R(\pi_H) - 1]) + \frac{x^*}{2(1-\alpha)} - \frac{x^*}{1-\alpha} \tag{A.7}$$

Given (A.6) and (A.7) we can determine the institutional setting under which currency crises have a higher probability.

$$1 - \frac{1}{2\pi_L}(1 - \pi_L[R(\pi_L) - 1]) \geq 1 - \frac{1}{2\pi_H}(1 - \pi_H[R(\pi_H) - 1]) + \frac{x^*}{2(1-\alpha)} - \frac{x^*}{1-\alpha}$$

Given that $\pi_L \geq \pi_H$, it immediately follows that

$$1 - \frac{1}{2\pi_L}(1 - \pi_L[R(\pi_L) - 1]) \geq 1 - \frac{1}{2\pi_H}(1 - \pi_H[R(\pi_H) - 1])$$

and with $\frac{x^*}{2(1-\alpha)} < \frac{x^*}{1-\alpha}$ it implies that the probability of a currency crisis will be larger without an ILLR. The rationale for this result is that despite the DLLR's choice of a higher B^* without an ILLR, the total international safety net is larger with an ILLR.

The model presented here says that an ILLR will contribute to an international financial safety net if it can charge a fee or if its citizens face potential losses due to a bank failure abroad. The potential for interest earnings on last resort lending is not enough on its own to induce the ILLR to lend. Three implications follow from this result. First, without an ILLR, states adopt a more defensive posture by building up foreign currency reserves, burdening states with increased opportunity costs. Second, banks respond by restricting their lending to less risky borrowers. While this ultimately reduces the probability of an insolvency crisis, it comes at the cost of shallower credit markets and the foregoing of wider political goals such as extending credit to marginalized groups. The final implication is that without an ILLR the small state faces a higher probability of a currency crisis. This is because the larger safety net accumulated by small states is not enough to compensate for the loss of the safety net provided by an ILLR.

Appendix B

Chapter 5 Supplementary Information and Results

B.1 Supplementary Model Results: Political Implications of Central Bank Independence

B.1.1 Implication 1: Lower Probability of a Banking Crisis

Recall that in the model a banking crises occurs following the failure of the bank's investment or if the central bank fails to support the liquidity shortfall of the bank. The former occurs with probability $1-\pi^*$ and is independent of $\bar{v}$. With respect to the central bank's financial safety net, consider that with retail deposits of w, the probability that the random liquidity withdraw wv will spark a banking crisis because it is above the central bank's intervention threshold $\bar{v}$ is $\frac{w-w\bar{v}}{w} = 1 - \bar{v}$. Given that $\bar{v}_i > \bar{v}_n$, it follows that probability of a liquidity withdrawal going unsupported and causing a banking crisis is smaller with an independent central bank.

B.1.2 Implication 2: Higher Expected Payoff for the Bank

Bank's receive a higher expected payoff when the central bank is independent. To see this, recall that the bank's profit is positive only if the project is a success and a central bank offered liquidity support. The bank fails and receives a return of zero if either of these conditions does not hold. The bank's expected payoff is the following.

$$\bar{v}w[\pi[R(\pi) - 1 - r(1 - w))] + (1 - \pi) * 0] + (w - \bar{v}w)[\pi * 0 + (1 - \pi) * 0]$$

which simplifies to

$$\bar{v}w\pi[R(\pi) - 1 - r(1 - w)] \tag{B.1}$$

Equation B.1 shows the bank's expected payoff at the beginning of the game before v is realized. Immediately it can be seen that without a central bank (i.e. $\bar{v} = 0$), the bank's expected payoff is zero. The reason is that any deposit withdraw immediately triggers a bank run and the failure of the bank. With the existence of a central bank, the expected payoff of the bank is increasing in $\bar{v}$ and is highest when a central bank is independent.

B.1.3 Implication 3: Ambiguous Change in Household Expected Payoff

Unlike banks which are unambiguously better off with an independent central bank, the welfare effect on households is uncertain. On the one hand, like banks, households gain from the greater prospect for financial stability. But in order to capture this gain, households must lose the possibility of consuming central bank financed fiscal stimulus. Which effect dominates depends on the size of the underlying parameters of the model. To see this, recall that the expected welfare for households when there is no banking crisis is $r(1-w)$. This occurs when the bank's investment is successful and the central bank covered the liquidity shortfall of the bank. This occurs with probability $\pi\bar{v}$. When a banking crisis occurs, households receive $wv - 1 + g(x)$. This occurs under three scenarios: (1) the bank's investment is unsuccessful and the central bank covered the bank's liquidity shortfall; (2) the bank's investment would be successful but the central bank refused to cover the bank's liquidity shortfall; and, (3) the bank's investment would be unsuccessful and the central bank refused to cover the bank's liquidity shortfall. The probabilities attached to each of these three scenarios are $(1-\pi)\bar{v}$, $\pi(w-\bar{v})$, and $(1-\pi)(w-\bar{v})$. Added together these probabilities total $(w - \pi\bar{v})$. Household welfare will therefore be larger under an independent central bank if the following inequality holds

$$\bar{v}_i[\pi r(1-w) + (1-\pi)(wv-1)] + (w - \bar{v}_i)(wv-1) \geq$$

$$\bar{v}_n[\pi r(1-w) + (1-\pi)(wv - 1 + g(x))] + (w - \bar{v}_n)(wv - 1 + g(x))$$

Simplifying this inequality leads to the following

$$(w - \pi^* \bar{v}_n^*)g(x^*) \le (\bar{v}_i^* - \bar{v}_n^*)[\pi^*(r(1-w)) + (1-\pi^*)(wv - 1) - (wv - 1)]$$

The welfare change for households when the central bank is made independent is ambiguous since it depends on the values of the underlying parameters, especially $g(x)$. However, notice that by construction the welfare change for households is very similar to the government's decision over central bank independence. The only difference is that governments incur a reputation cost equal to cx when they tap the central bank for their fiscal stimulus spending. This implies that while the status of the central bank has an overall uncertain effect on households, the existence of the government's reputation cost ensures that there will be a range of parameters where the government will be made better off by making the central bank independent despite its unambiguously negative effect for households. This situation occurs when the reputation cost cx is sufficiently high that governments are willing to avoid this cost even if it makes their households worse off in the process.

B.2 Supplementary Material for Event Study

Table B.1: Banking Crisis Countries and Dates

Argentina	March 1980	Latvia	April 1995
Argentina	January 1995	Latvia	September 2008
Argentina	November 2001	Mexico	December 1994
Bulgaria	January 1996	Mongolia	September 2008
Bolivia	November 1994	Malaysia	July 1997
Brazil	February 1990	Nicaragua	August 2000
Brazil	December 1994	Nigeria	August 2009
Chile	November 1981	Philippines	July 1997
Colombia	July 1982	Paraguay	May 1995
Colombia	June 1998	Russia	August 1998
Croatia	March 1998	Russia	September 2008
Dominican Republic	April 2003	Thailand	July 1997
Ecuador	August 1998	Turkey	November 2000
Ghana	January 1982	Ukraine	August 1998
Indonesia	November 1997	Ukraine	September 2008
Jamaica	December 1996	Uruguay	January 2002
Kazakhstan	September 2008	Venezuela	January 1994
Lithuania	December 1995		

Source: Laeven and Valencia (2012)

Table B.2: Summary Statistics

	Observations	Mean	Stdandard Deviation	Min	Max
Abnormal Liquidity (% Deposits)	444	0.076	0.095	-0.154	0.349
Central Bank Lending Limits	444	0.527	0.235	0.019	1
Bank Credit (% Deposits)	444	1.158	0.443	0.203	2.784
Democracy (UDS)	444	0.346	0.600	-1.336	1.561
Reserves (% GDP)	436	0.106	0.065	0.012	0.318
Deposit Insurance	436	0.530	0.500	0	1
Floating	436	0.429	0.495	0	1
Net Capital Inflows (% GDP)	436	0.025	0.057	-0.139	0.204
Trade (% GDP)	436	0.648	0.385	0.063	1.996
Capital Account Openness	419	-0.157	1.274	-1.889	2.390
Democracy (Polity2)	271	5.023	5.455	-9	9

Table B.3: Abnormal Central Bank Liquidity - Newey-West Standard Errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Central Bank Lending Limits	0.099***	0.104***	0.124***	0.180***	0.176***	0.176***	0.191***
	(0.031)	(0.031)	(0.029)	(0.032)	(0.032)	(0.030)	(0.026)
Bank Credit (% Deposits)	0.042***	0.041***	0.050***	0.045***	0.045***	0.057***	0.055***
	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)	(0.014)	(0.013)
Democracy		-0.010	-0.019**	-0.011	-0.011	-0.012	-0.024***
		(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Reserves (% GDP)			-0.392**	-0.372**	-0.362**	-0.481***	-0.696***
			(0.159)	(0.156)	(0.153)	(0.133)	(0.168)
Deposit Insurance				-0.059***	-0.057***	-0.074***	-0.067***
				(0.015)	(0.014)	(0.014)	(0.012)
Floating Exchange Rate					0.006	-0.020	-0.030**
					(0.013)	(0.013)	(0.012)
Net Capital Inflows (% GDP)						-0.599***	-0.683***
						(0.140)	(0.134)
Trade (% GDP)							0.060***
							(0.020)
Constant	-0.024	-0.022	0.000	0.004	0.000	0.034	0.020
	(0.021)	(0.021)	(0.024)	(0.026)	(0.025)	(0.021)	(0.020)
$Prob > F$	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	444	444	436	436	436	436	436

Coefficients estimated with OLS. Newey-West standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.4: Abnormal Central Bank Liquidity - Two-Way Clustered Standard Errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Central Bank Lending Limits	0.099**	0.104**	0.124***	0.180***	0.176***	0.176***	0.191***
	(0.044)	(0.046)	(0.041)	(0.048)	(0.045)	(0.044)	(0.040)
Bank Credit (% Deposits)	0.042*	0.041*	0.050*	0.045*	0.045*	0.057**	0.055***
	(0.022)	(0.023)	(0.026)	(0.025)	(0.025)	(0.023)	(0.021)
Democracy		-0.010	-0.019	-0.011	-0.011	-0.012	-0.024*
		(0.016)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Reserves (% GDP)			-0.392*	-0.372*	-0.362	-0.481**	-0.696***
			(0.225)	(0.225)	(0.227)	(0.207)	(0.235)
Deposit Insurance				-0.059***	-0.057***	-0.074***	-0.067***
				(0.020)	(0.020)	(0.018)	(0.016)
Floating Exchange Rate					0.006	-0.020	-0.030**
					(0.016)	(0.017)	(0.015)
Net Capital Inflows (% GDP)						-0.599***	-0.683***
						(0.206)	(0.182)
Trade (% GDP)							0.060*
							(0.036)
Constant	-0.024	-0.022	0.000	0.004	0.000	0.034	0.020
	(0.023)	(0.025)	(0.023)	(0.023)	(0.027)	(0.023)	(0.027)
$Prob > F$	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.12	0.12	0.18	0.25	0.25	0.35	0.39
N	444	444	436	436	436	436	436

Coefficients estimated with OLS. Country and time clustered standard errors in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.5: Abnormal Central Bank Liquidity - Full Base Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Central Bank Lending Limits	0.099**	0.104**	0.124***	0.180***	0.176***	0.176***	0.191***	0.068
	(0.044)	(0.047)	(0.041)	(0.046)	(0.044)	(0.043)	(0.039)	(0.069)
Bank Credit (% Deposits)	0.042*	0.041	0.050*	0.045	0.045*	0.057**	0.055**	-0.005
	(0.024)	(0.024)	(0.027)	(0.026)	(0.027)	(0.025)	(0.022)	(0.041)
Democracy		-0.010	-0.019	-0.011	-0.011	-0.012	-0.024*	-0.023*
		(0.016)	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.013)
Reserves (% GDP)			-0.392	-0.372	-0.362	-0.481**	-0.696***	-0.662**
			(0.235)	(0.236)	(0.238)	(0.215)	(0.241)	(0.240)
Deposit Insurance				-0.059***	-0.057***	-0.074***	-0.067***	-0.068***
				(0.020)	(0.020)	(0.018)	(0.016)	(0.016)
Floating Exchange Rate					0.006	-0.020	-0.030*	-0.030*
					(0.017)	(0.018)	(0.015)	(0.015)
Net Capital Inflows (% GDP)						-0.599**	-0.683***	-0.717***
						(0.220)	(0.193)	(0.200)
Trade (% GDP)							0.060	0.056
							(0.037)	(0.036)
Central Bank Lending Limits × Bank Credit								0.101*
								(0.054)
Constant	-0.024	-0.022	0.000	0.004	0.000	0.034	0.020	0.091*
	(0.024)	(0.026)	(0.025)	(0.025)	(0.028)	(0.025)	(0.029)	(0.048)
$Prob > F$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.12	0.12	0.18	0.25	0.25	0.35	0.39	0.41
N	444	444	436	436	436	436	436	436

Coefficients estimated with OLS. Standard errors clustered by country in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.6: Abnormal Central Bank Liquidity - Full Lagged DV Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Central Bank Lending Limits	0.006	0.007	0.010	0.018**	0.017**	0.018**	0.020**
	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
Bank Credit (% Deposits)	0.007*	0.007*	0.008*	0.008*	0.008*	0.008*	0.008**
	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Democracy		-0.003	-0.003	-0.003	-0.002	-0.003	-0.003
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Reserves (% GDP)			-0.031	-0.033	-0.029	-0.035	-0.050
			(0.028)	(0.030)	(0.032)	(0.036)	(0.034)
Deposit Insurance				-0.008**	-0.007*	-0.008*	-0.008*
				(0.004)	(0.004)	(0.004)	(0.004)
Floating Exchange Rate					0.002	0.001	0.000
					(0.004)	(0.005)	(0.005)
Net Capital Inflows (% GDP)						-0.020	-0.027
						(0.050)	(0.051)
Trade (% GDP)							0.004
							(0.007)
Lag Abnormal Liquidity	0.973***	0.973***	0.967***	0.955***	0.955***	0.951***	0.947***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.023)	(0.022)
Constant	-0.003	-0.003	-0.002	-0.001	-0.003	-0.001	-0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.006)	(0.007)
$Prob > F$	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.91	0.91	0.91	0.91	0.91	0.91	0.91
N	408	408	401	401	401	401	401

Coefficients estimated with OLS. Standard errors clustered by country in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.7: Abnormal Central Bank Liquidity - Full Random Effects Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Central Bank Lending Limits	0.056*	0.046	0.057	0.092**	0.064	0.055	0.061
	(0.032)	(0.033)	(0.037)	(0.036)	(0.040)	(0.045)	(0.043)
Bank Credit (% Deposits)	0.030	0.033	0.034	0.029	0.031	0.059**	0.058**
	(0.028)	(0.028)	(0.031)	(0.028)	(0.031)	(0.028)	(0.028)
Democracy		0.010*	0.007	0.017*	0.014	0.010	0.008
		(0.006)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)
Reserves (% GDP)			-0.068	-0.026	0.071	-0.086	-0.113
			(0.126)	(0.119)	(0.148)	(0.144)	(0.141)
Deposit Insurance				-0.043***	-0.033**	-0.056***	-0.056***
				(0.016)	(0.016)	(0.016)	(0.016)
Floating Exchange Rate					0.032*	-0.001	-0.003
					(0.019)	(0.022)	(0.022)
Net Capital Inflows (% GDP)						-0.706***	-0.700***
						(0.232)	(0.230)
Trade (% GDP)							0.013
							(0.040)
Constant	0.008	0.006	0.006	0.008	-0.009	0.030	0.022
	(0.027)	(0.028)	(0.031)	(0.023)	(0.031)	(0.034)	(0.042)
$Prob > F$	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.12	0.09	0.12	0.17	0.13	0.24	0.25
N	444	444	436	436	436	436	436

Coefficients estimated with OLS. Standard errors clustered by country in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.8: Abnormal Central Bank Liquidity - Full Between Effects Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Central Bank Lending Limits	0.108	0.108	0.097	0.166**	0.164**	0.170**	0.173**
	(0.074)	(0.076)	(0.069)	(0.068)	(0.071)	(0.067)	(0.062)
Bank Credit (% Deposits)	0.065*	0.065*	0.070**	0.063**	0.063*	0.071**	0.065**
	(0.036)	(0.037)	(0.033)	(0.030)	(0.031)	(0.029)	(0.027)
Democracy		-0.001	-0.012	-0.006	-0.006	-0.007	-0.024
		(0.026)	(0.024)	(0.022)	(0.023)	(0.021)	(0.021)
Reserves (% GDP)			-0.676**	-0.667***	-0.662**	-0.759***	-1.161***
			(0.254)	(0.230)	(0.238)	(0.231)	(0.283)
Deposit Insurance				-0.074**	-0.073**	-0.084**	-0.067**
				(0.030)	(0.031)	(0.030)	(0.029)
Floating Exchange Rate					0.004	-0.018	-0.032
					(0.030)	(0.031)	(0.029)
Net Capital Inflows (% GDP)						-0.460*	-0.597**
						(0.243)	(0.233)
Trade (% GDP)							0.086**
							(0.040)
Constant	-0.060	-0.060	0.017	0.024	0.021	0.049	0.045
	(0.059)	(0.061)	(0.061)	(0.055)	(0.060)	(0.058)	(0.054)
$Prob > F$	0.09	0.20	0.03	0.01	0.02	0.01	0.00
R^2	0.17	0.17	0.36	0.50	0.50	0.57	0.66
N	444	444	436	436	436	436	436

Coefficients estimated with OLS. Standard errors clustered by country in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.9: Abnormal Central Bank Liquidity - Capital Account Openness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Central Bank Lending Limits	0.099**	0.104**	0.101**	0.128***	0.196***	0.192***	0.197***
	(0.044)	(0.047)	(0.049)	(0.042)	(0.049)	(0.046)	(0.044)
Bank Credit (% Deposits)	0.042*	0.041	0.040*	0.050*	0.044*	0.045*	0.044*
	(0.024)	(0.024)	(0.024)	(0.026)	(0.026)	(0.026)	(0.024)
Democracy		-0.010	-0.013	-0.025	-0.019	-0.019	-0.024
		(0.016)	(0.018)	(0.015)	(0.015)	(0.015)	(0.014)
Capital Account Openness			0.007	0.010	0.007	0.008	0.006
			(0.009)	(0.010)	(0.009)	(0.009)	(0.008)
Reserves (% GDP)				-0.421*	-0.403*	-0.389*	-0.477
				(0.227)	(0.224)	(0.227)	(0.305)
Deposit Insurance					-0.062***	-0.059***	-0.054***
					(0.021)	(0.020)	(0.019)
Floating Exchange Rate						0.010	0.006
						(0.018)	(0.018)
Trade (% GDP)							0.028
							(0.042)
Constant	-0.024	-0.022	-0.018	0.005	0.002	-0.004	-0.013
	(0.024)	(0.026)	(0.026)	(0.025)	(0.024)	(0.028)	(0.030)
$Prob > F$	0.00	0.00	0.01	0.00	0.00	0.00	0.00
R^2	0.12	0.12	0.11	0.19	0.26	0.26	0.27
N	444	444	419	419	419	419	419

Coefficients estimated with OLS. Standard errors clustered by country in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.10: Abnormal Central Bank Liquidity - Polity2

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Central Bank Lending Limits	0.099**	0.131*	0.147*	0.187*	0.152	0.196*	0.183**
	(0.044)	(0.068)	(0.075)	(0.099)	(0.102)	(0.093)	(0.068)
Bank Credit (% Deposits)	0.042*	0.060*	0.061*	0.055	0.063*	0.078**	0.078**
	(0.024)	(0.032)	(0.032)	(0.032)	(0.033)	(0.032)	(0.028)
Democracy (Polity2)		-0.002	-0.003	-0.002	-0.001	-0.004	-0.006*
		(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
Reserves (% GDP)			-0.132	-0.098	0.033	-0.366	-0.467*
			(0.298)	(0.300)	(0.379)	(0.229)	(0.243)
Deposit Insurance				-0.044	-0.039	-0.081**	-0.068***
				(0.036)	(0.034)	(0.030)	(0.022)
Floating Exchange Rate					0.029	-0.027	-0.022
					(0.032)	(0.023)	(0.021)
Net Capital Inflows (% GDP)						-1.207***	-1.187***
						(0.330)	(0.301)
Trade (% GDP)							0.113**
							(0.052)
Constant	-0.024	-0.036	-0.034	-0.034	-0.052	0.024	-0.011
	(0.024)	(0.031)	(0.025)	(0.031)	(0.034)	(0.034)	(0.036)
$Prob > F$	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.12	0.21	0.22	0.25	0.26	0.44	0.52
N	444	271	271	271	271	271	271

Coefficients estimated with OLS. Standard errors clustered by country in parentheses.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.11 shows an additional test of H4a and H4b, that the political underpinnings of central bank liquidity provision differ between times of stability and times of crisis. Table B.11 shows central bank liquidity during non-crisis times across 118 states. Across all columns the effect of central bank lending limits is negative and in the majority of cases is statistically significant. For the credit to deposit ratio, the results are consistently positive and statistically significant.

Table B.11: Central Bank Liquidity During Non-Crisis Times

	OLS		OLS with Lag DV		Random Effects		Between Effects		Dynamic Fixed Effects	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Central Bank Lending Limits	-0.086**	-0.077*	-0.002*	-0.001	-0.190***	-0.196***	-0.072	-0.124**	-0.205**	-0.230**
	(0.039)	(0.041)	(0.001)	(0.001)	(0.068)	(0.064)	(0.051)	(0.062)	(0.088)	(0.091)
Bank Credit (% Deposits)	0.270***	0.280***	0.007**	0.005***	0.286***	0.258***	0.248***	0.281***	0.334***	0.338***
	(0.040)	(0.045)	(0.003)	(0.002)	(0.049)	(0.044)	(0.026)	(0.036)	(0.070)	(0.092)
Democracy	-0.037**	-0.044***	-0.001***	-0.001***	-0.058**	-0.037	-0.033*	-0.032	-0.025	0.021
	(0.016)	(0.017)	(0.000)	(0.000)	(0.028)	(0.030)	(0.017)	(0.021)	(0.040)	(0.048)
Reserves (% GDP)	-0.089**	-0.022	-0.003*	-0.000	-0.079	-0.076	-0.019	-0.014	-0.169*	-0.143
	(0.044)	(0.051)	(0.001)	(0.002)	(0.071)	(0.081)	(0.075)	(0.106)	(0.093)	(0.132)
Deposit Insurance	-0.033**	-0.041**	-0.001	-0.001	-0.046*	-0.027	-0.025	-0.043	-0.042	-0.007
	(0.016)	(0.018)	(0.001)	(0.000)	(0.024)	(0.029)	(0.029)	(0.033)	(0.043)	(0.070)
Floating Exchange Rate		0.037		0.001		0.068**		-0.033		0.053
		(0.026)		(0.001)		(0.027)		(0.050)		(0.038)
Net Capital Inflows (% GDP)		0.153**		0.003		0.133**		0.079		0.142*
		(0.059)		(0.002)		(0.056)		(0.238)		(0.086)
Trade (% GDP)		-0.088***		-0.002***		-0.070**		-0.086**		-0.148**
		(0.031)		(0.001)		(0.033)		(0.035)		(0.065)
Lag Central Bank Liquidity			0.970***	0.976***						
			(0.009)	(0.004)						
Constant	-0.077**	-0.042	-0.002	-0.001	-0.032	0.029	-0.073**	-0.002		
	(0.038)	(0.037)	(0.002)	(0.002)	(0.052)	(0.054)	(0.037)	(0.055)		
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
R²	0.35	0.37	0.97	0.97			0.48	0.50		
N	31,381	26,183	31,072	25,942	31,381	26,183	31,381	26,183		

Coefficients estimated with OLS and dynamic fixed effects. Errors clustered by country, except in the between effects estimations. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The effects of the main independent variables are also found to be stable across event windows ranging from one to thirteen months. Using column (7) of Table B.5 (i.e. column (2) in Table 1 of the article), Figures B.1 and B.2 show that central bank lending limits and bank credit coefficients are stable at different event window lengths. P-values for central bank lending limits become statistically significant at the 5 percent level at an event window of only five months while bank credit coefficients are statistically significant at the 5 percent level at every event window.

Figure B.1: Credit Limits Coefficient Stabil-Figure B.2: Bank Credit Coefficient Stability ity
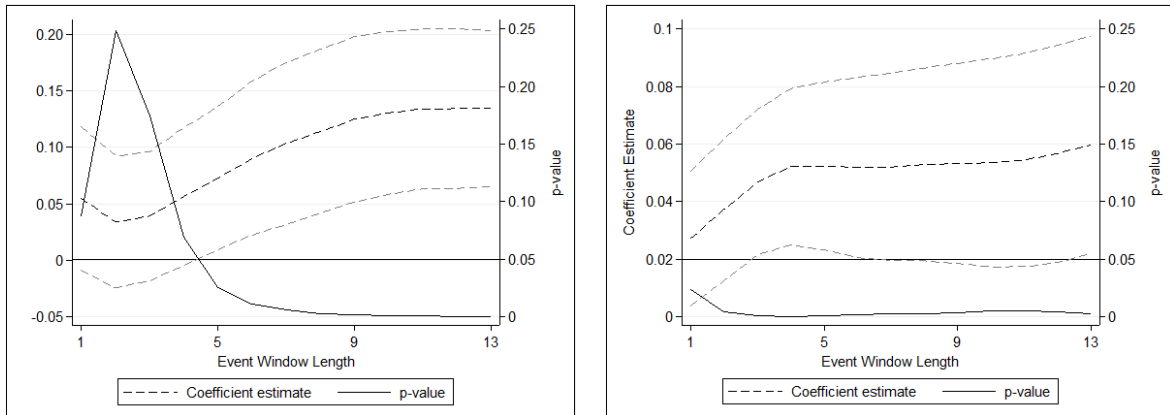
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