

**FINANCIAL STABILITY, GUARANTEED:
THE USE OF BANKING GUARANTEES IN FINANCIAL
CRISIS CONTAINMENT**

by

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Abstract

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Financial Stability, Guaranteed: The Use of Bank Guarantees in Financial Crisis Containment

Thesis directed by Assistant Professor Moonhawk Kim

My dissertation seeks to explain why policymakers sometimes issue guarantees for bank liabilities during a banking crisis. Though such guarantees have the potential to contain the crisis by averting bank runs, they create massive contingent obligations for the government and are thus a risky approach to crisis containment. Although such guarantees are not new, their use has become increasingly common. I emphasize the effects of globalization in shaping the decision of policymakers in adopting this risky crisis containment strategy. One important consequence of the ease and speed with which money now moves across borders is that it raises the stakes in dealing with banking crises; the cross-border flight of capital threatens to intensify deteriorating conditions in the domestic banking sector and potentially trigger a wider macroeconomic crisis. Uncertainty about how much money might flee and what the ultimate economic effect might be makes policymakers more inclined to take on the considerable risks associated with bank guarantees. Moreover, the alternative strategy of simply closing the borders to capital outflows (i.e. the imposition of capital controls) in states that have embraced financial openness is likely to be a politically unattractive - if not unfeasible - alternative.

To evaluate the argument, I examine the relationship between de jure capital openness (which approximates a state's vulnerability to capital flight) and the use of bank guarantees. Using multinomial logit analysis, I also evaluate the effect of openness on the likelihood that governments will adopt capital controls in response to a crisis, given the alternative of issuing bank guarantees. Finally, I test an observable implication that flows from the argument, which is that the use of guarantees by one state creates competitive distortions in international banking markets that push other states to adopt guarantees as well in order to prevent capital from fleeing to government-backed investments in competitor states. The results of the analysis contained herein point to a strong relationship between the use of bank guarantees and the threat of capital flight during a crisis.

Dedication

I dedicate this project to my husband, Andy, whose constant encouragement and support made it possible.

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CHAPTER 1: FINANCIAL CRISES, GLOBALIZATION, AND BANK GUARANTEES

Banking crises are nothing new. However, the global financial crisis of 2007-08 that caused severe disruption in banking systems around the world and led numerous governments to commit vast sums of money for bank bailouts has reinvigorated interest in banking crises and the policies that governments enact to combat them. Bank bailouts, a term often broadly construed to include a variety of intervention measures that can be implemented to contain an emergent crisis or rectify the balance sheets of banks battered by a crisis, became a hot button issue as governments everywhere attempted to shore up their banking systems with the use of public money.

The response to the spate of banking crises in 2007 and 2008 was not extraordinarily different than past government responses to banking crises in many regards. Although governments moved to address their crises more quickly and decisively than governments in the past, they generally did so by employing all the same bailout tools that had been previously utilized to combat financial sector distress, from the provision of extensive emergency liquidity, to recapitalization schemes, to the creation of agencies designed to dispose of toxic bank assets. However, an important point of departure was the widespread implementation of sovereign guarantees on banking system liabilities, sometimes referred to as blanket guarantees.

Guarantees on the banking system can include unlimited protection for depositors (above and beyond any deposit insurance commitments that may already be in place), and/or protection for an assortment of other bank creditors. The goal of such guarantees is to restore public confidence in a troubled banking system. By committing themselves to underwriting the

liabilities of the banking system, governments load on to the public books tremendous contingent liabilities that will have to be paid out should banks fail.

Though such guarantees themselves are not a new tool for crisis containment and have been used in the past, bank guarantees were issued by the vast majority of countries confronted by a systemic banking crisis in 2008 in the hopes of restoring market confidence and averting further losses. This observation coincides with larger historical trends. The use of guarantees, despite the costs and risks they entail, appears to be on the rise.

Although governments have displayed an increasing reliance on sovereign guarantees for crisis containment, such guarantees are not, nor have they been, the only means policymakers have for crisis containment. Historically, governments have often been lenders of last resort for banks pummeled by liquidity pressures, and it remains true today that generous liquidity assistance from central banks and treasuries (sometimes with little or no collateral) is often employed to ease the strain on banks in the event of a crisis. In addition, governments have the ability to temporarily close banks and freeze deposits when the banking system is under assault, a tactic employed in the US in 1933 to forestall bank runs before the passage of the Emergency Banking Act. Measures to address insolvency (i.e. recapitalizations, purchases of bad assets, etc.) introduced early on during the crisis may also calm market fears about the stability of the banking system. Particularly in light of available alternatives, the increasing use of guarantees represents somewhat of a puzzle.

The question of why governments sometimes choose to issue guarantees on bank liabilities during times of crisis and have done so with increased frequency in recent years is the question at the heart of this project. Such guarantees are a risky approach to banking crisis containment that can sometimes leave the sovereign on the hook for tremendous losses in the

banking sector. I address the risks and costs inherent to guarantees in the next section. In section two of this chapter, I lay out my theoretical argument regarding variation in the use of guarantees. Guarantees may be risky bets, but in the context of increased globalization and the easy flow of capital across borders, the need to retain precious capital both in the domestic banking system and the domestic economy necessitates that policymakers act boldly in order to convince markets that depositors and bank creditors are safe at home. The third section of this chapter addresses the contribution that my research makes to the field. The research question has thus far been underexplored despite the fact that it is an extremely important one, especially given that the issuance of bank guarantees in the last several years continues to weigh heavily on the finances of a number of countries. My theoretical approach to understanding why some governments issue guarantees speaks to a number of literatures and offers a contribution on several fronts. Finally, section four provides an overview of the layout of this project and details my methods and findings.

I. The risks and costs of bank guarantees

When credible, bank guarantees can be highly effective in containing a crisis. With the government standing behind bank deposits above and beyond any existing deposit insurance commitments and/or new and sometimes even existing debt issues, holders of those investments have little need to withdraw their funds in response to the possibility that their bank may fail. Depositor and creditor runs are events that quickly bring down frail and even healthy banks and to the extent they can be avoided, the losses involved with a banking crisis can be minimized.

However, because of the massive contingent costs that such guarantees carry, particularly in countries with very large financial institutions, they are risky bets. While guarantees pose no

up-front costs, should banks fail, the guarantor government becomes charged with making sizeable payouts to depositors and other creditors far in excess of traditional deposit insurance commitments. Thus governments that issue guarantees also have strong incentives to intervene extensively if necessary to rehabilitate bank balance sheets in the name of avoiding bank closures later on. Depending on the depth of problems within the financial sector and the ability of a government guarantee to restore faith in stability of its banks, resolution-stage interventions (such as bank recapitalizations or the disposal of bad assets) to mend holes in balance sheets could be very costly. Not to mention that offering government protection to banks not only increases moral hazard in the short-term, but also may also have the effect of sending the disturbing signal to banks that they can expect similar treatment if they run into troubles again down the road.

Recent bailout efforts that have included bank guarantees showcase the extraordinary costs that guarantees may involve, even relative to other expensive bank bailout efforts. While much attention has been captured by the staggering sums that some governments have committed for taking ownership in struggling banks and disposing of distressed assets (for example, the \$787 billion granted by Congress for the US's 2008 Troubled Asset Relief Plan), the sums committed in the form of guarantees on banking systems have actually been much more substantial. According to the International Monetary Fund (IMF), among the advanced G20 countries affected by the global crisis, the average net fiscal cost of direct bank support was 2.8 of GDP as of 2010. However, contingent liabilities created by government guarantees (largely on liabilities, though in some instances also on assets) averaged 11 percent (IMF 2010). For a handful of countries, the contingent liabilities generated by the use of bank guarantees were astronomical; the size of guarantees issued in the US, the Netherlands, and the UK equaled at

least 30 percent of their respective national GDPs while Ireland's blanket guarantee has been estimated at an eye-popping 250 percent of national GDP (Schich 2009).

Recent events also underscore the dangers of guaranteeing a banking system. While guarantees may be useful for stabilizing the banking sector in the immediate term, the contingent debt loads they create for the state can have some serious consequences. Ireland's generous backing of its banks' liabilities resulted rather quickly in bringing down credit default swap (CDS) spreads on its four largest banks (from their pre-bailout peak of over 400 basis points to just 150 basis points), but CDS spreads for both the banks and the Irish government itself had widened to 600 basis points by 2011 (Archarya, Dreschler, and Schabl 2012). A similar jump in spreads on Irish sovereign bonds revealed that the market was pricing in the huge contingent liabilities on the country's books (Honohan 2010b). Losses in the banking system coupled with deteriorating macroeconomic conditions led to a steep increase in public debt-to-GDP ratios and ushered in a sovereign debt crisis that had to be addressed with IMF and EU aid in 2010. Though a rather extreme case given the scope of its guarantee relative to the size of its economy, the Irish example is a stark reminder that costs associated with guarantees are not solely limited to any necessary payouts to covered creditors but can also include the increased cost of sovereign borrowing and even the specter of sovereign default.

II. The political economy of bank guarantees in an interconnected world

My dissertation offers a new theoretical perspective on the choice to use bank guarantees that focuses on how the increased globalization of financial markets has changed the calculations involved with crisis-time policymaking. The greater ease with which money may now move around the globe (owing primarily to technological innovation, the development of the

Euromarkets, and liberalization of domestic economic policies over the past several decades) offers bank depositors and other creditors a much more attractive “escape hatch” when a crisis develops in their domestic banking sector, as those funds can quickly be withdrawn and moved to safer havens abroad. A loss of confidence in the banking system can have dramatic domestic consequences, as the flight of capital out of banks serves to intensify a crisis, deepen banking losses, and threatens the payments system. But given the ability of that money to flee abroad to more stable banks and investment opportunities, a loss of confidence in the banking system has serious additional ramifications. The flight of capital overseas can induce exchange rate pressure or a swift correction of current account deficits that may easily transform a domestic banking crisis into a balance-of-payments crisis as well.

These dynamics raise the stakes especially for policymakers operating in countries with few barriers to capital flows. Though the post-Bretton Woods era in general has been associated with the removal of a variety of regulatory capital controls, states have embraced economic liberalization to varying degrees. For those states that have gone to the greatest lengths to open the borders to the free flow of capital, the ability of depositors and other creditors to exercise the option of moving funds abroad is clearly the greatest. In states that have retained more control over capital movements in and out of the country, the ability of capital to escape is more limited. Even to the extent that motivated individuals or firms can find ways around rules meant to keep capital at home, the extra effort involved with devising a way to evade the laws likely still poses a constraint not otherwise faced by counterparts in more liberal states.

For policymakers vulnerable to and interested in preventing capital outflows, I argue that guarantees on bank liabilities are the strongest weapon governments have at their disposal for assuring depositors and creditors there is no need to rush for the exits. While other bailout

measures may restore some degree of confidence in the banking system, uncertainty about the extent to which the government is willing to go in order to prevent bank failures via liquidity provision, recapitalization, etc. may still tempt holders of bank liabilities to flee. As a result, countries that bear a greater vulnerability to the flight of banking capital abroad and its dire consequences are much more likely to issue guarantees that expressly clarify for depositors and creditors the safety of their funds and signal to the market the government's commitment to stabilize the banking sector.

Of course, given that countries with fewer regulatory barriers to capital outflows are more vulnerable to the potential of capital flight, this certainly begs the question, why would policymakers not just respond by changing the rules? While guarantees offer a market-based approach to retaining precious capital, another alternative would simply be to impose new capital controls. However, entirely aside from any concerns about the efficacy of capital controls in barricading the exits when capital has strong incentive to flee, the use of capital controls as a method of crisis containment is likely to be a politically unattractive option for policymakers in open economies. Trying to put the genie back in the bottle by cracking down on capital outflows in countries that have liberalized to a considerable extent is likely to be fraught with political problems not otherwise encountered in the decision to implement a bank guarantee or any other sort of bank bailout measures. Enhanced opportunities for foreign investment have likely only strengthened the political muscles of domestic actors that have most directly reaped the benefits. Thus, a move to impose new regulation that inhibits the international activities of these interests is likely to be met with intense political pushback of the sort that is unlikely to be encountered by governments looking to contain the crisis purely by bailing out banks.

I also argue that while there are strong incentives at the national level for policymakers to use guarantees in order to prevent capital outflows, there are also systemic-level developments that can motivate the choice to issue guarantees. Openness to capital flows and increased financial interdependency also mean that the choice by one crisis-afflicted country to issue a guarantee poses externalities on other states and in turn influence crisis containment decisions elsewhere. Deposit and investment opportunities backed by a sovereign guarantee present an attractive option for depositors and creditors who wade into international waters in search of a safe place for their funds. The magnetic appeal of sovereign-backed saving and investment options can create competitive distortions in the international market that place additional strain on other states dealing with shaky banking sectors of their own, a likely scenario given that banking troubles in one state often have a tendency to spill across borders. States that risk losing domestic banking capital to neighboring states that have issued guarantees have pressure to do the same. Thus, the decision to guarantee in times of crisis is also a dynamic one, influenced by the crisis containment choices of others.

III. Contributions to the field

The question of why states would choose to guarantee bank liabilities is an important and timely one. Right now the effects of bailout decisions made by countries that faced banking distress at the close of the last decade continue to play out. A handful of countries still have yet to remove guarantees that were implemented in order to prevent financial meltdown. Not only is the question a timely and important one now, but the persistence of open capital accounts in most countries and plentiful options for foreign investment mean that a deeper comprehension of how

countries manage their banking sectors (both in normal times and during times of crisis) in the wider international context is sure to be valuable well into the future.

Despite this fact, the current literature on bank bailouts offers little in the way of explanation. Most scholarly work to date has addressed the question of bailouts broadly rather than focusing on the use of specific bailout tools and why it is that policymakers opt for one rather than (or in combination with) the others. A handful of other works simply take for granted that because bank guarantees are risky and involve enormous contingent costs, they are measures of last resort and the very fact that they used to contain some crises speaks volumes about the magnitude of those crises. However, this presumption has so far escaped empirical validation. In general, the question of why some governments would choose to back deposits or underwrite bank debt when faced with a crisis is an important one that has thus far been wholly underexplored.

My research advances our knowledge on multiple fronts. My dissertation contributes perhaps most directly to the literature on bank bailouts. This project enhances our understanding of the variety of approaches to dealing with banking crises and the relative usefulness of certain policy tools, an area of the field that has received insufficient attention. At the same time, this work also points to the limitations of understanding the use of guarantees solely on the basis of domestic institutional arrangements.

This work also contributes to the broader literature on financial crises. Scholars have traditionally not paid much attention to intervention in the banking sector as a means of alleviating downward pressure on a currency or minimizing a painful rebalancing of the current and capital accounts, even though the use of guarantees can be effective (to varying degrees) for preventing the destabilizing movement of domestic assets abroad. Given the extensive body of

work that exists to explain the common causes and mutually reinforcing effects of banking and balance-of-payments crises, it is surprising that the policy tools commonly used to address each type of crisis have also not been explored in conjunction. My examination of the usefulness of bank guarantees from this juncture points to the need for much more new research and re-assessment of prior research along these lines.

Finally, because I argue that an international escape hatch for nervous depositors and creditors strongly shapes the calculations that policymakers make regarding crisis containment, my dissertation speaks to a much more extensive body of work that examines the role of globalization in shaping domestic policy choice. We are still in the midst of fully recognizing and understanding the constraints imposed by a global economy that is larger and deeper than ever before in history, particularly in regards to the movement to capital, which now travels the globe with unprecedented speed and in astounding amounts. Given the interconnectivity of financial markets and the fluidity of financial instruments, it should be no surprise that domestic policy decisions regarding banking are especially susceptible to the external constraints posed by international market forces.

IV. Overview of the project

The dissertation is made up of six chapters. In the next chapter, I detail the theory that I have briefly outlined thus far here. In doing so, I also sketch the hypotheses that stem from the theoretical argument which are tested using empirical evidence in chapters three, four, and five. In laying out the theory, I assess the current state of the literature pertaining to both bailouts broadly and bank guarantees more specifically. A survey of the scholarly work demonstrates that the field has produced little knowledge about why states would issue guarantees to contain

banking problems. Much of the literature centers on domestic institutional incentives that lead policymakers to enact larger or smaller bailouts, but the contents of those bailout packages generally goes unspecified. Moreover, institutional arguments regarding overall variation in bailouts appear to be built on questionable assumptions. Meanwhile, the few works that narrow in on the use of guarantees tend to connect their usage to the size of crises they are used to contain without demonstrating the relationship empirically.

In chapter three, I examine how vulnerability to banking capital flight influences the decision of policymakers to adopt guarantees. Using data on crisis responses from 63 crises worldwide between 1980 and 2008, I find that having an open capital regime leads states to issue guarantees on bank liabilities, whereas under conditions of financial autarky, policymakers are far less likely to implement guarantees. Not only do the results strongly suggest the potential for capital outflows in shaping the decision to implement bank guarantees, but also cast doubt on institutional arguments that have been prominent in the extant bailout literature.

In chapter four, I explore the interdependence of policy choices available for preventing capital flight during a banking crisis. I set the choice to issue a guarantee alongside the choice of policymakers to adopt tougher capital controls to contain capital flight. In doing so, I construct a new dataset to identify instances where capital controls on outflows in particular have been imposed as a response to a banking crisis. Again using data from 63 crises, I employ multinomial logistic analysis to show that countries with open capital accounts on the eve of a crisis overwhelmingly flock to the use of guarantees for crisis containment, not the adoption of stricter capital controls. By contrast, states that have attempted to close the doors to capital outflows following the outbreak of a crisis are not those states that are relatively more vulnerable to outflows but are actually those states that already maintain significant barriers on capital

flows. These results speak to the different political constraints inherent in the choice to contain a crisis via guarantees rather than more heavy-handed controls.

Chapter five is a qualitative case study of the containment efforts in Europe in the fall of 2008. As the analysis shows, competitive distortions created by the implementation of guarantees by competitor states created both pressures for retaliation and cooperation that help to explain why by the end of 2008, most European countries that had entered a full-fledged banking crisis had put in place guarantees on some (if not all) bank liabilities. The qualitative analysis reveals the dynamic nature of crisis containment decisions in an increasingly interconnected financial world and sheds light on questions of timing regarding the adoption of bank guarantees.

I conclude the project with a final chapter, chapter six, which reviews the main findings of the project and addresses the implications for my findings, as well as offers some paths for future research.

CHAPTER 2: CRISIS CONTAINMENT IN AN INTERNATIONAL ECONOMY

Why do governments issue guarantees on bank liabilities during crises and what explains the increased frequency with which they are issued? I argue that what is key is the recognition of how the globalization of financial markets has shifted the political dynamics of crisis-time decision-making. Guarantees on the banking system entail massive potential costs for the governments that issue them. However, given that the freer flow of capital across borders enables depositors and other bank creditors in many countries to more quickly rush for the exits and move their money to more stable investment destinations abroad, the costs associated with a lack of confidence in the domestic banking system have dramatically increased.

Plagued by uncertainty over how much capital may flee or what might be the ultimate macroeconomic consequences, policymakers who know that their tenure in office is linked to economic performance are inclined to take aggressive action to contain a crisis. Government guarantees on the banking system are a particularly useful tool for crisis containment in instances where fears about capital outflows are strongest. In addition, their implementation is unlikely to meet the same sort of political resistance that might be encountered if politicians attempt to prevent capital outflows through the more conventional approach of imposing capital controls.

At the same time, the adoption of a guarantee on one national banking system is likely to have important effects that extend beyond national borders and influence the crisis containment decisions of other states. Because the provision of government-backed bank investments elsewhere in the world can draw in new, internationally mobile capital from abroad, bank guarantees create cross-border competitive distortions and negative externalities for other states also experiencing banking sector troubles. These effects can be influential in the decisions of

other states to introduce guarantees of their own and be helpful in explaining broader patterns of guarantee adoption and timing.

This chapter proceeds as follows: I first provide a quick overview of the function of government guarantees on bank liabilities during a crisis. In section two, I survey the extant literature relating to the use of guarantees. While previous research offers some interesting conclusions, the current state of knowledge on the use of guarantees during crises is quite incomplete. Section three lays out how international capital mobility raises the stakes for policymakers confronted with a crisis. In section four, I outline why guarantees in particular are both a logistically and politically attractive option for containing crises when capital flight is a serious possibility. Section five elucidates how guarantees issued by one state can introduce competitive distortions that motivate the adoption of guarantees elsewhere and help to explain the timing of a state in issuing a guarantee. Section six concludes the chapter.

I. The function of bank guarantees in crisis containment

The use of sovereign guarantees on any manner of bank liabilities transforms private debt into public debt. The goal in doing so is to reduce the pressure on the liability side of bank balance sheets by restoring market confidence about the safety of banks in order to prevent bank runs. Rational depositors who suspect that their bank might fail might otherwise be motivated to withdraw their savings while they still can, as would other bank creditors who can choose not to roll over or initiate new loans to banks that appear shaky. But under the protection of a sovereign guarantee, any variety of bank creditors whose assets fall under the protection of a guarantee can feel secure leaving their money in a bank gripped by the turmoil of a crisis, knowing that the government will make them whole again should the bank collapse. Thus, to the

extent that they increase market confidence in the security of bank assets, guarantees have the ability to minimize pressure that might otherwise exist on the liability side of bank balance sheets during a crisis and therefore contain the scale of the crisis. But promising to act as a backstop to the banking system comes tends to come at a high, though contingent, cost to the guarantor government.

Sovereign guarantees on bank liabilities are sometimes referred to as blanket guarantees, which as the name implies, include a large swath of bank liabilities in terms of coverage. According to Feyen and Vittas (2009), “blanket” guarantees usually cover all retail deposits in full and often extend to newly-issued unsecured bank debt as well. In practice, states have issued a wide variety of guarantees for their banking systems, some which fall short of what might be considered “blanket”-type guarantees. Bank guarantees of any sort, even those considered blanket guarantees, all involve some inclusionary or exclusionary criteria that mean all fall short of ensuring universal protection for *all* liabilities of *all* banks during a crisis. While some may offer broad protection for depositors, they may not apply to any other group of bank creditors, as was the case with the Nicaraguan guarantee issued in response to a crisis in 2000. In other instances, guarantees are issued on bank bonds of certain maturities or interbank loans, but not made available to depositors or to other types of creditors. Protection in some cases is even extended to holders of junior subordinated debt and secured debt, and sometimes even to existing debt as well as new debt (i.e. Ireland’s 2008 guarantee). Governments from time to time have also issued guarantees on the liabilities of a single institution -- for example, the UK’s 2007 guarantee on Northern Rock, a mid-sized mortgage lender. In rare instances, protection may be offered only to domestic liability holders, such as was the case for the 2008 Icelandic bank guarantee. Despite the great heterogeneity among guarantees, because they all function in the

same manner by socializing the debts of private actors and adding contingent liabilities to the public books in the name of banking crisis containment, I treat them as a single class.

While highly inclusive guarantees have been the norm for those countries that have enacted guarantees in the past decades, guarantees in recent years have tended to be more targeted, likely owing to the fact that governments that have issued them have been those with exceptionally large banking systems that in some cases have balance sheets far larger than those of countries in which they reside. Due to the tremendous size of banking sectors in the US, UK, Luxembourg, and others, guarantees even on a handful of large institutions or a small number of creditor types easily translate to very large contingent costs. As a result, contingent costs generated by government guarantees as a response to the 2007-2008 crisis tended to amount to double digit percentages of GDP (Claessens 2009), despite the fact that they were on average more tailored in terms of coverage.

Crisis-time guarantees on the banking system go above and beyond any protection offered as part of a normal bank safety net. As the guarantees relate specifically to retail deposits, they may stand in for or even supplement the standard deposit insurance schemes that have become a common feature of many banking systems (Laeven and Valencia 2008).¹ In many cases, existing deposit protection may be insufficient to stabilize the market and prevent bank runs in the event of a systemic crisis.^{2 3}

¹ Laeven and Valencia (2008) note that among the countries that issued blanket guarantees in their sample, 52 percent already had deposit insurance schemes in existence.

² Standard deposit insurance coverage is typically finite. Limits set too low are likely to be insufficient in stopping destabilizing bank runs. Depositors whose deposits exceed the coverage limits are usually expected to have greater sensitivity to bank risk and as a result should enforce greater market discipline by placing deposits in institutions deemed to be safer. However, in situations of systemic instability, it becomes difficult for even large depositors to accurately assess the quality of any individual bank's assets or anticipate the likelihood of from less-than-stable banks (Feyen and Vitas 2009). The more depositors who find themselves uninsured by normal safety nets, the greater the odds of bank runs.

II. Overview of the literature

Government guarantees on bank liabilities are commonly considered a type of bank bailout. While many researchers have devoted their efforts to explaining the fiscal consequences of bank guarantees, as well as other bank bailout measures (i.e. Demirguc-Kunt and Servén 2010; Laeven and Valencia 2008b; Claessens, Klingebiel, and Laeven 2005; Kane and Klingebiel 2004; Honohan and Klingebiel 2003)⁴, comparatively fewer papers have shed light on why it is that states might actually choose to utilize such guarantees. One line of research that has emerged focuses on the domestic political economy of bank bailouts in general. Alternately, a handful of works are suggestive of the crisis-specific circumstances under which it becomes more likely that politicians will implement guarantees on the banking system. Both of these veins of research offer unsatisfying explanations for the use of guarantees in times of crisis.

³ Because observers may question the ability of a deposit insurance fund to cover the real losses that may potentially occur during a systemic crisis (Ennis and Keister 2009), deposit insurance schemes may be inadequate to stopping runs. If the failure of too many banks depletes the deposit insurance fund, late-coming depositors will be left empty thus still have an incentive to run on the bank. Cook and Spellman (1994) offer evidence that depositors reacted to the possibility that U.S. Federal Savings and Loan Insurance Corporation, which became insolvent during the Savings and Loans Crisis, would not honor deposit insurance guarantees.

⁴ Most of these authors argue that guarantees tend to generate moral hazard and weaken market discipline, thereby driving up crisis resolution costs. With bank liabilities protected by the government, insolvent banks may be motivated to take on riskier projects on the small chance that large returns on such investments might save the day, a strategy known as “gambling for resurrection.” By the same token, creditors who are unafraid for their investments under a guarantee have fewer incentives to monitor the activities of their banks, the sort of vigilance that would otherwise generate market-based incentives for sound banking practices. Gambles that backfire are not only counterproductive, but ultimately increase the liabilities of the banks and therefore the government. Kane and Klingebiel (2004) additionally argue that the risk associated with the sheer size of the fiscal outlay involved with making creditors whole if guaranteed institutions are allowed to fail provides strong incentives for governments to pursue any and all means necessary to avoid too many bank closures, even when widespread closures of insolvent banks might otherwise be the most socially optimal policy. Only Laeven and Valencia (2008b) find that the use of blanket guarantees has a tendency to drive down overall fiscal costs. They argue that when governments are able to effectively institute a blanket guarantee, the consequent restoration of depositor confidence allows governments to cut back on the provision of costly emergency liquidity to banks in the containment stage.

II.A The political economy of bank bailouts

A number of scholars that have approached the subject of bailouts have done so broadly, focusing simply on what leads some governments to pursue more generous bank bailouts than others while generally ignoring the choice to use of any particular bailout policy instrument. The assumption that banks have strong incentives to lobby for bailouts (as the most direct beneficiaries of bailouts) and superior potential for collective action relative to the general public (who is asked to foot the bill) undergirds most of this line of research.

As Rosenbluth and Schaap (2003) contend, all else being equal, we should expect that banking policies should consequently favor the interests of bankers. However, in certain institutional settings, the costs of carrying out the will of special interests may outweigh the benefits, and consequently some governments may be less likely to rescue banks or enact other policies that favor banking interests at the expense of the public. On the basis that democratic elections offer taxpayers a mechanism for removing bailout-happy politicians, Rosas (2006, 2009) and Rosas and Jensen (2010) find that democracies have a lower propensity to shift the financial burden of cleaning up a banking crisis onto taxpayers. It should be noted that these particular works, unlike many others, do recognize the variety of bailout tools available and the resulting heterogeneity of bailout packages. However, the authors do not focus on explaining why governments would employ any one policy in particular, instead employing data on the use of various crisis response policies to gauge a government's underlying bailout "propensity" (or the willingness of a government to share the financial pain of remedying the crisis with the banking sector), which they employ as their dependent variable.

Other works also highlight the importance of electoral incentives in conditioning bailout choices. Maxfield (2003) finds that among newly democratized states, in cases where

incumbents have greater uncertainty about voter turnout and cannot trust that supporting crony allies or special interests is a safe strategy for winning re-election, governments are more likely to adopt more universalistic bailouts that shift the burden of payment from the taxpayers onto the banks. Papers by Keefer (2002, 2007) show that competitively-elected governments intervene more swiftly in the face of a crisis and make fiscal transfers to banks which are significantly smaller (on the order of 10-20% of GDP) than their non-democratic counterparts.

In addition, Keefer (2002, 2007) demonstrates that the number of veto points, regardless of their preferences, affects the incentives that politicians face for catering to special interests. Systems with higher numbers of veto players produce fewer incentives for politicians to accommodate special interests because when the agreement of more actors is needed to secure the adoption of a policy, the rents that can be captured in return must be distributed among a greater number of individuals, thus reducing each veto player's incentive to adopt the policy. His empirical results also confirm that fiscal costs are minimized and the use of forbearance⁵ avoided in the resolution of banking crises among countries with more veto players, irrespective of their policy preferences.

Alas, these studies offer no crystal clear understanding of why some countries issue guarantees on bank liabilities while others do not. Countries with democratic institutions or more veto players may spend less when it comes to bailouts in general, but no works have linked this propensity specifically to the usage of guarantees in particular. The events of 2007 and 2008 also provide anecdotal evidence counter to the expectation that democratic institutions discourage the use of guarantees, as heavy reliance on guarantees in recent years has been largely

⁵ Keefer (2002, 2007) utilizes a dichotomous measure of whether countries used regulatory forbearance during the crisis, providing a rare instance where research in to the determinants of bailout policies takes the use of a single measure as the dependent variable. However, Keefer in general does not explore the wider range of options and uses forbearance as a dependent variable only as a proxy for whether states engaged in bailouts.

concentrated among the world's most free and stable democracies. Moreover, the expectation that democracies would be less likely to implement guarantees sheds no light on why it is that such guarantees have been used with increasing frequency over time in the larger historical view. Given that democracies display the same propensity for banking crises as non-democracies (Keefer 2007), a world of more democracies should then be a world of fewer bank guarantees. If anything, we should expect to see guarantees used less often today during banking crises than twenty or thirty years ago, owing to the fact that a greater portion of the world's countries now are governed by democracies.

More problematic, however, is the strong presumption made by scholars in this vein that bank bailouts in general serve little function beyond being a cleverly disguised transfer of public wealth to politically-influential bankers. To the extent that they are actually useful in containing a banking crisis, guarantees may also be a valuable tool whose usage during a crisis may yet have broad political rewards. Financial stability is recognized to be a public good (Garcia 2000) that politicians of all stripes have strong incentives to provide given that political fortunes are often tied to economic performance. A rich scholarship demonstrates that poor economic conditions usually have negative electoral consequences for incumbents (see Kramer 1971; Tufte 1975; Erikson 1989; Pacek and Radcliff 1995; Quinn and Woolley 2001). Plenty of research also shows that non-elected politicians should be nervous about their tenure in power as well when the economy takes a slide; in fact, Geddes (1999) claims that the link between dismal economic performance and a transition to democracy is one of the only stylized facts that has emerged from the immense literature on democratization to be widely supported by the evidence. Other studies have also highlighted the detrimental effects of financial crises in particular for sitting politicians. Chwioroth and Walter (2010) find that incumbents in countries that

experience a crisis are significantly more likely to be replaced than incumbent leaders of countries that did not undergo a crisis. Haggard and Kaufman (1997) illustrate how economic crises lead to political fragmentation within autocracies and give the opposition an upper hand in negotiating democratic transitions.

Unsurprisingly, banking crises are linked to a marked decline in economic performance. Unable to access credit, even healthy firms are vulnerable to failure, consumption is likely to fall, and the payments system may break down, all of which have can pose severe macroeconomic consequences (Demirguc-Kunt and Detragiache 2005). Recent work by Laeven and Valencia (2011) demonstrates how a dip in the supply of credit related to a banking crisis takes a toll on the economic performance of firms. Additionally, even though a banking crisis is sometimes triggered by an economic downturn, Congleton (2009) shows that recessions that follow banking crises tend to be more severe than those that do not occur in the aftermath of a crisis, underscoring the ability of banking crises to wreak havoc on the real economy. Hoggarth, Reis, and Saporta (2002) also estimate that recessions in developed countries that occur in tandem with banking crises are associated on average with a ten to fifteen percent increase in output losses compared to neighboring countries that experience economic turmoil without banking crises.

There are of course potential market-distorting effects of bailing out banks that may adversely impact economic performance in the long run, but it is the short-term considerations about the economy and banking system stability that are likely to drive political action. Normally, the failure of banks that, through whatever series of missteps, are unable to maintain solvency is key to maintaining market discipline in the banking system. Systemic collapses viewed through the rear view mirror may even be deemed necessary for allowing for the rebuilding a more stable banking system and ensuring better future financial market

performance. But actors affected by banking crises are likely to place a heavy discount on the future. Banks that face failure in the near term, creditors who are unlikely to be repaid in the event of failure, depositors who stand to lose the wealth they have already amassed, potential borrowers looking for credit but finding none, and politicians whose tenure is at stake are all unlikely to want to endure short-term hardships in the name of long-term market stability.

II.B The link between guarantees and crisis severity

The idea that guarantees in particular are sometimes a necessary evil for setting the country back on a path to financial stability is captured to some extent in a handful of scholarly works as well as policy papers. The use of a guarantee in and of itself should signify a last-ditch effort to contain a crisis where other attempts have failed, according to Feyen and Vittas, who claim guarantees are only “temporary instruments intended to be used only as a last resort,” (2009:2). Similarly, Laeven and Valencia (2008b) argue that, given the high costs – both in terms of the contingent sums assumed by the state and the moral hazard that flows from the use of guarantees – guarantees are indeed measures of last resort and thus they are generally reserved for use in particularly severe crises. In that same vein, Lindgren et al. (1999) claim that guarantees were imposed in Indonesia, Korea, and Malaysia, and Thailand during the Asian financial crisis “as soon as the severity of the crisis became apparent,” (1999:18).

While these works recognize the possibility that guarantees might be useful for crisis containment and be a logical response to a banking crisis under certain circumstances, they have a set of shortcomings all their own. From this perspective, the very usage of a guarantee is highly informative about the magnitude of the crisis. But scholarship that has drawn a causal connection between the use of government guarantees and the most severe crises has not actually

empirically demonstrated this point. While Laeven and Valencia (2008b) claim that previous studies have not adequately controlled for crisis magnitude in studies that demonstrate the high fiscal costs associated with blanket guarantees, they themselves offer no improvement on this front and provide no empirical test of the relationship. Feyen and Vittas (2009) and Lindgren, et al. (1999) similarly do not provide any evidence that shows that this is necessarily the case.

Unfortunately, assuming guarantees are only used when crises are sufficiently severe or making inferences about the magnitude of the crisis simply from the fact that a guarantee was issued is problematic. The general tendency of many authors to identify, date, or otherwise understand the nature of a financial crisis by examining the measures taken by policymakers to contain it is, according to Boyd, De Nicolo, and Loukianova, akin to “studying the evolution of a disease by just looking at the therapies implemented by doctors when the patient enters the hospital,” (2008:3). Without measuring the magnitude or severity of a crisis in a manner that is not endogenous to the choice to issue a guarantee, it should not be concluded that particularly severe crises are always met with guarantees, nor that government guarantees are only reserved for use against the most devastating crises.

Moreover, these works offer no comprehensive theoretical framework for explaining *ex ante* when crises will be more severe and thus necessitate government guarantees on bank liabilities. However, certain conditions that exist when a crisis hits may logically set the stage for a crisis of more epic proportions, offering a way to theoretically refine and even test the presumption that guarantees on bank liabilities function as a unique tool for crisis containment in some crisis scenarios. Nor do these works elucidate why guarantees in particular are the logical choice for policymakers confronted with an especially virulent crisis. In sum, while these

works offer important insight on the connection between the types of tools politicians utilize and the circumstances under which they use them, there is far more work to be done.

II.C Moving the literature forward

I begin from the presumption that while the public may be adverse to any policy that entails socializing the private debts of banks and loading large contingent liabilities onto the backs of taxpayers, their simultaneous interest in having a well-functioning financial system still sometimes offers political incentives to engage in costly bailout efforts. This leads not so much to expectations that the manner in which political institutions that aggregate domestic interests is an important explanatory factor, but that it is the instances when a banking crisis presents a more dire set of economic circumstances that plays a key role in motivating the use of guarantees on the banking system. In the next section, I explain how the free flow of capital across borders creates these conditions.

III. Banking crises in open economies

III.A Incentives of depositors and other bank creditors during a crisis

The proposition that depositors and creditors, like all investors, are sensitive to risk and are likely to seek a more secure shelter for their money during a crisis requires little theoretical motivation here. The perception that one's bank has become too risky a home for deposits can be assumed to result in that depositor or creditor withdrawing his funds. As is well known, should too many depositors come to the conclusion that their bank is too risky a place for their savings, the result is disastrous for the bank due to the "maturity mismatch" problem inherent to banking described by Diamond and Dybvig (1983). While most depositors can demand their

funds from the bank at any time, banks use that money to purchase assets and to make loans to customers with fixed maturity terms. Because banks do not keep on hand the total amount of money that can be claimed by depositors and are not able to easily generate liquidity by calling loans or selling assets, if too many depositors demand their funds at any given time, the bank will be unable to honor all of its commitments. Anticipation of such a scenario can sometimes be what motivates depositors to withdraw their funds - the classic bank run.

But it is not just a run by depositors that may threaten the livelihood of a bank. Banks also rely on other sources of capital, such as interbank loans and the sale of bonds to investors, to fund their operations. Consequently, banks are vulnerable to runs by other groups of creditors that can have destabilizing effects even if depositors choose to stay put (Demirguc-Kunt, Detragiache, and Gupta 2000). Particularly in a day and age when many banks have moved away from an “originate-to-hold” model to an “originate-to-distribute” model that depends heavily on the wholesale market for funding, the refusal of creditors to provide new funds or roll over existing loans can be highly problematic for the liquidity position of banks. The perils that exist when creditor confidence fades have recently been highlighted by the 2008 global crisis and the funding difficulties of banks worldwide following the 2008 collapse of Lehman Brothers.

III.B Greater dangers in the era of international capital mobility

While depositors and creditors are always free to pull their money when they perceive the risk to their investment be too great, in the era of globalization, the age-old problem that depositors and other bank creditors will rush for the exits takes on a new dimension. The proliferation of banking options that has been unleashed means that many bank customers and

creditors are now more able than ever before to easily move their assets to a safe haven abroad, face fewer costs in doing so, and therefore have more incentive to flee.

In a closed economy, banking sector disturbances may still motivate some people to pull their money from banks, but the options for re-investment at that point are limited. Investors may choose to hold currency or other nonbank securities while others simply move their funds to another domestic bank perceived to be relatively less risky yet ultimately still very vulnerable to contagion.⁶ But the possibility of moving money offshore opens up an array of additional options when a crisis hits home, including the possibility of moving money into a foreign institution where the odds of contagion may be low compared to those of domestic banks. Certainly, transferring bank assets abroad is not a costless activity (Rose and Spiegel 2005) and is likely to involve transaction costs and potentially exchange rate risk. However, in the setting of a systemic crisis, incurring such costs may still be a better bet than keeping money in domestic banks and may tempt more depositors and creditors to flee for the exits than would otherwise choose to.

There is evidence that the increased ability for depositors and other creditors to exit the domestic banking system can have stark consequences. In fact, Kane (2000) contends that the development of offshore banking alternatives was a leading factor in triggering the Asian Financial Crisis. When sophisticated large depositors began to doubt the stability of domestic banks in the region (which had long targeted subsidized credit toward the politically well-connected and as a result had amassed a large pile of unbooked losses), they increasingly moved

⁶ A distinction made by Watson (2007) regarding the mobility of capital in spatial terms and the mobility of capital in functional terms is relevant in describing the changes that have taken place thanks to globalization. While functional mobility refers to the ability to move capital invested in one instrument or sector into another, spatial mobility concerns the ability of capital to be invested overseas. While banking capital has always generally been functionally mobile in that funds invested in a bank can be taken out and invested elsewhere, the change resulting from globalization is the increased spatial mobility of banking capital.

their money into foreign institutions, perceived to be more stable. Eventually, what began as a silent run on the domestic banks gained audibility as increasingly less-sophisticated customers began to express doubt in domestic banks and withdraw their funds as well. Leightner's (1999) qualitative work on the roots of Thailand's crisis similarly points to flight to quality as a factor, causing deposits at numerous banks to drop precipitously between January and October 1997.

III.C The wider macroeconomic impact of cross-border capital flight

The movement of money out of a banking system naturally has a negative effect on domestic financial stability, but the possibility that that capital will also move abroad introduces wider macroeconomic implications. Obstfeld, Shambaugh, and Taylor (2008) dub this situation the “double drain”: in open economies, a crisis may precipitate an *internal* drain of money from banks as depositors and other creditors pull their funds, but also an *external* drain as that capital moves into foreign currencies and assets. The authors argue that the potential of experiencing a double drain scenario, whereby residents finance the purchase of foreign assets with domestic financial capital, has motivated central banks in many countries, particularly emerging markets, to amass the enormous stores of foreign reserves that would be necessary to both stabilize the banking sector and defend the domestic currency.⁷

Because under conditions of capital mobility banking crises may quickly evolve into balance-of-payment crises as well, failing to keep capital at home has additional ramifications for both financial stability and the broader economy. A steep decline in the value of a nation's currency poses difficulties for the repayment of contracts denominated in other currencies, which

⁷ The authors find that many of the emerging markets countries hit by financial crises in the 1990s now have foreign reserve holdings well in excess of the Guidotti-Greenspan rule (a reserve-to-short term external debt ratio of 1). The logic is that having only enough reserves to meet the demands of short-term external creditors is insufficient to prevent balance of payment problems if too many domestic depositors also take flight.

can be devastating for local firms and households with foreign exposures, a common occurrence in countries where local borrowing is often denominated in other currencies.⁸ Foreign exposures coupled with a precipitous decline in the value of the domestic currency can also reinforce problems in the banking sector where banks themselves have borrowed heavily abroad.

Numerous scholars to-date have examined the intersection of banking crises and balance-of-payment crises. Whereas first generation models of balance-of-payment crises centered on the tension between fiscal imbalances and the maintenance of fixed exchange rates, and second generation models emphasize that countries may choose to abandon currency pegs when defending them becomes too costly, third generation crisis models have more closely linked financial sector disturbances to currency collapses and also highlighted the occurrence of “twin crises” (i.e. Velasco 1987, Calvo and Mendoza 1996, Kaminsky and Reinhart 1999, Chang and Velasco 2001, Tornell and Westerman 2003, Obstfeld, Shambaugh, and Taylor 2008, Reinhart and Rogoff 2008b, Hahm, Shin, and Shin 2011). Other papers have concluded that the real economic effects of a twin crisis are more severe than that of either type of crisis alone. Bordo, et al. (2001) conclude that the twin crises have particularly nasty economic consequences, causing output losses that are twice as high for currency crises alone and four times as high for banking crises alone. Together, these works collectively highlight the broader economic implications of banking crises in open economies.

⁸ In some instances, borrowers are unable to borrow in domestic currency and thus choose to borrow in foreign currency, either despite of or oblivious to the involved exchange risk, a practice termed “original sin” by Eichengreen and Hausmann (1999). In other instances, borrowers may choose to take advantage of lower interest rates associated with borrowing in foreign currency, also known as the reverse carry trade. This was popular among borrowers in various central and eastern European states in the lead up to the 2007 crisis, who chose to take advantage of lower interest loans denominated in Swiss francs rather than borrow domestic currency at higher rates.

IV. Crisis containment in open economies

The possibility of bank capital leaking across borders undoubtedly poses a problem for policymakers charged with crisis containment, which if handled improperly only promises to accelerate capital flight, likely deepening the crisis in the banking sector and causing greater economic disruption. I argue that this threat strongly shapes the politics of crisis containment and leads politicians toward the adoption of guarantees where the fear of capital flight is the greatest. The political incentives of decision makers, combined with the extreme level of policy uncertainty that typically characterizes financial crises, push in favor of an aggressive policy response. I examine this claim here.

IV.A Crisis containment amid conditions of uncertainty

Confronted with a crisis, policymakers can only guess how well any particular course of action will work for containing the crisis and restoring financial stability. Kane and Klingebiel (2004) characterize financial crisis-time policymaking as “seat-of-the-pants” decision-making, as politicians and regulators confronted with a crisis are unlikely to have dealt with one before and generally have little guide as to how to effectively deal with the situation. All that decision makers reasonably know *ex ante* is that a) a crisis is likely to have some effect on risk-sensitive depositors and creditors; b) in an open economy, capital can and will flee in search of better options; c) depending on the size of those flows, the results for the banking system and the wider economy could potentially be devastating; and d) there may be stark political consequences that follow from economic devastation, regardless of whether or not a policymaker’s tenure is decided by an electorate. Given the uncertainty that pervades a crisis and the heightened risks that a crisis may pose, politicians have incentives to be bold when it comes to restoring financial

stability. To quote US Treasury Secretary Timothy Geithner, “You are going to make mistakes, so you have to decide which mistakes are easier to correct. In a crisis, you get to a point where you’re going to do too much, because it’s easier to clean that up” (“Farewell, Tim Geithner: Lessons learnt.”).

IV.B Guarantees as the method of choice

When confronted with a crisis, politicians in an open economy have an impetus to act to prevent the flight of banking capital, but how is that accomplished? I argue that guarantees are a uniquely useful weapon for crisis containment in the era of globalization. Although they are not the only option – politicians can after all still choose to attempt crisis containment via extensive liquidity provision from the central bank or impose a bank holiday, for instance⁹ -- guarantees are unlike any other crisis intervention tools. By announcing a guarantee to the public, the government is able to send a clear signal to the market about exactly which investments and investors will receive the sovereign backing of the government and (assuming that the guarantee is credible) will remain safe despite the crisis. Under the protection of the sovereign, there is little need to incur any transaction costs of exchange risk in moving assets abroad, thereby reducing the incentive to run in a way that no other policy can.

But beyond the immediate signal it sends to those who are covered, guarantees can also be a valuable tool for communicating a government’s intentions to do whatever might be necessary for stabilizing the financial sector in the medium- and longer-term, a signal that in and

⁹ Many authors describe certain policy measures or government actions as crisis “containment” measures. Policies implemented during the containment phase are those that function within a country’s existing institutional framework (Calomiris, Klingebiel, and Laeven 2004) and are generally targeted at unfreezing credit lines and minimizing liquidity shortages. By comparison, policies adopted once a crisis is already underway, the so-called “resolution” stage, are centered around medium- and long-term restructuring of bank balance sheets and/or borrower obligations and may entail significant changes to a national institutional frameworks. According to Laeven and Valencia (2008), the main containment tools are bank guarantees, emergency liquidity assistance, and deposit freezes and/or bank holidays.

of itself can help restore market confidence and convince creditors to stay put. Given the high contingent costs associated with issuing a guarantee, government inaction to prop up and rectify troubled banks would likely mean that significantly large payouts would need to be made to creditors of failed banks. Assuming that policymakers are likely to want to avoid such enormous payouts, governments have a far greater stake in avoiding bank closures and are more likely to actively intervene to support and restructure the banking system if a guarantee has been issued. Thus, creditors – even those whom the guarantee may not even include – have greater reason to trust in the safety of the money and fewer incentives to move it.

By comparison, other bailout-style crisis containment measures do not send as strong of a signal to bank creditors or markets in general that there that is no need to flee. Bank holidays or deposit freezes, both options for keeping funds locked up in banks, can only last so long and once they are discontinued, depositors may still be inclined to flee the system in the absence of any government action that assures them their money will be safe. In addition, the imposition of either bank holidays or deposit freezes carries no clear signal about the policymakers' commitment to continued intervention in the banking system to clean up the damage created by the crisis.

The provision of extensive liquidity assistance from the central bank, while certainly a signal to the market that the government is invested to some degree in stabilizing the financial system, is also likely to be less reassuring than guarantees. Liquidity assistance could be discontinued at any time and may not necessarily be followed by any additional government intervention in the resolution stage. Even creditors to banks that had been kept afloat through generous central bank assistance cannot be assured that cheap liquidity will continue to flow as long as necessary. Thus, liquidity assistance is a comparatively much weaker signal to the

markets about the security of money in a troubled banking system and in the absence of a guarantee, creditors still have incentives to flee.

The real usefulness of guarantees as a signaling tool during a crisis is best demonstrated in cases where the total cost of a bank bailout is kept *down* following the issuance of a guarantee. Laeven and Valencia (2008b) argue that guarantees can reduce the need for extensive liquidity support precisely because they have the power to reassure markets about the safety of deposits left in banks, therefore limiting the amount of liquidity that banks need to borrow to stay afloat.

Thus, given the unique capacity of bank guarantees for preventing bank creditors from fleeing, I test the following hypothesis:

Hypothesis 1: States more vulnerable to the outflow of banking capital are more likely to issue guarantees in order to contain a banking crisis.

III.B Capital controls as an alternative to bank bailouts

Policymakers expressly concerned with capital flight and containing its effects are not left with only guarantees and other bank bailout tools at their disposal. One possible option policymakers possess is to simply erect new barriers to capital outflows. The imposition of tighter controls on capital outflows could serve the purpose of retaining valuable capital at home and certainly financial crises have in the past motivated some governments to close their borders to capital outflows. Rather than guaranteeing bank debt and assuming the associated contingent, why would governments simply not opt for capital controls?

One reason is that the imposition of capital controls is likely to be met with strong political resistance in countries that have previously liberalized to a fair degree. The choice to liberalize in the first place sheds some light on the sort of political calculations involved with closing the

doors to capital flows during a crisis. Frieden (1991) argues that the dismantling of capital controls worldwide has been led politically by capital rich firms, including financial firms, who benefit from a wider range of investment options. Similarly, Goodman and Pauly (1993) argue that new opportunities for both evasion and exit brought about by the expansion of international financial markets offered internationally-oriented corporations and financial firms the increased political leverage necessary to convince states to overturn their existing capital control policies, thus explaining eventual global convergence around capital account liberalization.

Over time, the free flow of capital is likely to have only strengthened the political muscle of actors that benefit from openness, such as investors able to grow their wealth through investment abroad, as well as firms that have increased their footing in the domestic market thanks to external financing. According to Haggard and Maxfield, “Increasing interdependence increases the weight of domestic actors with foreign ties, expands the array of interests likely to benefit from and demand greater openness of financial markets, and thus tilts the balance of political forces in a more internationalist direction. Interdependence also implies a greater political voice for foreign investors in the domestic policy process,” (1996:37). Along those same lines, Frieden states, “Inasmuch as this effect holds, increased financial integration implies an across-the-board, lasting increase in the social and political power of capital,” (1991:434).

Given a menu of policy choices which includes bank guarantees and capital controls as the two primary options for preventing capital flight, we should expect that open economies lean toward guarantees rather than controls, all else being equal. Beyond the deadweight social losses that are incurred through the imposition of capital controls, the direct cost born by actors that can no longer reap returns through international portfolio diversification¹⁰ or adequately fund

¹⁰ Forbes (2007) addresses increased financing costs that firms face when capital controls are increased.

overseas operations, as well as costs born by actors that rely on foreign funding (given that controls on outflows are likely to damage a country's reputation as being good place for foreign investment and therefore stifle future capital inflows¹¹), would be likely to trigger political action.

On the other hand, asking taxpayers to bear the heavy contingent costs associated with a guarantee on the banking system (regardless of the potential for such guarantees to contain the crisis and restore financial stability) is likely to be an easier political fight, given that taxpayers as a group are unlikely to muster the political might needed to persuade policymakers to stem capital flight through other means. The low capacity of such an expansive and diverse group to organize their efforts presents a clear challenge. In addition, the relative immobility of taxpayers generally serves to undermine the political pressure that they as a group might otherwise be able to generate.

Accordingly, I also test a second, inter-related hypothesis:

Hypothesis 2: States more vulnerable to the outflow of banking capital are unlikely to respond through the use of capital controls.

V. Guarantees, competitive distortions, and policy diffusion

Thus far, the sources of vulnerability to capital flight I identify have to do specifically with the characteristics of a policymaker's home country as a crisis erupts in the banking sector. But there is also a very dynamic aspect to the potential that money will move abroad that has to do with the options that depositors and creditors have elsewhere, meaning that features and choices of *other* countries may also be linked to a state's decision to guarantee bank liabilities.

¹¹ See Demirguc-Kunt and Servén (2010).

In light of particularly attractive foreign options, depositors and creditors may be more easily convinced to leave the domestic banking system, in turn ramping up the pressure on other states to make similar commitments. I argue that this external pressure influences the timing of guarantee adoption by states and helps to explain overall patterns of policy convergence among states grappling with banking crises.

Capital holders who flee during times of crisis logically flee to safer assets. Operating under purely market conditions, banks or banking systems of questionable solvency would have to offer higher interest rates in order to continue attracting funding.¹² But backed with the guarantee of the sovereign, banks have the advantage of more affordable and stable financing, placing them at an advantage relative to international competitors. With the use of a guarantee, policymakers seek primarily just to keep capital already in their banking system in place by providing those safe assets at home. But in an increasingly interconnected world, the availability of government-backed investments may potentially attract new footloose banking capital from abroad seeking safe and stable investments as well.

Thus, the introduction of a guarantee in state A may entail competitive distortions in the international marketplace. Domestic savers or investors in state B may choose to move their money to state A banks in search of safer assets. Residents of state A may also decide to repatriate funds that they hold in foreign banks. In addition, the implementation of a guarantee in state A may potentially disrupt capital flows that might otherwise occur between states B and

¹² Papers such as Schich and Lindh (2012) have highlighted the fact that sovereign backing by some governments is more valuable than others. The credibility of a state and in turn its guarantee can vary, meaning that the creditworthiness of a guaranteed bank in a state with a weak sovereign may potentially not be markedly different from that of similarly sized firms without state backing in other countries. Conversely, the backing by a strong sovereign can offer a significant boost to a bank's creditworthiness and associated ability to continue attracting funding.

C. For instance, American mutual funds that generally purchase bonds in British banks might decide to buy bonds of Italian banks instead if those instruments are backed by a guarantee.

Given this possibility, the implementation of a guarantee by one country has the potential to cause negative spillover effects for others, as the flight of bank funding from other countries can have a destabilizing effect on their respective banking systems. Because of the competitive distortions that guarantees create, such guarantees may be characterized as beggar-thy-neighbor policies; enhancing the stability of one's banking system by implementing a guarantee may come at the expense of others, however unintended such an outcome might be.

The potential for regulatory arbitrage in international financial markets is particularly strong, thanks to the high cross-border mobility of financial assets (Geneschel and Plumper 1997). Not too surprisingly, literature on financial regulation demonstrates that international capital mobility offers new incentives and constraints when it comes to domestic policymaking. Kane (2000), for instance, shows that the decreased costs now associated with moving money abroad has provided financial intermediaries, investors, and customers alike greater ability to switch national regulatory environments as it suits their needs, limiting the range of viable options that states have for governing their financial sectors. Huizinga and Nicodeme (2002) find that international depositors are attracted to countries with deposit insurance schemes and that, moreover, international deposits are higher in countries with lower insurance premiums, suggesting that the premium states currently charge may be lower than what they would otherwise charge on the basis of domestic demand or need alone.

The implementation of a guarantee in a crisis-wracked state may or may not attract a plethora of international capital from parts of the world that enjoy stable banking options at home. But often, banking crises are not isolated incidents and when trouble infects one banking

system, it tends to infect others as well, producing regional crises (i.e. the Asian Financial Crisis of the late 90s, Nordic crisis of the early 90s, and Latin American debt crisis of the 1980s) and potentially crises with global spread (the 2007-2008 global crisis being the preeminent example). In these instances, countries struggling to restore or maintain financial stability in their borders may be surrounded by other countries seeking to do the same under tough conditions. The competitive distortions that can arise through the use of guarantees create an interesting dynamic when multiple countries are faced with a banking crisis. Because the use of a guarantee in one country may generate negative externalities for others, states in this situation have a greater vulnerability to capital flight and therefore have increased incentives for issuing their own guarantees in response.

The proposition that competition between states can lead them to logically adopt similar policies has been well-established in the policy diffusion literature (i.e. Simmons and Elkins 2004, Simmons, Dobbins, and Elkins 2006). In a world where states compete to attract finite resources, policies implemented in one state that enhance its competitive edge creates externalities that alter the material payoffs involved with the policy choices of competitor states.¹³ This same logic undergirds the “race to the bottom” hypothesis, whereby states face intense pressure to maintain a competitive environment for attracting mobile capital and producing cheaper goods that motivates policymakers to tear down burdensome regulatory and taxation policies that impinge on corporate profitability when other states do the same.

¹³ Expectations of policy diffusion and convergence resulting from international competition typically include the notion that some states function as source of competition while others do not. Intuitively, should the Austrian government decide to increase deposit insurance limits, for instance, this may have the effect of pulling in more banking capital from Germany, given the geographic proximity and shared language, cultural history, and currency of the two states. However, there is less cause to believe that a change in Austrian bank regulation has much effect on depositors in Mongolia or Uruguay, all else being equal. Although the international mobility of capital is not tied to the costs of shipping or travel in the manner that goods and people are, papers such as Hattari and Rajan (2009), Portes and Rey (2000), Portes, Rey, and Oh (2001), and Rose and Spiegle (2005) demonstrate that capital flows are indeed greater between countries of closer geographic proximity and shared ethnolinguistic characteristics.

However, because interstate competition is often recognized to have these effects, the result can sometimes be policy coordination, where states intentionally adopt similar policies. While an advantage can be gained in the short-run by issuing a guarantee, gains can be quickly lost when competitors issue similar or potentially even more generous guarantees for their own banks. Kapstein (1989) highlights the incentives the incentives states have to pursue their own best interests by deregulating their financial sectors in order to enhance their competitive edge, as well as the fact that doing so pushes other states to respond in kind. This so-called “regulator’s dilemma” was overcome by the G-10 countries through policy coordination when they agreed in 1987 to adopt shared standards for bank capitalization in order to level the playing field for international banks.

Whether the result of pure interstate competition or coordinated action, we should expect that the competitive distortions caused by a bank guarantee make it more likely that competitor states will also issue guarantee. Correspondingly, I test a third major hypothesis, as well as a corollary hypothesis:

Hypothesis 3: The choice to issue a bank guarantee is conditioned by the competitive distortions created by the issuance of guarantees elsewhere.

Hypothesis 3a: The choice to issue a guarantee on the basis of competitive distortions may occur in cooperation with other states.

A handful of papers have argued that guarantees do in fact create competitive distortions that drive other countries to do the same, though to my knowledge, none systematically test the proposition. Claessens (2009), for instance, characterizes the Irish bank guarantee of 2008 as a beggar-thy-neighbor policy that had the effect of leading those states most exposed to the distortive effects of the Irish guarantee to quickly coordinate policy actions in response. Honohan also notes the consequences of the Irish guarantee in regards to competition, which he

states placed funding pressure on British banks and “upped the ante for other governments struggling to maintain confidence in their own banking systems,” (2010:127).

VI. Conclusion

For states with liberal economies, international financial markets and capital mobility pose a significant danger when a banking crisis strikes. If depositors and other bank creditors scramble for safety overseas, the domestic banking sector is likely to become even more unstable and severe macroeconomic disruptions are likely to ensue. All parties involved should want to avoid such a scenario.

Politicians operating under conditions of extreme uncertainty regarding how big the scope of an external drain might should be tempted to issue a guarantee to contain the crisis, given that guarantees are the strongest weapons available for convincing bank creditors of all stripes that there is no need to flee. While the public protest a guarantee, as taxpayers are burdened by the large contingent costs of a guarantee as private bank debts become public, their simultaneous demand for financial stability and economic growth leave politicians with few alternatives. One of those alternatives, the imposition of capital controls, should be expected to generate a far more intense political flight from the domestic actors who have been the greatest beneficiaries of open access to international financial markets.

The theory also offers a testable implication at the systemic level. Sovereign guarantees placed on the liabilities in one states can act as a magnet, attracting capital from distressed banks elsewhere. The international competitive distortions generated by bank guarantees should be helpful in explaining broader patterns of guarantee adoption and timing, given that states have strong incentives to quickly follow suit when other states move to guarantee bank liabilities. In

the following three chapters, I empirically test the hypotheses that follow from the theory. In the next chapter, I begin by assessing the effect of an open economy on the decision of politicians to issue a guarantee in the name of crisis containment.

CHAPTER 3: ASSESSING THE RELATIONSHIP BETWEEN CAPITAL MOBILITY AND BANK GUARANTEES

Are governments that fear the flight of banking capital overseas during a crisis more likely to issue guarantees on bank liabilities in order to contain a banking crisis? In the preceding chapter, I argue that the answer to this question is yes. The flight of banking capital is likely not only to further destabilize the banking sector, but it may also trigger a larger macroeconomic crisis. Operating under conditions of extreme uncertainty, politicians vulnerable to banking capital flight are likely to act aggressively to restore market confidence in the banking system through the use of guarantees.

Consequently, I expect that in states with economies that have been opened to cross-border capital flows, policymakers are more inclined to issue a guarantee in the hopes of preventing creditor flight. In this chapter, I evaluate empirically the link between vulnerability to banking capital flight and the use of guarantees using data from 63 banking crises spanning the last several decades. My analysis reveals a strong link between the use of guarantees and a higher level of financial openness. In addition, the results of my analysis also cast doubt on some other potential explanations derived from the existing literature that focus on the constraining nature of various political institutional arrangements.

This chapter proceeds as follows: Section one provides an overview of the sample I use for testing my hypothesis. Next, in section two, I describe the operationalization and measurement of variables in the analysis. In section three, I estimate models for testing my hypothesis. In doing so, I also evaluate the institutional arguments from the literature regarding bank bailout tendencies as they apply to the use of guarantees. In addition, given the potential for banking sectors in open economies to experience domestic credit booms driven by foreign capital inflows prior to a crisis, I also construct a test to ensure that the statistical effect I observe

of economic openness is not explained by an alternative causal mechanism that is independent of the potential for capital flight once a crisis is underway. My results offer no evidence that this is the case. Finally, I provide a discussion of the results in section four and offer conclusions section five.

I. Data

The sample for my analysis comes from Laeven and Valencia (2008), who assemble data on policy responses from 42 banking crises in 37 countries between 1970 and 2007. Although the cases for which they collect policy response data are only a subset of the total set of 124 banking crises identified by the authors during that time period, the subset for which they code policy responses contains cases from every region and both developed and developing countries are adequately represented.

In addition, I have added 21 cases from Laeven and Valencia's (2010) updated dataset, all of which come from 2007-2008 global financial crisis.¹⁴ Unlike in their previous work, the authors make the distinction of whether a crisis was "systemic" or "borderline," labeling 10 of the new cases as systemic banking crises, while the remaining 11 are coded as borderline systemic cases. The authors define systemic crises to be those in which there are "significant signs of financial distress in the banking system (as indicated by significant bank runs, losses in the banking system, and bank liquidations)" and whether "significant policy intervention measures in response to significant losses in the banking system" are implemented (2010:6). In deciding whether a state's response is "significant," the authors use the criteria of whether a state

¹⁴ Although Laeven and Valencia (2010) contains 23 total systemic and borderline crises, the authors include the 2007 crises in the US and UK in both their 2008 and 2010 datasets, so I add only 21 additional cases through the inclusion of the updated dataset. However, I have utilized the most up-to-date data for these two cases from the 2010 dataset.

implements three or more of the following to address financial sector distress: 1) liquidity support in excess of five percent of deposits and liabilities to nonresidents, 2) bank restructuring costs in excess of three percent of GDP, 3) significant bank nationalizations, 4) significant guarantees put in place, 5) asset purchases in excess of five percent of GDP, or 6) deposit freezes and/or bank holidays.

Because all of Laeven and Valencia's 21 cases meet the first criteria regarding signs of financial distress, the key difference in their coding of systemic and borderline cases is simply a function of the degree to which governments intervened, with systemic cases being those in which governments implemented three or more of the major policy responses, while those cases in which governments implemented only two of the major policy responses are considered by the authors to be borderline.^{15 16} However, making distinctions about the severity or systemic nature of a banking crisis on the basis of a government's reaction to it is akin to "studying the evolution of a disease by just looking at the therapies implemented by doctors when the patient enters the hospital," (Boyd, De Nicolo, and Loukianova 2008:3). Aside from the logical fallacy of this approach, while the nature or severity of a crisis may well guide the decisions of policymakers who have the unfortunate task of containing a crisis, it is unlikely to be their only consideration. Relying on policy responses to reveal important information about the crisis itself obscures the fact that other political economy factors – of the very sort under examination here – figure into policy decisions. For this reason, I include both Laeven and Valencia's systemic and borderline cases in my sample.

¹⁵ Laeven and Valencia (2010) concede that their criteria for identifying a banking crisis as "systemic" is a bit arbitrary based on the requirement that a government implement a certain number of policy responses (which is not theoretically-derived), thus their motivation for including the borderline cases in their sample.

¹⁶ Laeven and Valencia (2010) note that, based on the new criteria for systemic crises that appears in their updated dataset, the following cases from their previous 2008 dataset would also be coded as borderline: Brazil 1990, Argentina 1995, Czech Republic 1996, Philippines 1997, and the United States 1988.

II. Variables

II.A The dependent variable

While Laeven and Valencia's 2010 update to their earlier dataset does not include all of the policy response indicators contained in the 2008 edition, both datasets include data on whether a state issued a significant guarantee in response to a crisis event, the dependent variable in my analysis. I adopt their simple dichotomous variable for whether states issue a guarantee. The authors code a country as having issued a guarantee in cases where "a full protection of liabilities has been issued or that guarantees have been extended to non-deposit liabilities of banks," (2010:7) and do not include cases where levels of deposit insurance coverage are simply raised. Of the total 63 crises in my sample, 33 have resulted in the issuance of a guarantee. Table 3.1 breaks down the distribution of the dependent variable.

I also show the distribution of the dependent variable over time in Figure 3.1. As is clear, at least among the cases in the sample, the use of guarantees has been on the rise over the last few decades, having been widely used in crises that occurred during the 2000s, less so for crises in the 1990s, and not at all among the crises included in the dataset from the 1980s. Although the available observations from Laeven and Valencia are but a subset of total population of banking crises that have occurred over this time period, the distribution of guarantee use over time in the sample nonetheless corresponds to anecdotal impressions that guarantees on bank liabilities have been used with increasing frequency in more recent years.

II.B Vulnerability to cross-border capital flight

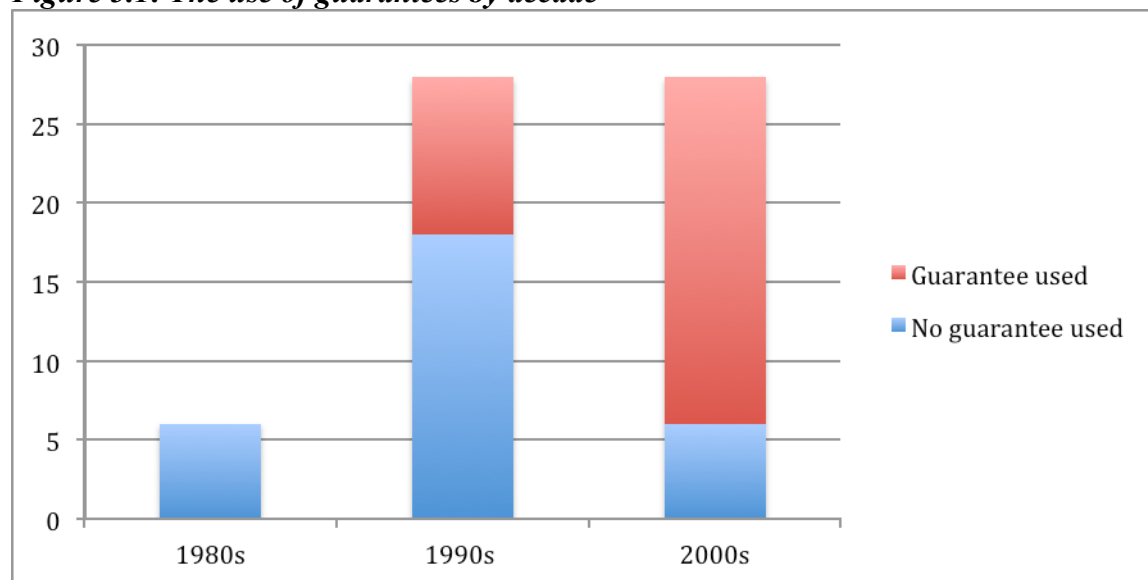
Assuming that crises always make depositors and other bank creditors nervous about the

Table 3.1: Distribution of Guarantee Adoption, 1980-2008

Guarantee issued (33)		No guarantee issued (30)	
Austria (2008)	Malaysia (1997)	Argentina (2001)	Kazakhstan (2008)
Belgium (2008)	Mexico (1994)	Argentina (1995)	Latvia (1995)
Denmark (2008)	Mongolia (2008)	Argentina (1989)	Lithuania (1995)
Ecuador (1998)	Netherlands (2008)	Argentina (1980)	Norway (1991)
Finland (1991)	Nicaragua (2000)	Bolivia (1994)	Paraguay (1995)
France (2008)	Portugal (2008)	Brazil (1994)	Philippines (1997)
Germany (2008)	Russia (2008)	Brazil (1990)	Russia (1998)
Greece (2008)	Slovenia (2008)	Bulgaria (1996)	Sri Lanka (1989)
Hungary (2008)	Spain (2008)	Chile (1981)	Switzerland (2008)
Indonesia (1997)	Sweden (2008)	Colombia (1998)	Ukraine (1998)
Ireland (2008)	Sweden (1991)	Colombia (1982)	Uruguay (2002)
Iceland (2008)	Thailand (1997)	Cote d'Ivoire (1988)	Venezuela (1994)
Jamaica (1996)	Turkey (2000)	Croatia (1998)	Vietnam (1997)
Japan (1997)	Thailand (1997)	Czech Republic (1996)	Venezuela (1994)
Iceland (2008)	Ukraine (2008)	Cote d'Ivoire (1988)	
Korea (1997)	United Kingdom (2007)	Dominican Rep (1998)	
Latvia (2008)	United States (2007)	Estonia (1992)	
Luxembourg (2008)		Ghana (1982)	

Data: Laeven and Valencia (2008, 2010)

Figure 3.1: The use of guarantees by decade



Data: Laeven and Valencia (2008, 2010)

safety of their funds, the question becomes under what circumstances do they choose to move their money abroad? I argue that the absence of national barriers to the outflow of capital is an important factor in this regard. Where there are high barriers to exit, banking sector disturbances may still motivate depositors and creditors to pull their money out of shaky banks, but faced with greater difficulty in transferring funds abroad, that money is more likely to remain in the comparatively stable elements of the national financial system or in other domestically held assets. In other words, while an internal drain remains a possibility (though is likely to be more limited in scale than if there are more attractive foreign options readily available), an external drain and all of the problems that accompany it does not. Conversely, where investors enjoy greater freedom to relocate their capital overseas, they are more likely to do so.

Thus, given that there is a greater impetus to restore market confidence in countries where the threat of an external drain is high, I expect that the extent to which countries have already liberalized the capital account and opened themselves to international flows of capital is significantly predictive of whether a government will issue a guarantee on bank liabilities in order to contain a crisis. The dismantling of controls on capital flows (which were a common fixture of the Bretton Woods international monetary regime) that began in some countries as early as the 1970s has given way to extraordinary levels of global capital mobility and frequency of international financial transactions (see Frieden 1991). However, the degree to which financial liberalization has been embraced varies greatly over time and across countries, allowing for testing of the hypothesis.

Variable measurement. Capital controls are notoriously difficult to measure with precision and there exists no unified framework for measuring or assessing the effects of controls (see Eichengreen 2001). Their use can be motivated by a variety of policy goals (from

preserving savings for domestic use, to greater ease in allocating credit toward politically-valuable firms or industries, to preventing currency appreciation) and they come in various forms (from taxes to price controls to prohibitions on the trade of certain assets) (Neely 1999). As a result “capital controls” are constituted by a nebulous mix of policy instruments.

Several authors have attempted to construct de jure measures of capital controls that are comparable over time and across countries, most based on the International Monetary Fund’s *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER). The simplest of these measures is a simple dichotomous indicator for whether a country has any restrictions on the capital account. This blunt measure, however, says nothing of the intensity of a country’s restrictiveness, lumping together countries that impose minimal restrictions on a small number of capital transactions with those that heavy-handedly restrict a broad swath of transaction types.

More sophisticated de jure measures have emerged in recent years. To better reflect the heterogeneity of capital control regimes, the IMF modified its AREAER coding of capital account restrictions beginning in 1996¹⁷, identifying whether restrictions existed across 13 subcategories of capital account transactions. As a result, new datasets created by Johnson and Tamirisa (1998) and Quinn (2003) better capture the intensity and complexity of capital control regimes. Schindler (2009) even goes as far as to separately code restrictions on capital inflows and outflows across six subcategories on the basis of the greater depth of information available from the AREAER reports.

Although the change to the AREAER coding scheme is an improvement and allows for the construction of disaggregated measurements of capital controls, it complicates measurement across pre- and post-1995 periods. The Johnson and Tamirisa (1998), Quinn (2003), and

¹⁷ The data contained in each annual report comes from the previous year, when information from each member country is submitted to the IMF. Consequently, the changes that appear in the 1996 report correspond to the change in the collection of data beginning in 1995.

Schindler (2009) datasets extend backwards only to 1995 for this reason, and although Miniane (2004) has reconstructed disaggregated measures as far back as 1983, the dataset includes only 34 countries and does not discriminate between inflow and outflow restrictions due to data constraints. Due to the limited time coverage of these datasets, employing any of them would mean excluding roughly a quarter of the cases in my cases.

Chinn and Ito (2008) have taken a slightly different approach to the measurement of capital controls with the construction of their widely used *KAOPEN* index. Their index is based on the AREAER's simple aggregated indicator of whether a country places any restriction on the capital account restrictions, in addition to indicators for the presence of restrictions on the current account, whether a country has multiple exchange rates, and whether there is a requirement for the surrender or repatriation of export proceeds. Measuring capital controls in this manner, as the authors point out, captures the *extensity* of controls a government places on the flow of capital, as countries with existing restrictions on the capital account may choose to intensify the level of restriction on the free movement of money into or out of the country by making modifications within these categories.

There is ample evidence that restrictions on these categories that fall outside of the capital account can have an effect on capital flows. A dual exchange rate system, for example, can be used to separate the exchange markets for financial transactions and other capital or current account transactions. Financial transactions can then be conducted at a rate sufficiently depreciated to a level that will dissuade asset holders for exchanging their domestic assets for foreign ones (Dornbusch 1986). Argentina, for instance, split its exchange rate as part of its approach to containment of their 2001 crisis, forcing financial transactions to occur at a rate of 1.4 pesos to the US dollar while other transactions continued to occur at the prevailing 1-to-1

exchange rate.¹⁸ In fact, because of the distortions created by multiple exchange rate system, Adams and Greenwood (1985) find them to be functionally equivalent to formal tariffs imposed on international transactions. In addition, while restrictions on the payment of dividends and interest payments are technically restrictions on current account transactions (Gallagher 2010), such restrictions can clearly have an impact on international capital movements.

However, probably the greatest advantage of the Chinn and Ito index relative to its competitors is its extensive coverage; it is currently available for most countries between 1970 and 2010. For this reason, I adopt Chinn and Ito's *KAOPEN* variable as my main measure of financial openness in the analysis. To avoid any problems of simultaneity or endogeneity, this variable and all independent variables in the analysis unless otherwise specified contain a one-year lag, measured at time $t-1$ where t denotes the start year of the crisis as defined by Laeven and Valencia (2008, 2010).

Variable distribution. Values for Chinn and Ito's *KAOPEN* index range from -1.84 to 2.47 within the sample with higher values indicating greater capital openness. Data is available for 58 of the 63 total cases in the sample and the mean score is 0.63. As the inclusion of cases in the sample where the state maintained a closed economy and yet experienced a crisis (i.e. Colombia 1982, Kazakhstan 2008) and yet experienced a banking crisis demonstrates, financial openness is not a necessary condition for a crisis to occur. Not surprisingly, the *KAOPEN* scores in the sample mirror the fact that more countries in the world have become more open over the last several decades; among the seven crises in the sample that occurred in the 1980s, the average

¹⁸ See the 2003 IMF *Annual Report on Exchange Arrangements and Exchange Restrictions*.

openness score is -1.05, while the average scores for the 28 cases that occurred in the 1990s and the 28 cases that occurred in the 2000s are -0.06 and 1.68 respectively.¹⁹

De facto v. de jure measures. A fair criticism of de jure measures is that regardless of how they are measured, they fail to capture how well a country actually manages to stem the tide of money moving in or out of the country given that enforcement of restrictions varies and the private sector may find ways around certain prohibitions. But available de facto measurements come with a set of limitations all their own. One option, used by Patnaik and Shah (2010), is to use capital account flows (debits plus credits) as a percentage of GDP, an approach akin to utilizing data on imports plus exports as a percentage of GDP to measure trade openness. Of course, actual capital flows can be influenced by a variety of factors other than capital controls, such as monetary and fiscal policies or political circumstances, and are thus unlikely to be reliable indicators of capital mobility (Eichengreen 2001). Derivations from interest rate parity, which we would expect to be minimal where capital flows freely and options for arbitrage are reduced, are another option, but data are limited.

Thus, given the lack of available and reliable de facto measurement options, I opt only for de jure openness measurements. However, concerns about limitations of de jure measures are somewhat reduced by my particular choice of de jure measurements. Given that the Chinn and Ito index encompasses restrictions on a wider set of transactions, it may also capture the efforts that governments make at curtailing evasive behavior. One example such concerns leads and lags. Leads on import payments (when importers pay early for goods in exchange for a discount and pocket the rest of the foreign exchange) and lags on export payments (when

¹⁹ Although the sample contains 28 observations from the 1990s, *KAOPEN* scores for *t-1* are only available for 24 cases (Czech Republic circa 1995, Lithuania and Latvia circa 1994, and Estonia circa 1991 are not included). Similarly, though the sample contains 28 observations drawn from the 2000s, data are only available for 27 (Luxembourg circa 2007 is not included).

exporters earn additional foreign exchange by offering buyers the ability to pay later in exchange for a higher price) both offer a method of evading outflow restrictions on the capital account (Neeley 1999). By circumscribing the permissible current account transactions, states can limit opportunities for such evasive behavior.

Alternative measurement for robustness. In addition to Chinn and Ito's *KAOPEN* index, I also use data from Schindler (2009) to check for robustness of my regression results. Although, as mentioned, it is only available for a smaller subset of sample, its disaggregation of restrictions on capital inflows and outflows is particularly useful in the testing on my hypothesis, as I theorize that it is specifically the ability of banking capital to leak *out* of a country that influences the adoption of bank guarantees. Correspondingly, I employ Schindler's *KAO* variable, which measures the proportion of six capital account transactions that feature restrictions on outflows.²⁰

Due to the limited time coverage of the variable (1995-2005), in order to increase the coverage for my sample, I employ 2005 *KAO* figures to proxy for openness leading up to a crises for cases in the sample that occur in 2007 and 2008.²¹ For these cases, it simply means that there is a two- or-three year measurement lag, rather than the one-year lag that I use for all other cases. Luckily, the majority of cases in the sample that occur after 2005 are the developed states that

²⁰ The six transaction categories are the purchase of shares or other securities of a participating nature; bonds or other debt securities; money market instruments; collective investments; financial credits; and direct investment. Prohibitions on the purchase or participation in these categories abroad by domestic entities, or on the sale or issuance of instruments locally by nonresidents, are coded as restrictions on capital outflows.

²¹ Although Schindler does describe the criteria that he uses for coding his indexes of inflow and outflow restrictions, applying his criteria to the coding of more recent years requires numerous subjective judgment calls about whether information contained in the AREAER country reports qualifies as a restriction on various elements of the capital account. Thus, instead of extending his dataset myself for the most recent cases in my sample and potentially adversely affecting the reliability of the measure, I choose to supplement earlier index values.

have long maintained open capital regimes²², making it unlikely that using 2005 data to proxy for 2007 levels of capital outflow openness presents too much of a problem.²³ Even by extending the data in this manner, KAO scores are still only available for 39 cases in the sample.

The sample range for the variable as originally constructed is 0 to 1, with 0 representing complete openness and 1 representing complete closure. For the purpose of simplifying the interpretation of the results, I invert the original *KAO* index in my analysis to make them consistent with Chinn and Ito's *KAOPEN*, which assigns higher values to more open countries and lower values to less open countries. The *KAO* variable is correlated with the *KAOPEN* index at 0.65 within the sample.

Preliminary analysis. A quick review of the data shows a strong relationship between capital mobility and the use of guarantees, evident in Table 3.2, a cross tabulation showing the breakdown of whether countries issued a guarantee on the basis of openness values (measured using Chinn and Ito's *KAOPEN* index) for the *t-1* time period.²⁴ Because the *KAOPEN* index is constructed to have a mean of 0, I classify countries with negative values as having low capital mobility category while countries with positive values are grouped in the high capital mobility category.

Though this classification is admittedly somewhat arbitrary, there is a clear relationship between governments that restrict the movement of capital and those that abstained from the use

²² While the majority of post-2005 cases in the sample are developed states with open capital regimes – 15 EU member states, plus Switzerland, Iceland, and the US – there are some exceptions: Kazakhstan, Mongolia, Russia, and the Ukraine.

²³ Extending the use of the *KAO* scores backward in time is far more tenuous given that earlier cases in the sample tend to be developing countries that underwent liberalization at various points in the 1980s and 1990s. In addition, states may make changes to capital controls in the wake of a crisis, making it inappropriate to use data from post-crisis years to proxy for openness in the pre-crisis period.

²⁴ Estonia (1991), Latvia (1994), Lithuania (1994), Czech Republic (1995) and Luxembourg (2007) are not included due to missing data.

of a guarantee on the one hand, and governments that allow freer movement of capital across borders and opt for bank guarantees on the other. Among the 25 cases with low levels of openness, only six involved the use of guarantees (24 percent of the low openness cases). By comparison, of the 32 cases in the high openness group, 26 involved the use of guarantees (81 percent of the high openness cases). In addition, even within the low and high openness groups, there are important differences. Average *KAOPEN* scores, which are calculated for each quadrant in Table 3.2, reveal that among the low openness cases, those states that did issue a guarantee were on average relatively more open than those low openness cases that did not (-0.604 versus -1.055). The same is also true among the high openness cases, with the average score for cases involving guarantees at 2.042 compared to 1.447 for those high openness cases where no guarantee was issued.

II.C Control variables

There are also a number of confounding factors that must be taken into account in assessing the decision to issue a guarantee that should be controlled for in the empirical analysis. The literature suggests an assortment of important control variables, which for conceptual clarity I have grouped into three categories: political, economic, and crisis characteristics. Generally, political controls speak to the institutional setting in which policymakers operate or the relative ability of the banking sector to lobby for favorable treatment, economic controls account for financial constraints that policymakers confront when dealing with crisis containment, and finally crisis characteristic controls address how the severity of a crisis can shape the manner in which it is confronted.

Table 3.2: Cross-Tabulation of the Use of Bank Guarantees by Level of Financial Openness

	Guarantee issued Avg. <i>KAOPEN</i> = 1.615	No guarantee issued Avg. <i>KAOPEN</i> = -0.499
Low openness (<i>KAOPEN</i> < 0)	Ecuador 1998 Korea 1997 Russia 2008 Thailand 1997 Turkey 2000 Ukraine 2008 Avg. <i>KAOPEN</i> = 0.936	Argentina 1980 Argentina 1989 Brazil 1990 Brazil 1994 Bulgaria 1996 Chile 1981 Colombia 1982 Colombia 1998 Ivory Coast 1988 Croatia 1998 Dominican Rep. 2003 Ghana 1982 Kazakhstan 2008 Norway 1991 Paraguay 1995 Russia 1998 Sri Lanka 1989 Ukraine 1998 Venezuela 1994 Avg. <i>KAOPEN</i> = -1.055
High openness (<i>KAOPEN</i> > 0)	Austria 2008 Belgium 2008 Denmark 2008 Finland 1991 France 2008 Germany 2008 Greece 2008 Hungary 2008 Iceland 2008 Indonesia 1997 Ireland 2008 Jamaica 1996 Japan 1997 Latvia 2008 Malaysia 1997 Mexico 1994 Mongolia 2008 Netherlands 2008 Nicaragua 2000 Portugal 2008 Slovenia 2008 Spain 2008 Sweden 1991 Sweden 2008 UK 2007 US 2007 Avg. <i>KAOPEN</i> = 2.042	Argentina 1995 Argentina 2001 Bolivia 1994 Philippines 1997 Switzerland 2008 Uruguay 2002 Avg. <i>KAOPEN</i> = 1.447

Political. Numerous studies have demonstrated that the institutional arrangement of a country can shape a country's overall propensity for engaging in bank bailouts. Keefer (2007, 2002), Rosas (2006, 2009), and Maxfield (2003) all stress the importance of competitive elections in deterring politicians from pursuing overly-bank friendly bailouts. To control for this, I employ the commonly used Polity score, an index-based measure ranging from -10 for countries that are solidly non-democratic to 10 for solidly democratic countries. Countries at the

more democratic end of the spectrum all have open and competitive elections and political participation. Data come from the Polity IV project.

In addition to electoral constraints, the number of veto players in a political system also matters according to Keefer (2007, 2002), who argues that each additional veto point reduces the incentives of any one individual politician to cater to banking special interests in exchange for rents. While democracies are in general more likely to have a greater number of institutional checks and balances, the number of veto points among them may vary considerably and certainly many non-democracies also contain multiple veto points. To control for the number of veto points, I use a measure of checks and balances from the Database of Political Institutions (Beck, et al. 2001).

I also include a control for corruption on the basis that countries with more backdoor dealings and crony ties between bankers and politicians could be more likely to issue guarantees. Barth, Caprio, and Levine (2006) claim that bank regulation and supervision are largely influenced by the bankers themselves, who may attempt to curry favor with lawmakers or sway regulators with the promise of various rewards in exchange for favorable treatment, and there is little reason to believe that systems where financial regulation is determined largely by banks would not also adopt bank-friendly policies in the wake of a banking crisis. Because the veiled nature of crony relationships between banks and officials makes them difficult to control for directly, I use the International Country Risk Guide measure of corruption as a proxy.²⁵ The IRCG measure takes into account the demand for “special payments and bribes,” as well as, “actual or potential corruption in the form of excessive patronage, nepotism, job reservations, ‘favors-for-favors’, secret party funding, and suspiciously close ties between politics and

²⁵ For the majority of cases, this variable is measured with a one-year time lag. However, the dataset has not been recently updated to include any post-2006 data. Consequently, for all 2008 crises I use 2006 data, equivalent to a two-year lag.

business,” (PRG Group, 2009:4-5). Highly corrupt environments such as these are both reflective of and conducive to rent-seeking behavior by banks.

Aside from different institutional settings, it may also be the case that bailout policy choices vary on the basis of variation across banking systems. Thus, I also control for the ratio of private credit from banks-to-GDP, a common measure of banking sector depth. In countries with deep banking systems, banks serve a relatively more important economic function, a fact that likely gives them additional political clout. Data for this variable are also taken from Beck and Demirguc-Kunt (2009).

Economic. Various researchers suggest that a country’s ability to bail out banks and the manner in which it chooses to do so co-varies with its level of development and/or their fiscal resources (i.e. Rojas-Suarez and Weisbrod 1996; Boyd, DeNicolò, and Loukoianova 2008). The choice to issue a guarantee in particular should logically be commensurate with the government’s ability to have that guarantee appear credible to the market. If the market doubts in the government’s ability to make payouts to depositors and creditors in the event of bank failures, or questions whether the country possesses sufficient sums of money to invest in restructuring insolvent institutions as necessary, a guarantee will likely be ineffective in containing the crisis. For this reason, guarantees on bank liabilities are best left to countries with the resources to bear hefty potential costs. Although there is some theoretical possibility that the relationship between these economic constraint variables could actually run the other way – countries without the means to funnel vast amounts of liquidity into the banking system during the containment phase could potentially choose to take the long-shot gamble of issuing a guarantee out of desperation and lack of other options – I expect that countries with stiffer economic constraints would be less likely to adopt the strategy of guaranteeing bank liabilities.

I operationalize economic resource constraints with three different measures. The first is a log transformation of GDP per capita. In general, richer countries have greater resources for backing a guarantee not just financially, but also in terms of skilled personnel needed during the restructuring phase. The second economic constraint control I include is the country's level of public debt. Those countries already running large debts should have a more difficult time (both politically and logistically) allocating money to covering the cost of the guarantee if necessary. Public debt data come from Abbas, et al. (2010). The third economic constraint control is GDP growth. Like having large levels of debt, sluggish or negative GDP growth in the run up to the crisis may increase the difficulties of having a guarantee appear credible to the market and may also present political roadblocks in passing such measures.

The final economic constraint variable I include is the flexibility of the exchange rate. For countries committed to a peg, the possibility that capital will flee the domestic banking system for safer havens abroad presents a more acute economic threat. In addition, addressing a crisis via intensive liquidity assistance from the central bank is likely to conflict with efforts to maintain the value of the currency. Correspondingly, for countries with more rigid exchange rate regimes, I expect the implementation of a guarantee to be more likely. I measure the flexibility of the exchange rate using the de facto classification from Ilzetzski, Reinhart, and Rogoff (2010). The authors use a four-point scale to rate the flexibility of exchange rate regimes with "1" being for countries with rigidly fixed exchange rates or no separate legal tender to "4" for countries with freely floating exchange rates.

Table 3.3: Control Variables

Variable	Observations	Minimum	Maximum	Mean	Expected relationship
<i>Political controls</i>					
<i>Democracy</i>	61	-9	10	6.23	Negative
<i>Checks</i>	62	1	6	3.6	Negative
<i>Corruption</i>	53	1.5	6	3.58	Positive
<i>Private credit</i>	56	0.02	1.92	0.68	Positive
<i>Economic controls</i>					
<i>GDP/capita</i>	61	337	106902	19444.69	Positive
<i>Public debt</i>	60	5.68	221.31	46.66	Negative
<i>GDP growth</i>	62	-9.8	10	2.79	Positive
<i>Exchange rate</i>	60	1	4	2.42	Negative

III. Empirical analysis

I estimate multivariate regression models using logit analysis given the dichotomous nature of the dependent variable. All models are estimated using robust standard errors. Because of the limited number of observations (just 44 for most models once all controls are entered), I consider any coefficients that at or below the $P < 0.10$ level to be statistically significant.

The statistical results of my analysis are displayed in Table 3.4. In model 1, the baseline model, I employ Chinn and Ito's *KAOPEN* variable, labeled *openness*, as my measure of economic openness. The dependent variable of the model is the full original dependent variable as taken from Laeven and Valencia (2008, 2010). Model 2 in Table 3.3 function as a robustness check where I swap out Schindler's *KAO* index in place of the Chinn and Ito's *KAOPEN* index to measure openness.

Table 3.4: Main Logistic Multivariate Regression Results

Coefficients	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)
<i>Openness</i>	0.94 (0.42)**	---
<i>KAO</i>	---	5.33 (1.75)***
<i>Democracy</i>	-0.13 (0.12)	-0.27 (0.13)**
<i>Checks</i>	0.50 (0.43)	1.81 (0.73)**
<i>Corruption</i>	-0.11 (0.43)	-2.03 (1.30)
<i>Private credit</i>	0.66 (1.14)	2.66 (2.53)
<i>GDP/capita</i>	0.25 (0.42)	-0.39 (0.52)
<i>Public debt</i>	-0.01 (0.01)	0.08 (0.05)
<i>GDP growth</i>	0.25 (0.13)*	0.73 (0.27)**
<i>Exchange rate</i>	-0.70 (0.01)	-1.22 (0.61)
Intercept	-1.61 (3.78)	-1.43 (3.91)
N	44	33
Pseudo R squared	0.47	0.58
Log Pseudolikelihood	-15.62	-8.08

* P-score <0.10, ** P-score <0.05, *** P-score <0.01

The results of model 1 clearly demonstrate the importance in the level of openness in determining whether a country issues a guarantee on bank liabilities. The *openness* coefficient is positive and significant above the $p < .05$ level and adding or removing any combination of the control variables included does not significantly change the robustness of the *openness* coefficient. Other notable findings from model 1 include the significant coefficient on the *GDP growth* variable. The relationship is as expected, suggesting that states with higher growth have more political and logistical room to issue guarantees on bank liabilities. Somewhat surprisingly, given the institutional bailout literature, none of the political controls are significant in the model. No other controls enter the model as significant.

Though the effect of *openness* is clearly statistically significant in the multivariate model, I also examine its substantive effect on the adoption of guarantees. A test of the first difference

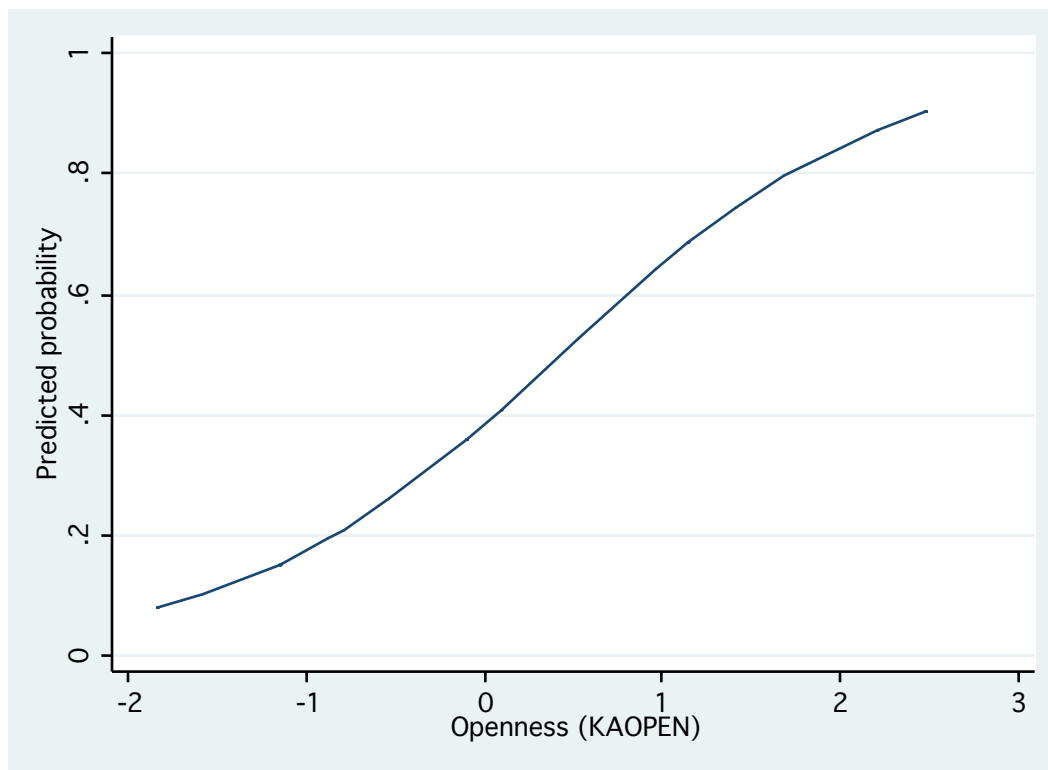
between a country in the top 25th percentile of *openness* (the U.S., for example) and a country in the bottom 25th percentile (such as Ukraine) reveals that not only is the difference statistically significant, but that the substantive effect is quite large. The likelihood of a government in the top 25th percentile issuing a guarantee is approximately 49 percentage points higher than a country in the bottom 25th percentile. I also plot the predicted probability of adopting a guarantee along the Y-axis and the values of *openness* in the X-axis in Figure 3.2. The graph reveals that countries with the lowest levels of openness in the sample have approximately a ten percent chance of adopting a guarantee while those with the highest levels have roughly a 90 percent likelihood of issuing a guarantee.

Robustness check. In model 2, I swap out the original openness measurement for an alternate one to ensure that the significance of *openness* is not limited to the manner in which it measured. When the main *openness* indicator (Chinn and Ito's *KAOPEN* index) is replaced with Schindler's *KAO* index, de jure financial openness continues to exert a strongly significant and positive effect. Not only does this result reinforce the main finding of model 1, but because the *KAO* index specifically measures restrictions on capital outflows, it also serves as additional evidence that it is the fear that money may leave the country in particular that drives the decision to issue a guarantee on bank liabilities.

There are however a number of differences across models 1 and 2 in regards to estimated coefficients on the control variables. In addition to *GDP growth*, *democracy*, and *checks* are also significant in model 2. While the direction of the coefficients are as expected for *democracy* and *GDP growth*, the one on *checks* is not. Counter to expectations that may be derived from the literature, the results suggest that countries with a higher number of veto points are actually more likely to issue guarantees. Of course, because of the smaller number of observations in the

sample and the different lags over which my use of the *KAO* index measures openness, these results are more tenuous than those obtained in models 1. But because institutional explanations have played such a prominent role thus far in the bailout literature, I also conduct additional tests in an attempt to better tease out the effects of institutional arrangements in the next subsection.

Figure 3.2: The predicted probability of the use of guarantees



III.B Further assessing the role of political institutions

Because the *democracy* and *checks* are rather highly correlated at 0.62 in the sample, it is possible that collinearity between the two variables is driving up standard errors in the models and concealing the full individual effect of each variable. Thus, I run additional models with *democracy* and *checks* separately to assess whether this is the case. In all the models, I use only the *KAOPEN* index as my measurement of openness given its superior coverage in the sample

and potential concerns about the reliability of the *KAO* index given different time lags. The results appear in Table 3.5.

Models 4 and 5 offer no support for the proposition that institutional characteristics have much effect on the decision to use issue guarantees. Again, while *openness* is consistently significant in the models, neither *democracy* nor *checks* exert any independent effect. In total, these results presented in this chapter cast doubt on the notion that institutional differences can explain much variation among the use of particular bailout policies, at least in the manner that has previously been suggested. While competitive elections or a greater number of veto points may cause governments to spend less on bailouts or have a decreased propensity in general to intervene during a banking crisis, it does not in general appear to systematically condition the usage of individual bailout tools.

Table 3.5: Logistic Multivariate Regression Results Further Testing the Effect of Institutional Controls

Coefficients	Model 3 Coefficient (S.E.)	Model 4 Coefficient (S.E.)
<i>Openness</i>	0.83 (0.38)**	0.84 (0.34)**
<i>Polity</i>	-0.03 (0.09)	---
<i>Checks</i>	---	0.26 (0.35)
<i>Corruption</i>	-0.15 (0.35)	-0.20 (0.35)
<i>Private credit</i>	0.92 (1.26)	0.76 (1.18)
<i>GDP/capita</i>	-0.24 (0.41)	0.21 (0.39)
<i>Public debt</i>	-0.01 (0.01)	-0.01 (0.01)
<i>GDP growth</i>	0.23 (0.12)*	0.24 (0.15)
<i>Exchange rate</i>	-0.66 (0.44)	-0.64 (0.45)
Intercept	-0.39 (3.85)	-0.95 (3.57)
N	44	44
Pseudo R squared	0.45	0.45
Log Pseudolikelihood	-16.22	-15.99

* P-score <0.10, ** P-score <0.05, * P-score <0.01

III.C Looking more closely at the causal pathway between openness and guarantees

While the statistical models all strongly suggest a relationship between openness and the use of guarantees, I consider here the possibility of another causal mechanism that may be driving these results. That is, more open countries might be systematically more vulnerable to shocks, which in turn lead to more severe crises (independent of the ability of creditors to flee during a crisis) that require a stronger policy response. Papers such as Reinhart and Rogoff (2008) and Hahm, Shin, and Shin (2011) demonstrate an important link between capital inflows and the occurrence of banking crises. A surge of inflows, which is typically mediated through the domestic banking system,²⁶ leads to bank overleveraging and a corresponding artificial inflation of asset prices. As a result, the banking system can become more vulnerable to destabilizing shocks. Mendoza and Terrones (2008) find a strong association between capital inflows and these types of episodes, typically called credit booms.

Because some degree of liberalization of the capital account is a necessary prior to a significant influx of foreign investment, it is possible that financial openness systematically sets the stage for crises of more epic proportions by overinflating the banking system and asset prices, regardless of the possibility that bank creditors will choose to exit. In turn, the use of guarantees is targeted not directly at preventing capital outflows, but is simply a last resort for policymakers who may be unable to contain the domestic crisis by any other means.

Sufficient variation across the cases in my sample in terms of capital openness demonstrates that a) banking crises certainly do happen in countries that are relatively more closed than their peers, and b) that financial openness is not likely to be systematically driving their inclusion into my sample. But to investigate whether it is capital *inflows prior to a crisis*,

²⁶ See Brunnermeier, et al. (2012).

not the total potential for capital *outflows during a crisis*, that is linked to the use of guarantees, I swap out the de jure openness measure with a measure of pre-crisis capital inflows.

I measure foreign capital inflows using data from Lane and Milesi-Ferretti's (2007) *External Wealth of Nations* dataset on cross-border capital stocks. The authors have compiled data on foreign assets and liabilities using a variety of major sources, such as the IMF's International Financial Statistics (IFS), World Economic Outlook (WEO), and Coordinated Portfolio Investment Survey (CPIS), and the World Bank's Global Development Finance database. I specifically use their estimates of external debt liabilities, which are measured as the total stock of a state's foreign portfolio debt stocks plus holdings of other debt instruments (including foreign loans, deposits, and other miscellaneous items) in millions of US dollars. To standardize these figures across cases in the sample, I transform them into percentages of national GDP using data from the World Bank. Among the cases in the sample, external debt levels range from 167 percent of GDP to 3325 percent of GDP with a mean of 435 percent of GDP.

I estimate the model with all of the same control variables used in previous models, the results of which are displayed in Table 3.6. The coefficient on foreign capital inflows, unlike the coefficient on de jure openness in previous models, is insignificant. Based on the results, it does not appear that pre-crisis levels of inflows, nor the destabilizing effects on the domestic economy or banking system that have been associated with credit boom period, have any systematic effect on the choice of policymakers to respond to the crisis through the use of bank guarantees.

This is not to say that foreign capital inflows are not part of the equation when it comes to a country's propensity to experience capital outflows during a crisis. Foreign creditors to the banking system may even be some of the first to cut and run when signs of distress begin to

emerge. However, the choices that *domestic* bank creditors when a crisis strikes are another important element, as has been shown by Obstfeld, Shambaugh, and Taylor (2008). It is only when taken together that these two that we get a more complete picture of a state's overall vulnerability to capital outflows.

Table 3.6: Logistic Multivariate Regression Results Assessing the Effect of a Credit Boom

Model 5	
Coefficients	Coefficient (S.E.)
<i>Foreign capital inflows</i>	-0.24 (0.15)
<i>Polity</i>	-0.05 (0.11)
<i>Checks</i>	0.06 (0.34)
<i>Corruption</i>	-0.38 (0.43)
<i>Private credit</i>	2.17 (1.24)
<i>GDP/capita</i>	0.78 (0.45)*
<i>Public debt</i>	0.01 (0.01)
<i>GDP growth</i>	0.15 (0.12)
<i>Exchange rate</i>	-0.62 (0.40)
Intercept	-5.06 (3.56)
N	45
Pseudo R squared	0.37
Log Pseudolikelihood	-19.13

IV. Discussion

The analysis presented in this chapter is not without limitations. Obviously, the small sample size raises questions some about the reliability and validity of statistical results presented in this chapter. With only 44 observations in most models, we cannot have the same faith about the reliability of coefficient estimates as those obtained with much larger samples. In addition, the country coverage and time span of the small sample proves limiting in terms of variable measurement. The low availability of data with similarly expansive time and geographical coverage with which to measure variables in the analysis is most notably a constraint in terms of

measuring the main independent variable. The use of Schindler's *KAO* variable in all model specifications instead of Chinn and Ito's *KAOPEN* index would be preferable given that it more narrowly targets the ease with which money can exit the country during a crisis, therefore providing a better test of the hypothesis. In addition, incomplete coverage among the various datasets used in the analysis whittles the number of observations used in most models from 63 to only 44.

At the same time, the time coverage of the sample falls short of ideal. The ability to test these claims over a longer time period would ensure a higher level of external validity for the conclusions drawn here. Especially as my theory centers on the constraining effects of globalization, the inclusion of data on government efforts to contain crises as far back as the first era of globalization at the end of the 19th Century could be illuminating. Further research on this issue would benefit from efforts to collect more policy data for the banking crises that have occurred throughout time.

V. Conclusion

The results of the empirical tests presented in this chapter allow me to reject the null hypothesis. My analysis demonstrates that states with open capital regimes prior to the emergence of a crisis are indeed more likely to implement bank guarantees as a mode of crisis containment. The evidence falls neatly in line with the theory that bank guarantees are a distinctly powerful tool used by policymakers for reassuring depositors and creditors that there is no need to flee to safety abroad in states vulnerable to a crisis of market confidence.

The statistical findings contained herein also allow me to be confident in the causal connection between economic openness and use of guarantees that I have outlined in the

previous chapter. While it is conceivable that an open capital account might encourage the use of guarantees systematically as a response to crises brought on by credit booms, empirical testing does not support this presumption. It is in fact not large capital inflows before a crisis that condition the response of policymakers, but rather the full scope for outflows during a crisis.

Finally, the results of the empirical analysis also raise some questions about findings from the previous literature on bailouts. My models offer little evidence that the use of guarantees is systematically influenced by the presence of democratic institutions or having a greater number of decision makers at the table. In fact, these results are highly suggestive not about the role of bank guarantees as a private good for banks (an assumption that guides the institutional literature), but as a means for providing an important public good, financial stability. When it comes to guaranteeing bank liabilities, decisions about crisis containment appear to be much more clearly linked to uncertainty about the ultimate depth of the crisis and its wider potential economic impact.

These findings suggest that a more refined understanding of the relationship between democratic institutions, veto points, and the use of individual bailout tools is needed. While the overall costs of crisis containment may be kept down in certain institutional settings, it is far from clear how this is achieved or what use of policy tools are involved. For instance, potentially greater policy credibility could explain why democracies may be able to intervene extensively when need be to contain banking crises, and yet are able to do so at a cheaper cost. These questions and more offer exciting avenues for future research.

CHAPTER 4: GUARANTEES V. CAPITAL CONTROLS: EXPLORING BROADER PATTERNS IN CRISIS CONTAINMENT

Banking crises have a tendency to sour market confidence in the security of bank investments, leading depositors and other bank creditors to seek out safer shelters. Investors not constrained by barriers to capital mobility are more likely to look for shelters abroad, posing a problem for more open states. I find in the preceding chapter that the more vulnerable a state is to massive capital outflows during a banking crisis, the more likely policymakers are to go to great lengths to prevent capital flight by issuing blanket guarantees. To the extent they are credible, guarantees can soothe market fears about the safety of deposits and other investments in the domestic banking system and thus prevent investors from searching for new assets overseas.

But that conclusion begs the question, if policymakers are concerned about capital flight, the potential for which is highly conditioned by the rules (or absence thereof) that government has set in place regarding capital mobility, why not simply change the rules? In other words, why not adopt new or strengthen existing capital controls? Doing so might be equated with “throwing sand in the wheels” of global financial flows, as famously argued by Tobin (1978). Indeed, the historical record shows that some states have attempted to do exactly that when a crisis strikes, introducing new controls or intensifying existing ones in order to dam up an outflow of funds.

This observation suggests the need to view the choice to issue a blanket guarantee in a broader context. The use of guarantees and capital controls are both options for preventing capital flight and policymakers could theoretically choose to enact either or both as methods of

crisis containment. Given that these two tools can be used to the same ends, the choice to issue a blanket guarantee is interdependent to the choice to stop outflows via capital controls.

In this chapter I set the decision to issue a guarantee into a wider context, examining the usage of guarantees vis-à-vis the imposition of capital controls. I argue that while the need to prevent capital from fleeing may motivate the use of either blanket guarantees or capital controls, the constraints involved with implementing these two policies are different. Shutting the borders to capital flows is also likely to ruffle the feathers of entrenched interests in a way that blanket guarantees are not. Particularly for countries that have long been open to capital flows, domestic actors that have benefited from access to foreign financing, and only grown more politically influential as a result, may be formidable opponents to those who would seek to close the exits. While blanket guarantees may not be overly popular with taxpayers, there are likely to be higher political costs to imposing controls given the political muscle of globally-oriented sectors. Consequently, I expect that given the two options, policymakers in open economies are more likely to adopt blanket guarantees, regardless of the option to institute capital controls.

Using multinomial logit analysis, I assess differences across the cases in the sample that lead to the adoption of either blanket guarantees or stronger capital controls. The results of my analysis suggest that blanket guarantees and capital controls are unlikely to be viewed by policymakers as simple substitutes for one another. Given the choice between blanket guarantees and capital controls, financially open countries are significantly more likely to choose guarantees. Moreover, states that impose tougher restrictions on capital outflows are

significantly less likely to be open economies. Even though they are less vulnerable in the first place to capital outflows, it appears that crises still motivate a crack down on outflows, though it is unclear why solely from the results of my analysis.

I also examine in closer detail the case of Iceland. Though the country had undergone major financial liberalization prior to the crisis, Icelandic policymakers not only issued a guarantee on bank deposits, but also imposed extensive controls on capital outflows when crisis struck in 2008. However, rather than suggesting a flaw of the theory, closer inspection of the case reveals it to be quite an anomaly. Iceland's efforts to barricade the exits appear to be the rather unavoidable consequence of a banking sector that had grown well beyond the government's ability to rescue it during a crisis. Though the government had guaranteed the domestic deposits of its severely dysfunctional banking system, the extraordinary external liabilities of its banks meant that there was no way that the government could avoid economic collapse through the use of guarantees alone.

This empirical chapter proceeds as follows: I first discuss the sample for the multivariate analysis in section one. In section two, I describe the variables used in the analysis. The coding of the dependent variable in this case involves the creation and coding of new data, which I explain in detail. Section three contains the empirical analysis, in which I conduct quantitative analysis to test the hypothesis. In this section, I also take a closer qualitative look at the Icelandic case. I discuss the results of the analysis and their implications in section four. I conclude the chapter in section five.

I. Data

The sample for my analysis comes from Laeven and Valencia (2008, 2010), who collect data on policy responses to banking crises between 1970 and 2009. The authors define the crisis episodes in the data as periods of “significant signs of financial distress in the banking system (as indicated by significant bank runs, losses in the banking system, and bank liquidations)” and whether “significant policy intervention measures in response to significant losses in the banking system” are implemented (2010:6). There are some slight differences in the manner in which they identify crises across the 2008 and 2010 datasets, however I do not offer a lengthy description here as more through discussion of the features of the two datasets and how I have combined them is contained in the previous chapter. The sample encompasses a wide range of cases in terms of both country income levels and geographic regions. In total, the sample contains 63 distinct crisis episodes.

II. Variables

II.A Dependent variable

Given the interdependence of crisis containment options I discuss above, I seek to construct a dependent variable that captures the choices that governments have to prevent capital flight during a banking crisis. I assume that the two primary choices are the use of blanket guarantees and the use of capital controls. In constructing the variable, I first identify whether states that a) issued a guarantee, and/or b) tightened capital controls.

Identifying the use of blanket guarantees. As in the previous chapter, I use Laeven and Valencia's (2008, 2010) banking crisis resolution dataset to identify cases in which the government attempted to contain a banking crisis with the use of a blanket guarantee. Their indicator is dichotomous with countries that issued a blanket guarantee in response to the crisis coded "1" and those that did not "0". Crises are coded as having issued a guarantee in cases where "a full protection of liabilities has been issued or that guarantees have been extended to non-deposit liabilities of banks," (2010:7) and do not include cases where levels of deposit insurance coverage are simply raised. Guarantees were issued in 33 of the 63 crises in the sample. Table 4.1 below summarizes the cases in the sample where blanket guarantees were issued to contain a crisis.

Identifying a tightening of capital controls. In constructing the dependent variable, I also identify the cases in which policymakers opted to institute capital controls in response to a crisis. Unfortunately, there exists no dataset to my knowledge that is particularly useful for identifying instances when policymakers change the rules in order to prevent capital flight. While various measurements of capital openness (all of which suffer from their own theoretical problems by nature of their construction, as I discuss at much greater length in chapter three) are available, relying on year-to-year changes in country scores to identify instances where states became more closed is inappropriate on two counts.

Table 4.1: Distribution of Guarantee Adoption, 1980-2008

Guarantee issued (33)		No guarantee issued (30)	
Austria (2008)	Malaysia (1997)	Argentina (2001)	Kazakhstan (2008)
Belgium (2008)	Mexico (1994)	Argentina (1995)	Latvia (1995)
Denmark (2008)	Mongolia (2008)	Argentina (1989)	Lithuania (1995)
Ecuador (1998)	Netherlands (2008)	Argentina (1980)	Norway (1991)
Finland (1991)	Nicaragua (2000)	Bolivia (1994)	Paraguay (1995)
France (2008)	Portugal (2008)	Brazil (1994)	Philippines (1997)
Germany (2008)	Russia (2008)	Brazil (1990)	Russia (1998)
Greece (2008)	Slovenia (2008)	Bulgaria (1996)	Sri Lanka (1989)
Hungary (2008)	Spain (2008)	Chile (1981)	Switzerland (2008)
Indonesia (1997)	Sweden (2008)	Colombia (1998)	Ukraine (1998)
Ireland (2008)	Sweden (1991)	Colombia (1982)	Uruguay (2002)
Iceland (2008)	Thailand (1997)	Cote d'Ivoire (1988)	Venezuela (1994)
Jamaica (1996)	Turkey (2000)	Croatia (1998)	Vietnam (1997)
Japan (1997)	Thailand (1997)	Czech Republic (1996)	Venezuela (1994)
Iceland (2008)	Ukraine (2008)	Cote d'Ivoire (1988)	
Korea (1997)	United Kingdom (2007)	Dominican Rep (1998)	
Latvia (2008)	United States (2007)	Estonia (1992)	
Luxembourg (2008)		Ghana (1982)	

Data: Laeven and Valencia (2008, 2010)

First, while composite index measurements available for the capturing openness (such as Chinn and Ito's *KAOPEN* index, which I use in the analysis contained in the previous chapter) offer a comprehensive picture of a state's overall approach to limiting capital flows at any given point in time, they are less helpful for identifying changes that occur in a country's regime given that changes made in one dimension can be offset by changes made in another, resulting in no change to a country's overall score. For instance, a state may choose to liberalize existing rules on inward FDI flows during a crisis in order to open up the pool of potential private buyers for

distressed banks²⁷, but at the same time also seek to limit currency convertability or implement new repatriation requirements for domestic assets in order to curb capital flight. In such a case, the state's index score may remain unchanged despite some substantively important developments.

Another problem with using changes in existing measurements of capital openness to assess whether states have modified rules concerning capital flows is that it is difficult to identify instances where states that are already relatively closed try to clamp down even further. Available composite measures all rely on some variety of dichotomous indicators on whether restrictions exist on distinct categories of international transactions. Thus, if restrictions already exist within a given category but are simply tightened, it would not be reflected by any change in a country's score. The case of Chile, which had limits in place on the amount of foreign currency that tourists could exchange but dramatically reduced those limits in 1982 to curb capital outflows, offers a clear example. This problem is even worse for measures of capital openness that rely on a simple dichotomous indicator of whether there are any restrictions on the capital account, such as the one used by Leblang (1997), in which case neither a tightening of existing rules nor the addition of new types of restrictions on the capital account would be captured.

Consequently, I choose to create my own indicator of whether a state tightened or implemented new capital controls in response to the banking crisis. To do so, I rely on the

²⁷ Hoggarth, Reidhill, and Sinclair (2004) claim that the elimination of foreign takeover restrictions following crises in Finland and Mexico was motivated for just this purpose.

International Monetary Fund's *Annual Report on Exchange Arrangements and Exchange Restrictions*. The yearly reports provide extensive details on the features of national capital control, trade, and exchange rate regimes across nearly all the world's states and are the foundation of the vast majority of academic efforts to quantify capital controls.²⁸ Each year, the reports also summarize any recent changes that were made to laws regarding international transactions or the currency, which makes spotting changes to existing rules relatively easy.

Where possible, I also supplement this approach with extant studies on capital controls that illuminate the details of various cases. Some instances of the use of capital controls have received much attention (i.e. Malaysia in 1998), whereas other instances have had hardly any mention at all. But to the extent that details emerge from previous studies that are useful for clarifying and/or corroborating any changes documented by the AREAER reports, I incorporate them where possible.

The construction of the variable in this manner also allows me to focus specifically on rule changes that impact capital *outflows* in particular. Some states may move to enact tougher restrictions on capital *inflows* in light of a crisis²⁹, but those are not the types of restrictions that are immediately theoretically relevant. Broadly, rule changes affecting outflows are those that

²⁸ Capital control datasets built on the AREAER reports include those by Johnson and Tamirisa (1998), Quinn (2003), Miniane (2004), Schindler (2009)

²⁹ There are reasons to suspect that countries may actually seek to increase not just barriers to outflows, but also barriers to inflows in response to a crisis. Controls on inflows can be helpful for pushing up domestic interest rates or discouraging inflation (Neely 1999). In addition, states may seek to curtail inflows if they are perceived by authorities to have contributed to creating the crisis. Controls on inflows, particularly short-term inflows, can be helpful in preventing asset bubbles and making a country vulnerable to capital flow reversals, which is why economists such as Stiglitz (2000) have recommended them.

make it more difficult for either residents to trade their domestic assets for foreign ones, or nonresidents to repatriate or exchange funds. In regards to the capital account, such measures would include but are not limited to restrictions on the purchase of foreign financial instruments by residents, waiting periods or taxes on the transfer of proceeds from the sale of domestic securities, or limits on the conversion or transfer of domestic assets (see IMF 2012).

Like Chinn and Ito (2007), I also take a broader view of restrictions that can be imposed by governments in order to limit capital flows. Rather than focusing solely on restrictions on the capital account, I also look for changes made to rules governing the current account, surrender requirements for exporters, and the exchange rate system, all of which may potentially interfere with ability of investors to move their money out of the country in response to the crisis.³⁰ The imposition of restrictions on derivatives (technically part of the current account)³¹, new time limits on how long exporters can wait before exchanging profits back into domestic currency, the creation of a dual exchange rate system where financial transactions are conducted at what amounts to a punitive exchange rate³², etc. can all serve as subtle ways of restricting capital flight that do not involve changes specifically to the capital account.

Also, in collecting and coding data from the AREAER reports, I do not include a handful of other provisions that affect capital outflows but that are implemented for reasons independent

³⁰ A more thorough description of the way that restrictions in any of these areas may affect capital flows is contained in chapter four.

³¹ See Gallagher (2010).

³² See Dornbusch (1986).

of the need to prevent capital flight during a crisis. One such category of outflow restrictions that I exclude is those provisions that are clearly reflective of security interests, such as the freezing of assets of suspected terrorists. In addition, I also exclude restrictions on the trade in assets with particular countries, which are often motivated by political concerns unrelated to stemming capital outflows during a crisis, as well as provisions targeted specifically at preventing money laundering. I also do not include provisions that are industry-specific restrictions (i.e. the imposition of profit repatriation mandates for coffee exporters).

For each case in the sample, I examine changes that occur any time over a three-year period from the start date of the crisis as defined by Laeven and Valencia (2008, 2010).

Attempts to restrict capital outflows in the name of crisis containment are logically likely to take place soon after a crisis begins and thus any changes made at more distant times are unlikely to be the direct result of the crisis. Correspondingly, a three-year window should be more than sufficient for observing rule changes meant to help contain the crisis.

The distribution of increased capital control use on outflows based on this coding is illustrated below in Table 4.2. I also include a complete breakdown of the measures put into place by countries that adopted stricter controls in Table 4.3, which appears in Appendix A. Some of the cases of capital control use I identify are unsurprising to anyone familiar with the literature on capital controls. Malaysia's imposition of a wide range of capital controls in 1998 is perhaps the most infamous and extensively studied single case of the use of capital controls to contain balance of payment problems during a crisis (i.e. Johnson, et al. 2006, Kaplan and

Rodrik 2001, Edison and Reinhart 2000). The use of controls by Iceland in 2008 (documented by Benediktsdottir, Danielsson, and Zoega 2011, among others) and Argentina in 2002 (studied in Levi-Yeyati, Schmuckler, and Horen 2008, for example) are also rather prominent examples of government efforts to close the doors to capital flight. The use of outflow controls has also been documented in the cases of Thailand in 1997 (Kaminsky and Schmuckler 2000, Edison and Reinhart 2000), Russia in 1998 (Kaminsky and Schmuckler 2000, Ariyohsi, et al. 2000), and Venezuela in 1994 (Kaminsky and Schmuckler 2001, Ariyoshi, et al. 2000).

In general, the majority of states did not impose new outflow controls in response to a crisis, with only 15 of the 63 countries in the sample adopting them. A quick look at the countries that imposed controls also reveals that, with the exception of Iceland, all were emerging market or developing countries at the time. The overwhelming majority of developed countries in the sample that have experienced crises have not elected to institute capital outflow restrictions. However, there is a fair number of developing and emerging market states that also did not elect to tighten controls.

Construction of the dependent variable. In Table 4.4, I construct a 2 x 2 table illustrating the overlap between countries that imposed capital outflow controls and countries that instituted blanket guarantees. The table illustrates that not only did relatively few countries choose to enact capital controls at all, but that the ones that did were predominately those that did not use blanket guarantees in crisis containment. Only three of the countries in the sample chose

to adopt both a blanket guarantee and tighter capital controls: Iceland 2008, Malaysia 1997, and Thailand 1997.

Table 4.2: The Use of Increased Controls on Outflows

Outflow controls used (15)	No outflow controls used (48)		
Argentina (1980)	Argentina (1995)	Greece (2008)	Norway (1991)
Argentina (1989)	Austria (2008)	Hungary (2008)	Paraguay (1995)
Argentina (2001)	Belgium (2008)	Indonesia (1997)	Portugal (2008)
Brazil (1994)	Bolivia (1994)	Ireland (2008)	Russia (2008)
Chile (1981)	Bulgaria (1996)	Jamaica (1996)	Slovenia (2008)
Colombia (1982)	Brazil (1990)	Japan (1997)	Spain (2008)
Estonia (1992)	Croatia (1998)	Kazakhstan (2008)	Sri Lanka (1989)
Ghana (1982)	Colombia (1998)	Korea (1997)	Sweden (1991)
Iceland (2008)	Cote D'Ivoire (1988)	Latvia (1995)	Sweden (2008)
Malaysia (1997)	Czech Republic (1996)	Latvia (2008)	Switzerland (2008)
Philippines (1997)	Denmark (2008)	Lithuania (1995)	Turkey (2000)
Russia (1998)	Dominican Rep (2003)	Luxembourg (2008)	Ukraine (1998)
Thailand (1997)	Ecuador (1998)	Mexico (1994)	Uruguay (2002)
Ukraine (2008)	Finland (1991)	Mongolia (2008)	UK (2007)
Venezuela (1994)	France (2008)	Netherlands (2008)	US (2007)
	Germany (2008)	Nicaragua (2000)	Vietnam (1997)

I assemble the dependent variable for the analysis in four different ways and test each in separate models. I first construct a three-way dependent variable with states that adopted neither capital controls nor blanket guarantees as group 1, states that employed capital controls but not blanket guarantees as group 2, and states that elected for blanket guarantees but not capital controls as group 3. Group 1 would correspond to the 18 states in the upper right quadrant of Table 4.3, group 2 to those 15 states in the lower right quadrant, and group 3 to those in the 29 states in the upper left quadrant.

Table 4.4: Breakdown of Countries that Instituted Capital Outflow Controls by Use of Bank Guarantees

	Blanket guarantee issued	No blanket guarantee
No controls imposed on capital outflows	Austria 2008 Belgium 2008 Denmark 2008 France 2008 Germany 2008 Greece 2008 Hungary 2008 Ireland 2008 Latvia 2008 Luxembourg 2008 Mongolia 2008 Netherlands 2008 Portugal 2008 Russia 2008 Slovenia 2008 Spain 2008 Sweden 2008 UK 2007 US 2007 Turkey 2000 Indonesia 1997 Japan 1997 Korea 1997 Mexico 1994 Sweden 1991 Nicaragua 2000 Ecuador 1998 Jamaica 1996 Finland 1991	Kazakhstan 2008 Uruguay 2002 Colombia 1998 Croatia 1998 Vietnam 1997 Czech Republic 1996 Latvia 1995 Lithuania 1995 Paraguay 1995 Bolivia 1994 Norway 1991 Brazil 1990 Sri Lanka 1989 Cote D'Ivoire 1988 Dominican Republic 2003 Ukraine 1998 Bulgaria 1996 Paraguay 1995
Controls imposed on capital outflows	Iceland 2008 Malaysia 1997 Thailand 1997	Ukraine 2008 Argentina 2001 Russia 1998 Philippines 1997 Brazil 1994 Venezuela 1994 Estonia 1992 Argentina 1989 Colombia 1982 Ghana 1982 Chile 1981 Argentina 1980

In constructing the dependent variable in this manner, I leave aside the three cases where both capital controls and blanket guarantees were both used (Iceland, Malaysia, and Thailand), corresponding to the left quadrant of Table 4.3. Because these instances involved both the use of guarantees and capital controls, there is no clear theoretical motivation for assigning them to one group or another in a three-way variable. However, to be sure that the exclusion of these three cases does not bias any results that might be obtained with the use of the first dependent variable, I also create two alternate dependent variables that incorporate these cases into either group 2 or group 3 respectively.

The main justification for constructing the dependent variable as a three-way choice, rather than a four-way choice, is the very small number of cases that would effectively constitute a group 4. With only three observations in this category, estimations of the differences between group 4 and the other categories are likely to be unreliable. However, I do also attempt to look at this as a four-way choice in the analysis, constructing a fourth dependent variable with Iceland, Malaysia, and Thailand representing group 4 for use in the models as well.

II.B Independent variable

Measurement of the main independent variable in my analysis, existing levels of financial openness, comes courtesy of Chinn and Ito's (2007) *KAOPEN* index. As in the previous chapter, I use simple *KAOPEN* scores from $t-1$ to gauge the state's degree of capital openness when a crisis strikes. Because I discuss at length my motivation for using this measure of capital

openness in chapter three, I do not do so here. The variable's range in the sample is -1.84 to 2.47 with higher values indicating greater capital openness. Data is available for 58 of the 63 total cases in the sample and the mean score is 0.63.

III.C Control variables

I control in the analysis for factors that potentially influence the decision of policymakers to adopt tighter capital controls in light of the alternative to issue a blanket guarantee. Because with the exception of GDP growth rates, no controls the previous chapter serve as reliable, independent predictors of the choice to issue blanket guarantees (as opposed simply to the alternative of issuing no guarantee), I focus primarily on identifying variables that are likely to either motivate or constrain governments in the choice to intensify capital controls.

External constraints. Probably the most obvious constraint on the choice to use capital controls has been the coercive influence of outside parties. Because many states hit with financial crises seek the help of the IMF, the organization has been perhaps the most powerful single external force in shaping the manner in which states deal with crises. During the Washington Consensus-era, capital controls were viewed dismissively by the agency and IMF assistance to countries experiencing crises was conditional on the adoption of neoliberal reforms, including the dismantling of capital controls.

Only recently has there has been a shift in the rhetoric surrounding capital controls. When the 2007-08 global financial crisis struck hardest in the very countries that had been the

biggest supporters of neoliberalism, the IMF and its dogmatic stance on capital controls underwent an evolution. The agency favorably endorsed the use of extensive controls by Iceland, which came to the IMF for assistance in October 2008, stating “Capital controls remain an essential feature of the monetary policy framework, given the scale for potential outflows, and in line with the authorities’ published plan, should be removed gradually as confidence returns and as balance of payments developments permits,” (IMF 2009). In 2012, the IMF officially softened its stance on the use of controls, advising that countries institute temporary controls as necessary, in recognition of the destabilizing potential of both inflows and outflows (IMF 2012). Specifically in regard to outflows, the agency acknowledged that the imposition of controls could be useful for states weathering a large external shock in order to prevent an economic collapse (2012:25).

I control for IMF influence in the analysis using a dummy variable from Laeven and Valencia (2008) on whether an IMF program was put in place as a response to the crisis. However, to correspond to the organization’s revised stance on capital flow restrictions, I code only countries receiving IMF assistance prior to 2007 as being constrained by the agency’s position on the use of capital controls. Countries that received IMF assistance post-2007 (i.e. Ireland, Latvia, Mongolia, etc.) are coded as “0.” The IMF became involved in 23 cases of the 39 pre-2007 cases in the sample.

The IMF is not the only international organization that strongly dissuades states from raising barriers to capital flows. Probably the second most notable is the EU, which mandates

that member states generally keep their borders open to the goods, citizens, and capital of fellow members. However, though EU membership could shape the decision to choose a blanket guarantee over capital controls on these grounds, I do not include a dummy for that external constraint here. A careful glance at the data reveals that all EU members that were hit by the 2008 global financial crisis adopted a blanket guarantee and only Iceland (though not officially an EU member, still a member of the European Economic Agreement, which imposes the same rules with regard to capital flows) imposed tighter controls. But this isn't likely a function of the fact that EU rules prevent the adoption of capital controls by member states as much as it is the fact that EU members faced unique market and institutional pressures to adopt similar measures, as I discuss at length in the next chapter.

Exchange rate. It is also reasonable to expect that states with less flexible exchange rates are more likely to opt for capital controls in an effort to contain a banking crisis. The inability of states to simultaneously have a fixed exchange rate, full capital mobility, and autonomy over domestic monetary policy (known as the Mundell-Fleming trilemma) may mean that some states with fixed exchange rates are inclined to limit capital mobility in order to enhance their abilities to fight the crisis using expansionary monetary policy. Borders closed to capital outflows would give countries with fixed exchange rates the ability to increase liquidity to the banking sector without creating pressure on the exchange rate. Closed borders also diminish the need for higher interest rates in the name of exchange rate stabilization, which can choke already struggling banks. I capture the country's exchange rate regime using data from

Ilzetki, Reinhart, and Rogoff (2008). The authors use a four-point scale to rate the flexibility of exchange rate regimes. Countries coded as “1” being are those with the most rigidly fixed exchange rates or no separate legal tender and “4” for countries with freely floating exchange rates.

Reserve-to-debt levels. I also control for the adequacy of monetary resources that governments have for dealing with crises. Given a low level of foreign reserves, states have little hope of stabilizing the currency in the face of large outflows or defending the value of the currency should it come under attack. Having few available reserves may even invite an attack from speculators who know the government’s ability to defend against it is weak, a development for which a bank guarantee or any other government intervention in the banking sector offers no protection. For governments committed to maintaining the value of the currency, the only recourse in that scenario would be to impose controls. Observers such as Edison and Reinhart (2000) and Kaplan and Rodrik (2001) argue that the adoption to outflow controls by both Thailand and Malaysia in 1997 and 1998 respectively was motivated by the need to shut down international speculation against the domestic currency.

On that basis, I control for a state’s ratio of foreign reserves-to-debt, a measure of a state’s vulnerability to capital flight or currency speculation that has been used widely in the literature and is, according to the IMF (2000), is the single most important indicator of foreign reserve adequacy. Along these lines, the Guidotti-Greenspan rule suggests that states keep on

hand foreign reserves equivalent to their short-term external debt (a 1-to-1 ratio) in order to ensure against the volatility of capital flows.

I construct this ratio using data from two sources. In measuring foreign reserves, I use the IMF's *International Financial Statistics* (IFS) data on total foreign reserves excluding gold. This measure includes not only foreign currency holdings of official monetary authorities, but also country reserves held by the IMF and special IMF drawing rights which can be used during a crisis, therefore providing a fairly broad picture of available liquid foreign currency. To capture foreign debt levels, I use data on external debt liability stocks from Lane and Milesi-Ferretti's (2007) *External Wealth of Nations* dataset. External debt liabilities are measured as the sum of a state's foreign portfolio debt liability stocks plus other debt liability instruments (including foreign loans, deposits, and other miscellaneous items). I divide foreign reserve levels by foreign debt liabilities to construct the ratio.³³ In the sample, this variable ranges between 0 and 1.13 with a mean of 0.21.

GDP/capita. I also include a control for GDP per capita given the divergent historical patterns of economic liberalization for rich and poor countries. Thanks to their relatively large capital endowments, economic theory suggests that the developed countries should find the free flow of capital to their advantage,³⁴ potentially explaining why the developed states tended to be early economic liberalizers. Developing states, on the other hand, have historically been more reticent to move away from capital controls and are theoretically less likely to benefit from

³³ Both foreign reserves and external debt liabilities are measured in millions of US dollars and are measured at the year's end.

³⁴ See Frieden (1991).

unencumbered capital mobility. Correspondingly, poorer countries may be more inclined to reintroduce controls or enhance existing ones when faced with a crisis. I measure this as the natural log of GDP per capita using data from the World Bank.

In addition, as addressed in the previous chapter, GDP per capita also theoretically relates to the ability of a state to issue a *credible* guarantee on the banking system. Promising to backstop losses that might occur in the banking system is logically best left to countries that can afford hefty losses. Developed states have historically had better access to international capital markets and the ability to borrow money needed for domestic expenditures at lower cost. Absent that power, markets may distrust the capacity of the sovereign to make good on its promises, rendering any guarantees on bank liabilities not only ineffective in containing the crisis, but extremely costly for the state. Thus, we should expect the use of guarantees to be positively associated with GDP per capita.

Democracy. I also control for democracy. Although I do not find any evidence that democratic institutions prevent policymakers from issuing blanket guarantees, they may play a role in precluding the use of capital controls as a method of crisis containment. Capital controls limit the investment options of the citizenry, preventing them from internationally diversifying portfolios and hedging against domestic macroeconomic volatility. As McKinnon (1973) argued, capital controls are a component of a financial repressive monetary policy that allows the government to more easily raise revenues. Pursuing capital controls to keep a lid on capital outflows, for this reason, may be the more likely choice for politically repressive governments

than liberal ones. Democracy data for the analysis, as in chapter four, come from the Polity IV project.

GDP growth. The only control variable that emerges as an independent predictor of the choice to issue a guarantee from chapter three is GDP growth. Theoretically, countries with faster growth rates should have an easier time issuing a credible guarantee.

Thus, I also include it as a control in my analysis here. Given that countries could opt for either guarantees or capital controls, the absence of robust growth before the crisis may push policymakers that would otherwise wish to contain the crisis via guarantees to resort to the route of stricter capital controls. GDP growth data comes from the World Bank.

Table 4.5 offers a summary of the control variables included in the analysis.

Table 4.5: Control Variables

Variable	Observations	Minimum	Maximum	Mean
<i>IMF</i>	61	-9	10	6.23
<i>Exchange rate</i>	60	1	4	2.42
<i>Reserves/debt</i>	62	0	1.13	0.21
<i>GDP/capita</i>	61	337	106,902	19,445
<i>Democracy</i>	61	-9	10	6.23
<i>GDP growth</i>	62	-9.8	10	2.79

III. Empirical analysis

Because the dependent variable takes on numerous discrete and unordered outcomes, I estimate a series of multinomial logit models. For all models, the base category is group 3,

which consists of the states that issued blanket guarantees. In model 1, the baseline model, I use the main dependent variable as described in section II.B. In models 2 and 3, I swap out the main dependent variable with the two alternate dependent variables, which assign Iceland, Malaysia, and Thailand to group 2 (countries adopting capital controls but not blanket guarantees) and group 3 (countries adopting blanket guarantees but not capital controls) respectively. In model 4, I use the four-way dependent variable described in section II.B. Results of these models are shown in Table 4.6 on the following page.

The results of the models in regards to the effect of capital openness on the eve of a crisis are striking. In models 1- 4, coefficients on *openness* are all significant for both groups 1 and 2. In addition, because *openness* is significant regardless of the particular depended variable used, the assignment of Iceland, Malaysia, or Thailand to any particular category, nor the omission of all three from the sample, clearly makes little difference nor creates any bias in the estimators. It is not surprising that countries that adopted neither blanket guarantees nor controls on capital outflows (group 1) are significantly likely to be less open than countries that did issue guarantees. Given more restrictions on capital flows prior to the crisis, states in the this group should have less reason to anticipate large capital outflows as a result of the crisis and therefore less motivation for implementing either blanket guarantees or stricter capital controls in order to contain the crisis. In addition, there are also practical reasons why closed countries are less likely to impose more controls to prevent outflows; simply, it is difficult to shut a closed door

Table 4.6: Multinomial Logit Results

Group	Coefficients	Model 1 Coefficient (S.E.)	Model 2 Coefficient (S.E.)	Model 3 Coefficient (S.E.)	Model 4 Coefficient (S.E.)
1	Openness	-0.90 (0.38)**	-0.83 (0.36)**	-0.86 (0.37)**	-0.91 (0.38)**
	IMF	-0.29 (1.03)	-0.38] (1.04)	-0.54 (1.02)	-0.42 (1.05)
	Exchange rate	0.32 (0.46)	0.32 (0.46)	0.47 (0.43)	0.35 (0.46)
	Reserves/debt	-2.24 (2.86)	-2.15 (2.74)	-2.71 (2.83)	-2.54 (2.88)
	GDP/capita	-0.48 (0.37)	-0.48 (0.37)	-0.42 (0.36)	-0.47 (0.36)
	Democracy	0.02 (0.13)	0.01 (0.10)	-0.00 (0.10)	0.00 (0.11)
	GDP growth	-0.20 (0.13)	-0.18 (0.13)	-0.28 (0.15)	-0.20 (0.13)
	Intercept	3.97 (3.92)	4.10 (3.84)	3.18 (3.71)	4.07 (3.89)
2	Openness	-1.31 (0.53)**	-1.09 (0.45)**	-1.25 (0.51)**	-1.33 (0.53)**
	IMF	0.70 (1.38)	0.66 (1.25)	0.05 (1.27)	0.22 (1.26)
	Exchange rate	-0.48 (0.64)	-0.46 (0.56)	-0.04 (0.55)	-0.28 (0.60)
	Reserves/debt	2.49 (2.71)	3.18 (2.21)	1.32 (2.70)	1.87 (2.74)
	GDP/capita	-1.01 (0.66)	-0.99 (0.57)*	-0.75 (0.59)	-0.88 (0.61)
	Democracy	0.09 (0.14)	0.03 (0.12)	0.04 (0.13)	0.05 (0.13)
	GDP growth	-0.27 (0.16)*	-0.21 (0.14)	-0.29 (0.15)*	-0.27 (0.16)
	Intercept	7.81 (5.98)	7.99 (5.32)	5.20 (5.35)	6.81 (5.66)
4	Openness	---	---	---	-0.76 (0.76)
	IMF	---	---	---	2.83 (3.09)
	Exchange rate	---	---	---	-1.85 (1.59)
	Reserves/debt	---	---	---	5.46 (5.03)
	GDP/capita	---	---	---	-1.37 (1.33)
	Democracy	---	---	---	-0.07 (0.20)
	GDP growth	---	---	---	0.20 (0.43)
	Intercept	---	---	---	10.30 (10.99)
	N	51	53	53	53
	Pseudo R squared	0.38	0.37	0.37	0.38
	Log Pseudolikelihood	-30.92	-33.97	-32.61	-36.37

* P-score <0.10, ** P-score <0.05, * P-score <0.01

tighter. Open countries have far more logistical (if not political) latitude in erecting barriers to capital flows as need be.

However, the significant and negative coefficient on openness for group 2 countries across all models is quite interesting. This indicates that group 2 countries are also less likely to be open economies than those in group 3. Given lower vulnerability to capital outflows, it is not immediately clear why states in group 2 were more likely to tighten outflow controls. It is possible that crises are sometimes used by states already maintaining more extensive and repressive controls as an excuse to further crack down. Or it may be the case that crises can ramp up evasion of existing controls, prompting authorities simply seek to stop leaks by implementing additional measures. Both of these potential explanations offer interesting hypotheses about the motivation for the use of more intense controls in relatively closed economies. However, that is beyond the scope of this project.

In model 4, we observe the difference between states in group 3 and group 4. For these two groups, there is no statistically significant difference in regards to openness. Because cases in group 4 were those where controls were instituted (in addition to guarantees), we would expect that this group should exhibit relatively lower levels of openness like group 2. However, because there are only three observations in group 4, statistical results obtained for this category are of questionable reliability. In addition, because the cases in group 4 are assigned to group 2 in the dependent variable used in model 2 and there continues to be a statistically significant

difference between group 2 and group 3 in regards to openness, the results of model 4 for group 4 offer little overall cause for concern.

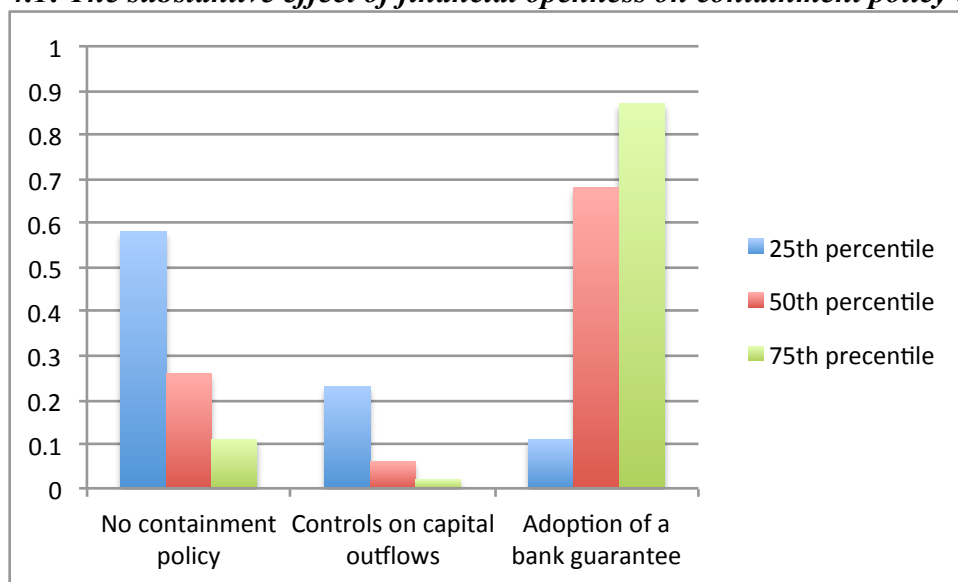
Another interesting, though not unexpected, conclusion from Table 4.5 regards significant and negative coefficients on *GDP growth* and *GDP/capita* for group 2 in models 1-3. Compared to countries that instituted blanket guarantees, countries that instituted controls were significantly less likely to be wealthier states or exhibit robust economic growth in the lead up to the crisis. These results align with the expectation that higher levels of development and GDP growth offer policymakers an enhanced ability to issue credible blanket guarantees. However, unlike *openness*, the coefficients are not uniformly significant across all the models, but rather significance is contingent on the dependent variable used in the model. No other control variables are significant in the model.

I also use Clarify to look at the substantive effects of *openness* on the dependent variable.³⁵ Setting all the control variables of the model at their mean, I adjust the level of openness to the 25th percentile value, the 50th percentile value, and the 75th percentile value to assess the likelihood that a state will fall into groups 1, 2, and 3. The results are presented in Figure 4.1. They suggest that there is a large, positive substantive effect of *openness* on the likelihood that a state will issue a guarantee (group 3). Openness also has a clear effect on the likelihood of belonging to groups 1 and 2, though it is smaller in magnitude. A test of the first

³⁵ For tests using Clarify, I take us the original dependent variable, which does not include Iceland, Malaysia, or Thailand in the sample.

difference between *openness* set at the 25th percentile and the 75th percentile reveals that the difference is also statistically significant.

Figure 4.1: The substantive effect of financial openness on containment policy choice



III.B Crisis containment in Iceland

In addition to the stylized fact of the model that open countries do not use capital controls as a method of crisis containment, I also take a closer look at the case of Iceland. Despite undergoing significant liberalization of its economy in the decade leading up to the 2008 crisis, the Icelandic government choose to institute capital controls, in addition to a bank guarantee, as part of its bid to contain the crisis. Of all the cases in the sample where capital controls were used, Iceland had achieved the greatest level of economic openness in the run up to the crisis.

What explains this outcome in a country where we might otherwise expect that relatively high levels of economic openness would have empowered domestic forces to keep the doors open?

Aside from being an outlier in terms of economic liberalization, Iceland is an unusual case in other regards as well. First, the country had a very large and internationally active banking system, especially considering the very small size of the island country's economy. Benediktsdottir, Danielsson, and Zoega (2010) provide an excellent overview of the stratospheric growth of the Icelandic financial sector since the country joined the European Economic Area (EEA) in 1994. Membership in the EEA brought with it the European "single passport" for financial services, enabling Icelandic banks to set up operations in other EU states³⁶, as well as an enhanced ability to borrow abroad. In the period between 2003 and 2007 alone, the assets of Icelandic banks (which had only been privatized in the 1990s) had grown from 150 percent of GDP to an astonishing 744 percent of GDP. Meanwhile, as banking activity exploded, the capacity of the government to properly regulate the industry lagged far behind.³⁷

The financial sector's growth was initially fueled by borrowing in the European bond market and later by attracting foreign depositors with high-interest deposit accounts, informally termed "glacier bonds." According to the IMF, the foreign deposits of Icesave, a subsidiary of Landsbanki that began online operations in the UK in October 2006 and in the Netherlands in

³⁶ The single passport allows banks headquartered in any of the EU member states to establish or provide financial service operations in any of the other states.

³⁷ Benediktsdottir, Danielsson, and Zoega (2010) argue that the rapid development of banking services in Iceland set it apart from other small European states that also possess banking systems many times larger than the national economy, such as Switzerland and Luxembourg. In those states, the reach of the banking sector grew in closer proportion to the ability of state to properly regulate banking activity.

May 2008, alone equaled 60 percent of Icelandic GDP when the crisis struck (IMF 2012b). With growth financed so heavily through foreign sources, the Icelandic banking system had accumulated extraordinary amounts of external debt denominated in foreign currency, which well exceeded the monetary resources of the central bank and even the sovereign to function as a credible lender of last resort to the country's banks (Benediktsdottir, Danielsson, and Zoega 2010). In 2008, the balance sheets of Icelandic banks were ten times the size of national GDP with more than two-thirds held in foreign currency (Central Bank of Iceland 2012).

When global liquidity markets began to seize in September 2008, crisis erupted in Iceland. On October 6, 2008, the country issued a blanket guarantee, which offered full protection for deposits in Icelandic banks, but only for domestic depositors. Unlike the majority of guarantees that have been issued by other states in the past, foreign depositors were not included.³⁸ Of course, given the staggering level of foreign deposits coupled with the state's clear inability to meet the demands of external depositors who might choose to exit the system, any state guarantee on the deposits or any other bank assets of nonresidents would clearly not have been credible.

Capital quickly began exiting Iceland and the krona's value relative to the euro fell 80 percent (Valdimarsson 2012). Landsbanki went bankrupt on October 7. To prevent the collapse of the currency, temporary measures to modify outflows were taken up by the central bank on

³⁸ International fallout from Iceland's unusual efforts to handle the crisis was immediate. Outraged that the state's unlimited deposit guarantee would not cover the funds of 300,000 British Icesave depositors, the British government responded on October 8 by using a national anti-terrorism law to freeze all Landsbanki assets held in the UK (Donaldson and Vina 2008).

October 10 and formal capital controls were adopted on November 28 and subsequently tightened on December 15. The regulatory changes barred mature investments from being converted to foreign currency, mandated proceeds from those investments be reinvested in other Icelandic investments, and restricted residents from holding foreign currency. According to the Central Bank of Iceland, capital controls were an “unfortunate but indispensable ingredient in the policy mix that was adopted to stabilize the krona.” (Central Bank of Iceland 2009). The controls prevented the outflow of krona-denominated assets worth approximately \$8 billion USD (Valdimarsson 2012).

The Icelandic case reveals that there are indeed limits to the ability of a guarantee to contain a crisis. Without the financial resources needed by the sovereign to guarantee vulnerable sections of the banking system, a government guarantee is unlikely to be effective to restore market confidence and aid in crisis containment. In that scenario, the imposition of capital controls may be an unavoidable consequence when policymakers have no other means to prevent economic collapse.

However, because Iceland is bit of an anomaly, we should not be tempted to draw too many generalizations from this case. The incredible external exposure of its banks coupled with a severe undercapacity to manage a crisis through government guarantees led to a highly unusual crisis response. Even with the implementation of a deposit guarantee and capital controls, the damage caused by Iceland’s 2008 was remarkable. After the three largest banks collapsed (which together had held 85 percent of the market share), the remaining banks collapsed as well.

Gylfason (2011) indicates that in numerous regards, the crash of Iceland was the world's costliest to date. The losses by creditors, shareholders, and depositors in the Icelandic financial system were equal to seven times the national GDP, the fiscal cost of crisis clean up has been estimated at 64% of GDP, and though Iceland's population is just over 300,000, the collapse of its three largest banks, if American, would be listed among the top ten biggest US bankruptcies of all time. Thus, although the Icelandic experience does offer a reminder that bank guarantees, while a powerful tool for containing a crisis, are not a panacea and there are clear limitations to their viability, the vast majority of states in the sample I analyze that utilized blanket guarantees for crisis containment did so without the use of capital controls.

IV. Discussion

While the analysis here offers support for the hypothesis that open countries are likely to adopt guarantees, but not capital controls, as a means of preventing capital outflows (except for possibly under rather extreme conditions), it is not without its limitations. Firstly, I recognize that, ideally, the independent variable of interest used in my analysis would be specific to restrictions on capital outflows, which the *KAOPEN* index is not. Schindler's (2009) *KAO* index is an alternative that does differentiate on the basis of inflow and outflow restrictions, but it is only available from 1995 to 2005. In chapter three, I do use this measure as a robustness check, expanding the time lag for later cases in sample in order to have data coverage for 39 of the 63

cases. However, when I swapped in this variable for *KAOPEN* as my measurement of openness, none of the multinomial logit models estimated produced convergence.

Another limitation of the analysis is that I necessarily restrict it to focusing only on the choice to use guarantees versus capital controls. However, as discussed in previous chapters, guarantees are not the only containment-phase bailout measure that policymakers may utilize for shoring up the crisis. States commonly inject liquidity into distressed banks at the first signs of stress and there is also the possibility of instituting bank holidays or deposit freezes as a method of easing liquidity pressures in the near-term (see Laeven and Valencia 2008). Although I argue they are likely to be less effective in preventing capital outflows, to the extent that these measures can convince bank creditors to stay put (or trap them there, as would be the case with either a bank holiday or deposit freeze), they can supplement or substitute to some degree for the use of either capital controls or bank guarantees. Beyond other containment-phase, bailout-style instruments, policymakers may also choose simply to increase interest rates in order to keep capital from fleeing the country.

In light of these alternatives, it is clear that conceiving of policy choice as being restricted only to the choice between guarantees and capital controls is overly simplistic. A better strategy might be to look at a more comprehensive picture of the interdependence of crisis containment efforts. However, the incorporation of more policy options in the model increases variation across crisis containment strategies to unmanageable levels, particularly given the already small number of observations in the sample.

Taking a more expansive view of the full range of strategies states can pursue also introduces additional complications resulting from intertemporality of policy decisions. Decision makers may attempt to combat the crisis with the use of one instrument, but depending on their success, may choose to utilize additional measures or pursue another avenue all together. On the other hand, if a guarantee successfully calms the markets, governments may be able to ease up on liquidity provision (as is demonstrated by Laeven and Valencia 2008b) or avoid hiking interest rates. These intertemporal aspects of crisis containment, while interesting, are not easily managed in statistical models, particularly those estimated with so few available observations. However, efforts to identify patterns in the use of a larger range of containment-phase policy tools certainly offer a worthwhile avenue for future research.

V. Conclusion

In sum, the findings in this chapter demonstrate that open and closed states take quite different paths in terms of crisis containment. While open states are very likely to issue guarantees on the banking system, they are very unlikely to try keeping capital at home by closing the doors to outflows. By comparison, states that already maintain controls on capital flows are far more likely than open states to tighten restrictions even further during times of crisis. The reluctance of liberalized states to embrace capital controls even as a temporary fix despite the potential for destabilizing capital outflows is highly suggestive about the domestic politics of capital controls in countries that have previously shed controls.

However, as the case of Iceland illustrates, in very rare instances, the imposition of controls in relatively open economies may be unavoidable. Faced with the possibility of complete economic collapse and unable to provide a credible bank guarantee of the magnitude needed to stabilize the situation, Iceland had little choice but to impose controls on capital outflows. Because of the extraordinary situation in which Icelandic policymakers found themselves in October 2008, this case is far from typical, and should not be held up as an example of where the theory fails.

CHAPTER 5: THE INTERNATIONAL COMPETITION FOR BANKING CAPITAL

In the preceding chapters, I find that financial openness and a corresponding potential for capital flight are powerful forces that shape policy decisions regarding banking crisis containment. But where does that banking capital flee? The range of options for better, more stable investments elsewhere likely figures prominently into the decisions that bank depositors and other bank creditors make about if and where they will move their funds.

If the implementation of a guarantee on bank liabilities at home can act as a magnet for retaining precious banking capital, it may also have magnetic appeal for depositors or other creditors abroad. In terms of risk, no investment should be more attractive than those that come with full government backing and consequently, the draw of government-backed investment opportunities can create competitive distortions in international markets. Particularly in the setting of an international banking crisis, when domestic banking systems in numerous countries are in disarray and international options for safe investments are reduced, deposits and bank debt securities backed by sovereign guarantees are likely more attractive than ever.

I theorize in chapter two that for this reason, the decision to implement a potentially costly guarantee may be a dynamic one: as one country takes steps to protect the liabilities of its banks, it induces competitive distortions in international financial markets which in turn increase the pressure on other states to take similar action. This pressure can lead states into unilateral action to protect their banks' sources of funding. But this same pressure may also sometimes

lead states to cooperate in their efforts, well aware that all are tempted to implement policies that protect their national banking systems, which may come at the expense of others.

In this chapter, I explore the timing and pattern of adoption of bank guarantees during the global financial crisis of 2007-08 in order to test the hypothesis that states are motivated to issue guarantees in response to the competitive distortions that guarantees issued elsewhere create. In tandem, I also test the corollary hypothesis that the move to issue a guarantee is sometimes one that comes about through interstate cooperation. Following the issuance of a blanket guarantee on nearly all liabilities of Irish banks at the end of September 2008, other states rushed to backstop their financial systems as well. Competition fueled national containment efforts in the early days of the crisis, with numerous countries unilaterally implementing guarantees. However, many guarantees, particularly on non-deposit, wholesale bank liabilities, were issued in a more coordinated manner. In the end, every European country that experienced a national banking crisis in 2008, aside from Switzerland, issued a guarantee on some, if not all, bank liabilities. Following the adoption of guarantees in numerous European states, developed states around the globe also followed suit largely in an effort to protect the funding sources of their banks from the competitive distortions that increasingly emanated from Europe.

This chapter proceeds as follows: In section one, I discuss the rationale for choosing this particular case and research design. In the second section, I develop the empirical expectations of the main hypothesis and corollary hypothesis they relate to the global crisis. Section three contains the analysis, wherein I sketch a timeline for national containment efforts following the

Irish guarantee and assess both how the various bank guarantees issued in 2008 augmented international competition for bank capital and how well resulting competitive distortions explain the reaction by other states. In section four, I discuss the findings of the analysis in relation to the hypotheses presented. Section five concludes the chapter.

I. Motivating the case selection and research design

I.A Brief overview of the 2007-08 global crisis

The crisis that would come to affect nearly every corner of the world began in the US (Rose and Spiegle 2009). Awash with liquidity, financial institutions had increasingly offered mortgages to subprime borrowers. The demand for housing led to the ballooning of property prices, which increased steeply in the first half of the decade. Meanwhile, new innovations in financial products offered financial institutions another source of revenue via the securitization of home loans and other debt obligations. Mortgage-backed securities and other like products became widely held by banks, insurance companies, and various other investment funds around the world.

But in 2007, the housing bubble in the US popped, foreclosures rose, and the price of assets underlying the mortgage-backed securities began to slide, exposing the dubious risk assessment of those credit-backed securities and adversely impacting the capital base of the numerous corporations that held them (Congleton 2009). Throughout the rest of 2007 and into 2008, uncertainty plagued financial markets, but hit a fevered pitch in September 2008. The US

government takeover of Freddie Mac and Fannie Mae on September 7 promulgated increasing market volatility and the bankruptcy announcement by Lehman Brothers on September 15 triggered a full-scale panic.

The collapse of Lehman Brothers had profound effects for global markets. The value of mortgage-backed securities plummeted, crushing confidence in the financial health of banks with large numbers of such assets on the books.³⁹ Problems intensified quickly in the US money market, thanks to large exposure to the failure of Lehman Brothers, and the emergent crisis of confidence sent investors running to sovereign bonds and other “safe” assets,⁴⁰ and quickly spread across other markets. Banks became nervous about their own liquidity positions, as well as those of counterparties, and began hoarding liquidity, increasingly unwilling to lend even to each other. Inter-bank money markets came to a near halt (De Larosiere 2009).

Though the problem had originally developed in the US, banks in other corners of the world had engaged in some of the same practices as American banks. Particularly the larger European lenders had imitated the US-style “originate-to-distribute” model of banking and also like many US lenders, European banks had enjoyed the ability to borrow short-term funds cheaply in order to leverage investment. While core deposits still remained the main funding source, reliance on wholesale funds to finance bank operations had grown considerably (ECB

³⁹ De Larosiere (2009) explains that while securitized assets were supposed to distribute risk more evenly though the financial system, the lack of transparency associated with such instruments (many of which were carried off-balance sheet) made it impossible for parties to verify the riskiness of potential counterparty’s portfolios.

⁴⁰ Reflective of investor demand for low-risk assets, the price of US Treasury securities climbed in the later half of 2008, despite an increased supply of US Treasury bills and bonds issued to finance the US bank bailout package (Noeth and Sengupta 2010).

2008). Leading up to the crisis, European banks were even more highly leveraged than US banks, lending 1.40 euros to every euro deposited,⁴¹ the rest being borrowed on wholesale markets (“World on the Edge”). Thus when global liquidity markets froze, the shock that began in the US had deep reverberations throughout the European financial system.

While the first phase of the crisis spread via financial markets, infecting primarily developed states with strong international financial ties, it later affected the rest of the world as well. Emerging markets felt the later effects of the crisis as it traveled through more distant financial channels, but it was through the real channel that the majority of affected developing countries eventually became exposed (Berkman, et al. 2009). As demand for imports contracted in the advanced world, developing states everywhere experienced significant economic slowdowns.

1.B Rationale for case selection

The financial crisis that began in earnest in 2007 in the US and grew into a global crisis in 2008 offers an ideal opportunity to test my hypothesis. In the years leading up to the crisis, international capital flows were at an all time high, as was the intensity of international banking activity. The states most affected by the crisis, at least in its early phase, were those who had long been champions of open markets and unobstructed capital mobility, and correspondingly imposed few if any national controls on movement of inward or outward capital flows. If any

⁴¹ The leverage ratio by comparison in the US was \$.96 to every dollar deposited.

case would be revealing about the extent to which fears about capital flight would drive crisis containment policymaking, it would be this one. In addition, because the states involved all shared a similar vulnerability to the potential that banking capital could flee from the domestic banking system at the first sign of trouble, they were all highly vulnerable to the “spillover effects” that might be generated by the implementation of guarantees elsewhere.

At the same time that banking and financial markets had become increasingly internationalized, financial regulation and supervision worldwide predominately remained the domain of individual states. Moreover, despite the observation by many that national regulation systems were ill fit to govern in the age of increasingly international (or at least, internationally exposed) banking sectors, no international framework existed in 2007 or 2008 for how to handle a global financial crisis. Thus, states were largely free to make autonomous decisions regarding the containment of a banking crisis according to their state interest.

This was arguably less so the case in the European Union, where the EU treaty generally prohibits members from providing aid to private industries and states that any aid provided be approved by the European Commission (Sutton 2010). However, even in the EU, there was no precedent for how member states should respond to a crisis and EU financial legislation was woefully inadequate for the task of bank resolution in such a financially complex environment (Kudrna 2010). As such, especially in the early days of the crisis, even EU member states were relatively unconstrained in implementing national policies deemed necessary for containing a domestic banking crisis.

I.C Methodology

Given a similar de jure vulnerability to capital flight and the autonomy to handle a crisis in the domestic banking sector according to national interests, the sequence of guarantee adoption should be revealing of the extent to which states were adversely affected by the competitive distortions introduced by guarantees in other states.

In order to understand how competitive pressures drive similar responses elsewhere and produce predictable patterns of guarantee adoption, qualitative methods offer the best option. For one, my focus here is on the policy decisions of a relatively small number of countries, which does not easily lend itself to the use of quantitative methodology.

But more importantly, my focus is on not simply whether countries choose to issue guarantees, but the overall pattern in which they do it. In order to assess whether the observed pattern supports my hypothesis, I employ process tracing as the method of causal inference, which “offers the possibility of mapping out one or more potential causal paths that are consistent with the outcome and tracing evidence in a single case,” (Bennett and George 1997). Process tracing in this case also offers superior potential to evaluate how well my hypothesized causal mechanism, competitive distortions in international markets, explains the evidence (see Munck 2004).

II. Empirical expectations regarding the competitive effects of bank guarantees

II.A Expectations regarding patterns of guarantee adoption

If competitive distortions created by guarantees issued elsewhere motivate other states to respond with guarantees of their own, I would expect that states most directly affected by any competitive distortions are likely to be the first to respond, all else being equal. This expectation aligns with those of pioneering diffusion scholars, such as Simmons and Elkins (2004), who argue that states are influenced by the policy choices of relevant competitor states, thus explaining policy convergence of country clusters rather than universal policy convergence.

But the issuance of guarantees, the creation of competitive distortions, and the pressure for other competitors to respond is an iterative process. Any new guarantees issued in response to one state by its competitors have the potential to introduce new competitive distortions into international markets as well. Correspondingly, if the hypothesis is correct, I would also expect those states most exposed to any new guarantees be the first to respond to any resulting distortions.

However, there may also be “cumulative effects,” whereby states that are not highly affected by any one state’s guarantee eventually face competitive pressures from all sides and can thus become compelled to act as well. Regardless of whether states are tempted to join in as a result of direct exposure to a new distortion or just growing pressure from all around iteration, we are likely to observe a cascade effect.

Testing these propositions empirically comes with significant challenges. The first is a lack of good data. Ideally, I would be able to rely on detailed, bilateral, foreign banking data to identify cross-border capital movements that occur as a result of the market distortions created

by Ireland's guarantee, as well as any subsequent guarantees. Unfortunately, such ideal data are not available.

Another difficulty is raised by the very rapid speed with which guarantees were issued in numerous states in October 2008. When new guarantees are issued on a daily or near-daily basis, as they were in this case, the national political process in each affected state may not keep pace with changing distortions to international markets. Cross-country differences in the length of legislative processes or the depth of domestic political division serve to further complicate the picture and are not easily controlled for. Thus, it makes little sense to focus too heavily on the *exact* sequence of guarantees issued, particularly as more and more states enter the fray.

Not only does the quick rate of guarantee adoption complicate the picture, but so do the extremely dense banking ties among states in Europe, where my analysis begins. In general, there is a strong "regional or proximity bias, including clustering, in cross-border flows and banking," (Claessens 2006:2). However, nowhere is this truer than in Europe, thanks in large part to the institutional context provided by the EU. In addition to the creation of the single market, the 1989 passage of the EU Second Banking Directive and the Single Bank License hastened the integration of national banking sectors and led to an explosion of international mergers and acquisitions inside the EU (Allen, et al. 2011, Casu and Giradone 2006). Specifically in regards to the EMU, Spiegle (2009) also describes a "Eurozone effect," whereby members in the EMU tend to invest more intensively in one another than in other states, thanks

to the common currency, which lends both cross-border borrowers and lenders increased credibility.

The clustering of deep banking ties on the continent means that not only are guarantees likely to have a strong impact on competition within Europe, but also that various iterations of guarantee issuance will create largely overlapping distortions. In that case, rather than watching dominoes fall one by one as competitive distortions spread to various countries, all European dominoes can be expected to fall in short order.

Given the complications of precisely tracing out the patterns of competitive distortions and guarantee adoption in this case, I produce a set of general empirical expectations for the data: 1) states most affected by the Irish guarantee should be the early responders, 2) there should be a high concentration of bank guarantees in Europe, and 3) the ultimate pattern of adoption should look like a cascade as more and more states are drawn in with each round.

II.B Competition v. cooperation

As a corollary to the main hypothesis, I also expect that some states may respond to competitive distortions in a cooperative effort with other states. I assume that all else being equal, all states would prefer to avoid the contingent costs associated with guaranteeing bank liabilities. In the context of a two-player prisoner's dilemma, cooperation by both states (i.e. neither side unilaterally issues a guarantee) would mean that both states could avoid facing intense competition from one another that would otherwise lead to the use of a guarantee.

However, unlike the common prisoner's dilemma game, there are fewer incentives for one-sided defection that comes at the expense of the other player. While there may be initial benefits for guaranteeing banks when a competitor's state does not, the benefits could be very short-lived and even disastrous as a result of the idiosyncrasies of competition in the financial system.⁴² Because banks commonly serve as counterparties to one another, the movement of money out of Bank A into Bank B can have unintended, negative repercussions for Bank B. If Bank B is a creditor to Bank A, the failure of Bank A imposes losses on Bank B that can threaten to bring down Bank B as well, thus why crisis contagion is sometimes driven by interstate banking linkages, according to Beck, et al. 2009. As a result, enhancing one's banking system by weakening others is not necessarily a safe strategy. In that case, a better outcome for each state would not be one-sided defection would actually be defection (i.e. adopting guarantees) by both states.

But in the real world, the game is also influenced by the actions of other states as well. Because a third party guarantee could potentially bring down systemically-important institutions abroad in short order, the two states in the game may be understandably motivated to act rapidly to stabilize their banks, regardless of their desire to cooperate with each other in order to achieve the first-best outcome of no guarantees by either side. In addition, although a second-best solution might be for the two states to coordinate the timing of their guarantees so as not to negatively impact the other, each state's concern for the immediate health of its own banking

⁴² See Beck, et al. (2009) for an excellent overview of the idiosyncrasies of competition in the financial sector.

system as the competitive distortions resulting from the third party guarantee take their toll may override their desire to take the time to coordinate their actions with others.

Thus, I generally expect that unilateral state actions dominate early on, as states race to shore up their own banking systems. However, as time progresses, I expect that states are more likely to respond to competitive distortions in a coordinated fashion. As the dust begins to settle and states have had more time to witness the responses of states elsewhere, they are more likely to take the time to coordinate the announcements of guarantees with other states.

II.C Alternative hypothesis

Any examination of a diffusion argument regarding policy adoption among competitor states should also take seriously the possibility that the timing and adoption of similar policies by various states is not so much the outcome of competition, but actually the predictable consequence of states simply responding to a common shock, essentially the null hypothesis in this case. If it is simply the spread of the crisis that explains the observed pattern of guarantee adoption, we would expect the sequence of adoption to mirror the spread of the crisis that emanated from the US following the collapse of Lehman Brothers.

According to Laeven and Valencia (2010) and Claessens, et al. (2010), the mechanism by which the crisis spread initially was through exposure to troubled US mortgage-backed securities. Logically, in states where banks held vast amounts of US securities of plummeting value, losses incurred when those assets were marked to market would have spread the shock

abroad. In that case, we might expect guarantees to be issued first in states with high exposure to the US.

However, another possibility is that the main line of contagion was via common exposure to the wholesale market. According to Raddatz (2010), it was this channel that allowed the collapse of a small segment of the US housing market to so quickly spiral into a global crisis. This argument aligns with the findings of Rose and Spiegle (2009), that exposure to the US was in fact not a significant factor in determining the crisis' spread. In this particular scenario, the financial shock created by the collapse of Lehman Brothers would be a common shock that many states experienced at roughly the same time. However, states more highly dependent on wholesale funding would develop more serious crises as a result of the shock and do so more quickly, and from this perspective might be expected to be the first to issue guarantees. Because both contagion channels could potentially explain the pattern of guarantee adoption, I not only assess the evidence in terms of how well it corresponds to expected patterns resulting from competitive distortions, but also in terms of how well it fits expected patterns regarding crisis spread.

III. Evidence from the 2007-08 crisis

III.A The Irish blanket guarantee

I take the guarantee issued in Ireland in September 2008 as the starting point of the analysis. Irish banks in particular had borrowed heavily in wholesale markets where money was

cheap, funding a domestic property boom that would prove to be steepest and longest of all those that had developed around the world in the 1990s and 2000s (Honohan 2010b). However, property prices began falling in early 2007, triggering an avalanche of loan losses in development property portfolios. At the time Lehman Brothers collapsed, Irish lenders were already in a highly vulnerable position, particularly Anglo Irish Bank and Irish Nationwide Building Society (Honohan 2010). However, financial turmoil that began on the other side of the Atlantic made borrowing to cover bank obligations a more difficult prospect.

According to Honohan (2010), Irish officials decided early on that they were unwilling to let any Irish banks fail, possibly owing to the perception that the US decision to let Lehman fail was the wrong one. The question was how to do it. On September 29 came a precipitous drop in Anglo Irish shares, pushing officials to make a decision as to how to handle the situation, which was quickly worsening. Policymakers, regulators, and bankers convened for an all-night meeting to produce a plan of action. The group voiced fears that nationalizing Anglo Irish would spook the markets and serve to spread Anglo's problems to the rest of the domestic financial system.

Given the commitment to let no bank fail coupled with the fear that Anglo Irish would be bankrupt as soon as the markets opened the next day, the outcome of the meeting was an extensive blanket guarantee. The scheme covered nearly 100 percent of both existing and new uncollateralized long-term bank debt, in addition to retail and wholesale deposits, for Allied Irish Bank, Bank of Ireland, Anglo Irish Bank, Irish Life & Permanent, Irish Nationwide Building Society, and Education Building Society, which together accounted for approximately 80 percent

of the banking system. Under the scheme, guaranteed Irish bank assets exceeded 250 percent of GDP (Schich 2009). Irish authorities did not notify the EU or ECB about the guarantee until the morning the it was announced, maintaining that a decision had to be made quickly and that was the reason for keeping other parties in the dark until just prior to the announcement.

The extreme generosity of the Irish guarantee on bank liabilities meant that nearly the entirety of covered banks' funding structures had government backing (Pratley 2008). With an AA sovereign credit rating, the Irish guarantee offered Irish banks an advantage relative to the international competition amid rampant uncertainty about the creditworthiness of individual financial institutions. Immediately credit default swap spreads, which had been high for large Irish banks, dropped precipitously while the yield spread increased for Irish sovereign bonds (Claessens, et al. 2010).

Adding to the competition-distorting potential of the guarantee was the fact that not only was the guarantee extraordinary generous in terms of the range of liabilities included, but the guarantee as originally announced applied only to Irish institutions, not foreign entities operating in the republic. In states that serve as both home and host to large banking groups, the ease with which money can be moved from foreign to domestic institutions intensifies the competitive distortions that guarantees that are selectively applied only to domestic institutions can create. Depositors or investors in foreign banks operating domestically who are looking to take advantage of fully-government backed investments need to only to move their money to domestically-owned banks down the street. The damaging effect of competitive distortions on

foreign-owned branches and subsidiaries is subsequently transmitted back to the parent banking group abroad, which must supply additional liquidity or capitalization to compensate for losses occurring in overseas operations.

Given the extensive coverage of the guarantee and its selective application to domestically-owned banks, the Irish guarantee generated the potential for substantial competitive distortions. “As such,” states Honohan, “the Irish guarantee caused considerable waves, upped the ante for other governments struggling to maintain confidence in their own banking systems, and placed some direct competitive funding pressure on banks in the UK, where the liquidity position of some leading banks was much more critical than was known to the Irish authorities at the time (2010:128).”

The international political reaction to the unilateral implementation of the Irish guarantee was overwhelmingly negative. EU Competition Commissioner Neelie Kroes denounced the Irish guarantee as “discriminatory,” while the British Bankers Association labeled Ireland’s move as anti-competitive (Walker, et al. 2008). EU Trade Commissioner Peter Mandelson warned, “The danger of this crisis is that it may spark a new wave of economic nationalism, with each country looking for its own ‘get out of jail free’ card. People have to realize that selective or national approaches could cause markets to look to parts of the financial system in a distorted way,” (quoted in Winnett and Allen 2008). As a contributor to the *Financial Times*, notable economist Willem Buiter dramatically proclaimed,

“Financial crises may not be the best time to make friends and influence people, but the Irish guarantee is the most ‘in-your-face’ beggar-thy-neighbor provocation since

medieval armies catapulted bubonic-plague-ridden corpses into the cities they were besieging.” (“The Irish solution: unlawful, beggar-thy-neighbour and short sighted, but apart from that OK”).

Other critics simply labeled the unilateral move illegal, given EU regulations ensuring free and fair competition.

Comparisons to Northern Rock guarantee. The Irish guarantee stands in contrast to the UK’s September 2007 guarantee on Northern Rock, the fifth largest mortgage company in the UK, which had been one of the first casualties of the collapse of the US housing bubble. Northern Rock’s financing had come largely from the sale of mortgage-backed securities and when doubts began to be raised about the value of those securities, the firm ran into difficulties in raising new funds on wholesale markets needed to repay its money market lenders. When news broke that Northern Rock had requested emergency liquidity assistance from the Bank of England, depositors withdrew £4.6 billion in just a matter of days (HM Treasury National Audit Office 2009), marking the first British bank run since the nineteenth century. In response, the government had put in place a guarantee on September 17, 2007 fully covering Northern Rock deposits.

The Northern Rock guarantee had failed to make much of a splash in international markets. Because the guarantee only covered a single institution, it would have had limited potential for distorting international competition too greatly, especially in 2007 when other countries were not yet experiencing crises of their own. By contrast, the actions taken by the

Irish government in 2008 had a tremendous impact, thus why I focus on the Irish banking system guarantee rather than the Northern Rock deposit guarantee as the starting point of the analysis.

Measuring the resulting competitive distortions. The first step in assessing whether the competitive distortions of the Irish guarantee led competitors to respond in kind is identifying the competitors. To do so, I rely on bilateral foreign bank claim data from the Bank for International Settlements' consolidated banking statistics from the end of 2007. The BIS foreign claims data include combined banking claims on the public sector, financial sector, and non-bank private sector of the counterparty state by banks headquartered in the reporting country (BIS 2013).⁴³ BIS data are somewhat limited, with only 18 advanced states (major European states plus Australia, Canada, Japan, and the US) and 3 developing states (Turkey, Chile, and India) reporting consolidated banking statistics.

Foreign banking claims reported include all on-balance sheet financial assets where the counterparty is a non-resident. In defining the residency of the reporting country's banks vis-à-vis counterparties, the BIS consolidated statistics are based on national ownership, rather than physical bank operating location.⁴⁴ For example, claims of branches of Italian banks operating in Greece would be classified as Italian banking claims rather than Greek banking claims. Should those claims of Italian-owned banks operating in Greece be on Greek banks, corporations, etc., they are counted as foreign claims. The consolidated figures also net out international intrabank

⁴³ Although the BIS reports data separately across these three categories, it is not available on a bilateral basis. Only total world claims on counterparty states are reported according to counterparty type.

⁴⁴ The BIS also reports locational banking statistics, which are calculated according to physical location rather than the nationality of a parent banking group. For more detail, see BIS (2013).

positions, such as would occur between the parent Italian bank and its branches located in Greece.

Although these data come from 2007, patterns of international banking that exist *before* the crisis may still be helpful in suggesting of the sorts of broad competitive distortions that are likely to be generated by the implementation of guarantees *during* a crisis. In a world full of options, the decision of a bank creditor to invest money in a particular national banking system at any given time is likely the result of a number of important considerations including transaction costs, the existence of exchange risk, the reputation of the banking system (as well as that of the national regulatory system and that of the sovereign), the availability of information regarding the various options, and the size of potential returns. Some of these factors are augmented by the implementation of a guarantee on certain classes of bank liabilities while others are not. To the extent that a sizeable amount of cross-border investment from one state into another state persists before a crisis, it offers important clues about the general desirability of one country as a destination for foreign funds from another.

Not only should the BIS consolidated data on foreign claims be informative about the overall propensity of investors in one country to invest in another, but they also likely reveal the extent to which reporting country banks have developed a physical banking presence in host countries abroad. Because lending to foreign borrowers means navigating different legal frameworks for the enforcement of contracts and the need for detailed information about local economies in order to identify good borrowers, higher bank claims on foreign borrowers may

also indicate a high physical presence of the reporting state's banks abroad in the form of branches or subsidiaries (see Fietcher, et al. 2011). The large claims of Austrian banks, for instance, on residents in Hungary, Slovenia, the Slovak Republic, and Ukraine corresponds to the fact that many of the banks in Central and Eastern Europe are owned by Austrian parent banking groups.^{45 46}

While the BIS foreign claims data are helpful in identifying general patterns of cross-border banking, they far from perfect for estimating competitive distortions that may emanate from the adoption of different bank guarantees. First, they tell us only specifically where *banks* invest their funds abroad. In addition, as Allen, et al. (2011) point out, the cross-border claims of banks are largely on other banks. Correspondingly, in terms of gauging the competitive effects that stem from guarantees on bank bonds or other wholesale instruments that are typically purchased *from* financial institutions *by* other financial institutions, the pre-crisis investment patterns of banks are likely to reliably indicate which states will face increased competitive pressures. However, while it is reasonable to believe that banks choose between potential external counterparties for many of the same reasons that retail depositors would as well (such as geographic proximity, shared linguistic or cultural attachments, or the physical presence of foreign institutions in a host country), to the extent that cross-border investment behaviors differ

⁴⁵ Western European banking groups control approximately 70 percent of banking in the Central and Eastern European (CEE) countries. Austrian banks, such as Erste Bank, alone hold a 22% of the CEE market (Breyer 2004). Also, see Krenn and Pühr (2009).

⁴⁶ Because of the methodology of the BIS' consolidated banking claim data, these claims would be reported by Austrian bank branches or subsidiaries as Austrian claims against Hungarian, Slovenian, Slovakian, and Ukrainian counterparties.

between banks and non-banks, these data may lead to either over- or underestimations about the effects of guarantees that apply primarily to non-bank investors, such as retail depositors. External bank *liabilities* data would be necessary to understand patterns of cross-border non-bank depositor behavior, but is unavailable.

I report in Table 5.1 the top ten BIS reporting countries in terms of their claims on Irish counterparties. I rank them not according to the raw value of claims (which are reported in the table as billions of US dollars), but according to claims on Irish counterparties as a percent of the reporting countries' banks' total foreign claims.⁴⁷ It is logical that states with large economies, such as the UK, will have claims on counterparty states that are quite large in raw terms, making the context of total international investment important for understanding the significance of any bilateral capital movement.

The data reveal that nearly all of Ireland's biggest bank creditors were not only European, but fellow Eurozone members. Among those European states broadly exposed, the data also suggest that the UK, Belgium, and Germany would have been the most immediately impacted. Anecdotal evidence also points to a move of depositors to Irish banks, predominately from the UK. According to the Central Bank and Financial Services Authority of Ireland, deposits increased in Irish banks following the implementation of the guarantee, while *The Guardian* also reported on October 1 that the Bank of Ireland had witnessed a steady increase in the calls coming into its call centers from Northern Ireland (Elliot, Brignall, and McDonald 2008).

⁴⁷ Reporting country total foreign claims data also come from the BIS consolidated banking statistics.

Meanwhile, the British Banking Association reported that the Irish guarantee had a particular strong negative impact on British banks operating in Northern Ireland (Engineer, Schure, and Gillis 2010).

Table 5.1: Foreign Bank Claims on Irish Counterparties by Reporting Country Banks

Reporting country	Percent of total foreign claims	Value of claims (in billions)
1) UK	5.13	205.51
2) Belgium	4.88	66.06
3) Germany	4.77	203.08
4) France	3.65	94.26
5) Italy	2.42	26.91
6) Portugal	2.19	3.11
7) Canada	2.17	15.74
8) US	2.12	35.33
9) Spain	1.96	23.88
10) Netherlands	1.83	44.60

Data: BIS Consolidated Banking Statistics

Leaders in both the UK and Germany immediately appealed to Ireland to revise its discriminatory treatment of foreign banks. UK Chancellor Alistair Darling urged the Irish government to include British lenders in the guarantee scheme (Elliot, Brignall, and McDonald 2008).⁴⁸ German Chancellor Merkel was also a vocal critic of the Irish guarantee, stating, “The Irish way is not right. Protecting without coordination one’s own banks, without including other

⁴⁸ The Irish guarantee did eventually come include foreign bank subsidiaries on October 9, thanks to international pressure to remove the discriminatory clause.

international institutions that paid taxes in Ireland for years, and thereby hurting competition, is in my opinion unacceptable,” (“EU struggles to unite to protect bank deposits”).

III.B The initial response to Ireland

Only days after the Irish announcement, other states began to follow Ireland’s lead in strengthening their banks’ defenses against depositor outflows. The Greek government was the first to react, declaring on October 2 that, “all bank deposits, whatever the amount” would be covered (Chee 2008). The very next day, October 3, British official also made moves to protect depositors. The UK increased the national deposit insurance coverage from £35,000 to £50,000. Though they stopped short of implementing a full explicit blanket guarantee on deposits, Chancellor of the Exchequer Alistair Darling announced that the extension of coverage limits would mean that 98 percent of depositor accounts would be fully protected (Summers 2008). However, some observers regarded the moves as an implicit guarantee to markets about the ultimate safety of deposits, with some British newspapers reporting that Chancellor Darling had also made public statements to the effect that deposits would be covered fully in any failing bank appearing close to collapse (Honohan 2010).

In the wake of the Irish guarantee and efforts by Greece and the UK to make sure depositors stayed put, leaders from Germany, France, the UK, and Italy met in Paris on October 4 to discuss a more coordinated approach to the crisis, increasing perceived by many as necessary against the background of the EU’s single marketplace. On the table was a proposal to create a common bailout fund for European banks, abandoned largely because of German

resistance (“Beggars thy neighbor”). Though the meeting produced some agreement on broad principles of cooperation on the matter, including keeping one another informed about new efforts to deal with the crisis and imposing sanctions on the chiefs of problem banks, the meeting failed to produce any specific plan of action (Walker, et al. 2008). Without a coordinated response in place, EU members had little choice but to go it alone as dictated by their national interests.

But following the summit, Chancellor Merkel made a surprising announcement on October 5. Germany would offer an unlimited guarantee for all private deposits – estimated to be €568 billion at the time of the announcement - in a move that British officials reported Merkel had offered no indication of during the previous day’s meeting (Wintour 2008). According to *The Economist*, “Germany’s volte-face may have been promulgated by large numbers of electronic withdrawals of deposits at the weekend.” (“Lifelines”). After Merkel vociferously condemned the decision by Irish policymakers to exclude foreign entities from government protection, the German guarantee included no such discrimination based on bank nationality.

The initial responses to Ireland offer some support for the hypothesis. First, two of the first states to act were two with the closest ties to Ireland, the UK and Germany. While Germany’s explicit and full protection for deposits fits nicely with expectations, the UK arguably does less so. Although raising depositor insurance and implying that the government is actually willing to go far beyond even new insurance levels in making sure that depositors are fully protected would certainly be in line with expectations about state behavior in the wake of the

competitive distortions in the deposit market generated by Ireland, it is somewhat curious that as the country most directly exposed, the UK did not simply issue a full and explicit guarantee. Nonetheless, an implicit guarantee rather than an explicit one should not be interpreted as evidence that runs counter to expectations.

III.C Competition heats up across Europe

The initial responses to Ireland had effects of their own, particularly the German guarantee. The decision by Europe's largest economy to fully back deposits created additional distortions in the deposit market greater in size than those of the Irish guarantee. Nick Clegg, leader of the UK Liberal Democratic party, stated, "Ireland's action last week to guarantee all deposits made a common European approach to deposit guarantees necessary. Germany's decision makes it completely unavoidable," (Winnett and Allen 2008). Similarly, BNP Paribas currency chief Hans Redecker commented that, "The whole of Europe will have to do the same thing, otherwise Europe will have a split banking system," (Evans-Pritchard 2008).

As would be expected given the gravity of Germany's deposit guarantee, other states quickly responded. The day after Germany announced its blanket guarantee, neighboring Austria and Denmark issued full deposit guarantees of their own. Wilhelm Molterer, Austrian Minister of Finance, declared that it would guarantee deposits in order to "ensure Austrian savings are not withdrawn and transferred to Germany," (quoted in Engineer, Schure, and Gillis

2010:26). Denmark went beyond Austria's commitment to fully insuring depositors, also backing existing and new bank debt issues as Ireland had done the week prior, the first to do so.

On October 6, the government of Iceland also issued a blanket guarantee covering all deposits (Schich 2009). Much like Ireland's guarantee, the coverage of Iceland's guarantee on deposits caused international outrage, but for very different reasons. The guarantee did not discriminate against certain institutions operating in Iceland on the basis of their country of ownership, but instead discriminated against depositors in Icelandic banks on the basis of nationality. The guarantee protected domestic depositors, but did not extend to foreign depositors in Icelandic institutions that conducted business overseas. Much of the controversy swirled around IceSave, an Icelandic institution that operated in the UK and had offered depositors returns as much as 50 percent higher than British high street banks. As a result the bank managed to attract approximately £4 billion worth of savings from British depositors, as well as nearly £1.7 billion from savers in the Netherlands (Danielsson and Zoega 2009).

Fevered pitch. With more states adopting unilateral responses, EU finance ministers met on October 7 in another attempt at forging a Europe-wide solution to the crisis. This time, the meeting produced an agreement to raise the EU's minimum limits on deposit insurance, originally set at least ninety percent coverage for deposits up to €20,000 in 1994. New standards raised the minimum limit to deposits of €50,000.⁴⁹ Though there had been talk of raising the minimum threshold to €100,000, it was feared that not all of the Eastern European

⁴⁹ The EU would later raise the minimum deposit level to €100,000.

member states would be able to afford such an increase (“Spain raises savings guarantee to 100,000 euros”). Concerns about unevenness in the ability of all EU members to afford even an increase insurance commitments beyond €50,000 would have meant a common agreement to institute full deposit protection would have been off the table.

However, the new directive on deposit insurance did not preclude any member states from adopting deposit limits beyond the new €50,000 minimum threshold, and France and Italy had already insured deposits at the €100,000 level long prior to the new adjustment. Indeed, some countries quickly moved to increase their insurance on deposits up to €100,000, including Spain, Greece, the Netherlands, and Austria on October 7 (“Spain raises savings guarantee to 100,000 euros”) and Luxembourg on October 17.⁵⁰ Portugal and Switzerland would do the same the following month.

The following day, on October 8, Slovenia and Hungary both announced unlimited blanket guarantees on bank deposits. Mayes (2012) claims that Latvia had also wanted to issue protection for its deposits, as they increasingly moved into Swedish banks, but decided it was unable to afford a guarantee.

III.D Shifting the focus on to other funding sources

Even though Ireland had guaranteed both deposits and non-deposit instruments, there was a clear divide, both in terms of the competitive distortions that the two generated and thus the

⁵⁰ Although Austria had already announced a full guarantee on deposits and Greece had made political (though not legally binding) commitments to do the same, the new maximum level for deposit insurance would take effect once the crisis was over and the full blanket guarantee on deposits was removed.

corresponding responses from competitor states. In retrospect, it is clear that Ireland's guarantee had not had the immediate effect of sucking in non-deposit funding from other states. The first government-guaranteed bank bonds issued during the crisis were in fact not even issued by an Irish bank, but rather by Barclays, a large British institution, on October 22 (Schich 2009), strongly suggesting an underwhelming demand for guaranteed Irish bank debt.

It is possible that the generosity of the Irish guarantee itself may explain why it did not result in the immediate inflow of non-deposit funding from abroad. Because the government had generously promised to backstop what amounted to 250 percent of GDP, the guarantee lacked credibility, a point that likely would have been obvious even to relatively unsophisticated investors. International depositors may still have been enticed, given that most national frameworks for the liquidation of insolvent banks generally place depositors at the head of the line in terms of payouts. However, other creditors, such as unsecured bondholders, may have suspected their likelihood of actually being paid out in the event of a rash of bank failures was far lower, guarantee or no guarantee. But also, because many financial institutions – the most significant holders of non-deposit bank liabilities – were intensely concerned about their own liquidity positions, there were simply fewer buyers worldwide interested in buying bank debt. In either case, Ireland's guarantee had failed to generate the distortions in the international wholesale market that it had in the deposit market.

In the absence of a rush of wholesale investors into Ireland, it is in line with the theory that Ireland's guarantees on non-deposit liabilities did not inspire the same widespread and knee-

jerk reactions that had taken place elsewhere as a result of the movement of depositors. Only Denmark had moved to also guarantee non-deposit liabilities. But on October 7, a comprehensive UK bailout plan was also announced which did feature a guarantee on wholesale liabilities, protection on the issue of new medium-term bank debt. The British government would also extend its emergency liquidity scheme and commit up to £50 billion for buying preference shares in banks (Treanor and Finch 2008).

It is possible that guarantees by Denmark and then the UK were internally motivated, solely meant to reassure domestic financial institutions that they could continue lending to each other regardless of the difficulties of raising funds externally. But they may have also been adopted by Denmark and the UK on the perception that they would need to be in a position to make their banks competitive relative to Ireland's once wholesale markets thawed. There is no clear evidence to suggest one way or another.

III.E Cooperative efforts to deal with the crisis

Just as guarantees on non-deposit liabilities were slower to emerge, so were cooperative outcomes in regards to bank guarantees. On October 9, the first major European cooperative guarantee effort occurred, though efforts were directed at propping up a single bank, multinational behemoth Dexia, rather than protecting entire banking sectors. Belgium, France, and Luxembourg collectively issued a guarantee for the liabilities of Dexia as it struggled to stay afloat. Belgium agreed to shoulder the largest share of the guarantee, roughly 60 percent, while

the others would cover 36 and three percent respectively, divisions that reflected the share ownership by investors from the three countries (Kudrna 2010).

When unilateral state actions had dominated the crisis containment scene, the European Commission had repeatedly pushed for coordinated efforts between states in dealing with the crisis (Honohan 2010). On October 13, the commission finally issued new guidelines for member states dealing with fixing their troubled banking systems. The “Banking Communication,” as it was called, made clear that there was to be an end to the sort of market-distorting competitive moves member states had taken in the previous weeks. Bank rescue schemes would need to be expressly designed so as to minimize negative spill-over effects. The communication also dictated that any guarantee or recapitalization schemes must be non-discriminatory in terms of bank nationality, in place only as long as crisis conditions prevailed, and include some mechanism requiring monetary support from the private sector, meaning guarantee schemes should include an appropriate fee for banks benefiting from state support (European Commission 2008).

Also on October 13, the Eurozone countries announced an agreement concerning debt guarantees and bank recapitalizations that had been reached during an emergency summit held in Paris the previous day. Elements of the agreement looked similar to those of the UK’s October 8 bailout package. The countries agreed to guarantee new medium-term bank debt and provide capital injections, though it would be up to each country to craft their own legislation. France,

Germany, Portugal, Spain and the Netherlands, all approved national wholesale debt guarantee schemes in the days that followed (Schich 2009). Slovenia and Greece shortly followed.

The agreement by the Eurozone states was largely billed as a collective effort to restart wholesale markets (Landler and Bennhold 2008), which had barely budged even as Ireland, Denmark, and the UK promises state-backing for bank debt issues. Indeed, given the extreme interconnectedness of banks throughout the Eurozone, a collective agreement would have likely been necessary to kick-start wholesale markets. In this case, an agreement may have been motivated not so much by competition, but by a shared interest in returning banks to a functioning state.

However, it was not just Eurozone countries that also decided to jump on board. Sweden, though not beholden to the October 13 agreement, announced its plan to back bank debt issues on October 20. Latvia also moved in November to guarantee debts of its largest lender, Parex Bank, which held 20 percent of the country's bank assets. As much as the Eurozone agreement may have been intended to resurrect wholesale lending among banks, other states not following suit would be left out in the cold once lending did resume. Agreement by Sweden and Latvia, more peripheral states in Europe, would not be needed to restore wholesale market function. Rather, their motivations likely lied in worries about loosing competitive ground.

III.F Competition goes global

By mid-October, the competitive pressures for bank funding had spread around the globe. With most of Europe having dramatically increased deposit insurance (many countries to 100 percent coverage) and moved to back the non-retail liabilities of their banks as well, other developed states felt the pressure to adopt guarantees of their own to protect national bank funding sources. In Table 5.2, I use the BIS foreign claims data to illustrate the exposure of the non-European reporting countries to Europe. In doing so, I calculate the cumulative value of claims on all European states that had issued a guarantee. Clearly, the US, Australia, Japan, and Canada all would have been affected by the decisions of European leaders, given that all were highly exposed to the collective stock of various guarantees in place overseas.

Table 5.2: Foreign Bank Claims on European Counterparties by All Non-European Reporting Country Banks

Reporting country	Percent of total foreign claims	Value of claims (in billions)
1) United States	47.5	791.52
2) Australia	36.4	539.66
3) Japan	36.3	2158.77
4) Canada	25.07	181.34

Data: BIS Consolidated Banking Statistics

Indeed, the cumulative effects of European guarantees were matched by other developed states elsewhere. On October 12, Australia and New Zealand both announced full guarantees on all bank deposits, but did so in a coordinated effort (Smith 2008). Australian Prime Minister

Kevin Rudd stated, “I don’t want a first-class Australian bank discriminated against because some other foreign bank, which has a bad balance sheet, is being propped up by a guarantee by a foreign government.” Mr. Rudd likened the slew of countries adopting guarantees on their banking sectors to the “economic security crisis,” (quoted in Landler and Bennhold 2008). Interestingly, when guarantees were announced in both countries, their banking systems were by and large healthy, not near any sort of a breaking point. Tumbarello (2010) notes that robust capital adequacy regulations and low exposure to the US subprime loans contributed to only a limited impact of the crisis on banks in both states.

However, the Australian-New Zealand guarantee had ripple effects of its own in the Pacific Asian region. Hong Kong followed suit in backing its deposits on October 13 (Bradsher 2008). Acting in a coordinated fashion similar to Australia and New Zealand, Singapore and Malaysia (which had only recently transitioned to having a normal deposit insurance scheme after having a blanket guarantee in place from 1998 to 2005 in response to the Asian financial crisis) both adopted guarantees on October 16 (Idris 2008). Only days later, on October 18, South Korea joined in, using a guarantee on \$100 billion worth of bank debts (Sang-Hun 2008).

In North America, governments also issued guarantees beginning in mid-October. The United States also issued a guarantee program on October 14, the Temporary Liquidity Guarantee Program (FDIC 2008). One component of the program extended unlimited protection on all noninterest-bearing accounts, while the other guaranteed all new senior debt issues. Canada also joined the fray, announcing on October 23 that it would guarantee bank debts as

well. Canadian Finance Minister Jim Flaherty stated that “The concern is that our financial institutions might have more difficulty borrowing in international markets,” and that guarantees issued elsewhere have created a “competitive disadvantage when raising funds in wholesale markets,” (quoted in Austen 2008). The move was largely framed as pre-emptive however, as the Canadian banking system had also remained relatively intact as the crisis raged elsewhere.

III.G Overview of guarantee adoption

By the end of October, nearly all the developed states that had experienced a national banking crisis had issued significant guarantees on the liabilities of their respective banking systems. The crisis would continue to spread to developing states as well and Claessens (2009) notes that while competitive distortions resulting from the developed world affected them as well, most lacked the means to provide similar guarantees in order to prevent depositors and investors from fleeing to government-guaranteed bank assets in the developed states.

Table 5.3 summarizes the moves that countries took to guarantee both deposit and non-deposit liabilities of their banks in the fall of 2008. In Figure 5.1, I also plot the number of guarantees in place each day, starting with the adoption of the Irish guarantee on September 30.

V. Discussion

V.A Assessing the evidence for the effect of competition

In many regards, the evidence of the case supports the main hypothesis. Following the Irish guarantee, country responses were highly concentrated in Europe, where any competitive distortions that arose due to the Irish guarantee would have been most acute. Among those first states to respond were two with significant exposure to Ireland, the UK and Germany.

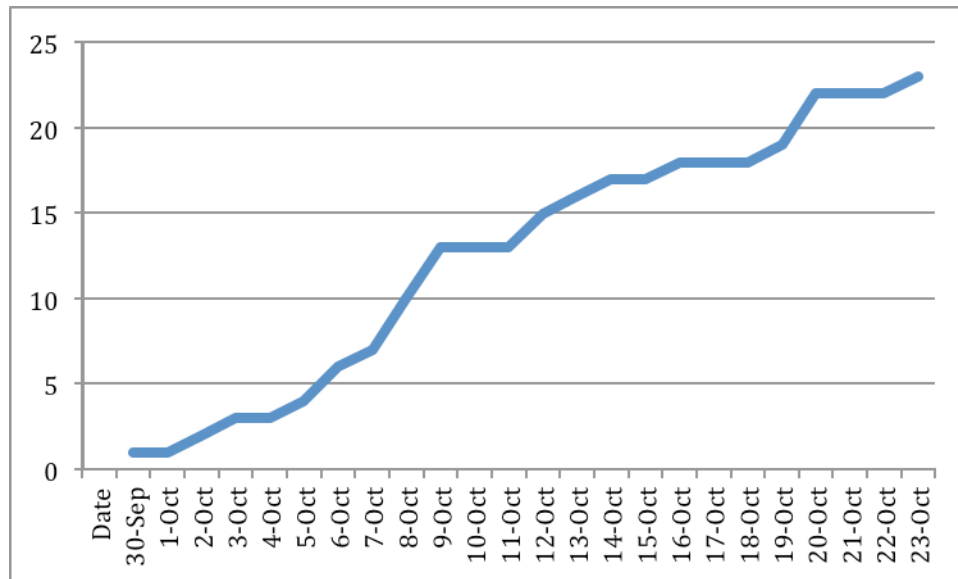
Actions taken by Germany had a clear effect in pushing a number of states to issue deposit guarantees as well. The size of the German economy meant that while some European states may have been able to resist the initial pressures of the Irish guarantee, they were unlikely to escape the effects of new competitive distortions emanating from Germany. Guarantees spread rapidly across the continent. As more and more states in Europe took defensive action by guaranteeing their banks, cumulative competitive pressures also began to affect states outside Europe. Very quickly after nearly all of Europe put guarantees in place, so too did advanced states in both North America and Asia.

Also in line with expectations concerning competitive distortions, there were marked differences in the rate at which countries moved to guarantee deposits versus wholesale liabilities. Although the Irish blanket guarantee set off intense competition in deposit markets, the wholesale markets remained frozen. Without significant movement of wholesale investors into Ireland as well, it is hardly surprising that states did not also engage in a race to backstop non-deposit liabilities in addition to deposits.

Table 5.3: Summary of Guarantee Adoption and Deposit Insurance Expansion

Date	Country/organization	Action taken
9/30/08	Ireland	Guarantee on retail deposits and wholesale liabilities
10/20/08	Greece	Guarantee on retail deposits
10/3/08	United Kingdom	Guarantee on retail deposits
10/5/08	Germany	Guarantee on retail deposits
10/6/08	Austria	Guarantee on retail deposits
10/6/08	Denmark	Guarantee on retail deposits and wholesale liabilities
10/6/08	Iceland	Guarantee on retail deposits
10/7/08	European Union	Raised minimum deposit insurance to 50,000 euro
10/7/08	Austria	Raised deposit insurance coverage to 100,000 euro
10/7/08	Greece	Raised deposit insurance coverage to 100,000 euro
10/7/08	Netherlands	Raised deposit insurance coverage to 100,000 euro
10/7/08	Spain	Raised deposit insurance coverage to 100,000 euro
10/8/08	Slovenia	Guarantee on retail deposits
10/8/08	Hungary	Guarantee on retail deposits
10/8/08	United Kingdom	Guarantee on wholesale liabilities
10/9/08	Belgium/France/Luxembourg	Guarantee on wholesale liabilities
10/12/08	Australia	Guarantee on retail deposits and wholesale liabilities
10/12/08	New Zealand	Guarantee on retail deposits
10/13/08	European Commission	Issuance of new non-competition guidelines
10/13/08	European Monetary Union	Agreement on guarantees for wholesale liabilities
10/13/08	Hong Kong	Guarantee on retail deposits
10/14/08	United States	Guarantee on wholesale liabilities
10/16/08	Malaysia	Guarantee on retail deposits and wholesale liabilities
10/16/08	Singapore	Guarantee on retail deposits and wholesale liabilities
10/19/08	South Korea	Guarantee on wholesale liabilities
10/20/08	Sweden	Guarantee on wholesale liabilities
10/20/08	Latvia	Guarantee on wholesale liabilities
10/23/08	Canada	Guarantee on wholesale liabilities

Figure 5.1: Number of states with guarantees in place, September 30 – October 23, 2008



V.B Assessing the evidence for the push toward cooperation

There is also some evidence that supports the corollary hypothesis, that competition for funds can also motivate cooperation. Cooperative efforts were scant in the earliest phase of crisis containment, as expected. With deposits moving quickly in response to various guarantees, some states waited no more than a day before racing to do the same.

However, cooperative efforts were much more common as the crisis wore on. The Eurozone agreement to guarantee bank debt was one such example. To be fair, it is not clear that the countries involved took part so much out of competitive concerns as an overriding concern about the continued resistance for financial institutions to trust one another as counterparties. However, should the Irish guarantee have kicked off a rush of international wholesale funding into Irish banks, it is doubtful that the Eurozone would have been able to establish any common

agreement about backing wholesale liabilities before most all member states had already taken unilateral action to do so.

Coordinated guarantee issuance by both Australia and New Zealand and Malaysia and Singapore more clearly displayed the expected dynamics of cooperation in the face of competition. As much as those states might have liked to avoid issuing any guarantees at all, containment steps already taken in Europe made it all but impossible to do so. However, given time to observe the chaotic race to shore up banks in Europe, states in the Pacific region had better ability to coordinate their efforts to ensure that new guarantees would not unduly undermine the banks of competitor states.

V.C Assessing the evidence for the alternative hypothesis

Though I find that the evidence conforms well to the expectations derived from the proposition that competitive distortions shaped the adoption of guarantees, I also compare the evidence to expectations derived from the proposition that guarantee adoption can be explained by the spread of the crisis. Specifically, I examine whether the data conform to expectations if a) exposure to US mortgage-securities served as the mechanism of crisis contagion or b) exposure to the collapse of the wholesale market served as the mechanism of crisis contagion.

Exposure to the US. To assess whether countries with high exposure to the US via its mortgage-backed securities were among the first to adopt guarantees, I rely on BIS foreign claims data of reporting country positions on the US, which are shown in Table 5.4. The pattern

Table 5.4: Foreign Bank Claims on US Counterparties by Reporting Country Banks

Reporting country	Percent of total foreign claims	Value of claims (in billions)
1) Canada	56.46	408.45
2) Switzerland	40.13	1020.90
3) Japan	39.10	844.17
4) UK	30.52	1222.28
5) France	26.93	695.57
6) Netherlands	21.02	513.24
7) Germany	20.01	851.95
8) Belgium	13.56	183.55
9) Spain	12.34	15.06
10) Ireland	10.98	81.55
11) Australia	9.25	39.79
12) Sweden	7.23	49.97
13) Portugal	7.07	10.07
14) Austria	5.41	29.20
15) Italy	5.20	57.78
16) Greece	2.42	2.21

Data: BIS Consolidated Banking Statistics

of guarantee adoption that we might expect if exposure to US assets played a key role in shock propagation is not borne out by the evidence. The top three countries in terms of their exposure to the US were far from the first to issue guarantees. Canada did not guarantee any bank liabilities until weeks after Ireland. Moreover, Switzerland and Japan, despite their very high exposures, did not issue guarantees on bank liabilities at all in response to the 2008 crisis. Furthermore, it is interesting from this perspective that the US would not also be not among the first countries to guarantee bank liabilities, given its role as the epicenter of the shock.

Exposure to wholesale market collapse. I also investigate whether the observed pattern fits with the expectation that countries most exposed to the breakdown of the wholesale market would be among the first to respond.⁵¹ On this count, the evidence is more convincing. In the years before the crisis, a number of European banks had become accustomed to obtaining capital from American and other European money market funds and rolling over their short-term debts (Bengtsson 2011), which would have left them in a particularly vulnerable position in the fall of 2008 when international wholesale markets dried up. Given the high leverage of many of its big banks, several European states would have been clear candidates for states most likely to be adversely impacted by the post-Lehman shock. Indeed, crises in Ireland and Iceland -- two countries with massively outsized banking sectors that had engaged in questionable expansion and lending practices -- certainly fit this pattern, adopting guarantees early on.

The inherent vulnerability of European states to develop serious crises as result of the post-Lehman shock is demonstrated by BIS reporting states' total foreign claims as a percentage of GDP, a measure roughly indicating which country's banks were most reliant on international wholesale funding. The data are shown in Table 5.5. Although Western Europe was a logical hot bed of guarantee activity in October 2008 from this perspective, there is still evidence in this case that challenges the presumption that crisis severity alone explains the observed pattern of guarantee adoption. The first is the issuance of guarantees outside of Europe whose banking systems were relatively untouched by the crisis. Banks in Canada and states in the Pacific

⁵¹ Rose and Spiegle (2009) demonstrate that exposure to the US was not a reliable indicator for which states would develop more serious crises.

region were, by all appearances, not terribly affected by the brunt of the crisis when they issued guarantees, having had lower levels of bank leverage. While it makes some degree of sense that they would adopt guarantees later than European states because of their smaller exposure to the problems raging in wholesale markets, it's not clear they would have been tempted to act at all in the absence of competition-distorting policies employed on the other side of the globe. In addition, the fact that the shock would have created more severe crises in Europe does offer much explanation as to why interstate cooperation would be observed. Bilateral efforts by the likes of closely-intertwined Australia and New Zealand, as well as Singapore and Malaysia, are not easily explained in the absence of potential competitive distortions that may arise through the adoption of guarantees.

Overall, there is some convincing evidence that the spread of the crisis served in some ways as a conditioning factor in the pattern of guarantee adoption in 2008. However, crisis spread does not tell the entire story. Competitive distortions were still likely to have played a key role in decision-making.

VI. Conclusion

Crisis containment efforts in the fall of 2008 offer a unique opportunity to assess whether competitive distortions shape the adoption of guarantees on bank liabilities. Though other works have suggested that they do, and various scholars, journalists, and other observers have

Table 5.5: Total Foreign Bank Claims by Reporting Country Banks

Reporting country	Percent of total foreign claims	Value of claims (in billions)
1) Switzerland	5.65	2544.17
2) Netherlands	3.12	2441.98
3) Belgium	2.94	1353.45
4) Ireland	2.86	742.63
5) Sweden	1.50	691.48
6) UK	1.42	4004.99
7) Germany	1.28	4256.98
8) Australia	1.15	430.37
9) Spain	0.85	1220.12
10) Austria	0.63	539.66
11) Portugal	0.61	142.41
12) Italy	0.52	1111.16
13) Canada	0.51	723.47
14) Japan	0.48	2158.77
15) Greece	0.30	91.35
16) US	0.12	1666.53
17) France	0.10	2582.39

Data: BIS Consolidated Banking Statistics

previously remarked that the Irish guarantee was responsible for setting off a string of guarantee issuance in response, no work to my knowledge has tested the proposition empirically.

Confronted with a global crisis of epic proportions in 2008, the vast majority of European governments, and later other advanced states, chose to issue sovereign guarantees on banking sector liabilities in an effort to restore financial stability. Competitive pressures in the deposit market and unilateral knee-jerk responses, which dominated the first phase of crisis containment in Europe, later gave way to endeavors to shore up non-deposit sources of bank funding and

greater cooperative efforts to minimize competitive distortions resulting from guarantee adoption. I do not maintain that competitive distortions were the only important factor, as the spread of the crisis in October 2008 may also potentially helped to explain observed patterns of guarantee adoption. Nevertheless, this examination of crisis containment in 2008 does suggest that the potential for competitive distortions stemming from adoption of guarantees strongly conditioned national responses in competitor states.

CHAPTER 6: CONCLUSION

In this dissertation, I set out to explain why states sometimes issue bank guarantees in an effort to contain a banking sector crisis. Government guarantees on banking sector liabilities do offer the potential of crisis containment via the restoration of market confidence in the stability of banks and thus the prevention of bank runs. Nonetheless, electing to serve as a backstop to bank losses in a bid to restore confidence is a risky approach to crisis containment that saddles the guarantor government with enormous contingent liabilities. But despite the risks entailed, as well as the existence of other containment options, a number of governments have opted to go this route and guarantees have appeared to be used with greater frequency in recent years.

I have proposed that the threat of capital flight is instrumental in shaping the crisis containment decisions made by politicians and motivates the use of guarantees. Fearful of the uncertain financial and macroeconomic consequences of an exodus of capital from the domestic banking system into other investments abroad, politicians in open economies may find the political risks of issuing a bank guarantee (and placing a potentially very large fiscal burden on the backs of taxpayers) to be far outweighed by those associated with failing to prevent banking sector dysfunction from developing into widespread economic meltdown. In addition, the obvious alternative of simply closing the borders to an outflow of capital is likely to be strongly resisted by financial liberalization's greatest domestic benefactors, a political battle that politicians would find best to avoid. The confluence of these political pressures is likely to push

toward the usage of guarantees as the best hope for keeping bank depositors and creditors put and limiting the crisis' damage.

These dynamics can also help to explain the timing and pattern of guarantee issuance across multiple states. Because internationally-mobile capital may be attracted to government-backed assets abroad, the decision of one state to guarantee banking sector liabilities can have the largely unintended effect of pulling capital from neighboring banking systems and thus ramp up pressure there for the adoption of similar guarantees. As a result, we are likely to see patterns of guarantee adoption that mirror the pattern of competitive distortions that are created. While these competitive distortions often should lead to unilateral defensive action, states may also coordinate the timing of their guarantee adoption in order to minimize adverse impacts on competitor states.

I. Summary of findings

The results of the three empirical chapters contained herein suggest that the threat of capital flight does indeed influence the manner in which politicians confront banking crises. In chapter three, I focused on the effect of de jure financial openness as a proxy for a state's vulnerability to capital flight in determining the likelihood that a state would issue a bank guarantee using data from 63 banking crisis cases. In accordance with theoretical expectations, the multivariate analysis revealed that more open countries do indeed have a higher probability of implementing guarantees. The noted increase in the use of guarantees over time corresponds

to the movement of more and more states toward financial liberalization over the preceding decades.

Moreover, the observed relationship between capital openness and the usage of guarantees is not easily explained simply by certain financial conditions related to openness that prevail in the pre-crisis period and may systematically give way to more serious crises. Unfettered access to international capital markets gives banks the potential to leverage foreign funds to increase domestic lending and consequently engineer a credit boom that gives rise to overinflated asset prices, suggesting a potential alternative explanation of the causal relationship openness and guarantee usage. In that case, guarantees would be the predictable response to a much larger domestic crisis, regardless of the potential for banking capital to flee the banking system when crisis strikes. However, this alternative explanation for the relationship between openness and guarantee usage is not supported by the data.

In chapter four, I set the choice to issue a guarantee in a wider context, using a multinomial logit model to estimate the likelihood a state will issue a guarantee given the alternative choice of tightening capital controls. In doing so, I assemble data on the implantation of new measures designed to prevent capital outflows following the crisis. Again, the results of the analysis demonstrate a strong relationship between openness and the use of guarantees while also showing that there is no such relationship between openness and the use of capital controls to contain a crisis. In fact, relatively autarkic states are significantly more likely to clamp down on outflows during a crisis.

I also look more closely at the case of Iceland in chapter four, an example of a highly open country that adopted capital controls in an attempt to contain an exceptionally serious crisis. Given the extreme mismatch between the size of the Icelandic banking sector and the size of the national economy and the state's resources for dealing with the crisis, the government lacked the ability to guarantee all of its banking liabilities and had little choice but to prevent foreign investors from leaving the country. A similar story could be told for the case of Cyprus, which as recently as March 2013 imposed capital controls in the hopes of containing a crisis in its massively outsized and internationally-exposed banking sector.

Chapter five offered a qualitative assessment of one of the main implications of the theory, which is that the use of bank guarantees is conditioned by the use of similar instruments by competitor states. Focusing on the 2007-08 crisis, I trace the adoption of guarantees that were implemented in rapid succession across the developed world following a September 2008 blanket guarantee issued in Ireland. The analysis points to the competitive distortions created by the adoption of guarantees issued in "competitor" states as motivators in the adoption of guarantees elsewhere. In addition, competition at times appears to actually propel some states into cooperative undertakings with other states; while they may not be able to avoid issuing guarantees given competitive pressures that emanate from other states, coordination of guarantee timing is optimal and was observed by some states later on in the crisis.

From the analysis, the possibility that the timing and pattern of the crisis' spread explains the timing and pattern of guarantee adoption cannot be fully ruled out. The earliest guarantees

were concentrated in Europe, where exposure to the wholesale market was greatest and the effects of its collapse in the fall of 2008 were most acute. However, other aspects of the case, such as the cooperation that emerged between states to issue guarantees in a coordinated manner, cannot be easily explained simply by the spread of the crisis.

II. Implications

There are important implications that stem from these findings. The first is that bank guarantees are likely to continue to be a popular method of crisis containment into the future. Worldwide commitment to open capital markets and international capital mobility has continued largely unabated despite the global crisis of 2008. Without a widespread reversion to the isolationist economic policies of yesteryear, the potential for capital flight during future crises should remain large in many states, motivating the use of guarantees. And although the IMF has reversed its dogmatic stance on capital controls and has approved their use to help contain recent crises, the strength of pro-openness interests should still prevent their adoption in all but the most exceptional of circumstances.

Given continued pressures for policymakers in many countries to respond to crises with the use of guarantees, my findings also highlight the need for more internationally-coordinated efforts to regulate the financial system and provide a framework for addressing crises. Though the global financial crisis had led many international banks to pull back on cross-border expansion and lending as well as de-leverage (“The Retreat from Everywhere”), many banks still

have large foreign exposures that make them conduits for transmitting both financial shocks and competitive distortions induced by the use of sovereign banking guarantees. To prevent future crises and the sort of disorganized and competitive crisis responses observed during 2008, international action is necessary. There have been some recent efforts of this nature, most notably Basel III⁵² and the movement toward a common EU banking union⁵³, but it remains to be seen if such new developments will be enough to avoid a repeat of 2008.

III. Limitations

Though the analysis I provide in this dissertation is strongly suggestive of how the threat of capital flight shapes policymaking surrounding a crisis, it is not without its limitations. I offer a discussion of the limitations of each test of the theory in the preceding chapters, but also briefly comment here on two of the biggest limitations of the analysis. The first is a limited number of data. Statistical models in chapters three and four contain no more than 44 observations and 53 observations respectively. More observations certainly would increase our confidence in the model estimations.

⁵² Basel III is the third of the Basel Accords, which are international agreements regarding standard banking practices. Basel III was adopted in 2010 as a response to the global financial crisis. The agreement seeks to make banks less vulnerable to financial shocks by tightening capital and liquidity requirements (see Basel Committee on Banking Supervision 2011).

⁵³ The Eurozone states agreed on June 29, 2012 to the formation of a banking union. Current proposals would give the ECB the power to regulate banks in the Eurozone and other EU members that join the union. European regulation will supersede domestic bank regulation (see Elliott 2012).

While increasing the number of observations is a worthy task, it is unlikely to be an easy one. Financial crises are relatively rare events to begin with. But understanding the reasons why policymakers respond to crises as they do requires data on policy responses themselves, which presents greater constraints. Laeven and Valencia's (2008, 2010) dataset is the most ambitious effort to date to compile policy data across a range of cases between 1970 and 2010. Details on policy responses prior to this time frame and in smaller states are sure to be more obscure.

Another significant limitation of the analysis regards the use of Chinn and Ito's (2008) *KAOPEN* index as a proxy for vulnerability to capital flight, which I discuss in detail in chapter three. While *KAOPEN* is a commonly-used measure of capital mobility restrictions, because my focus is on the potential for capital to exit a country, a more targeted measure that focuses only on the existence of controls specifically on capital outflows is preferable. There is currently no such measure available with the country and time coverage needed for testing my argument here.

IV. Future research

This dissertation points to multiple of avenues for future research. The first involves the disaggregation of bank guarantees as a collective class of policy instruments. While guarantees as a group share important similarities in purpose and function, there are in fact sizable differences in practice regarding the terms of coverage. Some guarantees apply only to retail deposits, while others include any variety of non-depositors in addition to or in lieu of depositor protection. Guarantees also come with various time limits for can offer coverage for different

asset maturities. Some contain ceilings on the amount of liabilities the government is willing to ensure while others are unlimited. Taken together, differences across these various categories also produce substantial differences in the overall scale and scope of government guarantee efforts.

In line with the theory I have presented here, I would expect that differences that emerge across guarantees are highly related to a state's vulnerability to capital flight – for example, more open countries are probably more likely to issue relatively more generous guarantees, all else being equal. Differences across guarantees may also potentially be explained by differences across banking systems. Logically, for instance, guarantees would be issued for wholesale liabilities in banking systems that depend more heavily upon wholesale markets for funding. Similarly, ceilings on liability protection may be more highly concentrated among states with extraordinarily large banks or banking sectors, for which unlimited protection would be impossible in reality. These possibilities and more offer hypotheses that could be fruitfully tested in the future.

Additional research opportunities exist in regards to the examination of bank guarantees as an independent variable. A natural extension of this dissertation would be to examine how effective guarantees actually are in preventing capital flight. Although policymakers may perceive them to be the last line of defense against the destabilizing movement of capital abroad, whether guarantees ultimately do serve this purpose and under what conditions they are most likely to be effective in doing so remain unanswered and interesting questions. In addition,

exactly to what extent do guarantees attract foreign capital? The use of bank level data may be particularly helpful for deciphering the extent to which guarantees serve to prevent the withdrawal of deposits or refusal of wholesale creditors to roll over loans, as well as whether there is a influx of foreign deposits and credit that occurs following the announcement of a guarantee.

Attacking these questions and more will involve a thorough understanding the role that credibility plays in outcomes related to the use of bank guarantees. I have only briefly touched on the issue of credibility in the course of this research, but it clearly should be an essential ingredient of any guarantee scheme implemented with the intention of containing a crisis. Guarantees judged by market participants as unlikely to be honored stand little chance of being effective and instead will simply leave the government on the hook for losses that pile up in the banking system. Various works have spoken to the fact that different states have different capacities for backing bank liabilities (i.e. Rojas-Suarez and Weisbrod 1996; Boyd, DeNicolo, and Loukoianova 2008), which likely figure into the decisions of policymakers regarding whether and how to guarantee bank liabilities in the first place. In addition, Schich and Lindh (2012) reveal that the rate at which markets price-in government-guaranteed protection is strongly shaped by the strength of the guaranteeing sovereign. Future research into the ability of guarantees to retain or attract new capital should pay careful attention to issues of differing guarantee quality and endogeneity issues inherent in guarantee adoption.

There is also a need for research that identifies the more distant effects of bank guarantees. Plenty of scholars have argued that guarantees generate moral hazard and some have found the use of guarantees to be associated with higher overall bailout costs as a result (i.e. Demirguc-Kunt and Servén 2010; Claessens, Klingebiel, and Laeven 2005; Kane and Klingebiel 2004; Honohan and Klingebiel 2003), but no work to my knowledge shows whether and to what extent moral hazard persists in the long run. Do banks continue to behave with impunity five or even ten years after guarantees are wound down on the expectation that the government will again step in to protect them if necessary? Are there ways in which policymakers that guarantee bank liabilities during one crisis actually demonstrate resolve not to do so in future crises? A better understanding of the real long-term costs associated with the use of guarantees, as well as any potential methods of controlling those costs, may be useful for policymakers confronted with crises in the future.

Beyond research questions that focus specifically on the use of bank guarantees, there are other important questions about the factors that motivate states to use other bailout tools as well. If the potential for capital flight conditions containment-phase policy measures, does it also figure into resolution-stage decisions as well, such as whether and how to recapitalize banks or dispose of bad assets? Also along these lines, future research should seek to explain overall patterns in crisis remediation efforts. As explained in chapter four, the choice to model the decision of policymakers interested in preventing capital flight as being simply between issuing guarantees or imposing new capital outflow restrictions (or doing neither) is overly simplistic. In

reality, policymakers may also raise interest rates, impose bank holidays, etc. in an effort to keep capital in the domestic banking system.

In addition, modeling the full complexity of crisis containment decisions would not only entail enlarging the menu of available policy options, but also adequately considering the intertemporal dimension of containment efforts. Initial efforts to contain the crisis that prove successful mean politicians need not employ additional policy tools motivated toward that end, whereas unsuccessful initial efforts to contain the crisis may be followed by other attempts. While I have been unable to construct such models given available data, future research may be able to shed greater light on the question, most likely through detailed, qualitative accounts of various crisis responses.

V. Final conclusions

Banking crises have never been a welcome event, but in the era of globalization, their destructive potential is even more acute. As a result, it is rather unsurprising policymakers in today's open economies would act boldly in order to contain an emergent crisis. Bank guarantees, for all the contingent costs and corresponding risks they entail, are a unique weapon for averting some of the most serious economic complications associated with dysfunction in the banking sector. Given the continued orientation of the majority of the world's states toward the global economy, the trend of guarantee use in crisis containment is likely to persist.

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Appendix A

Table 4.3: Measures Taken by Countries that Imposed New Controls on Capital Outflows

Case	New restrictions affecting capital outflows
Iceland (2008)	11/28/2008: Government introduces widespread controls on capital outflows. The exportation of more than 500,000 kronur per month was prohibited, residents were required to repatriate any foreign currency within two weeks of obtaining it, the purchase of securities for foreign currency was prohibited, any proceeds from the sale of securities and other financial instruments was required to be denominated in kronur, domestic currency accounts were made no longer convertible for capital transactions, and withdrawals from domestic currency accounts for capital transactions or transfer abroad were prohibited.
	10/31/2009: Further tightening of controls includes a reduction in the amount of currency that can be converted to foreign currency for gifts and grants without the permission of the central bank (from ISK 10 million to ISK 5 million), limits on the amount of domestic currency for the payment of living expenses, and prohibitions on the purchase of foreign exchange by residents for the purpose of extending loans, as well as on the transfer of funds abroad for the purchase of real estate (except under certain circumstances).
	4/29/2010: Controls tightened again. Monthly limits on the export of foreign bank notes without central bank approval were reduced from ISK 500,000 to ISK 350,000, the limit on currency that can be converted for gifts and grants without the permission of the central bank was further reduced to ISK 3 million, and cross-border purchases of certain assets in foreign currency were restricted.
Ukraine (2008)	10/13/2008: Banks prohibited from purchasing foreign currency to pay external debts before they reach maturity.
	11/4/2008: New law requiring that all purchases and sales involving foreign currency be performed through the NBU's System for the Confirmation of Agreements on the Interbank Foreign Exchange Market of Ukraine. Also, nonresidents must wait five days before they can transfer profits and income from investments out of Ukraine.
	12/4/2008: Residents and nonresidents are required to use the foreign currency they purchased within five business days of the day it was posted to their account. Purchase of foreign currency by residents and nonresidents for the transfers under non-trading transactions was limited to 75,000 HRV. Residents prohibited from purchasing foreign currency for settlement of transactions for imports that do not involve the entry of goods into Ukraine and that are intended for resale to nonresidents.
	4/19/2009: Banks prohibited from providing credit in foreign currency to non-bank nonresidents.

Argentina (2001)	1/5/2002: Introduction of a dual exchange system. Exchange rate for financial transactions set at 1.4 pesos to \$1 USD.
	2/11/2002: Central bank authorization required for remittance of profits and dividends. Repatriation and surrender requirements imposed on exports of services within 15 days of collection, locally or abroad (later reduced to five days). Transfers related to payment either of principle or interest on loans subject to central bank approval.
	3/15/2002: Central bank approval required for forward exchange operations with foreign counterparts (later to include local counterparts as well).
	5/31/2002: New surrender requirements for proceeds from exports in excess of \$1 million USD (later reduced to \$200,000 USD), export advances, and export pre-financing.
	9/6/2002: Foreign exchange purchases by residents limited to \$100,000 USD per month.
	12/26/2002: The central bank suspends the purchase and sale of US dollar banknotes.
	3/22/2003: Central bank authorization required for the settlement of financial derivatives contracts.
Russia (1998)	1/1/1999: Export surrender requirement period shortened to 7 from 14 days a surrender requirement raised to 75 percent. In addition, foreign currency position of banks was limited to 20 percent of capital and only 10 percent for any single foreign currency.
	3/29/1999: Introduction of a 100 percent deposit requirement for the advanced payment of imports.
	3/31/1999: Balances of nonresident bank accounts must be transferred to transit accounts with authorized banks before funds may be repatriated.
	4/5/1999: Prohibition on the purchase of foreign exchange with ruble balances in correspondent accounts of foreign banks.
	6/9/1999: Residents not allowed to export foreign currency banknotes in excess of \$10,000 USD. Amount reduced to \$1500 in 2000.
Malaysia (1997)	8/4/1997: Banks must limit outstanding noncommercial-related ringgit offer side swap transactions to \$2 million a foreign customer
	9/1/1998: Payment for all exports and imports must be settled in foreign currency. Central Bank approval needed for the transfer of funds between external accounts except for the purchase of domestic ringgit assets. Residents and nonresidents prohibited from exporting in excess of 10,00 RM per person for the purpose of travel. All sales and purchases of ringgit are to be conducted only through authorized depository institutions. Approval required for any investments abroad exceeding 10,000 RM.
	9/21/1999: Nonresidents repatriating proceeds from sales of securities subject to a 10 percent exit levy.

Case	New restrictions affecting capital outflows
Philippines (1997)	7/30/1997: Over-the-counter sales of foreign exchange without prior approval capped at \$25,000 (previously \$100,000). This was later further reduced to \$10,000.
	1/26/2000: Before bank deposits can be converted to foreign currency for repatriation abroad, funds held in the account must be in pesos, have a maturity of 90 days minimum, and must be registered with the central bank.
Thailand (1997)	5/28/1997: Temporary limits imposed on forward transactions in baht with nonresidents and on the selling of baht spot to nonresidents.
	9/8/1997: Exporters receiving packing credits from the central bank required to sign a forward contract to sell their foreign exchange with a commercial bank selling promissory notes to the national Export-Import Bank.
	9/23/1997: Proceeds from exports in excess of 500,000 baht must be repatriated within 120 days from the date of the exportation and surrendered to authorized banks within 15 days of receipt.
Brazil (1994)	8/11/1995: The financial transaction tax on interbank operations in the floating exchange market was raised from 0 to 5 percent for financial loans and from 5 to 7 percent for investment in fixed income funds.
Venezuela (1994)	6/27/1994: The foreign exchange market was closed until July 11 when the currency was pegged at 170 Bs to \$1 USD.
Estonia (1992)	12/1/1993: Residents must obtain a license from the central bank for opening and operating a foreign currency account with a nonresident bank abroad.
Argentina (1989)	6/21/1989: Payments abroad exceeding \$1000 were suspended.
Colombia (1982)	4/28/1982: Commercial banks prohibited from holding more than 10 percent of foreign liabilities. Amounts beyond that level required to be sold to the central bank.
	10/13/1982: Tourists traveling abroad allowed to purchase no more than the equivalent of \$10,000 USD in foreign exchange per year per adult (\$5,000 per child) and \$30,000 per year for special travelers. Amounts further reduced in 1983.
Ghana (1982)	4/21/1983: Foreign exchange purchases for travel, education, or medical treatment abroad subject to a 5 percent tax.
Chile (1981)	9/21/1982: Foreign exchange for travel abroad to neighboring countries reduced to \$1,000 (from \$10,000) \$3000 for trips to other countries abroad. These amounts were later reduced in 1983 and residents traveling by land were allowed to carry not more than 20 percent of total funds in foreign exchange with the remaining portion to be carried in money orders.
	3/14/1983: Authorization from the central bank required for service payments, invisible transaction payments, and the transfer of profits or dividends abroad.

Case	New restrictions affecting capital outflows
Argentina (1980)	3/20/1981: Foreign exchange purchases over USD \$20,000 were made subject to a written declaration of purpose.
	6/22/1981: A dual exchange rate was introduced that allowed commercial transactions to take place at a rate determined by the central bank, while financial transactions would be made at a rate set by market forces.
	11/30/1981: Individuals allowed to purchase only up to USD \$1000 in foreign exchange per day.
	4/5/1982: Foreign investors prohibited from repatriating investments in Argentina. Dividends and other profits could be settled only with the use of bonds issued by the government.
	4/30/1982: Central bank consent was required for all purchases of foreign currency, payments made abroad, and commitment to new external contracts.
	8/19/1983: Sales of foreign exchange for the purpose of travel abroad was capped at USD \$50/day for travel to neighboring countries and \$100/day (or \$1500/year) for travel to other countries without prior central bank approval (capped later further reduced).
	9/30/1983: Central bank approval required for all foreign currency purchases and any unused, authorized foreign exchange would have to be revalidated.