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Geopolitics and the 21st Century Global Financial Safety Net

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The dissertation of Abigail Leigh Vaughn is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

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ABSTRACT OF THE DISSERTATION

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Over the last two decades, the global financial architecture has been fundamentally transformed. There has been a significant rise in bilateral currency swap agreements (BSAs)—either in place of or in conjunction with traditional multilateral lending. Despite their recent popularity, BSAs are not well understood as a form of monetary cooperation and exhibit a number of peculiarities that on face should be counterproductive for global financial stability. Conventional wisdom suggests that BSAs should be highly political and therefore, create perverse incentives for recipients to behave in economic mismanagement. Unlike IMF loans, however, BSAs lack any explicit conditionality to attenuate the moral hazard problem. What explains

why providers would offer BSAs given these risks? Further, what are the consequences for global financial stability? I argue that rather than a source of enhanced risk-taking, geopolitics may enhance financial stability by enabling providers to offer swap agreements where they otherwise might be hesitant. I first present a formal model of the provider-recipient interaction that highlights additional risks that providers face when extending BSAs to recipients who decline economic reforms. In contrast to previous work, I demonstrate that providers can use political ties to manage these risks: international linkages enable providers to credibly threaten punishment and thereby induce better behavior from swap recipients. By leveraging the political ties of their home countries, providers can extend BSAs to recipients whose requests they would otherwise reject and can reduce the long-term risk of economic collapse and spillover. I provide empirical support for the mechanism using a newly-created dataset of all swap agreements offered by the U.S. Federal Reserve, the People's Bank of China, and the Bank of Japan between 2000 and 2016.

ABBREVIATIONS

BIS, Bank of International Settlements

BOJ, Bank of Japan

BSA, Bilateral Currency Swap Agreement

CBI, Central Bank Independence

CMIM, Chiang Mai Initiative Multilateralization

CSP, Comprehensive Strategic Partnership

DCA, Defense Cooperation Agreement

ECB, European Central Bank

EMBI, J. P. Morgan Emerging Market Bond Index

EU, European Union

FDI, Foreign Direct Investment

FFR, US Federal Funds Rate

GDP, Gross Domestic Product

GFSN, Global Financial Safety Net

IGO, Intergovernmental Organization

IMF, International Monetary Fund

NAFTA, North American Free Trade Act

NATO, North Atlantic Treaty Organization

PBOC, People's Bank of China

RFA, Regional Financing Agreement

SCO, Shanghai Cooperation Organization

1 Introduction

Global financial stability is a public good that rests on the actions of individual countries. When states exercise sound economic policies and take calculated risks, they generate market confidence in cross-border exchange, thereby enabling the efficient allocation of resources and stimulating global economic growth. Likewise, by pursuing monetary restraint and stockpiling sufficient foreign exchange reserves, responsible countries can limit the risk of financial contagion and avoid contributing to global financial collapse. Today, as the world's financial markets grow increasingly connected, wise economic management by individual governments and central banks is more important than ever. Even responsible countries are now susceptible to volatile capital flows and virulent economic shocks that originate elsewhere.

Unfortunately, despite the collective benefits of global financial stability and the growing risks of contagion, individual countries frequently fail to hold sufficient reserves to overcome financing gaps or weather external shocks. The risk that financial problems will spill over from one country to the next—coupled with the negative externalities of poor individual planning on global welfare—has reinforced the need for an international lender of last resort that can help avert or resolve financial crises by providing access to emergency financing that is otherwise unavailable.

In the 20th century, international actors sought to resolve this underinsurance problem by constructing a global financial safety net under U.S. leadership. At the center of this approach was the International Monetary Fund (IMF). By pooling reserves among multiple countries, the

IMF lowered the cost of this "financial insurance" for any individual country. At the same time, the creators acknowledged they could face a moral hazard problem in which the existence of a safety net and the promise of easy access to emergency financing could encourage countries to adopt increasingly risky behavior.

The IMF's institutions are designed with this problem in mind. IMF lending contains explicit conditionality that raises the costs of accessing the safety net, further discouraging risky activity. Ex ante, the IMF requires borrowers to undergo structural adjustments that resolve the underlying balance of payments problem contributing to financial duress. Ex post, the IMF requires borrowers to meet specific performance criteria in order to receive subsequent dispersals of funds. The high political costs of enacting austerity measures should deter countries from pursuing excessively risky policies. IMF member countries share the costs of monitoring borrowers' compliance with conditionality agreements and also delegate to international agents on the executive board. Unfortunately, research has shown that these institutional efforts to reduce moral hazard are at least partially offset by the actions of powerful IMF shareholders like the US and EU who continue to encourage profligate risk-taking by directing favorable lending to their friends and allies.[1] In short, when international politics influences financial-decision making in the IMF, it exacerbates an already complex moral hazard problem and wields pernicious effects on global financial stability.

Over the last two decades, the global financial architecture has shifted away from the highly-institutionalized and multilateral system of the 20th century and toward a more fragmented safety net. The most significant and prominent change during this period was the rise of bilateral arrangements—either in place of or in conjunction with multilateral lending. States have created over 140 BSAs since the Great Recession. Indeed, BSAs today are sufficiently widespread that they outsize similar IMF facilities both in number of agreements and in value. The rise of BSAs has been driven in large part by China, which has itself extended over 70 agreements.

[1] Stone 2002; Barro and Lee 2005; Copelovitch 2010b; Lipscy and Lee 2019.

The proliferation of BSAs is surprising for three reasons. First, given that researchers consider the influence of national politics a primary shortcoming of multilateral lending, bilateral arrangements should be even more vulnerable to political capture. Unencumbered by the constraints of joint decision-making, bilateral agreements are more likely to reflect a country's strategic objectives, suggesting that the perverse political effects we observe in IMF lending should be exacerbated in the bilateral case. Second, unlike the IMF, where the costs of a borrower's risky behavior can be shared among all members, with BSAs the costs of moral hazard problems rest solely with the individual provider. This suggests that providers should be hesitant to extend BSAs in the first place and should only offer agreements to a select few highly reliable partners. Surprisingly, while the Federal Reserve appears to match this assumption by extending agreements primarily to reliable developed countries, the People's Bank of China does not appear to use the same decision-making calculus. Overall, there is significant variation in whom providers select as BSA partners. Third, unlike the IMF, BSAs contain no explicit conditions to deter recipient misbehavior; mechanisms to resolve the moral hazard problem are seemingly absent from BSAs. Why, in wake of the worst financial crisis since the Great Depression, when concerns about global financial stability are especially salient, have BSAs proliferated? What explains the variation in BSA recipients? What are the consequences for global stability of this fundamental transformation of the global financial architecture?

1.1 The Argument in Brief

I argue that in the case of BSAs international political ties can actually help resolve moral hazard problems, enabling some providers to extend BSAs when they otherwise might be hesitant. To understand the argument, we must first recognize that BSA providers face a dilemma. On the one hand, BSAs are an attractive policy instrument because they quickly inject large amounts of liquidity that can help smooth trade fluctuations and balance of payments problems. Importantly

for recipient countries in crises, BSAs send powerful market signals that can dissuade foreign investors from withdrawing their capital. As a result, providers are motivated to extend BSAs to protect their economic and strategic interests. For instance, providers who are highly exposed economically to recipient countries nearing crises might be motivated to extend BSAs and thereby avert the costs of financial spillover.

At the same time, BSA providers face a common moral hazard problem that may make them hesitant to extend BSAs to recipients they consider unreliable. Whereas IMF lending distributes the risk of recipient default across all members of the institution, in bilateral settings this risk rests solely with the individual provider. As a result, providers are keenly sensitive to the possibility that a recipient may ultimately default or prove unwilling to reform its economy. Without some mechanism that can create recipient accountability, these risks would deter providers from extending BSAs in specific circumstances.

I demonstrate that political ties help providers overcome this dilemma by enabling them to credibly threaten punishment against recipients that deviate from the providers' preferences. By leveraging their political ties against unreliable recipients, providers can deter those recipients from engaging in risky behaviors that could further destabilize the recipients' economies. In short, unreliable recipients are incentivized to exhibit monetary restraint they would not pursue if providers lacked this political leverage. Providers, in turn, can feel more secure about providing BSAs to such recipients, thereby expanding the range of the financial safety net and reducing the overall risk of economic spillover.

Although providers may benefit from using political ties as leverage, I recognize that not all providers have access to this accountability mechanism. Provider central banks designed to be institutionally independent from their home governments are constrained from leveraging political ties and can only do so at significant cost to their institutional credibility. Therefore, my theory not only explains how some central banks can resolve the moral hazard problem, it may also help explain why the People's Bank of China has been more active in pursuing this strategy

and extending BSAs than the Federal Reserve.

To test my argument, I collected an original data set of BSAs formed between 2000 to 2016. Over this period, around 170 distinct BSA agreements were formed with the majority originating from three providers—the Federal Reserve, the People's Bank of China, and the Bank of Japan. Using this data, I first conduct cross-national tests to investigate whether providers are more willing to extend BSAs to unreliable recipients when (1) the providers maintain political ties to those recipients, and (2) the provider banks are able to leverage those political ties due to a lack of independence from the home government. I find evidence of a conditional effect in line with my expectations, whereby less independent providers appear more willing to extent BSAs to unreliable recipients to whom they are politically tied, whereas independent providers are less apt to engage in such behavior.

Next, I test the political accountability mechanism more directly by analyzing the behavior of recipients before and after they receive BSAs. Using a difference-in-differences design, I test whether politically tied BSA recipients are more likely to engage in risky behavior after receiving a swap compared to unaffiliated recipients. In contrast to IMF studies, I find that in both the short term and the long run, politically tied BSA recipients actually exhibit greater monetary restraint after receiving BSAs compared to unaffiliated recipients. Both sets of empirical findings lend further support to my theory that rather than a source of enhanced risk-taking, political ties can serve to hold recipients accountable and resolve the moral hazard problem in the absence of explicit conditionality.

1.2 Implications

This project makes three important contributions. First, it brings attention to an under-studied, but increasingly important form of monetary cooperation. BSAs are utilized by the world's largest economies as well as rising emerging market economies. The recent popularity of

this policy instrument, especially from China, highlights the urgency to understand its selection process and subsequent effects on the global financial system. Moreover, the growing prominence of BSAs marks a distinct departure from the traditional financial governance of the 20th century. Through BSAs and its own institutional structure, China is changing the structure of the global financial safety net in a unique way that challenges existing multilateral institutions tasked with managing global spillovers. In short, BSAs will have important implications for the overall efficacy of traditional financial governance.

Second, the findings suggest that central banks play a powerful role in international affairs that has since been under-explored. Comparing across institutions, I identify conditions that lead central banks to pursue financial statecraft. Importantly, I highlight that central banks face a critical tradeoff. While institutional independence enables states to credibly signal their monetary commitments, the same independence inhibits a central banks' ability to manage problems of moral hazard, suggesting that researchers should reconsider the overall benefits of a political central bank.

Finally, the results encourage a reevaluation of the role of politics in international financial governance. Political ties do not always imply or magnify moral hazard problems; rather, political ties may have differential effects in different contexts. Existing work suggests that in multilateral settings political ties enable borrowers to act more brazenly and delay crucial economic reforms. In the case of BSAs, however, bilateral political linkages enable recipients to commit to good behavior and allow providers to control moral hazard by penalizing recipients that misbehave. This finding provides insight on how to interpret these new forms of bilateral assistance. Importantly, I show that the value of political ties depends on a provider's institutional constraints and whether it can extend assistance bilaterally or multilaterally. Variation in these characteristics can help explain why BSAs are offered in some cases but not others. Finally, the results encourage a reevaluation of why countries—particularly those viewed as risky partners—might seek to establish closer political ties with particular providers.

1.3 Plan of the Dissertation

The dissertation proceeds as follows. The next chapter investigates the proliferation of BSAs in greater detail by examining the differences between the 20th and 21st century global financial safety net. I explore how BSA proliferation is driven in part by changes in the international financial landscape as well as tensions between rising powers and existing governance structures. The chapter concludes with a closer examination of BSAs as a new form of monetary cooperation.

Chapter 3 develops the analytic framework for a provider's decision to offer a BSA. I begin by reviewing the existing literature on BSA formation. I then introduce a strategic model of the provider-recipient interaction. The model enables me to identify new conditions that lead providers to extend or refuse BSAs. Traditional depictions of the provider's decision-making emphasize the economic spillover costs the provider may face if it fails to offer a swap and the potential recipient's economy subsequently collapses. Although I embed this logic into my game, I also expand the model to include the costs and risks a provider confronts when it does offer a swap. In short, a provider may be deterred from extending a swap when it believes the potential recipient is unreliable and is unlikely to behave even when offered a lifeline.

Fortunately for providers, the model also identifies a new mechanism through which countries can resolve this moral hazard problem and extract good behavior from unreliable recipients. BSAs stand apart from many other international cooperation problems because providers cannot credibly threaten to use sanctions as a tool of coercion—both recipients and providers recognize that economic sanctions would backfire by causing economic harm to the provider itself. Instead, the model shows that providers who are politically tied to their recipients can and will impose punishment to deter recipient misbehavior. By using political leverage to control the behavior of swap recipients, providers can extend swaps to a wider range of recipients and avoid the costs of economic collapse they might incur if swaps were withheld. I conclude by

exploring several narrative cases that highlight the logic of the theoretical model.

In Chapter 4, I provide empirical support for the predictions of my theory using a newly-created dataset of all swap agreements offered between 2000 and 2016 by the three most prolific BSA providers from major reserve currency countries: the U.S. Federal Reserve, the People's Bank of China, and the Bank of Japan. The key observable implication of my model is that providers should be more likely to extend BSAs to unreliable recipients when providers possess political ties with which they may hold those recipients accountable. I further recognize that provider central banks that operate independent of their home governments may be constrained from using international political linkages as leverage, whereas provider banks that are less concerned about the appearance of independence are more likely to adopt this behavior. I find support for both of these predictions: among states that appear unreliable, political ties to providers predict higher likelihoods of obtaining swaps from the People's Bank of China. In contrast, I find no evidence that the U.S. Federal Reserve is utilizing this mechanism, a decision consistent with the Fed's desire to appear institutionally independent from its home government.

Although Chapter 4 provides initial support that provider-recipient political ties are particularly relevant when recipients are perceived as unreliable, it is difficult to perfectly attribute the change in swap likelihood to the threat of coercion made credible by these ties. Because punishment is off the equilibrium path of play when deterrence succeeds, I do not expect to observe it in practice. In Chapter 5, I attempt to test the accountability mechanism directly. If the mechanism is true, unreliable recipients who are politically tied to providers should be induced to behave by the possibility of punishment. At minimum, I should not observe that political ties incentivize increased risk-taking. First, I assess whether the international markets' perception of these recipients reflects the improved behavior of politically-linked swap recipients relative to those recipients who were not politically linked to providers. In contrast to IMF studies, I fail to find evidence that international investors punish BSA recipients who are politically tied to providers. Next, I examine both short-term and long-term behavioral indicators. I find that

politically-tied recipients exhibit greater monetary discipline relative to unaffiliated recipients and experience fewer financial crises following BSA receipt. My research contrasts with the prevailing wisdom that allied states are less likely to adopt economic reforms or resolve balance of payment problems.[2]

Finally, in the last chapter, I offer concluding remarks on the contributions of the project for research and policy with particular attention to how different features of the global financial safety net might produce countervailing effects.

[2] Stone 2002, Lipscy and Lee 2019.

2 New Lenders of Last Resort? Examining the Rise of Bilateral Currency Swaps

The goal of this chapter is to examine how the proliferation of bilateral currency swap agreements (BSAs) represents a distinct departure from the traditional architecture of 20th century financial governance. The chapter begins with a discussion of the theoretical motivations behind constructing a global financial safety net (GFSN). Next, I analyze the prominent characteristics of the 20th century GFSN. I then detail how advancements in cross-border financial exchange and discontent with traditional financial governance encouraged the growth of BSAs, thereby reconstituting the global financial architecture for the 21st century. Finally, I highlight the descriptive characteristics of this new form of emergency lending and explore how BSAs differ from traditional forms of liquidity provision.

2.1 Introduction

Global financial stability is a public good. Stability encourages cross-border exchange by lessening uncertainty about returns in the future, enabling market participants to make longer-term investments. This in turn promotes economic growth, improving the welfare of both individuals

and countries as a whole. The presence of financial crises, however, threatens global financial stability. Financial crises are not only costly for countries themselves, but they also impose costs to the financial system as a whole through cross-border financial spillover. Despite the pareto-improvement obtained from stability, countries often fail to sufficiently invest in safeguards to avoid a financial crisis in part because countries do not fully internalize the costs from contagion. It is the existence of negative externalities from financial spillover that generates the need for a global financial safety net.[1]

Financial crises increasingly mar the international financial landscape.[2] Indeed, renowned economist Hyman Minsky argued that the financial system is unstable, fragile, and prone to crisis.[3] While the specific causes of financial crises are varied, crises are generally preceded by a boom in capital flows followed by a bust in their sudden withdrawal, which generates the need for short-term liquidity. A boom occurs when there is a sharp increase in asset prices or credit.[4] As economies expand, investors grow increasingly optimistic, increasing the growth of credit. The sharp increase in capital inflows amplifies credit booms by increasing the funds available to banks, who then relax credit constraints on lending to firms and households. The increase in the supply of credit also encourages greater risk-taking, reinforced in part by inflated asset prices and weak financial oversight. Accommodative monetary policy further encourages risk-taking as low interest rates drive investors to search for yields. The increase in the supply of credit, reinforced by climbing asset prices and economic growth, further escalates investor optimism, creating a feedback loop. However, these loose fiscal and monetary policies can lead to large economic imbalances including large current account and fiscal deficits as well as high levels of external and public debt. These imbalances become unsustainable when the bust inevitably follows the boom, resulting in a financial crisis. Busts occur when there is a sharp drop in the prices of assets or a sudden withdrawal of capital inflows, usually as a result of sudden changes in

[1] Orszag and Stiglitz 2002.
[2] Reinhart and Rogoff 2009. See also Laeven and Valencia 2012.
[3] Kindleberger and Aliber 2011.
[4] Claessens and Kose 2013.

market sentiment or some external shock.[5] For instance, a sudden drop in asset prices can trigger a fire sale and a flight to quality, increasing capital flow volatility and exacerbating a country's financing gap. Access to liquidity, therefore, plays a vital role in stabilizing national economies by providing sufficient access to funds to address balance of payments problems and to prevent contagion.

Financial crises are especially costly for countries and are usually followed by long recessions marked by declines in consumption, trade, and investment.[6] The most recent crisis, for instance, resulted in a median loss in GDP of 33% for advanced countries.[7] In addition, recovery is often slow, prolonging a country's economic strain.[8] These costs are not contained solely within the country undergoing the crisis but can also spillover, negatively affecting the health of close economic partners. Even preceding a full-blown crisis, an economic downturn in one country can impose costs on its partners through trade and financial linkages. As a result, both the country under financial duress and its economic partners maintain a strong interest in averting an economic collapse.

Aside from sound economic policies, countries can take preventive actions to mitigate the potential for a crisis. One option is to stockpile excessive foreign currency reserves to weather the financial storm on its own.[9] Maintaining high levels of foreign exchange reserves, however, can be an inefficient burden on the economy as they must be invested in liquid assets. Because reserve stockpiling is costly, countries often prefer to underinsure, relying instead on other countries to sufficiently hold reserves to stymie cross-border financial spillover and hope that they avoid a financial crisis themselves. As a result, the majority of countries do not have sufficient reserves

[5] Claessens and Kose 2013.

[6] Financial crises are associated with recessions that extend two quarters past a normal recession with larger declines in consumption, investment, industrial production, employment, and trade (Claessens, Kose, and Terrones 2011.

[7] Claessens and Kose 2013. For banking crises, it is estimated that the output loss is 25% during the first four years (Laeven and Valencia 2012).

[8] Following a financial crisis, recovery is associated with weak domestic demand and tight credit conditions (Kannan, Scott, and Terrones 2014).

[9] Some researchers do not consider reserves as part of the global financial safety net because they can only reduce the odds of a crisis and are insufficient to be able to resolve an actual crisis (Mühlich and Fritz 2018).

stockpiled to resolve a crisis if one occurs. A mere five countries collectively hold two-thirds of the world's total foreign exchange reserves.[10] For the remaining countries, a drawdown of their limited reserves may signal financial duress to foreign investors, exacerbating an already tenuous financial situation. Relying on individuals to self-insure is likely insufficient to avert financial crises and limit contagion.

A primary justification for global financial governance is to overcome the collective action problem that leads to underinsurance. Because countries do not fully internalize the externality costs from financial spillover, they underappreciate the benefits of global financial stability and overvalue the costs to maintain emergency financing to prevent financial crises. However, by sharing the burden for these emergency pools, individual countries may be more willing to contribute to the public good. The global financial safety net (GFSN) is an effort to promote global financial stability by enabling external access to short-term financing. The GFSN refers to a network of insurance encompassing multilateral institutions like the IMF, regional financing arrangements (RFAs), and bilateral creditors that countries can draw on to cope with financing shortfalls, volatility, and contagion from a crisis.[11]

In theory, the global financial safety net serves as a multifaceted de facto international lender of last resort. Walter Bagehot famously required that an effective lender of last resort should be willing to lend large sums, easily, and at a penalty rate in order to deter increased risk-taking as a result of the existence of a safety net. Though Bagehot was referring to a domestic lender of last resort, the criteria still applies in the international context. On its face, multilateral pools like the IMF seem best suited for this task. Because multilateral arrangements have more members, they should have a greater command of resources readily available to assist countries in distress than their bilateral counterparts. Moreover, because the cost of a borrower's default is shared among all members, multilateral arrangements should be less risk adverse than bilateral lenders and therefore, more willing to lend to countries in need. In short, multilateral

[10] Eichengreen 2010.
[11] Miyoshi et al. 2013.

arrangements benefit from economies of scale and diversification in resolving financial crises.[12] Finally, multilateral pools appear better equipped to deal with problems of moral hazard as they are likely to have greater capacity for monitoring as the costs are shared among all members. The following sections detail how the global financial safety net has shifted in the relative composition of its components over time.

2.2 20th Century Financial Governance and the International Monetary Fund

For much of the 20th century, the global financial safety net can be predominantly characterized as highly institutionalized and consisted primarily of the broad-based multilateral institution, the International Monetary Fund (IMF). Though bilateral and regional monetary cooperation existed, it was coordinated under the guidance of existing international institutions. The dominant position of the IMF in global financial governance is due in large part to the collective experience from the aftermath of WWI and the Great Depression.

Following WWI, many countries faced large fiscal deficits and high inflation. In particular, the dissolution of the Austrian-Hungarian empire resulted in the closing of a large free trade zone and increased speculation that Austria's exchange rate was unsustainable.[13] The market panic soon became self-fulfilling as capital fled and hyperinflation ensued. These speculative attacks also spread to other newly formed central banks in Eastern Europe, elevating the crisis from local to regional. Previously, central banks relied on diffuse and ad hoc assistance from counterparts in other countries when faced with sudden capital flight. However, after failing to secure bilateral assistance on its own, the League of Nations stepped in to coordinate stabilization loans to Austria from the victors of WWI. While these countries were hesitant to extend liquidity

[12] Fernández-Arias and Levy-Yeyati 2012.
[13] Marcus 2012.

assistance on their own, pooling the risk between several countries with the League of Nations to monitor was more palatable.[14] Following the rescue, several reports advocated that the pooling approach should be made more institutionalized to prevent the currency crises of the 1920s. Rather than requesting bilateral assistance in meeting sudden capital outflows, several policymakers proposed that central banks form a pool of currencies for short-term loans of liquidity under the management of the Bank of International Settlements (BIS) to restore market confidence and stability.[15] Despite their optimism, nothing concrete resulted from these reports.

Beginning in the 1930s, countries began to pursue beggar-thy-neighbor policies as they faced increasingly dire economic situations following the collapse of the US stock market. In May 1931, Austria found itself in trouble again as its leading bank, the Credit Anstalt of Vienna, was facing imminent collapse due to a run on its banks. Austria turned to the League of Nations for assistance as it had helped it during the 1920s crisis. The League turned to the newly formed Bank of International Settlements to assist Austria. Similar to the League's previous actions, the BIS arranged for a loan of 100 million schillings from 11 countries' central banks.[16] This loan, however, was insufficient to handle Austria's crisis, and so it requested another loan in June. Because of its structure, the BIS struggled to coordinate a second loan from the major central banks. For instance, France demanded that Austria first renounce its agreement for a customs union with Germany, which Austria refused to do.[17] Likewise, Great Britain was unable to step forward to act as a lender of last resort because it was depleted from WWI and the U.S. was unwilling to take this international position.[18] The Credit Anstalt soon collapsed at the beginning of the Great Depression, sparking a cascade of bank failures across both Europe and the United States.[19]

The failure of major economies to assist in the Credit Anstalt crisis is significant as

[14] Ibid.
[15] Kindleberger and Aliber 2011.
[16] Toniolo and Clement 2005.
[17] Ibid.
[18] Kindleberger and Aliber 2011.
[19] Drezner 2014.

it revealed the dangers of the absence of an institutionalized financial safety net to promote cooperation and global financial stability. Indeed, it is widely believed that the recession that started in 1929 became a depression because of the collapse in international cooperation.[20] A prevailing view in the literature is that the financial crises from the 1920s and 1930s would have been less severe if there had been an international lender of last resort.[21] In addition, there was a general recognition that while currency devaluations might have seemed successful for individual countries to export out of a recession, they imposed negative externalities to the world economy as growth slowed, destabilizing the international financial system. The conclusion was that there needed to be some way to incentivize countries to choose policies that took these externalities on the world financial system into account.

Conceived at Bretton Woods in the 1940s, the International Monetary Fund (IMF) was specifically designed to protect international financial stability and overcome the failures of the prior two decades. The IMF was designed as an institution to oversee a global monetary and financial order, often referred to by pundits as the "world's financial crisis firefighter."[22] The IMF was initially founded to monitor exchange rate stability and provide credit to assist countries in coping with foreign exchange crises. After the demise the Bretton Woods monetary regime, the IMF shifted its focus to providing short-term assistance to help countries address liquidity and balance of payments problems and restore economic growth. Rather than having to repeatedly negotiate emergency loans among countries, a key feature of the IMF is that it maintains a readily-available pool of resources it can access when a country is in financial duress and has the potential to threaten global financial stability. Pooling resources also implies that the risk that a borrower defaults is also shared among all participating members, minimizing the individual cost any one member faces. To combat the potential for moral hazard problems, most IMF loans include ex-post conditionality to deter excessive risk-taking.[23] Further, through delegation, the

[20] Chinn and Frieden 2011.
[21] Toniolo and Clement 2005.
[22] Masters and Chatzky 2018.
[23] Those without ex-post conditionality have ex-ante conditionality instead. See the IMF for more details.

IMF decreases the individual member cost to surveillance and enforcement of loans.

Since its creation in 1944, much of the 20th century financial safety net has been characterized by the IMF's activities. However, both regional and bilateral forms of short-term liquidity assistance were also present. Regional financial institutions started to emerge in the 1980s and 1990s to supplement IMF assistance. Similar to the IMF, regional financial arrangements (RFAs) are pools of foreign exchange reserves that member countries can access though in much smaller amounts. For instance, many RFAs often have rules prohibiting simultaneous draws. Though the specifics vary by institution, RFAs are similarly formalized with respect to conditionality and surveillance requirements. Bilateral currency swap agreements were formed in the early 1960s to assist with exchange rate stability under the Bretton Woods regime. Unlike BSAs in the 21st century, these agreements were limited to major industrial countries and were institutionalized under BIS guidance. Further, the expectation was that countries who received swap lines would be monitored by the IMF.[24] In each of the three components of the 20th century GFSN, short-term liquidity assistance was institutionalized and integrated into the central multilateral governance framework. Countries recognized benefits to economies of scale, pooling of risk, and the delegation of monitoring, which encouraged this institutionalization in order to promote global financial stability.

2.3 Global Financial Integration and the 21st Century Financial Governance

There were two distinct shifts in the international system around the turn of the century that facilitated the transformation of the global financial safety net from the highly institutionalized one of the 20th century to the seemingly more diffuse and fragmented one of the 21st century. First, cross-border financial exchange had intensified, which heightened countries need for short-

[24] Toniolo and Clement 2005.

term liquidity provision. Second, there was an increasing perception that traditional financial governance failed to adequately respond to the new international financial environment. I will address each shift and its implications in turn.

Technological advancements in telecommunications and decades of liberalization policies have significantly amplified cross-border financial exchange as the world becomes more interconnected than ever before. Economic distance between countries is fast receding as costs to communication and storing information sharply decline. For instance, in 1990 the total value of global flows of goods, services, and finance was $5 trillion, or 24% of the world's GDP. By 2014, the value of cross-border flows jumped to $30 trillion, equivalent to 39% of the world's GDP.[25] There are two specific features of this increased globalization that are particularly pertinent. First, the world economy has become increasingly financialized both in the depth of financial flows as well as the breadth of countries who participate in global finance. In 1980, financial flows represented 4.1% of world GDP ($0.5 trillion) whereas these flows grew to 20.7% of world GDP, roughly $11.9 trillion, by 2007.[26]

One consequence of this increased financialization is that more countries can now access larger amounts of external finance from more varied investors, greatly magnifying countries' external debt burdens. For instance, the IMF reports that external debt burdens equaled 225% of global GDP in 2016.[27] These debt burdens are especially problematic for middle- and low-income countries where a large portion of debt is denominated in foreign currency.[28] Should market access to external financing tighten suddenly, significant external debt burdens make it difficult for countries to service and roll over their debt. Moreover, a second consequence of increased financialization is that financial stress is more likely to spillover impacting the economic health of other linked countries. For instance, it is estimated that 27% of equities around the world are

[25] Institute 2017.
[26] Ibid.
[27] IMF 2018.
[28] For emerging market economies and middle-income countries, foreign currency denominated debt remains at 1/3 of general debt. For low-income countries, foreign currency denominated debt is 2/3 of general debt. See IMF 2018.

owned by foreign investors, an increase from 17% in 2000.[29] A similar trend exists for bond holders as well.[30] Financialization has resulted in potentially unsustainable external debt burdens, and an international system that is more vulnerable to contagion as financial downturns can more easily spread.

The second important feature of the world's increased interconnectedness is the speed and volatility of the increased capital flows. Magnifying the external financing gap, volatile capital flows expose countries to a heightened risk of default when the size of their capital outflows and debt are in excess of their foreign reserves. According a 2017 McKenzie Global Institute report, over 60% of developing countries and 70% of advanced economies experience a large decline, surge, or reversal in foreign lending each year.[31] This volatility can generate large swings in exchange rates and reduce macroeconomic stability. This is particularly problematic when tight external financing conditions limit a country's access to foreign currencies, necessary to rollover their foreign-currency denominated debt. When currency-specific shortages emerge, foreign exchange markets can freeze or are prohibitively costly to enter. The result is a balance of payments problem that if left unaddressed can spark a downward spiral into a financial crisis. Overall, financial stability has become more dependent on global financial conditions because of financial integration.[32] As a result of these shifts in cross-border financial exchange, countries are more vulnerable to financial crises, which exacerbates the need for a global financial safety net to minimize the externalities of cross-border financial spillover.

The second change in the international system is an increased perception that traditional global governance has failed in its mission to deter moral hazard and sufficiently respond to financial crises by preventing their spreading. The perceived failure arises both from an institutional deficiency that impedes rapid and sufficient policy responses and a legitimacy gap in representation at financial governance institutions despite shifts in the constellation of global

[29] Institute 2017.
[30] Foreign ownership represents roughly 31% of bonds in 2017.
[31] Institute 2017.
[32] Truman 2013. See Rey 2015 for more work on global financial cycles.

economic powers. Because the IMF's decision to intervene is a collective decision designed to minimize the risk of moral hazard, the timing, amount, and conditions attached to the bailout may fail to adequately resolve the external financing gap. Any delayed response is especially costly in a deeply interconnected and volatile international financial system. Indeed, a common criticism of the response to the Great Financial Crisis was that the IMF was ill-equipped to deal with a financial crisis of its speed and magnitude.[33] Critics assert that the IMF failed to respond sufficiently quick and lacked the resources to adequately resolve the crisis. Moessner and Allen (2015) find that net IMF disbursements in 2008 amounted to around $18 billion whereas the Federal Reserve's BSAs alone amounted to $350 billion during the same period. In addition, critics also claim that the IMF failed in its surveillance capacity to monitor the financial conditions of Western powers, namely the U.S. and other European countries, in the run-up to the Global Recession in 2008. For instance, the IMF never conducted a Financial Sector Assessment Program review of the US before the crisis.[34] The public failures increase the perception that the traditional global governance of the IMF is no longer equipped or willing to provide global financial stability.

Moreover, a lack of representation in decision-making at the IMF has enhanced the perception of a legitimacy gap in traditional financial governance. Over this time period, emerging market economies have become increasingly important to the world economy. In 2010, China became the world's second largest economy.[35] Moreover, while the G7 collectively represented two-thirds of the world's global output in the late 1990s, this shifted substantially in the 21st century. By 2016, the G7 now represent less than half of global output.[36] Despite the increased role in the world economy, IMF decision-making has failed to give increased voice to these countries until very recently. The United States and the EU still maintain significant of control

[33] See Henning and Walter 2016 and McDowell 2017b. The IMF has since created precautionary lending facilities in 2015. However, only a handful of countries have been approved for these facilities and none have been used to date. See Henning and Walter 2016.

[34] Eichengreen and Woods 2016.

[35] Roberts, Armijo, and Katada 2018.

[36] Henning and Walter 2016.

over lending decisions.

Concerns regarding the IMF's legitimacy gap is motivated in part by the perception that previous lending decisions have been inattentive or overly stringent to countries of import to emerging powers.[37] For instance, some countries believe participation in IMF programs actually worsen their country's economic health and citizens threaten to punish their governments for participating in such programs. Post-Asian financial crisis, it was considered "political suicide" for Asian countries to approach the IMF.[38] The IMF's inadequate response to crises, compounded with the incentive to delay requesting IMF assistance and avoid political backlash, raises the likelihood that a crisis country's economic duress will be passed to its economic partners—at least in the short term. By the point at which the IMF intervenes, economic contagion has likely already infected the health of close partners.

Failure to provide adequate and timely responses enabled a perception that the IMF no longer promotes global financial stability as it was intended. The formal communique from the annual BRICs conference aptly summarizes the concerns explaining "international governance structures designed within a different power configuration show increasingly evident signs of losing legitimacy and effectiveness."[39] The structural shift in global economic powers provided the enabling conditions for countries to increasingly voice their discontent with traditional forms of 20th century financial governance.

2.4 The 21st Century Global Financial Safety Net

The 21st century global financial safety net is characterized as more diffuse, fragmented and non-institutionalized than its 20th century predecessor. While the current GFSN shares many

[37] Even Japan perceived the IMF as failing to adequately provide assistance to countries impacted by the Asian Financial Crisis. Japan had attempted to set up an Asian Monetary Fund as an alternative source of liquidity provision but was prevented from doing so by the United States. See Blustein 2003.

[38] Aizenman, Jinjarak, and Park 2011.

[39] Roberts, Armijo, and Katada 2018, p. 3.

of the same features, the relative composition of these features has shifted in part because of the changes to the international system detailed in the previous section. Similar to the 20th century, the IMF is still an important actor assisting countries with short and medium-term balance of payments problems. Likewise, regional financing arrangements still exist and have been enhanced since their creation in the 1980s and 1990s. Compared to the IMF, RFAs still represent a smaller portion of the overall GFSN. For instance, two of the oldest RFAs, the Latin American Reserve Fund and the Arab Monetary Fund, only command a small volume of resources at $3.6 billion and $2.7 billion, respectively.[40] Distinct from the earlier period, however, is the prominence of bilateral forms of short-term liquidity provision. Since 2008, over 80 swap agreements have been signed. Figure 2.1 below shows the number of BSAs created each year compared to the number of original IMF loans offered each year.[41]

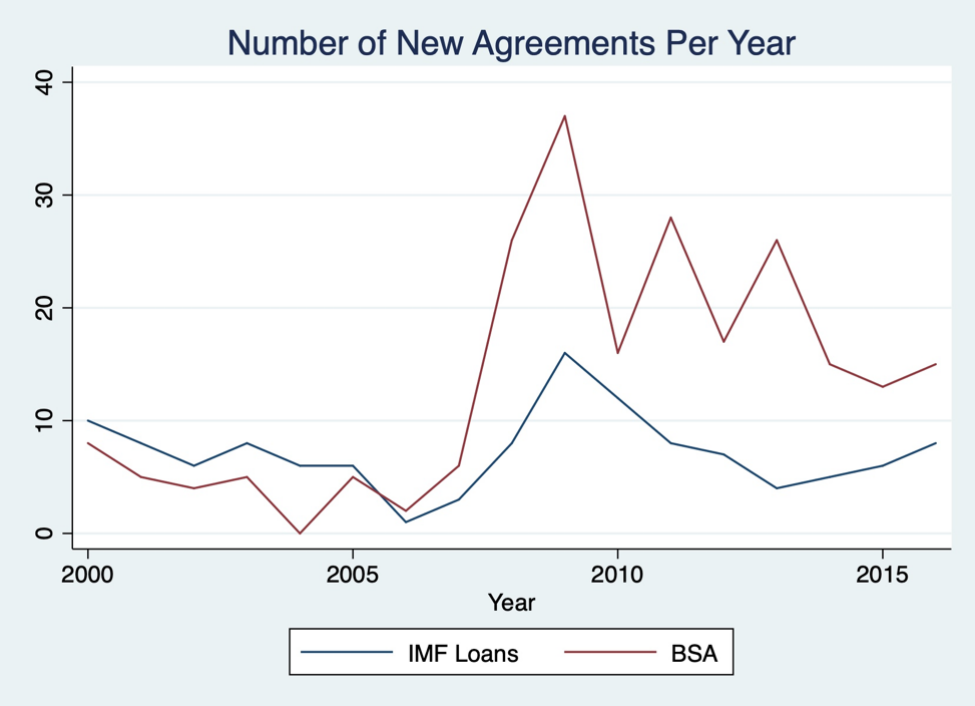

Figure 2.1: BSA vs. IMF Loans Per Year

[40] Mühlich and Fritz 2018.

[41] I exclude IMF loans designed to address medium-term balance of payments problems as these instruments are functionally distinct from the short-term liquidity provisions from BSAs and RFAs.

In contrast to multilateral lending from the IMF and RFAs, bilateral currency swap agreements are non-institutionalized and highly discretionary. Both the IMF and RFAs require some form of explicit conditionality attached to short-term liquidity assistance to deter increased risk-taking.[42] In addition, both the IMF and RFAs entail some form of surveillance of its members' financial health and monitoring of its lending agreements. These explicit conditions are remarkably absent from BSAs.[43] The lack of conditionality is especially puzzling given the conventional wisdom attributed to Walter Bagehot that lenders of last resort characteristically lend freely, against good collateral, and at a penalty rate. This striking departure from other forms of short-term liquidity provision has led some to characterize BSAs as a new form of market-led financial governance in contrast to IMF and RFA as state-led monetary governance.[44] Moreover, unlike multilateral lending where the risk of a borrower's default is pooled among all members, BSA providers assume the full burden of default. This suggests that BSAs should be a rare phenomenon, but instead the 21st century witnessed a proliferation in agreements from relative obscurity prior to 2000.

The changes in the international financial system over the last thirty years have heightened the importance of the global financial safety net, particularly as the potential for externalities imposed by financial spillovers are magnified. Effective global financial governance serves a vital role in promoting international financial stability. While BSAs have the benefit of generating tremendous resources very quickly, they seemingly lack any explicit tools to manage problems of moral hazard inherent in any insurance scheme. While BSAs have become increasingly important, they are less understood as tools of international finance.

[42] For an overview on IMF conditionality, see Dreher 2009.
[43] Destais 2016.
[44] McNamara 2016.

2.5 New Lenders of Last Resort—Bilateral Currency Swap Agreements (BSAs)

The following section provides an overview of bilateral currency swap agreements and highlights their descriptive patterns as compared to the traditional lender of last resort, the IMF.

2.5.1 What are currency swap agreements?

BSAs operate like a direct line of credit between participating central banks, temporarily boosting short-term liquidity.[45] A BSA is formed when a central bank *(the provider)* accepts a commitment to provide funds on demand to a foreign central bank *(the recipient).*[46] A swap agreement operates as follows: a provider central bank loans a specified amount of currency A to a recipient foreign central bank in exchange for currency B at an agreed upon exchange rate. The agreement obligates the recipient central bank to buy back its currency B at a future date at the same exchange rate of the initial exchange. The recipient country lends currency A to banks in its jurisdiction. On the specified future date, the recipient central bank returns currency A to the provider in exchange for its currency B and the recipient pays interest to the provider. During the time of the initial exchange, the provider is committed to holding currency B instead of lending or investing it.[47] In practice, BSAs function like a temporary increase in the foreign currency reserves for the recipient.[48] For instance, a swap line between the Federal Reserve and Banco de Mexico exchanging dollars for pesos would temporarily increase the dollar reserves for Banco de Mexico if the line was activated. The short-term boost in liquidity can provide immediate relief for the recipient by helping to forestall a costly depreciation of their currency or avert a balance of payments crisis.

[45] McDowell 2017a.

[46] Moessner and Allen 2010.

[47] See Fleming and Klagge (2010) for a complete description.

[48] Swap agreements originated in the early 1960s to finance foreign exchange intervention. See Bordo, Humpage, and Schwartz (2015) and McDowell (2017a) for history of Federal Reserve swaps.

The terms of BSAs vary by agreement and across providers. BSAs originating from the People's Bank of China are usually three years whereas the Federal Reserve maintains shorter maturities of three months. The maturity, however, might depend on the specific relationship between the provider and recipient. For instance, while both Bank of Japan and the Federal Reserve have short term BSAs, they also have permanent standing lines. BSAs can be local, in which the provider and recipient exchange their respective currencies. Alternatively, BSAs may permit the countries to exchange a commonly used reserve currency like the U.S. dollar. Some agreements allow an exchange of up to three currencies. Once the agreement is established, the line can be drawn on at any time. Unless it is a permanent standing line, BSAs end when their maturity expires. Many agreements are renewed shortly thereafter, or their expiration date can be extended. There are a few cases, particularly by the Federal Reserve, where the agreements were not renewed.

While the specifics of the agreements may vary, there are consistent overall trends. As mentioned above, a key distinguishing feature of almost all BSAs is that the agreement rarely requires explicit policy adjustment from the recipient. Unlike IMF loans, BSAs contain no explicit provisions for conditionality. Moreover, BSAs often lack explicit surveillance or monitoring mechanisms.[49] BSAs also tend to be large in size and offer quick dispersal of funds, avoiding the pitfalls of IMF loans. For instance, by late 2008, the Federal Reserve's BSA program totaled a staggering $580 billion. Comparatively, the more publicized AIG bailout was only $85 billion in comparison.[50] Even compared to similar arrangements from the traditional lender of last resort, swap agreements often dwarf IMF loans. For example, Mongolia received a BSA from the People's Bank of China in the amount of $2.2 billion whereas the IMF loan was only $440 million.[51] Agreements can be amended to augment the amount available, particularly if

[49]BSAs formed under the Chiang Mai Initiative Multilateralization (CMIM) require participation in an IMF program if the recipient borrows above a certain threshold. Because the BSAs through the CMIM are distinct in this regard from other BSAs, I exclude them from my analyses.

[50]Irwin 2014.

[51]"Mongolia reaches $5.5 bn IMF deal as debt repayments loom" 2017.

international liquidity conditions worsen. In general, the large loan size of these swap agreements has a significant impact on a country's ability to recover from financial crises and for the stability of the global financial system as a whole.

2.5.2 Why use BSAs?

BSAs derive their power from their ability to send a reassuring signal to wary investors that the recipient has a powerful backer, thus avoiding a costly capital flight. BSAs are effective policy tools in large part because of their symbolic weight. Many consider BSAs to be a signal of deep cooperation, whose existence has the effect of calming markets regardless of whether or not they are actually used.[52] BSAs have been described in the media as a "meaningful sign of trust between governments."[53] As Russia was experiencing a fall in the value of the ruble, news media in China characterized the BSA between the People's Bank of China and the Bank of Russia as "tantamount to directly offering money to Russia."[54] The presence of BSAs has been shown to restore financial stability even for countries with large stockpiles of foreign reserves.[55] Aizenman and Pasricha (2010) found that on the day after a BSA announcement, BSA participants saw their exchange rates appreciate on average by 4% compared to other countries with similar reserve holdings. Swap agreements can also be used to help facilitate trade finance, and as a result liberate a country's actual foreign currency reserves to defend their exchange rate in times of financial stress. During times of stress, banks often have difficulty obtaining short-term dollar funding to finance their commercial deals.[56] Currency swaps can ensure the continuation of trade finance even in times of financial stress, thus limiting the likelihood that economic stress in the recipient country spills over to its economic partners.

[52] Obstfeld 2009; Aizenman, Jinjarak, and Park 2011.

[53] Council on Foreign Relations. See https://www.cfr.org/interactives/central-bank-currency-swaps-since-financial-crisis/.

[54] "Pouring scorn on China-Russia engagement foolish" 2014.

[55] See Aizenman, Jinjarak, and Park 2011.

[56] McDowell 2017a.

2.5.3 Who are the providers?

The majority of currency swap agreements originate from five providers: the Federal Reserve, the Bank of England, the European Central Bank, the Bank of Japan and the People's Bank of China.[57] Figure 2.2 below shows the number of agreements originating from each provider between the years 2000 and 2016. An agreement is considered formed when it is posted by the provider central bank and contains at minimum the maturity date for the BSA. As such, recipient countries can be party to multiple agreements from the same provider. The People's Bank of China is clearly the most prolific provider, whereas to date, the Bank of England rarely extends agreements.

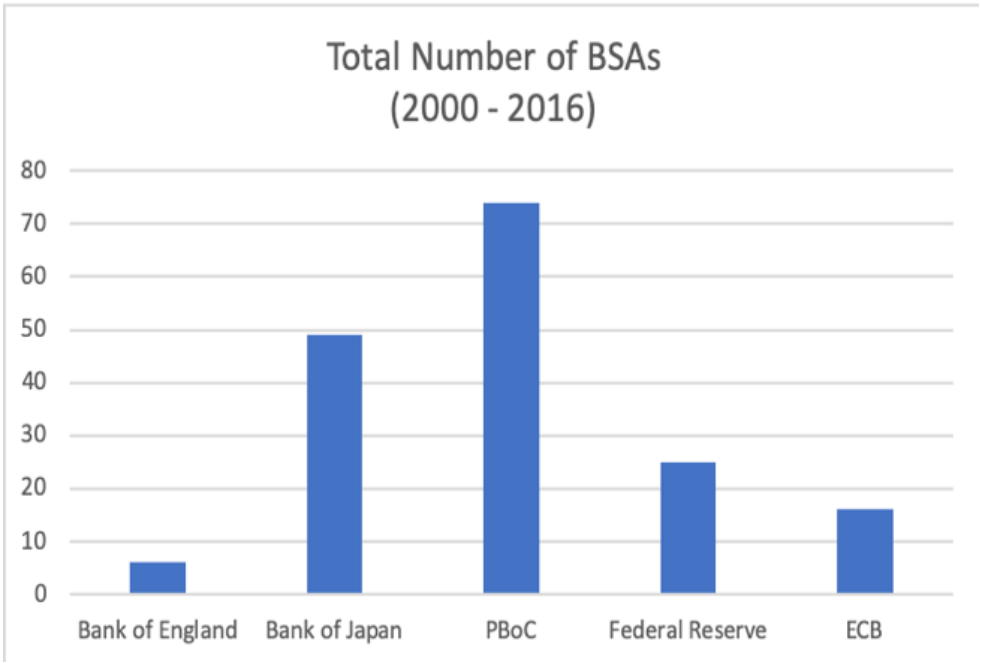

Figure 2.2: BSAs By Provider

It is no surprise that most BSA providers are either major reserve currency central banks or centrals with outsized reserve holdings. As others have shown, the U.S. dollar is a widely used reserve currency, followed by the Euro and the Japanese yen.[58] In addition, though the Chinese

[57] In the last few years, several emerging market economies have created agreements with each other. India and South Korea has been particularly active in this regard since 2017.

[58] See IMF's At a Glance COFER data: http://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4

renminbi represents only a small share of total reserves, China is the largest holder of foreign exchange reserves.[59]

2.5.4 Timeline of BSAs

While the origins of BSAs begins in the 1960s, they did not become prominent policy tools until the early 2000s. The proliferation of BSAs can be divided into four general waves—first mover, re-emergence, deepening, and spread.

It is widely believed that BSAs were first created by the Federal Reserve in the 1960s as a means to slow claims on US gold reserves.[60] Despite the end of the Bretton Woods monetary regime, the Fed maintained reciprocal swap lines with the G-10 countries from 1973 to 1981 with the intention to finance foreign exchange intervention rather than maintaining foreign-exchange reserves. However, these lines were rarely used and soon disbanded.[61] For nearly two decades, BSAs were absent from global financial governance until the attacks of 9/11. In 2001, the Fed opened 30-day reciprocal swap arrangements with the ECB, Bank of England, and extended its existing swap agreement with the Bank of Canada. Only the ECB drew on the swap line and the lines were not renewed after their expiration.[62] During this period, BSAs were few in number and the Federal Reserve was the primary provider.

After remaining relatively dormant since the 1980s, BSAs re-emerged as a preferred instrument of short-term liquidity provision in the immediate aftermath of the Asian Financial Crisis. The Bank of Japan played a prominent role initiating the re-emergence of BSAs. Japan first provided a BSA to South Korea in 1999, followed shortly thereafter by BSAs to Thailand and Singapore in the following two years. Likewise, the People's Bank of China soon followed

[59] Roberts, Armijo, and Katada 2018.

[60] See Bordo, Humpage, and Schwartz 2015.

[61] The Federal Reserve did maintain BSAs with Mexico and Canada through NAFTA during this period. If Mexico wanted to draw on the line, the Federal Open Market Committee had to approve it and any drawing above $1 billion required additional collateral.

[62] See Federal Reserve Bulletin for period July 2001 through September 2001.

Japan's path, but extended BSAs to a slightly different set of countries including Malaysia and the Philippines. During the 2000s, both the Bank of Japan and the People's Bank of China gradually continued to extend BSAs to other countries in the region, aided in part by the cooperative framework of the Chiang Mai Initiative.

Until 2007, the number of BSAs formed each year was only growing incrementally. This pattern changed significantly with the start of Great Recession in 2007. As the crisis unfolded, BSAs proliferated as large economies extended BSAs to prevent a global financial meltdown. The Federal Reserve was most active during this period, followed by the ECB and Swiss National Bank. The Fed established non-reciprocal lines with 14 other central banks, including emerging market economies such as Brazil, Korea, Mexico, and Singapore. Some of these agreements were extended and modified to increase the cap, even eliminating the cap for some countries. The People's Bank of China also extended several BSAs in 2008, notably to recipients outside of Asia. Likewise, the Bank of Japan also began to extend swaps outside the region to countries like India.

From 2013 onward, BSAs continued to multiply and spread to an even broader swath of recipients. With the Great Recession over but the European Debt crisis still wreaking havoc, the Federal Reserve re-established permanent swap lines with six countries that had initially expired in 2010. In addition, the People's Bank of China has been particularly active, extending numerous BSAs. The ECB and Bank of Japan have continued to extend BSAs during this period as well, though not to the same degree as China. Since 2016, new providers such as Australia, India, and South Korea have started to participate. Given the increasing participation of a number of countries and the continued rise in the number of agreements, it is likely that BSAs will continue to be a prominent feature of the 21st century global financial safety net.

2.5.5 How do BSAs Compare to IMF Facilities?

BSAs represent a new form of monetary cooperation. As mentioned above, BSAs can be used to smooth trade fluctuations and resolve balance of payments problems. BSAs may also be extended to achieve specific strategic or economic goals such as currency promotion. While specific provider motivations may vary, the common feature between all BSAs and IMF lending is the problem of moral hazard. The discussion below is focused on BSAs that were formed to promote financial stability similar to the facilities in the IMF.

A portion of BSAs are intended to provide access to short-term liquidity for countries facing financing gaps similar to the objectives for IMF loans.[63] The IMF's main lending facility is the Stand-by Arrangement (SBA), which is intended to help countries overcome short-term balance of payments problems arising from external shocks to trade or capital flows. The IMF also has several precautionary lines to help prevent and insure against crises such as the Flexible Credit Line and the Precautionary Liquidity Line. Further, through its Trade Integration Mechanism, the IMF provides loans to developing countries whose financing gap is the result of a decline in export earning or commodity shocks. According to the IMF, its lending facilities are meant to help countries deal with short-term trade fluctuations and to preserve financial stability.[64]

Though BSAs operate very differently from IMF loans, the general goal of financial stability is shared and evidenced by the similarity in the language in the agreements. The BSA between the People's Bank of China and Suriname states that the agreement is intended to "strengthen bilateral financial cooperation, facilitate bilateral economic ties, and maintain financial stability." Likewise, the BSA between the Bank of Japan and the Bank of Australia explains the BSA is "designed to enhance the financial stability of the two countries." A number of researchers have noted these similarities and often equate BSAs with the IMF's short-term

[63] The IMF also extends facilities for medium-term balance of payments issues. BSAs are not equivalent in this regard.

[64] See https://www.imf.org/external/about/lending.htm.

facilities.[65]

While BSAs and IMF loans can have similar objectives, the ability to access the funds is distinct. In order to access IMF facilities, borrowers need to either be approved for a Stand-by arrangement or receive pre-approval to access the precautionary lines. Approval for SBAs are contingent on prior actions and further disbursement of the funds is contingent on successfully meeting performance criteria, requiring sustained monitoring.[66] BSA recipients, on the other hand, can access swap funds at any point once the agreement has been formed. As noted above, BSAs do not require any explicit conditionality nor performance objectives to access liquidity resources nor is there any explicit surveillance.

Moreover, BSAs appear to differ in the selection of recipients both between different providers and from IMF borrowers. Figures 2.3 through 2.6 below show BSA recipients selected by the three most prolific providers: Federal Reserve, People's Bank of China, and the Bank of Japan. It is clear from the maps that there is some regional variation between the three providers. The Federal Reserve's BSAs tend to cluster in Europe and North America whereas the People's Bank of China's BSAs are much more expansive, covering most continents. The Bank of Japan's BSAs suggest a similar regional focus as the Federal Reserve, but with a natural focus on Asia. Curiously, while there is some overlap between BSA recipients and IMF borrowers, Figure 2.6 shows that IMF loans during the same time period were directed towards Africa, Latin America, and Eastern Europe.

Finally, conventional wisdom suggests that BSAs should be more likely to used for strategic objectives than IMF loans. Researchers have documented that large shareholders in the IMF intervene to rescue politically important friends and allies (Stone 2002, Copelovitch 2010b), but joint decision making sometimes constrains these political interventions (Stone 2011). Lending decisions for BSAs, on the other hand, are determined by a country's central bank. As such, decisions regarding BSA recipients are unconstrained by diverging policy preferences

[65] Scheubel and Stracca 2016; Mühlich and Fritz 2018; Destais 2016; McDowell 2017b.
[66] See Copelovitch 2010b.

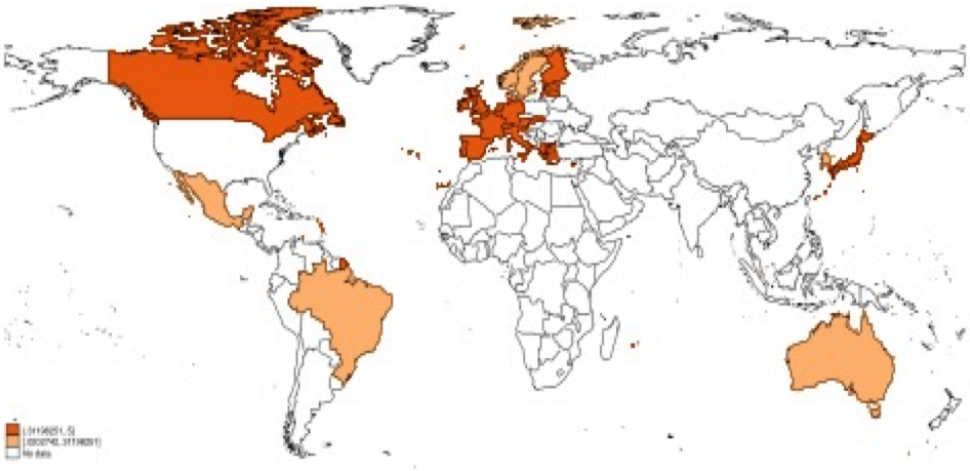

Figure 2.3: Federal Reserve BSAs (2000-2016)

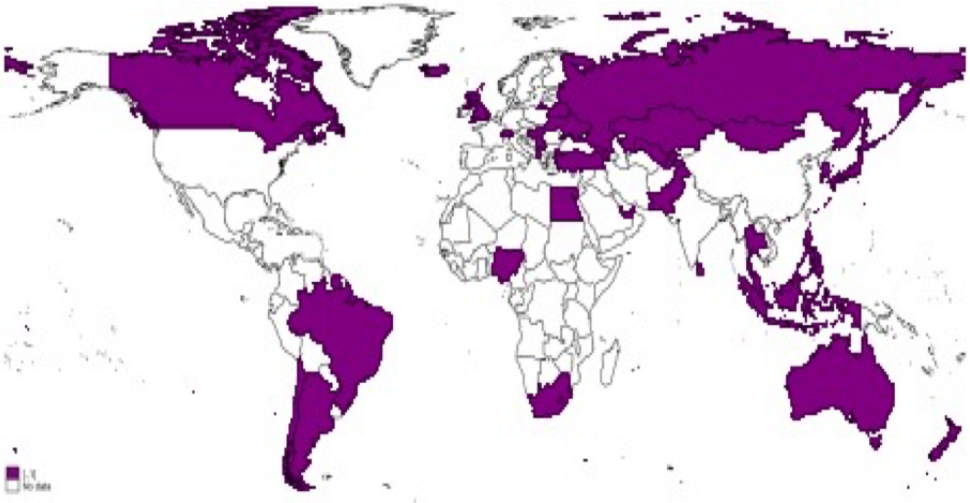

Figure 2.4: People's Bank of China BSAs (2000-2016)

of other actors. Therefore, it is reasonable to infer that BSAs recipients should be even more reflective of a provider's strategic and political interests. However, closer inspection suggests a different conclusion. Table 2.1 below shows the number of recipients who received a BSA that were politically tied to the provider compared to those who were unaffiliated. Immediately, it is clear that BSAs are not exclusively given to allies. Moreover, for BSAs from the People's Bank of China and the Bank of Japan, allies represent fewer total recipients than countries who are unaffiliated with the provider.

Figure 2.5: Bank of Japan BSAs (2000-2016)

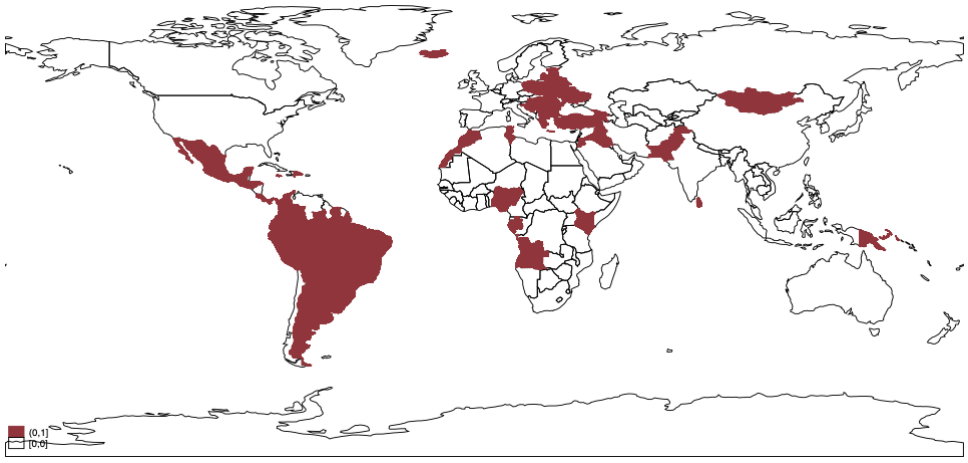

Figure 2.6: IMF Agreements (2000-2016). IMF agreements include the following Stand-By, Flexible Credit Line, the Precautionary and Liquidity Line, Rapid Financing Instrument, Rapid Credit Facility, and the Standby Credit Facility. These agreements are intended to address present, prospective, or potential short-term balance of payments need. I exclude agreements such as the Extended Facility Fund where facility is meant to address medium to long term balance of payments problems.

2.6 Conclusion

The changes to the international financial system over the last thirty years have elevated the importance of the global financial safety net. BSAs are an increasingly important feature of the 21st century global financial safety net. However, unlike traditional forms of liquidity provision, BSAs seemingly lack any explicit tools to manage problems of moral hazard. Moreover, unlike

Table 2.1: BSAs Extended to Allies (First Agreement Only). Provider's type of political affiliation is noted in parentheses. See Chapter 4 for further description. The "Ally*" and "Unaffiliated*" columns count BSAs given to ECB countries as one if any one of the euro countries is allied or affiliated.

Provider	Ally	Unaffiliated	Ally**	Unaffiliated**
Federal Reserve (Defense Cooperation Agreement)	20	8	10	3
People's Bank of China (Strategic Partnership)	15	46	15	33
Bank of Japan (Strategic Partnership)	8	32	8	17

the IMF, the risk of default rests solely with the provider, suggesting that providers should be hesitant to extend BSAs in the first place. Why do providers give BSAs to some recipients but not others? Additionally, what are the consequences of a non-institutionalized lender of last of resort for global financial stability? I address these questions in the following chapters.

3 The Politics of Bilateral Currency Swaps—A Theory

The plunge of the Turkish lira dominated headlines as Turkey approached a full-blown currency crisis. In 2018 alone, the lira lost 40% of its value against the U.S. dollar.[1] Many have attributed Turkey's plight to its ballooning stock of foreign-currency denominated debt, coupled with its failure to stockpile sufficient reserves to avoid a major default.[2] Wary investors increasingly perceive Turkey as risky and have withdrawn their capital in search of safer ground, exacerbating the country's downward spiral.[3]

As detailed in the previous chapter, one means by which Turkish officials could avert an impending crisis is a bilateral currency swap agreement (BSA), a new and powerful instrument of emergency financing between central banks. To whom could Turkey turn for such support? Existing research on BSA formation focuses on the importance of trade and financial linkages and would therefore identify the European central bank (ECB) as the actor most likely to extend a direct line of credit to Turkey's central bank. Contrary to these expectations, however, the ECB made no such offer. Instead, on August 18, 2018, the Qatari central bank came to Turkey's rescue with a $3 billion-dollar BSA designed to "facilitate exchange of trade between the two countries

[1] England and Pitel 2018.

[2] The Council on Foreign Relations estimates that Turkey's firms have around $335 billion in foreign currency debt (Setser 2018). It is estimated that foreign-currency denominated private debt accounts for 50% of Turkey's GDP (Phillips 2019).

[3] England and Pitel 2018.

while providing liquidity and support for financial stability." What motivated the Qatari central bank to offer Turkey a lifeline just as other international investors were fleeing?

This chapter presents a new theory to explain why central bank providers extend BSAs to some recipient central banks but not others.[4] BSA providers face a dilemma. A provider's economic well-being can suffer from either direct or indirect economic exposure to a recipient country nearing a financial crisis. A provider can react to this problem in two ways. First, it may avoid taking direct action, relying instead on the IMF to fulfill its role as the traditional de facto lender of last resort. In this case, a provider acknowledges that the recipient country may undergo a financial crisis if the IMF's effort fails and that the provider may suffer economic consequences as a result of its own inaction and its economic exposure to the recipient state. Alternatively, the provider can attempt to directly reduce the potential for financial crisis and economic spillover by extending a BSA to the recipient. This action, however, also involves risk. By offering to transfer resources to the recipient, the provider accepts the possibility that the recipient may be unreliable and not use the funds in accordance with the provider's preferences. Additionally, the provider accepts that it may face a moral hazard problem. After securing an initial BSA, an unreliable recipient may be incentivized to take riskier actions than it otherwise would because it is reasonably confident it will be bailed out again in the future. Both impose a financial and potentially political cost on the provider without significantly reducing the risk of economic crisis. A provider's decision to extend a BSA is influenced by its ability to estimate and manage these competing risks.

Previous explanations of BSA formation focus primarily on the degree to which the provider's trade and financial interests may suffer if the provider fails to act. Unfortunately, this emphasis on economic exposure paints an incomplete picture of the provider's decision making-

[4]Hereafter, I will refer to providers as central banks who extend a bilateral currency swap agreement to a foreign central bank. Providers are primarily the major reserve currency countries like the Federal Reserve, the Bank of England, the Bank of Japan, the European Central Bank, and more recently, the People's Bank of China. BSA recipients will refer to central banks who receive the emergency currency. BSA providers can be considered as lenders in the relationship and BSA recipients as borrowers.

process, obscuring how the provider weighs the consequences of inaction against the possibility that a BSA recipient may still engage in undesirable behavior. In particular, previous studies decline to adequately explore how the provider's calculus hinges on its expectations regarding recipient behavior. A provider who is economically exposed to an unreliable recipient faces a bind. Although the provider feels motivated to act in order to reduce the likelihood of financial crisis, it lacks a means of ensuring good behavior on behalf of the recipient. If the provider calculates that extending a BSA will force it to incur significant costs without meaningfully reducing the risk of recipient collapse, the provider may opt to avoid extending a BSA in the first place.

Using a formal model, I show that central bank providers can reduce the likelihood of recipient misbehavior by leveraging political ties between their governments. Though providers differ in their ability to manage unreliable partners, a central bank provider who can successfully utilize international political relationships to induce desirable behavior can offer swap lines in a broader range of circumstances. Providers with this option can protect their economic interests and provide valuable support to recipients' economies.

I begin this chapter by reviewing the nascent literature on BSA formation. Next, I develop a game theoretic model to present the main argument of the dissertation. Formal modeling can be a powerful analytic tool because it forces an argument to be internally consistent. Many researchers use formal models to rigorously investigate a complex interaction, which often times produces counterintuitive results. My primary objective, however, is to use the model to enhance the clarity of my argument. The model itself is not essential for my theoretical propositions. Rather, I use modeling to demonstrate incrementally how my theory not only incorporates existing explanations for BSA formation, but also to highlight how my argument advances the theory by modeling the provider-recipient relationship as a strategic interaction. In short, the model provides a useful clarifying device. Finally, through the use of case studies, I preliminarily explore whether the logic proposed in my game-theoretical model aligns with empirical realities.

3.1 Previous Literature

Because BSAs are a relatively new phenomenon, not much is known about the deliberations behind their formation. From the limited accounts available, it appears that recipients most often request a BSA from a provider. Although in some cases, a provider who recognizes their economic exposure to a recipient's economy may preempt the recipient's official request and offer a BSA. In either scenario, the decision to offer a BSA rests squarely with the provider. Therefore, any explanation of BSA occurrence must take into account the provider's decision-making calculus. What factors inform a provider's decision-making calculus when deciding whether to offer a swap?

Need-based arguments centered on currency-specific shortages do not fully explain the selective pattern of BSAs.[5] Allen (2015) observed that a country's dollar liquidity needs during the 2008 crisis did not strictly determine the creation of a swap line. Russia, Turkey, India, Chile, Hungary, and Iceland all faced U.S. dollar shortages, but were unable to receive a Fed BSA. Despite not obtaining a BSA from the Fed, India was able to secure a BSA with the Bank of Japan and Iceland was able to secure a BSA with the People's Bank of China. In contrast, countries with a dollar abundance during the crisis still received a Federal Reserve BSA.[6] This behavior extended to other providers beside the Federal Reserve. For instance, the United Kingdom faced a large Swiss franc shortage, but did not receive a BSA whereas Poland and Hungary who faced a similar shortage did succeed in securing a swap line with Switzerland. Similarly, Norway and Romania faced large Euro shortages yet failed to obtain a BSA from the ECB. One possible explanation for the discrepancy is that despite currency shortages, a strategic recipient may not request a BSA if it anticipates that the provider would deny its request. However, there is some evidence to the contrary. The Federal Reserve Open Committee meeting minutes mention several

[5] McDowell (forthcoming) argues that volatile capital flows and emerging market economies' recognition of the risk of dollar dependence in trade account for the rise in BSAs. See also Goldberg, Kennedy, and Miu 2010; Fleming and Klagge 2010.

[6] Switzerland, Japan, Singapore, Mexico, and Denmark all received swap lines for the Federal Reserve (Allen 2013; see also Federal Reserve website).

countries who requested BSAs from the Federal Reserve but were denied. Diplomatic cables released by WikiLeaks also reveal that Indonesia, Turkey, and the Dominican Republic requested BSAs from the Fed, but each of these requests was denied.[7]

In contrast to need-based arguments, several scholars have found that the provider's economic exposure is a key determinant of BSA formation. When deciding to offer a BSA, providers consider both the probability that a recipient will indeed collapse if the provider fails to act as well as the extent to which the provider's own economic interests will be negatively impacted if such a collapse should occur. Analyzing BSAs from the People's Bank of China, Liao and McDowell (2015) find that economic interdependence increases the likelihood of a BSA.[8] McDowell (2017a) work on the Federal Reserve's swap lines also finds evidence that BSAs are directed to countries that serve the economic and financial interests of the U.S. Similarly, Aizenman, Jinjarak, and Park (2011) finds that recipients who are significant export markets for provider countries secure BSAs.[9] Focusing on financial linkages, Broz (2015) finds evidence that U.S. bank exposure to recipients is a significant determinant of the Fed's BSAs, consistent with the findings in Aizenman, Jinjarak, and Park (2011).

If likelihood of recipient collapse and economic exposure explains BSA occurrence, the ECB should emerge as the likely candidate to offer a BSA to Turkey's central bank to avert an economic collapse. Both countries share close economic ties that could impose costs on European economies if Turkey suffered a prolonged financial crisis. Turkey is one the EU's top five countries in terms of exports.[10] Additionally, a large number of European banks such as BNP Paribas, BBVA, and UniCredit have significant exposures in Turkey.[11] Should Turkey's economic difficulties deteriorate into a financial crisis, EU members may fear spillover from migrants seeking better economic opportunities. Further, most analysts point to the significant

[7] Others country names were listed but remain redacted. Indonesia requested a swap line multiple times but was repeatedly denied. See Irwin 2014.

[8] See also Garcia-Herrero and Xia 2015; Lin, Zhan, and Cheung 2016.

[9] True for PBOC and the Federal Reserve.

[10] 4.5% of EU exports go to Turkey.

[11] Bird 2018.

drop in the Turkish lira and conclude that Turkey will undergo a financial collapse.

Despite the possibility of a Turkish collapse and its potential for spillover, the ECB did not offer Turkey's central bank a BSA. Rather, the Qatari central bank stepped in and extended a BSA. Economic exposure fails to explain Qatar's actions. Turkey does not rank in Qatar's top 15 trading partners, nor does Turkey border Qatar, removing any concerns of a migrant inflow into Qatar.[12] Why then did the Qatari central bank offer Turkey's central bank a BSA?

Previous theories struggle to explain the Turkey case because they focus on only one half of the provider's decision-making calculus. While earlier studies have correctly identified the costs a provider may face if it fails to act, those studies pay insufficient attention to how the provider weighs the costs of actually providing a swap. BSAs allow providers to contract with recipient central banks and provide sufficient resources to resolve the underlying risks to a provider's economic well-being. However, a provider who perceives the recipient as unreliable in carrying out the provider's policy objectives or susceptible to profligate risk-taking in the future may be hesitant to offer a BSA. Without some means to leverage control over unreliable partners, a provider may be unwilling to contract with the recipient despite high economic exposure. This dilemma is missing from prior analyses.

In the following section, I argue that a provider faces mixed incentives when it perceives the recipient to be unreliable. Reliability refers to a recipient's future risk appetite and its propensity to engage in economic mismanagement. The provider, however, can manage the risk of offering a swap to an unreliable recipient by using its political ties to induce good behavior. Previous research has generally sidestepped the role of politics in the provider's decision-making. Liao and McDowell (2015) come closest when they note that members of the Shanghai Cooperation Organization are likely to receive BSAs from the People's Bank of China. They conclude that the findings provide suggestive evidence that geopolitical forces might be at play. Few, however, theorize how political ties might shape a provider's decision to offer a BSA.[13]

[12] Turkey represents 0.69% of Qatar's exports and 1.7% of its imports.

[13] Subsequent research has begun to analyze how BSAs may change political behavior, ex-post. Liao and McDowell

In this chapter, I offer a theoretical pathway through which politics can shape the incentives of BSA providers.[14]

3.2 Model Setup and Structure

To analyze how providers' estimate and account for the risk of offering a BSA, I present a formal model that depicts an interaction between a provider central bank and a recipient central bank that has requested a currency swap. The traditional depiction of a provider's decision to offer a swap emphasizes the economic spillover costs a provider may face if it fails to offer a swap and the recipient's economy subsequently collapses. I embed this traditional logic into my game but expand the model to also include the costs a provider confronts when it does offer a swap. Finally, the model demonstrates how providers can leverage their political ties to extract good behavior from recipients.

At the beginning of the game, Nature determines whether the provider and recipient have political ties, which I label as alliance for brevity. This is common knowledge. The allied and unallied cases differ only insofar as allied providers can impose punishment on recipients via their alliance linkage. Figure 3.1 below illustrates the structure of the game. I provide a list of all of the payoffs associated with each outcome in Table 3.1.

3.2.1 Outcomes and Payoffs When Providers Do Not Offer Swaps

The first choice facing a strategic actor is the provider's decision to offer a swap to the recipient or not. If the provider does not offer a swap to the recipient, Nature determines whether, with probability $\bar{\kappa}$, the recipient's economy *collapses* in a financial crisis or if instead the recipient's economy does *not collapse* with complementary probability $(1-\bar{\kappa})$. Although it

(2015) provide evidence that BSAs from the People's Bank of China alter a recipient country's holdings of renminbi.

[14] I make no claim that the proposed pathway is the only mechanism through which politics shape the incentives of BSA providers.

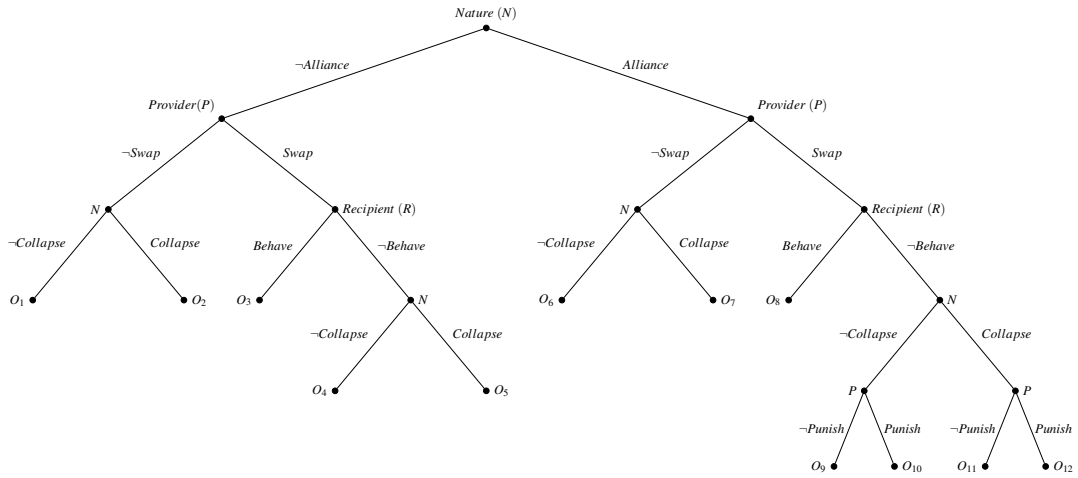

Figure 3.1: Bilateral Swap Model

Table 3.1: Model Payoffs

Outcome:	Provider's Payoff:	Recipient's Payoff:
O_1:	0	$-c$
O_2:	$-\sigma$	$-\varepsilon$
O_3:	$-\varsigma$	0
O_4:	$-\varsigma-\delta$	β
O_5:	$-\varsigma-\delta-\sigma$	$\beta-\varepsilon$
O_6:	0	$-c$
O_7:	$-\sigma$	$-\varepsilon$
O_8:	$-\varsigma$	0
O_9:	$-\varsigma-\delta$	β
O_{10}:	$-\varsigma-\delta$	$\beta-\pi$
O_{11}:	$-\varsigma-\delta-\sigma$	$\beta-\varepsilon$
O_{12}:	$-\varsigma-\delta-\sigma$	$\beta-\varepsilon-\pi$

is possible to model this process more explicitly—for example, by including alternative strategic actors who could subsequently offer swaps or by accounting for the probability of IMF loan offers and the recipient's likelihood of implementing conditionality requirements—I choose to omit these complexities in the baseline model.[15]

[15] Across all such extensions, the provider would continue to calculate its continuation payoff from not offering a swap. This payoff reduces to the probability and payoff if crisis is averted by another actor, plus the probability and payoff if a financial collapse eventually occurs. I use this reduced characterization in the model I discuss in the text.

I further assume that the probability of collapse, $\bar{\kappa}$, is common knowledge. The results I discuss hereafter would hold even if I relaxed this assumption and allowed a provider only to estimate $\bar{\kappa}$. Nevertheless, the assumption that $\bar{\kappa}$ is common knowledge is both reasonable and commonplace within existing literature. Providers use publicly available data and market reactions to gauge the extent to which a recipient requires external assistance to alleviate its balance of payments problems. It is also well known that recipients with high external debt burdens and few reserves are more likely to suffer a financial crisis in the absence of provider support. Finally, providers can reasonably assess the likelihood that other lenders of last resort like the IMF will step in to prevent recipient collapse. Most providers' home governments are members of the IMF and have access to information regarding assistance requests.

If the provider declines to offer a swap and the recipient's economy collapses, the provider will suffer spillover costs (σ) based on the extent to which the provider is economically exposed to the recipient's economy. This parameter is designed to capture both the direct and indirect spillover costs on the provider. A provider may, for example, experience a direct economic contraction due to a disruption to its financial sector or trade flows with the recipient. If the recipient's economy collapses, its banks, lacking liquidity to rollover foreign currency denominated debt, may default and cause a fire sale of assets as banks attempt to deleverage, severely impairing banks in the provider's country who have counterparty relationships with banks in the recipient's country.[16] In addition, a financial crisis in the recipient's country results in weakened consumer demand for the provider's products both domestically and abroad. As the recipient's domestic economy contracts, its consumers will demand fewer imports from the provider's country. Diminished consumer demand may also cause in a loss of profit for the provider's firms operating in the recipient's country, resulting in fewer profits repatriated to the provider's country. For the provider's export-oriented firms and its firms engaging in FDI, the loss of profits may force the firms to cut back production and reduce its own employment resulting in an economic contraction

[16]See Allen 2013; Broz 2015. The Tequila Crisis of 1994 and the Asian Financial Crisis are useful examples of the speed and spread of contagion-based capital flight.

in the provider's country. Second, a provider may face economic exposure indirectly if recipient's economic collapse imposes negative externalities on the international financial system as a whole, effectively turning a local crisis into a global one. As a financial crisis unravels one economy, initial losses can spark a broader market panic, negatively impacting other countries as fearful investors quickly withdraw their capital to safety.[17] The risk of systemic contagion is especially probable when the recipient has a relatively large economy or has a large financial center.[18] Any economic downturn in a large economy is likely to reverberate in in other countries.[19] A downturn in a financial center country exacerbates funding difficulties internationally, increasing the likelihood countries experience a sudden stop. To summarize, if the provider country is economically exposed to the recipient, either directly or indirectly, it is likely to face its own economic contraction.

A recipient who collapses also suffers an *economic cost* (ε). The recipient incurs not only economic costs from the loss of output and prolonged economic contraction following a financial crisis, but it also incurs political costs. Incumbent politicians are often replaced following poor economic performance.[20]

Finally, if a provider withholds a swap and the recipient's economy does not collapse, the provider avoids any spillover costs and likewise, the recipient avoids the cost of economic collapse. This outcome is equivalent to a scenario where a financial crisis is averted by either significant internal contractionary policies taken by the recipient or, alternatively, by third party action such as an IMF bailout offer. Each of these scenarios could impose costs on the recipient due to the domestic political backlash a recipient may face by imposing austerity or adapting to IMF conditionality requirements. I denote these *conditionality costs* as (c), but results from the

[17] Financial crises are often characterized by contagion (Kaminsky, Reinhart, and Vegh 2003; Bordo and Murshid 2000).

[18] Financial centers are defined by their position in the world economy and the extent to which they provide significant financial services internationally. See the Global Financial Centers Index.

[19] U.S.'s attempts to control inflation through economic contraction is widely attributed as the proximate cause of the Latin American debt crises in the 1980s.

[20] Schneider and Tobin 2019.

model are robust to their inclusion or exclusion.

3.2.2 Outcomes and Payoffs When Providers Offer Swaps

My discussion thus far highlights the provider's decision as it is currently framed in existing literature. As the far-left branch of the game tree reflects, providers are concerned with the risk and consequences of economic spillover if they decline to offer a swap agreement to a potential recipient.

The model's first contribution is to acknowledge and depict that providers also encounter risks when offering a swap, a factor that is presently underappreciated in existing studies.[21] Whenever a provider offers a swap agreement, its recipient can choose whether to *behave* or *not behave*. In other words, a swap recipient is tasked with using the funds to inject liquidity into banks in its own jurisdiction and, more generally, with enacting policies that strengthen the recipient's economy. A recipient may misbehave by engaging in actions that deviate from the provider's preferences. A recipient who is likely to misbehave is considered an unreliable type. Misbehavior is primarily characterized in two ways, both of which impose a cost on the provider that I refer to as *default* (δ). First, the recipient may either fail to repay the swap or refuse to honor the terms of the agreement.[22] This is particularly likely when the recipient engages in loose monetary policies such as refusing to raise interest rates or address inflation, which results in failure to resolve the underlying balance of payments problems. Similarly, recipients may also engage in electioneering by extending short-term economic benefits through loose economic policy or patronage in hopes of shoring up domestic political support.[23] When the recipient country fails to use the BSA to strengthen its economy, it necessitates at minimum temporary

[21] Broz (2015) observes that Federal Reserve swaps should go to countries who have displayed good economic management in the past. In contrast to work that uses past behavior as a proxy for a recipient's future behavior, I argue that a recipient's potential for economic mismanagement in the future is a better indicator of recipient type.

[22] Destais 2014.

[23] For more on political business cycles, see Nordhaus 1975.

continued support from the provider and at worse, long-term support.[24] Second, the recipient country's expectation of BSA support may ex-ante encourage moral hazard that eventually cause additional economic and financial problems for the provider.[25] For instance, recipient countries' banks may be tempted to engage in risk-taking and run larger currency and maturity mismatches, increasing the likelihood of future liquidity needs. The moral hazard risk associated with BSAs is likely to be greater than from IMF bailouts as BSAs do not explicitly attach costly conditions that disincentivize profligate external debt burdens.[26] Good recipient behavior is defined by the absence of recipient misbehavior.

If the recipient does behave, I assume that it avoids the cost of economic collapse (ε). On the other hand, if the recipient does not behave, the recipient obtains *political benefits* from its mismanagement (β). In the case of misbehavior, however, the recipient has not resolved the underlying balance of payments problem and continues to risk economic collapse with probability $\underline{\kappa}$. I assume that $\underline{\kappa} < \bar{\kappa}$ because a recipient who obtains a swap should face a lower risk of economic collapse than one who does not secure a swap at all. Recall that part of the power of a swap agreement is the signal it provides to skittish investors who may forgo capital flight once they observe that a swap offer has been made. Even if the recipient misbehaves, the temporarily reduced capital flight from the swap's signal attenuates the recipient's likelihood of economic collapse.

In summary, the recipient's choice to behave or not depends on the recipient's preference for avoiding the costs of economic collapse or, alternatively, reaping the short-term political benefits of economic mismanagement. I assume the values of these parameters are known to the provider, who can determine based on these parameters whether a recipient will behave or not behave if offered a swap.[27] The results do not rely on this assumption. I can obtain consistent

[24] Several BSAs have been amended to augment the credit amount. South Korea requested and received multiple increases in the amount extended in its swap lines from the Federal Reserve and the Bank of Japan.

[25] Frankel and Roubini 2001.

[26] IMF loans that had fewer conditions encourage greater moral hazard among recipients (Lipscy and Lee 2019).

[27] Providers may, for example, estimate the likelihood of good recipient behavior based on the extent to which a recipient central bank is institutionally independent from its home government. Research has shown that central

results if I instead assume that providers are uncertain about the relative value of these parameters, as might be the case if a provider could encounter multiple "types" of recipients who were naturally inclined toward either good or bad behavior at varying rates due to variation in their preference for β and ε. Henceforth, I refer to recipients who will misbehave in order to reap the political benefits of mismanagement as *unreliable* and recipients who will behave in order to reduce the likelihood of economic collapse as *reliable.*

A provider who offers a swap agreement automatically incurs a small cost, ς, which stems from two sources. The first is the opportunity cost of diverting swap resources from other domestic purposes. The second is political backlash a provider may face. Constituents may, for example, perceive the provider as incurring unnecessary levels of risk by extending the BSA rather than encouraging the recipient to seek alternative means like IMF lending programs where risk is pooled among many members. We see evidence of such backlash in the United States; when Congress learned of the Federal Reserve's swap agreements, several members proposed a bill to "Audit the Fed."[28] China also faced domestic backlash after the news media revealed it had signed a swap agreement with Russia shortly before the plunge in the value of the ruble in 2014.[29] Finally, if a recipient country obtains a swap but nevertheless collapses, the provider suffers the spillover cost (σ) from its economic exposure to the recipient.

By including the risks a provider faces when extending a swap, the model highlights the dilemma confronting a provider. If the provider is economically exposed to a potential recipient, it risks incurring high spillover costs (σ) if the provider fails to offer a swap and the recipient's economy collapses. On the other hand, a provider who offers a swap, automatically incurs a small cost for this action (ς) and must also risk the cost of default (δ) if the recipient misbehaves. Finally, the act of offering a swap does not entirely remove the possibility of economic collapse

bank independence is closely correlated with good economic management, measured by price stability. Therefore, a provider can form a reasonable estimate of the likelihood a recipient will behave and engage in good economic management from a recipient's institutional arrangement.

[28] Irwin 2014, p. 154; See also Broz 2015.

[29] "Pouring scorn on China-Russia engagement foolish" 2014.

and the resultant spillover cost (σ); instead, the probability of collapse merely drops from $\bar{\kappa}$ to $\underline{\kappa}$.

When a recipient is unreliable and inclined to misbehave, a provider who could reduce the risk of misbehavior would be more inclined to offer swaps and could therefore also avoid the high spillover costs of inaction. In a traditional lending arrangement, lenders would simply charge a higher premium to risky borrowers in the form of higher interest rates or, in the case of IMF loans, stricter conditionality requirements.[30] With swaps, however, providers are precluded from using traditional risk premiums because of how BSAs function: the efficacy of a BSA relies on the credibility of the market signal that the recipient has a "committed backer." Any observable premium would nullify this signal and engender doubt about the provider's commitment to come to the recipient's aid.[31] The provider is therefore in a bind. It would like to offer a swap to mitigate the likelihood it incurs a spillover cost, but it knows the recipient will misbehave and cannot manage risk through traditional interest-rate mechanisms.

3.2.3 Political Ties as an Accountability Mechanism

The second contribution of this model is to offer a simple depiction of how political ties offer a solution to the providers' dilemma. By using political linkages to discourage misbehavior, providers can manage the risk of offering swaps to otherwise unreliable recipients.

To understand the political linkage mechanism, first consider the use of economic sanctions, which are often depicted as a tool of coercion in international relations. Proponents of sanctions argue that the threat to reduce trade or financial flows can motivate targeted countries to desist from undesirable behavior. Unfortunately, economic threats issued by providers are likely to be incredible and self-defeating precisely in the circumstances where BSAs are most

[30] Studies on the IMF identify limits on the size of loans and requiring policy reforms to minimize the risk of moral hazard in repayment (Dreher 2009; Dreher and Walter 2010; Schneider and Tobin 2019).

[31] This case is analogous to a start-up firm who gets an "Angel investment." Any explicit limitations on the investment such as limiting disbursements until the start-up had achieved certain goals would deter other investors from confidently investing in the start-up as well. Any observable premium that causes doubt in the future profitability of the start-up would undermine the Angel investor's ultimate goal.

desirable. If the recipient is already in an economic downturn, punishment that would impose additional economic costs would further impair the recipient's economy and raise the likelihood that a provider would suffer spillover costs.[32] The same is true for threats to withdraw or suspend foreign aid, another traditional tool of economic coercion.

Rather than economic coercion, I argue that providers can use political ties to credibly threaten punishment and thereby induce good behavior from unreliable recipients.[33] Political ties provide a credible means to exert leverage over the recipient by increasing the number of enforcement linkages available to the provider to punish recipients who misbehave.[34] If the recipient and provider are politically linked, a provider can credibly threaten to punish recipient misbehavior in venues that would not impose the same degree of harm on the recipient's economy and will therefore avoid raising the likelihood that a provider will suffer spillover costs. If the threats are credible, the recipient is induced to behave in order to avoid the costs incurred from these punishments, and punishment should not be observed in equilibrium.

For threats to be credible, the recipient must value the political relationship sufficiently such that if any aspect is of the relationship is removed, the recipient incurs a cost. Recipients will differ on what aspect of a political relationship is most valuable depending on their own domestic and strategic needs. For example, a provider can threaten to punish a recipient by denying a supporting vote in the UN over an important territorial claim or support a political sanction against the recipient. When providing foreign counter-narcotics assistance, the United States has voted against recipient requests for World Bank loans or investment packages when the recipient's actions deviated from the United States' policy preferences.[35] A provider might

[32] It is not surprising that targets of US sanctions tend to be countries whom the US does not maintain a meaningful trade relationship (Iran, Cuba, North Korea, DRC, etc.).

[33] Davis (2009) shows that alliances are used as leverage to extract economic concessions from its partnerships.

[34] Alternatively, political ties might enable an unreliable recipient to buy a swap from an otherwise hesitant provider. Political ties increase the number of venues that a recipient can compensate the provider for the costs of the swap through side payments. The side payments essentially subsidize the costs of the swap for the provider making it more willing to offer a swap than before. Though easy to include in the model, this side payment mechanism is hard to distinguish empirically from the enforcement mechanism.

[35] Vaughn 2019.

also decline to publicly make a statement of support over a controversial foreign policy choice by the recipient. Alternatively, a provider can threaten removal of military cooperation including access to resources and weapons, ability to project power, joint military exercises and access to classified intelligence. Visible military cooperation often confers both domestic benefits as well as benefits of signaling to one's international rivals. Finally, the provider can threaten diplomatic sanctions that might include a restriction of foreign visas and limiting cultural exchanges.

One advantage of punishments that occur through political ties is that they are harder to observe by third-party market participants.[36] Although punishments ought not occur in equilibrium, if they did occur market observers may not directly attribute the actions to the economic misbehavior of the recipient. This differs from sanctions, which are often publicly announced and directly observable. As a result, political punishments are less likely than sanctions to cause international investors to doubt a provider's commitment to the recipient.

In the game, I label political linkages as the existence of an alliance between the provider's country and the recipient's country. An allied country may *punish* a recipient who does not behave. If the provider imposes punishment, the cost of this punishment (π) is included in the recipient's payoff. In this version of the game, I assume that the act of imposing punishment is costless to the provider. I include this assumption because provider central banks most often reside in powerful countries with potent international political tools relative to their recipients. For example, the People's Republic of China could downgrade its strategic partnership with Suriname to a simple partnership—or revoke its offer of roughly $1.5 million in military equipment and advising—at no meaningful cost to China but at significant political and economic cost to Suriname. Nevertheless, the results that I discuss below would remain substantively consistent even if punishment was costly to the provider as long as providers could credibly commit to impose such punishment or, alternatively, if recipients believed that punishment could be imposed with positive probability Π.

[36]The recipient is aware of the reasoning behind the political punishment. While market participants may lack direct access to government communications, it is reasonable to assume that the governments have the ability to conduct private communications. The Wikileaks reveal of diplomatic cables is evidence that private discussions between governments are common and they are not necessarily discovered by the press.

Some might question the willingness of a provider to credibly threaten punishment. The concern seems to stem from the established observation that powerful shareholders in the IMF willingly rescue their friends and allies.[37] This concern is misplaced for several reasons.[38] First, the observation that countries bail out their allies does not mean that threats to punish if the recipient continues to misbehave are absent. Indeed, the theory asserts that providers are more willing to rescue their allies precisely because it enables them to manage risk through political ties. Second, even if we assume that punishment is costly because of the interdependencies between the provider and recipient, for punishment to be credible the cost to punish simply needs to be less than the cost the provider would face if the recipient misbehaves after receiving a BSA. Therefore, the possibility that punishment may be costly for the provider does not remove the provider's incentive to credibly threaten punishment given the counterfactual. Finally, while in equilibrium, punishment should never be observed, an examination of other foreign policy areas reveals that powerful states often threaten to punish their allies to induce either foreign or domestic policy change.[39] In short, threats to punish are the norm rather than outliers.

One need to look no further than recent events to see evidence. For instance, the United States threatened to punish the EU for continuing to trade with Iran despite U.S. sanctions. The U.S. Treasury Department's undersecretary wrote a letter to EU officials threatening that "engaging in activities that run afoul of U.S. sanctions can result in severe consequences, including a loss of access to the U.S. financial system."[40] Likewise, the U.S. has drafted a sanctions package and is poised to punish Turkey for receiving parts of a Russian missile defense system despite the fact that Turkey is a member of NATO.[41] Beyond recent events, the US has frequently punished

[37] See Stone 2002 and Copelovitch 2010b.

[38] The observation that large IMF shareholders offer generous bail out terms to their allies still aligns with my theory. IMF conditionality is similar to other forms of economic punishment. A shareholder who is exposed to the borrower does not want to use economic punishment in the event it further harms the shareholder's economic interests in the borrower's country. Rather, it would prefer to use non-economic means of coercion such as political ties to manage risk while protecting its economic interests.

[39] For more work on the use of punishments to coerce policy change, see Berman and Lake 2019.

[40] See https://www.bloomberg.com/news/articles/2019-05-29/u-s-warns-europe-that-its-iran-workaround-could-face-sanctions

[41] See https://www.bloomberg.com/news/articles/2019-07-13/trump-aides-pick-sanctions-to-punish-turkey-for-

close allies Colombia and Mexico for failing to adequately respond to domestic drug production and trafficking.[42] There are countless examples of the use of coercion to get strategically important countries to change their behavior. It is precisely countries who maintain close linkages where the provider should have the greatest leverage. Threats to punish are most likely to be credible when the political ties are asymmetric between the provider and the recipient. As detailed in the previous chapter, swap providers are mainly the world's largest economies and it is reasonable to assume these countries can exert this leverage.[43]

3.3 Model Results

The model yields three main results. First, an unallied recipient will misbehave when $\beta > (\underline{\kappa} \times \varepsilon)$. In other words, when the political benefits a recipient can reap from mismanagement exceed the probability and costs of economic collapse. If the likelihood and severity of a financial crisis is greater than the political benefits a recipient can obtain from engaging in loose monetary policy, an unallied swap recipient will attempt to avert an economic collapse by behaving in ways that address its underlying balance of payments problem.

Second, unallied providers will offer swaps in the following two cases. If the provider knows the recipient will behave, the provider will offer a swap when $\varsigma < (\sigma \times \bar{\kappa})$. In other words, when the cost of offering a swap is less than the probability and cost of spillover if the provider does not offer a swap. On the other hand, a provider who knows its recipient will not behave will only offer a swap when $\varsigma + \delta < \sigma(\bar{\kappa} - \underline{\kappa})$, or when the cost of offering a swap and the costs of mismanagement are less than the reduction in the probability of spillover times the economic cost of spillover if it occurs. Notice that the second scenario is more restrictive than the first

russian-missiles

[42] The US has withdrawn previously committed aid and implemented diplomatic sanctions. See Vaughn 2019.

[43] If the provider is unable to credibly threaten punishment, then the provider's decision-making process would remain on the left side of the game tree.

case.[44] Thus, the cost of offering a swap must be lower in order for a provider to extend an offer to a recipient it knows will not behave compared to one it knows will behave. Consistent with the previous literature, the model shows that the probability that the recipient will collapse and impose spillover costs on the provider matters, but in a manner more complex than existing research depicts. In particular, the importance of the probability of collapse changes depending on whether the recipient will behave or misbehave.

The third result from the model is that allied recipients will misbehave when $\beta - (\pi \times \Pi) > (\underline{\kappa} \times \varepsilon)$. In other words, when the political benefits of misbehavior, minus the probability and costs of punishment imposed by the provider, exceed the probability and costs of economic collapse. If we compare this to the condition in which an unallied recipient will misbehave, $\beta > (\underline{\kappa} \times \varepsilon)$, we find that the range of circumstances that facilitate misbehavior is smaller as long as punishment is costly and has positive probability of being imposed.

As a result, allied provider who can and will impose punishment can deter some recipients from misbehaving. This, in turn, enables allied providers to extend swaps to a wider range of recipients and to avoid the high risks and costs of economic collapse that would occur if the provider withheld swap offers to these otherwise unreliable recipients. This leads to the following observable implication:

Hypothesis 1: Among unreliable recipients, political ties between the provider and recipient should increase the probability of a BSA.

3.4 Scope Conditions on Provider Behavior

Not all providers can effectively use political ties as leverage to induce recipient countries to engage in desirable behavior. Institutional constraints limit the ability of providers to use political ties as a mechanism for accountability. In particular, the degree to which a provider's

[44] Rearranged, the first term equates to $\varsigma < \sigma(\bar{\kappa})$, while the second equates to $\varsigma < \sigma(\bar{\kappa} - \underline{\kappa}) - \delta$.

central bank is independent from the executive may determine the central bank's knowledge of political ties and the ease with which the central bank can threaten to use those ties to impose punishment on a misbehaving recipient. Central bank independence is intentionally designed to limit the interaction between an executive branch and a central bank's decision making. Independent central banks often have the following features: a separate and clear mandate that carves specific authority over monetary policy, the ability to appoint the majority of its own staff, regularized term limits that prevent the executive branch from using threat of termination to guide policy outcomes, and specific safeguards that limit the involvement of the executive branch in central bank decision making.

This very independence, however, structurally limits the nuanced information flow about political ties with potential recipients that might enable the central bank to use the relationship as a form of leverage. For political ties to be used effectively, central banks must be equipped to respond quickly to deviations in recipient behavior and apply pressure appropriately. This requires close two-way communication channels between the executive and the central bank. However, institutional designs to promote independence stymie the information flow necessary to reward and punish recipients. Even if institutional independence only theoretically limits information exchange, concerns about the appearance of close relations with the executive may limit information exchange in practice. Because central bank credibility regarding monetary decisions rests on the appearance of independence, central bankers may closely guard their reputations and be unwilling to use political ties even if it were possible practically. Therefore, I revise my main hypothesis to the following:

Hypothesis 2: Political ties should only increase the likelihood of a BSA among unreliable recipients when the provider central bank is closely tied to its home government.

3.5 Case Studies

In this section, I explore several narrative cases to elucidate key features of the theory. These case studies are preliminary and are intended to further investigate the face validity of my theory. If my theory is accurate, punishment by the provider is off the equilibrium path of behavior and therefore, it should never be observed in practice. This presents a challenge for casual inference. While I cannot directly observe the accountability mechanism, the next best approach is to investigate whether a provider's decision to offer a BSA and its selection of recipients maps onto the logic proposed by my theory. The result from the theoretical model relies primarily on two parameters: a recipient's reliability and the existence and depth of political ties between the countries. Providers are concerned about a recipient's willingness to pursue monetary and economic discipline and therefore, will be hesitant to offer a BSA when the recipient is expected to be unreliable. The theory asserts that certain providers can manage this risk by leveraging political ties. The cases below are selected to investigate these two parameters in detail.

Analyzing the same recipient and using variation over time, the first case investigates the assertion that providers seriously consider a recipient's reliability when deciding to offer a BSA. The second case examines the significance of political ties as a form of leverage when the provider is concerned about the recipient's propensity to misbehave. Using an as if similar design, I compare two potential recipients who are roughly similar in their exposure to the provider and their perceived reliability yet differ in the degree of their political ties to the provider. The third case further investigates the import of credible political ties as an accountability mechanism for the provider. Using a within case design, I investigate how a provider demands a deeper political commitment for subsequent BSA renewals when the recipient's reliability risk continues to remain high over time. If the theory's core components that inform a provider's decision are reflected in these empirical cases, I gain confidence in the plausibility of my argument.

3.5.1 Iceland's SOS

In 2008, the global financial crisis that originated in the United States had spread to Iceland with its resulting credit crunch spurred by widespread market panic. Iceland was particularly hard hit for two reasons. First, Iceland's economy was heavily reliant on its main exports, fish and aluminum, which were particularly sensitive to the downturn in world prices as a result of slowing global demand. Second, since privatizing in the early 2000s, Iceland's banking sector ballooned and quickly became outsized as it expanded into foreign markets, borrowing heavily in foreign currencies. With the first hint of a sudden stop in capital inflows, this foreign exposure quickly became unsustainable. It is estimated that these loans and other assets totaled nine times Iceland's GDP. In late 2008, three of Iceland's largest banks collapsed prompting Iceland to nationalize two of them. In total, it is estimated that 85% of its banking sector went bankrupt.[45] Economically and socially, Iceland was devastated as its public debt spiked and massive unemployment ensued, peaking at 9.4% in February 2009. What could Iceland have done to stymie this catastrophic collapse? In both April and October of 2008, Iceland approached the Federal Reserve Bank of New York (Fed) to request a swap agreement. In both cases, the Fed refused Iceland's pleas for emergency assistance. However, years following the crisis, Iceland received a BSA from the People's Bank of China (PBOC) in June of 2010. Why did the Federal Reserve deny Iceland's requests despite offering several other BSAs to fellow Nordic countries? Further, why did Iceland receive a BSA from the PBOC but only after the peak of its crisis had passed? The narrative below highlights that Iceland's perceived reliability and default risk is critical to understanding this case as well as the institutional constraints faced by the Federal Reserve during its crisis management.

Prior to the collapse and nationalization of its major banks, Iceland first approached the Federal Reserve for a BSA in the hopes of obtaining liquidity to inject into its fast-deteriorating banking system. Given its long and close political relationship with the United States, Iceland

[45] Curtis, Jupille, and Leblang 2014.

initially believed that the Federal Reserve would come to its aid. The United States' and Icelandic relationship is founded on "cooperation and mutual support," reflected in the countries' substantial trade and military linkages.[46] The United States is the largest foreign investor in Iceland, investing heavily in its aluminum sector. Moreover, most of Iceland's exports go to the United States, preceded only by the European Union. A significant downturn in Iceland's economy would likely spillover to the United States. Iceland is also an original NATO member and under a bilateral agreement with the United States, maintained a US military base until 2006 when continued troop presence was deemed unnecessary as US strategic objectives changed. Further, just a few months prior, the Federal Reserve had already extended BSAs to the European Central Bank and the Swiss National Bank to alleviate dollar shortages in their respective banking systems. If Iceland were to receive a BSA, the Federal Reserve would be the most likely candidate.

In April 2008, Iceland first approached the chairman of Federal Reserve Bank of New York and requested a BSA. While the chairman did not immediately refuse the request, he cautioned his Icelandic counterpart that Iceland's struggles appeared too severe for the Fed and encouraged Iceland to seek help from the IMF instead.[47] In September 2008, Iceland received official notice that the Fed denied its request due to the size of Iceland's banking system.[48] It was feared that Iceland's situation was sufficiently dire that it would be unable to repay or unwind the BSA in the reasonable future. Iceland eventually received a Stand-By-Arrangement from the IMF in November of 2008. In the midst of negotiations for the IMF agreement, Iceland again approached the Federal Reserve for a BSA at the end of October 2008. Since its last request, the Fed had extended BSAs to other Nordic countries including Denmark, Sweden, and Norway in addition to several others. Distinct from its previous request, Iceland emphasized in its letter that it was also entering into an IMF program. The Federal Reserve again refused Iceland's request, prompting Iceland's diplomats to state contemptuously that "friends (US) had failed to respond to

[46]U.S. Department of State.
[47]Thorhallsson 2018.
[48]Ibid.

pleas for help."

It is clear from the events above that the Federal Reserve was not simply extending BSAs to its friends but instead were truly concerned about the default risk of potential recipients. If BSAs were simply a policy carrot to dole out to friends, the IMF's intervention in Iceland should have induced the Federal Reserve to acquiesce to Iceland's second request now that some of Iceland's default risk had been reduced. Perhaps, the Federal Reserve no longer felt compelled to act because of the IMF program. If the Federal Reserve expected the IMF program to be sufficient to handle Iceland's problem, however, it would be of minimal actual cost to extend a BSA at that point. Indeed, the Fed could only benefit from increased political capital with Iceland. Despite its close political ties, the Fed's refusals to help Iceland give greater credence to the theory's assertion that providers seriously evaluate a recipient's risk-level and are hesitant to extend BSAs even to friends when the recipient is perceived as unreliable. The second interesting feature about this case is that whereas other central bank providers might have been able to overcome Iceland's default risk by leveraging political ties, the Federal Reserve was precluded from utilizing this option because of its desire to appear independent from politics and foreign policy objectives.

While Iceland failed to obtain a BSA in 2008, it did receive a BSA from the People's Bank of China in June of 2010. Unlike its relationship with the United States, Iceland has a minimal trading relationship and no political or military ties to China. For instance, Iceland imports around $341 million from China and only exports around $61 million to China.[49] What makes the 2010 BSA striking is the absence of a similar agreement in 2008. It was well documented that Iceland was actively seeking a BSA not only from the Federal Reserve, but it also sought assistance from the ECB and even Russia in its desperation. Though unconfirmed, it is not improbable that Iceland also approached China. During the same time period, China had extended BSAs to Argentina, Belarus, and South Korea who were similarly struggling with the freezing of financial markets and the global recession. It is noteworthy that the PBOC swap came after Iceland's

[49] Jolly 2013.

default risk had substantially decreased. Iceland had already completed two of the three-year IMF program and had successfully met its targets for banking reform. Moreover, Iceland's economy had rebounded, driven largely by Iceland's booming tourism industry. Unlike the rest of Europe, Iceland appeared relatively unscathed by the 2010 sovereign debt crisis.

Perhaps an alternative explanation for the PBOC swap is that China hoped to gain access to the Arctic Circle and extended the BSA as part of its "debt diplomacy." While popularly covered in the press, the timing of the BSA as part of a financial statecraft program does not withstand closer scrutiny. If China's primary objective was to buy influence for its foreign policy objectives by extending the BSA, China's purpose would have been better achieved by offering a BSA when Iceland was truly desperate. The BSA's potential to garner foreign policy leverage would have been most potent when Iceland was truly in dire straits in 2008, abandoned by its traditional friends like the United States. The combination of Iceland's open lobbying campaign in 2008 and the two-year delay of the PBOC swap suggests that China may have been wary of Iceland's default risk. While the PBOC's closeness to its home government might have enabled China to manage Iceland's risk in 2008, China lacked any political tie to credibly hold Iceland accountable. As the above narrative demonstrates, providers are not extending BSAs to friends without pause. Rather, providers seriously consider the default risk of potential recipients, especially in the absence of any political tie to manage this risk.

3.5.2 Azerbaijan vs. Tajikistan

While the previous case demonstrated that an improvement in a recipient's reliability can increase the likelihood of obtaining a BSA, this case investigates further the importance of political ties for swap receipt when the recipient is perceived to be unreliable. The following case explores why the PBOC extended a swap line to Tajikistan in 2015 but did not offer one to Azerbaijan. Both countries faced a similar need for a BSA, similar levels of economic exposure to China, and roughly similar levels of default risk. The critical difference between the two countries

is that Tajikistan has a strategic partnership and cooperates militarily with China, whereas any such political agreement is strikingly absent for Azerbaijan.

Both Azerbaijan and Tajikistan became presidential republics shortly after achieving independence from the Soviet Union in 1991. Following independence, both countries experienced bouts of civil conflict. The countries also have roughly similar economic structures and therefore are also likely to be subject to similar external shocks. Azerbaijan's economy is more oriented towards industrial production in fuel and ore, followed by its services sector representing around 40% of its economy. Likewise, in Tajikistan, services also represent around 45% of its economy with industry primarily in ore following at 25%.

Starting in June of 2014, world commodity prices drastically fell severely impairing both countries whose economies are reliant in part on income from commodity exports. The commodity price shock generated short-term funding needs to roll over their external liabilities and therefore it is probable that both countries were interested in securing a BSA. If anything, Azerbaijan might have been more likely to ask for a swap as it had a greater external debt burden, $13.83 billion compared to $5.5 billion, and was more vulnerable to capital market volatility.

Interestingly, China faces marginal economic exposure from either country. Neither country ranks particularly highly for Chinese exports or imports. Azerbaijan represents 0.033% of Chinese exports whereas Tajikistan represents 0.054%. China might be slightly more exposed to spillover costs from a deterioration in Azerbaijan's economy as it imports more from Azerbaijan, over which 70% is fuel. Though Tajikistan does border China, it is sparsely populated as a majority of its residents live and work in Russia and therefore, China's risk to migrant exposure is negligible.

Moreover, the countries exhibit similar levels of default risk. Structurally, they share similar levels of central bank independence so concerns over government intervention in monetary policy for political gain should be roughly equivalent. Both countries also share high levels of corruption and score poorly on respect for rule of law, though Tajikistan performs worse on both

measures. From China's perspective, though still unreliable, Azerbaijan is more likely to repay the swap given its larger reserve holdings and larger economy. Further, Tajikistan is sensitive to instability from its own domestic armed conflicts since 2010 and spillover violence from its neighbor, Afghanistan. On all relevant metrics, Tajikistan and Azerbaijan are as if similar and if anything, Azerbaijan represents less risk for default. Given both countries propensity to prioritize economic mismanagement for political gain, why was Tajikistan able to secure a BSA from China but Azerbaijan could not?

A critical difference between the two countries is that Tajikistan maintains close political ties with China through a strategic partnership formed in 2013. My theory asserts that political ties can enable providers to credibly threaten punishment and thereby, manage a recipient's default risk. The existence of political ties is especially important when the recipient is perceived to be unreliable. For political ties to serve as an accountability mechanism that deters recipient misbehavior, the threat of punishment must be credible, it must be relatively costless for the provider to enact, it must impose some cost on the recipient, and it must not further impair the recipient's economic health. Tajikistan's strategic partnership meets these requirements.

Through the strategic partnership, Tajikistan and China cooperate closely on both economic and military issues. Through this partnership, Tajikistan gains access to critical strategic information and resources from China. Tajikistan is also a founding member of the Shanghai Cooperation Organization, China's primary multilateral military alliance. As a result of these ties, Tajikistan has participated in several bilateral military exercises with China as well as multilateral ones through SCO. Tajikistan places significant value on its strategic partnership as it has struggled since 2010 with violent domestic threats to its regime. Signaling close military cooperation with China through joint exercises and public pronouncements highlighting its strategic partnership enable Tajikistan to project power to its rivals. As a result, any attenuation of this relationship or removal all together would be especially costly for Tajikistan. China could threaten to downgrade this strategic partnership to simply a partnership or not participate in joint exercises at negligible

cost to itself, but at great political cost for Tajikistan. Given the power asymmetry between the two countries and Tajikistan's lack of strategic importance, China's threats to punish are likely to be considered credible by Tajikistan. Further, China's threats are not likely to cause further deterioration of Tajikistan's economy.

Unlike Tajikistan, Azerbaijan does not have a partnership with China, nor does it have a defense cooperation agreement. Further, Azerbaijan is not a member of the SCO and only maintains a dialogue partnership. Given Azerbaijan's default risk, China might be hesitant to offer a BSA to Azerbaijan without some means to credibly manage this risk. By examining two potential recipients who are similar on most relevant metrics yet differ primarily in the extent of political ties to the provider, this case strongly suggests a powerful role for political ties when recipients are perceived to be unreliable.

3.5.3 Argentina's Political Path to Economic Recovery

The previous case offered suggestive evidence that the presence of political ties influences a provider's decision to extend a BSA when the recipient is unreliable. This case attempts to unpack the role of political linkages further by leveraging variation in the strength of political ties over time. Using a within-case design, I examine why Argentina was able to secure a BSA from the PBOC in 2009 but failed to obtain a renewal in 2012 when the agreement expired. However, after two years, Argentina again secured a BSA from China in 2014. What enabled Argentina to succeed in 2014 when it failed to obtain a renewal in 2012? The narrative reveals that despite growing economic exposure to Argentina, China may have been hesitant to renew because of Argentina's continued economic mismanagement. China only extended the BSA in 2014 after upgrading their political relationship to a comprehensive strategic partnership, China's highest level of cooperative agreements. In other words, Argentina's continued mis-behavior required Argentina to tie its hands by committing to a deeper form of political leverage from China.

Since its devastating financial crisis in 2001, Argentina's road to economic recovery has

been long and painful. However, it started to experience positive economic growth in 2003 and was able to re-enter debt markets starting in 2006. This recovery was threatened, however, by the 2008 global recession. In 2009, the People's Bank of China swooped in to assist Argentina to weather the global slow down and credit freeze by offering a BSA. China's decision to extend a BSA makes sense. China is the main importer of Argentina's largest cash crop, soybeans. In addition, China also holds several investments in Argentina. At the time, Argentina appeared reliable. It had experienced several years of rapid growth and Moody's had recently boosted its credit rating. It was likely that Argentina's slowdown in growth in 2008 was the result of an external shock rather than economic mismanagement. Moreover, any doubts China might have harbored about Argentina's reliability were most likely assuaged by the countries' strategic partnership. If Argentina was unwilling to pursue monetary discipline or would misuse the funds, China had an alternative path to exert leverage without causing further economic harm.

While its economy continued to rebound in the following year, Argentina's reliability started to deteriorate over time as it engaged in loose fiscal and monetary policies, a result of which was extremely high inflation. As Argentinians tried to buy foreign currency as a result of the inflation, the government intervened and imposed a number of capital controls in hopes of stemming capital flight. These capital controls restricted international payments of imports and the use of credit cards abroad. By 2012, the BSA has expired and it was not renewed. This is puzzling as the vast majority of PBOC swaps lines are almost immediately renewed. If China only extended the first BSA to gain foreign influence, any removal of a valuable BSA would be counterproductive. It is probable that Argentina's restrictive import policies and expansionary fiscal policies likely negatively impacted China's perception of Argentina's reliability, and therefore it selected not to renew the BSA.

One alternative explanation for the failed renewal is that Argentina simply did not request one. However, there are two reasons to doubt the credibility of this explanation. First, since 2011, Argentina's financial duress had only worsened as it battled chronic high inflation, outsized debt

to GDP burdens, severely depleted foreign exchange reserves and rapid capital flight. Seeking assistance from the IMF would be political suicide. Argentina still grappled with the economic and political damage following its 2001 default and subsequent IMF program. In the space of two weeks, Argentina went through five presidents. Given its economic state and the aversion to alternative policies, it is highly probable that a renewed BSA was preferred. Second, it is unlikely that policy preferences towards a BSA had shifted. The President of Argentina, Cristina Kirchner, who negotiated the first BSA was recently re-elected and starting her second and final term. Therefore, it is reasonable to conclude that the failure to renew the BSA in 2012 was the result of a shift in China's preferences rather than Argentina's.

In 2014, Argentina received its second BSA from the People's Bank of China. What changed in 2014 that motivated China to extend another BSA when it was reluctant to do so in 2012? Argentina's economic state had only deteriorated further, as reflected in the increased risk premiums charged for Argentinian bonds. For instance, the spread between Argentinian government bonds and the low-risk Treasury bonds increased from 686.2 in 2011 to 1,060.9 basis points in 2013 (EMBI), revealing that the international investors viewed Argentina as a significant default risk. Moreover, its means to stem a steep devaluation or provide a buffer for financing gaps was severely limited. Argentina's foreign exchange reserves had plummeted $21.3 billion between 2011 and 2013. Argentina was all but frozen from accessing international credit markets, a situation that was exacerbated by its selective default in early 2014. Further, China had reasons to be uncertain about the credibility of Argentina's public economic data. In 2013, the IMF censured Argentina for failing to provide accurate data on its inflation rate and economic growth.

Why would China be willing to rescue Argentina again? Chinese investments in Argentina had gradually increased, potentially exposing China to spillover costs if Argentina collapsed. Given this increased exposure, China was likely motivated to provide assistance but was still wary of Argentina's default risk and wanted to avoid being stuck holding a rapidly depreciated

currency. China needed some mechanism to induce Argentina to cooperate without further damaging Argentina's economy. Curiously, a few months prior to signing the BSA, China and Argentina elevated their bilateral political relationship to a comprehensive strategic partnership (CSP), a relationship bestowed on only China's closest partners. In the press conference following the announcement, both presidents expressed their shared interests and close cooperation at both bilateral and multilateral levels.

One puzzle that emerges from this case is why did China not punish Argentina in 2011/12 when it began to show signs that it was unwilling to pursue monetary or fiscal discipline? The most straightforward explanation is that China did not have credible leverage. In other words, its threats to punish under the existing partnership were incredible. If this is true, it must mean that Argentina did not sufficiently value any threat to remove Chinese diplomatic, military, or political support. There are several reasons to suspect that this is no longer true in 2014. Since 2012, several international and domestic events have altered the saliency of potential Chinese support. First, prior 2014, Argentina might have still harbored hope that it could regain access to international credit markets through U.S. support and backing. In this event, Chinese support would be superfluous and perhaps a less potent signal. However, the 2014 court ruling from New York in favor of holdout vulture bond-holders not only prompted Argentina's subsequent default, but also revealed quite clearly that the U.S. was not interested in serving this role. Therefore, in the absence of U.S. support, Chinese backing is invaluable. Indeed, following the CSP announcement, President Xi expressed concern over the behavior of vulture funds in Argentina's debt disputes.

Second, Argentina's domestic politics in regard to the Falkland Islands had become increasingly salient by 2014, resulting in a boosted valuation of Chinese diplomatic and military support. Struggling with domestic unrest and increasing allegations of corruption, the Argentinian president passed a law in 2009 reasserting its territorial claims to the Falkland Islands. In 2013, residents of the islands held a referendum and voted in favor of remaining a British overseas

territory. Following this public rejection, gaining international support for its territorial claims were even more important for Argentina and for appealing to its domestic base. Public U.S. support for Argentina's claims were unlikely given the U.S.'s close relationship to Britain. China, however, could and did fill this role of international backer. In the same press conference, President Xi publicly stated his support for Argentina's territorial claims, likening the situation to China's claim over Taiwan. Removal of this public support for both issues would impose a domestic political cost to Argentina and as a result, may be more credible to Argentina than previous threats. While China remained concerned over its economic exposure and Argentina's deteriorating reliability, it is possible that the deepening of their political relationship enhanced credible forms of leverage, enabling China to extend a BSA in 2014, when it reluctant to do so in 2012. Importantly, use of this leverage would not impose further harm on Argentina's fragile economy.

The narrative case studies not only highlight the theory's intuition, but they also provide suggestive evidence that political ties can serve as an accountability mechanism. Importantly, the theory's assertion that reliability is a key factor informing provider's decision-making generally aligns with the empirical patterns. The cases cast doubt on popular news narrative that BSAs are given indiscriminately to allies.

3.6 Conclusion

This chapter illuminates the decision-making calculus of BSA providers. The model demonstrates the importance of characterizing BSA formation as a strategic interaction rather than a pure economic decision by the provider. It is clear that a provider's decision to offer a BSA is contingent on its expectations of the recipient's future behavior. By modeling the provider-recipient interaction, this chapter identifies new conditions in which providers will choose to extend or refuse BSAs and in which recipients will prioritize economic reform or

political mismanagement. I show that providers can use international political linkages and the threat of punishment to induce sound economic behavior on behalf of recipients. As a result, providers can extend BSAs to recipients whose requests they would otherwise reject.

Two implications follow from the theory. First, political ties may augment global financial stability by encouraging providers to offer BSAs in scenarios where they would otherwise be reluctant to do so in the absence of an accountability mechanism. The more BSAs, the more liquidity available in the international system as recipients who might have turned to the IMF for assistance can now access bilateral emergency lending. As a result, BSAs in effect liberate resources at the IMF for recipients who are unable to secure a BSA. Greater liquidity in the international system available for a wider swath of countries reduces the likelihood that balance of payments problems cascade into global crises. In other words, greater access to liquidity provides a valuable buffer to guard against sudden stops and volatile capital flows. Second, political ties should constrain the behavior of risky countries and as a consequence, more countries exhibit monetary discipline than they otherwise would. Rather than amplify a country's risk appetite, political ties can be a source of global financial stability. I further investigate these implications in the subsequent chapters.

4 Ties that Bind: An Empirical Test

This chapter provides an empirical test of the proposition that political linkages enhance global financial stability by increasing the likelihood of BSAs, thereby augmenting the total amount of liquidity available in the system. In the previous chapter, I argued that providers are motivated to extend a BSA when their economic well-being will suffer from either direct or indirect exposure to a recipient country under financial duress. The provider, however, may be hesitant to transfer resources to the recipient if it believes the recipient is unwilling to use the funds in accordance with its preferences, thus imposing a financial and potentially political cost on the provider without significantly reducing the risk of financial collapse. Importantly, I showed that providers can use political ties to manage these risks: international linkages enable providers to credibly threaten punishment and thereby induce better behavior from swap recipients. In this case, political ties serve as a commitment device for recipients, whereby they can tie their hands to good behavior by giving the provider enhanced capacity to impose punishment if the recipient should misbehave. As a result, providers can extend BSAs to recipients whose requests they would otherwise reject and can reduce the long-term risk of economic collapse and spillover both for themselves and indirectly, for the global financial system as well.

Using novel cross-national data on BSAs from 2000 to 2016, I test two specific hypotheses derived from the theory. The central hypothesis is that political ties between the provider and the recipient should increase the probability of a BSA when the recipient is unreliable. I also acknowledge that providers vary in their ability to effectively leverage political linkages for

coercion. Therefore, a second and related hypothesis I test is that the relationship posited in the first hypothesis should be most likely when the provider central bank is closely tied to its home government. Due to data limitations, I restrict my analysis to BSAs from the three most prolific providers: the Federal Reserve, the People's Bank of China, and the Bank of Japan. These three providers are home to the major reserve currency countries, extend the vast majority of BSAs during this time, and provide useful variation in the degree to which their decision-making is influenced by the executive branch.

To preview, I find that political ties are associated with a change in the likelihood that recipients obtain swaps from providers, even after controlling for economic exposure. More importantly, I find that this relationship is conditional on the reliability of a recipient; political ties are particularly associated with increases in the likelihood that unreliable recipients will obtain BSAs. The evidence suggests that providers do not indiscriminately offer BSAs to their allies, nor do they favor allies who they perceive as reliable. Instead, alliance relationships enable providers to better manage the behavior of unreliable recipients from whom they would otherwise withhold support. I provide further evidence for the theory by demonstrating that providers vary in their capacity to utilize political ties. Provider central banks that place a high value on the appearance of institutional independence from their home governments are unlikely to manage risk using political relationships, while providers who are institutionally close to their home governments are more likely to use governmental political ties to compensate for economic risk. The chapter proceeds by detailing my empirical strategy and the operationalization of my key explanatory variables. The chapter continues with a description of the results and a brief discussion regarding potential threats to inference. Finally, I conclude with a discussion of the implications of the findings.

4.1 Empirical Strategy

To test my theoretical expectations, I constructed a data set of all bilateral swap agreements originating from the Federal Reserve, the People's Bank of China, and the Bank of Japan from 2000 to 2016. I focus on these providers because the vast majority of swap agreements originate from these three central banks and they provide useful variation in the degree to which they value the appearance of monetary independence, enabling me to test my theory's scope conditions.

To define the population of potential recipients, I include only countries that have an established central bank and are independent sovereign nations.[1] This condition is essential as the recipient needs to have agency to contract with the provider's central bank and distribute liquidity to banks in its domestic jurisdiction. The data on recipients comes from the Bank of International Settlements (BIS).[2] The unit of analysis is provider recipient year. Because of variation in data availability for some of the explanatory variables, I run separate models for each provider.

The dependent variable is the occurrence of a bilateral swap agreement with the provider. The dichotomous variable is coded as 1 if the recipient received a swap agreement from the provider for the majority of the year and 0 otherwise. Every documented instance of a BSA is supported by at least two different sources of information. Data sources come primarily from the central banks' websites and are cross-checked with newspaper sources such as the New York Times, Wall Street Journal, and Financial Times as well as with data from the Global Financial Safety Net.[3] I exclude swaps that were created under the Chiang Mai Initiative Multilateralization (CMIM) because the recipients were selected as part of a broader network initiative rather than an independent choice by the provider to engage with a particular central bank. Because the dependent variable is dichotomous, I use a logistic model with robust standard errors unless otherwise noted.

[1] I exclude Taiwan and Hong Kong.
[2] See https://www.bis.org/cbanks.htm.
[3] ECB Data.

4.2 Operationalizing Reliability

My main hypothesis centers in part on the provider's perception of the recipient's type. The theory asserts that despite high exposure to a recipient's economy, a provider may nevertheless be hesitant to extend a BSA if it believes that the recipient is unreliable, especially without some alternative means to induce good behavior. In the formal model, reliability captures the provider's estimate of how likely is it that the recipient will prioritize political benefits from outsized fiscal deficits, large external debt burdens, and loose monetary policies over reforming its economy to boost its long-term economic health. If a recipient delays economic reforms after receiving a BSA, the recipient's financial duress is more likely to cascade into a financial crisis. In this event, the provider will incur spillover costs and at minimum, will face default costs as it is stuck holding the recipient's rapidly deteriorating currency and the recipient is unwilling or unable to repay the swap.

Because reliability refers to the propensity of the recipient to misbehave in the future, the degree of central bank independence best approximates the theoretical construct as it captures the agency of governments to intervene in monetary policy in addition to being correlated with low inflation. The more independent the central bank is from its home government, the more difficult it is for politicians to use monetary policy to achieve political gains and boost short-term economic growth. Current measures of monetary policy such as inflation do not adequately capture a government's future intentions.[4] This is especially problematic if the government's policy preferences change either in response to domestic pressures or because it is replaced over the course of the BSA. It is well documented that left-leaning governments prefer higher levels of inflation than right-leaning governments.

Moreover, central bank independence is highly correlated with outcomes associated with monetary discipline such as low inflation.[5] The more independent the central bank, the more

[4] As a robustness check, I substitute inflation volatility for CBI and get consistent results.

[5] Rogoff 1985; Alesina and Summers 1993; Broz 2002; Bodea and Hicks 2015. For a summary of central bank independence and its relation to price stability, see Fernández-Albertos 2015.

likely the central bank will ensure price stability and conduct good economic management that promotes long-term economic health over partisan political objectives. Danzman, Winecoff, and Oatley (2017) also assert that states with monetary independence are less likely to experience capital bonanzas and crises than states that do not have independence. To measure the perceived reliability of the recipient, I use central bank independence (CBI) from Bodea and Hicks (2015).[6] The measure is an index that updates the weighted aggregate index from Cukierman, Web, and Neyapti (1992). The index is composed of sixteen characteristics including the allocation of authority over monetary policy, the importance of price stability objectives, and limits on central bank lending to the government. The measure is a continuous variable that ranges from 0 to 1, where a value of one represents a highly independent central bank.

4.3 Operationalizing Political Ties

The previous chapter detailed how providers can leverage their political ties to induce unreliable recipients to behave. For political ties to serve as a credible accountability mechanism, they must meet the following conditions. First, the political tie be of value to the recipient such that the removal of this political benefit would impose a cost on the recipient. Furthermore, the recipient must perceive the cost to be sufficiently significant to be induced to alter its behavior. Second, removal of this political benefit must not cause further harm to the recipient's economy. Third, though not as consequential, the political tie and its associated benefits must not be a metric commonly monitored by international investors who are updating their risk assessments.

Strategic partnerships and defense cooperation agreements best fit these criteria. Though each provider has a specific type of this agreement, they all encompass broadly the same principles and function similarly. Both forms of agreements make explicit commitments to deeper forms of cooperation that encompass diplomatic, military, and economic issues. However, they primarily

[6]The Bodea & Hicks measure is preferable to the Garriga 2016 CBI measure because it have broader coverage over time.

both emphasize coordination in areas of defense policy through joint military exercises, training and education, research and development, sharing of classified information and encouraging cultural exchanges. For clarity across providers, I refer to all political ties as *Ally* in the results below. Unless specified otherwise, *Ally* refers to the variables described here.

To measure political ties for China, *Ally* takes the value of 1 if China has a strategic or comprehensive partnership with another country in a given year and zero otherwise. While China maintains three levels of partnerships, I exclude the base level.[7] At the base level, China forms cooperative partnerships that essentially signify an opening of diplomatic dialogue rather than an exchange of political benefits. It is the next two levels where China's partnerships signify deeper forms of cooperation. China forms strategic partnerships where more formalized mechanisms of cooperation exist. This entails building additional channels for intergovernmental communication for intelligence sharing, cultural exchanges, cooperation in research and development, and military-to-military exchanges. The final level is a comprehensive strategic partnership, which encompasses the cooperative efforts for a strategic partnership but also establishes formalized channels for regularized exchanges between top government officials. In this partnership top leaders meet before larger multilateral events to exchange views and coordinate joint policy positions. The data is from Strüver (2017).

To measure political ties for Japan, *Ally* takes the value of 1 if Japan has a strategic and economic partnership with a country in a given year and zero otherwise.[8] To my knowledge, Japan's partnerships do not have observable and clearly defined levels. Japan's strategic partnerships operate similarly to China's and entail close cooperation over a range of security and economic issues. While the partnerships do entail cooperation over economic issues, they are much more than simply a trade agreement. They heavily emphasize sharing of intelligence, joint military exercises, and cultural exchanges. The data are taken from Japan's Ministry of Foreign

[7]Results are robust if I only use China's comprehensive strategic partnerships in the *Ally* variable.

[8]For robustness, I measured the Ally variable as a 1 if Japan has a non-aggression treaty with the recipient in a given year. The data is from ATOP (Leeds et al. 2002). The results do not substantially change.

Affairs.

Unlike China and Japan, the United States does not maintain strategic partnerships, but rather they form defense cooperation agreements (DCA). Therefore, to measure political ties for the United States, *Ally* takes the value of 1 if the United States has a DCA with a country in a given year and zero otherwise.[9] DCAs are agreements that "establish broad defense-oriented legal frameworks, facilitating cooperation in fundamental areas as defense policy coordination, research and development, joint military exercises, education and training, arms procurement, and exchange of classified information" (Kinne 2018, p. 799). Functionally, they operate very similarly to strategic partnerships and therefore, are a comparable measure. The data is from Kinne (2019).

4.4 Provider Constraints

The final component of the theory asserts that providers vary in their willingness to use political ties as an accountability mechanism. There are two primary factors that inform a provider's position. First, providers vary in the value they place on maintaining a reputation for monetary policy credibility. Governments typically face a credibility problem, which is especially pronounced in monetary policy. Governments want bond investors and currency traders to take their policy announcements seriously. Yet, these international actors know governments face short term incentives to inflate their economies. A solution around this credibility problem is to delegate monetary policy to an independent agency, like a central bank. Providers who are concerned about their reputation for credible monetary policy will not be willing to use political ties as an accountability lever. Any appearance of close political coordination in monetary decision-making undermines the credibility the delegation was supposed to achieve.

[9]The DCA data is limited and ends in 2010. For robustness, I measured the *Ally* variable as a 1 if the US has an offensive or defensive treaty with the recipient in a given year. The data is from ATOP. The results do not substantially change.

A second, but related concern is more functionally-driven. Providers who have set up an independent central bank have intentionally delinked monetary decision-making between the government and the central bank. As a result, even if the provider was interested in using political ties as leverage, it would have to overcome several institutional hurdles to do so. Effective use of political ties as a form of leverage requires close coordination between central bankers and those in charge of foreign and security policy. Therefore, providers who are further removed from their home governments will face greater barriers and incur greater costs to implementing a strategy of political coercion.

As detailed in the previous chapter, a provider's institutional design is a useful proxy for a provider's willingness to use political ties to coerce an unreliable recipient. The Federal Reserve (Fed) is considered one of the most independent central banks in the world. The Federal Reserve Act of 1913 delegated monetary policy to the Fed and a mandate to maintain the stability of U.S. financial markets. In 1951, the Federal Reserve gained true independence from the executive branch and the Treasury.[10] Federal Reserve Chairman serve four-year terms and are not easily removed prematurely. So ingrained was the practice of Fed independence that until recently, it was unconscionable for the executive to even publicly comment on the Federal Reserve's policy.[11] Given the Federal Reserve's institutional design and desire to maintain a reputation of independence, the Federal Reserve is the least likely case for the theory to hold.

The People's Bank of China (PBOC), however, exists on the opposite end of the spectrum. The bank was created intentionally in the form of a state organ in 1983. The PBOC's mandate is to maintain the stability of the value of the currency and promote economic growth. While in recent years it has gained functional independence, this independence is severely constrained by the need for important monetary decisions to first be approved by the State Council who has the discretion to determine what matters are "important."[12] China's State Council determines

[10]Irwin 2013a.

[11]The Wall Street Journal comments "For much of the past quarter-century, the president and the White House economic advisers have refrained from commenting on Fed policy" (Nicholas and Timiraos 2018).

[12]Pißler 2015.

appointment and removal of PBOC's Monetary Policy Committee, the primary monetary policy decision-making body, in addition to being the primary source of funding for the committee. Given the heavy involvement of the State Council in PBOC's decision-making, PBOC is the most likely case to observe political ties used as an accountability mechanism.

The Bank of Japan presents an interesting case that lies in between the Federal Reserve and the People's Bank of China. While on paper it is institutionally independent, in recent years the executive has reasserted its control over monetary policy decision-making, functionally limiting the Bank of Japan's institutional independence. The Bank of Japan gained legal independence when the Bank of Japan Act was revised in 1998. The Act states "the Bank of Japan's autonomy regarding currency and monetary control shall be respected" but also that the bank shall "always maintain close contact with the government and exchange views sufficiently."[13] As such, the Minister of Finance and the Ministers of State for Economic and Fiscal Policy may attend monetary policy meetings, express opinions, submit proposals, and request that the Bank's Policy Board postpone a vote on proposals.[14] The Act gives the Bank some independence but still requires some formal involvement by the Japanese government. Recently, however, the Japanese government under Prime Minister Abe has used its formal involvement in the Bank of Japan to exert pressure over its monetary policy.[15] The Prime Minister regained control over monetary policy and forced the Bank of Japan Governor Masaaki Shirakawa to resign prior to the end of his term. The successor was appointed with the knowledge that he would be "fully willing to support Abe's bold monetary policy."[16] The Bank of Japan represents a mixed case. I expect Japan will be able to use political ties to exert some leverage. However, because the Japanese government is not as fully ingratiated in central bank policy making as is the case in China, the extent to which it can leverage its political ties is attenuated.

[13]Bank of Japan website. https://www.boj.or.jp/en/about/boj_law/index.htm/.

[14]Bank of Japan Act, Article 19.

[15]Bank of Japan released a joint statement with the Japanese government pledging to "strengthen their policy coordination and work together" on a range of policies (Irwin 2013b).

[16]Rövekamp, Bälz, and Hilpert 2015. See also Waldenberger 2015.

4.5 Control Variables

Following existing research, I include two categories of controls to account for the degree to which a provider's economic exposure motivates it to extend a BSA in addition to controls for the likelihood a recipient requests a BSA.

4.5.1 Exposure

The first category of variables captures the extent to which the provider would incur spillover costs if the recipient experienced financial duress or its economy collapsed entirely. A provider can be exposed to the recipient through both direct and indirect channels. Indirectly, a provider is most likely to be economically exposed to the recipient through the risk of financial contagion. When a recipient experiences a financial crisis, its economy contracts and as a result, it lowers its economic exchange with other countries, causing lower growth for countries with direct ties to the crisis country. Though a provider is not be directly tied to the crisis country, it still may be negatively impacted as multiple other countries experience weaker growth as a result of the crisis country. Spillover to the provider's economy is more likely to occur if the recipient's country is particularly large and holds a prominent position in the world economy. To account for a recipient's size in the world economy, I measure the recipient's GDP as a percentage of the world's GDP *(GDP % of World GDP)*.[17] Data are from Group 1978.

Directly, a provider is vulnerable to disruptions in its trade or financial linkages with the recipient as well as possible exposure from migrants. For instance, the more a provider's total cross-border trade is composed of bilateral trade with the recipient, the more sensitive the provider will be to a downturn in the recipient's economy, and therefore, more motivated to extend a BSA. If a recipient's economy contracts, this lowers demand for exports from the

[17] As a robustness check, I substituted country size with a dichotomous variable that measures whether the recipient country is a global financial center. The global financial centers index includes Toronto, Frankfurt, Hong Kong, Tokyo, Singapore, Zurich, and London as the top financial centers. The results did not meaningfully change.

provider, negatively impacting a provider's wealth. Similarly, if the provider heavily relies on imports from the recipient, a recession in the recipient's economy may lead to higher priced imports or disruptions in flows. This is especially problematic for the provider if the recipient is the main source of its access to vital resources like fuel, ore, metals, or other commodities. I measure this trade dependency as the sum of the provider's bilateral imports and exports with the recipient divided by the provider's total trade (imports + exports) with the rest of the world *(Trade Dependence)*. Dyadic data for exports and imports are from UN Comtrade (Comtrade 2010).

Adhering to a similar logic, a provider can also be directly exposed to a recipient through its financial ties. If a recipient's economy contracted, providers who are home to banks that lent heavily to businesses or banks located in the recipient's country would suffer losses if these businesses default of their loans as a result of the recession. To measure the provider's financial linkages to the recipient country, I follow previous studies and measure the extent to which banks in the provider's country have claims exposed in the recipient's country. *Bank Exp* measures the natural log of the value of the providers' consolidated claims for banks in a foreign economy in a year. The data are from the Bank of International Settlements' Consolidated Banking Statistics. Unfortunately, China is a non-reporting country for the BIS's consolidated claims. To substitute, I proxy for financial ties by measuring China's foreign direct investment exposure to a recipient's economy. While not a perfect substitute, a Chinese firm that invests heavily in the recipient's economy will incur losses if the recipient's economy contracts. Weakened market demand and higher priced inputs will reduce the amount the Chinese firms' profits as well as the amount it remits home. [18] is measured as total FDI outflows to the recipient from China divided as a proportion of China's total FDI outflows for that year. The data comes from UNCTAD.

Finally, a provider may incur spillover costs if it exposed to an influx of migrants from the recipient's country. If the recipient's economy collapses, migrants looking for employment opportunities might relocate to the provider's country. If this relocation is rapid or large, it could

[18] FDI Exposure

impose a financial or political cost on the provider. This is most likely to occur when the recipient borders the provider. I measure whether the recipient and provider share a border *(Contiguous)* using data from CEPII (Mayer and Zignago 2011).[19]

4.5.2 Economic Need

The second category of variables controls for a recipient's probability it would seek a BSA from a provider. Because BSAs can be formed well in advance of an actual crisis, I control for factors that increase the likelihood a recipient would expend more energy and political capital to secure one rather than model the selection process itself. Caution modeling selection is warranted as research on predicting financial crises demonstrates the poor success of such attempts. Second, I assume that all recipients desire a BSA if they can obtain one because of the powerful market signal detailed in chapter two. The only subset of countries where a BSA might not be desirable are countries who have completely closed economies. However, these countries already drop from the dataset as they do not report economic data to international financial institutions and therefore should not be a problem. There are two primary components that influence a recipient's probability it would seek a BSA. First, I control for the likelihood a recipient will experience a financing gap that requires emergency liquidity to cover a balance of payments problem. Second, I control for potential alternative policy tools available to a recipient that might attenuate a provider's desire to extend a BSA. Recognizing the provider's reluctance, a recipient might forgo seeking a swap from the provider if it believes it is likely to be denied.

A country that is more open financially to world markets will be more likely to experience volatile capital flows and sudden stops that generate a financing gap, necessitating emergency liquidity from a BSA. To control for this, I include the Chinn-Ito index *(Capital Openness),*

[19] Japan is an island and therefore, does not share a border with another country. Further, Japan tightly controls its immigration system, severely limiting the likelihood it will incur any migrant spillover costs. For these reasons, contig is not used in the Bank of Japan model.

which is a measure of a country's capital account openness.[20] *Capital Openness* is a continuous variable that ranges from 0 to 1, where higher values indicate greater openness to international financial markets, i.e. fewer capital controls.[21] Next, I control for a country's regime type. Lipscy (2018) finds that democracies are more likely to experience financial crises because executive constraints inhibit a leader's ability to curb speculative bubbles. Likewise, other scholars have noted that democracies tend to have larger external debt burdens (Saiegh 2005). I control for whether a recipient is a *Democracy* using data from VDem (Lindberg et al. 2019). Moreover, a recipient may be less likely to request a BSA if it believes the provider perceives its need for emergency lending already satisfied by its ability to self-insure or receipt of external assistance. Self-insurance ability is determined by the amount of reserves in a recipient's war chest it can use to smooth over financing gaps. A financing gap emerges when capital inflows are no longer sufficient to pay for a country's imports or external debt liabilities. The standard measure for whether reserve holdings are sufficient to weather volatility in capital inflows is the number of months of imports that could be covered by reserves if capital inflows suddenly stopped. A country is considered under-insured if its reserve holdings cover less than 3 months of imports. *Reserves* measures the number of months of imports covered by a country's reserves.[22] Data is from the World Bank's World Development Index (Group 1978).

If a recipient has already received or is expected to shortly receive external assistance elsewhere, a provider may be less likely to extend a BSA and as a result, a recipient may be less likely to request one. External liquidity assistance may come from either an international actor like the IMF or another provider. I include a dichotomous measure for whether the recipient participated in an IMF program the previous year *(IMF Program Past)*.[23] A provider may also

[20] As a robustness check, I used the Bloomberg's VIX index as an alternative measure of capital volatility. VIX is a general of market fears.

[21] Aizenman, Chinn, and Ito 2016.

[22] As an alternative measure, I controlled for a country's reserve holdings as a proportion of its external debt burden. The results do not meaningfully change. Theoretically and because of missingness, Reserves Imports is a better measure.

[23] I have also used a count of the IMF programs, but the results do not change.

anticipate that a recipient will seek an IMF program in the near future and therefore, I control for whether the recipient is currently in an IMF program *(IMF Program Current)*. Data are from the IMF's MONA database (2002). Similarly, I control for whether the recipient has received a BSA from one of the four other major reserve currency providers in the previous year *(BSA Past)*. Possible providers include the Federal Reserve, Bank of England, Bank of Japan, People's Bank of China, and the European Central Bank. Again, providers may anticipate that a recipient is likely to receive a BSA from another provider in the near future, and as a result, I control for whether the recipient received a BSA from one of the four providers in the current year *(BSA Other)*. The data is collected from the central bank websites.

Finally, I control for a country's level of economic development *(Per Capita GDP)*. One the one hand, a richer country is more likely to be able to repay or unwind the BSA. On the other hand, however, a richer country may be less likely to need to BSA. The data is from the World Bank's WDI (Group 1978).

4.6 Analyzing BSA Formation—Empirical Tests

Recall the central proposition I am testing is whether political ties between the recipient and provider increase the likelihood of a BSA when the recipient is perceived as unreliable, i.e. low central bank independence. Moreover, I only expect to find this relationship when the provider is unconcerned about the appearance of close coordination with its home government. Therefore, I should find a conditional effect for the People's Bank of China, no conditional effect for the Federal Reserve, and perhaps an effect for the Bank of Japan. I will discuss the results for each of the providers in turn.

4.6.1 People's Bank of China

Table 4.1 below shows the results of logistic regressions for BSAs originating from the People's Bank of China (PBOC). Model 1 shows the pure bivariate relationship between my main explanatory variables and whether a recipient received a BSA. Consistent with my theoretical expectation, there is a significant conditional relationship between a recipient's reliability *(CBI)* and whether they have a strategic partnership with the provider *(Ally)* on the likelihood they receive a BSA.

Model 2 shows the results after including variables identified as important predictors of BSA receipt from earlier studies. Even after including the controls, the main interaction effect (Ally x CBI) is still significant at the .01 level. Models 3 and 4 run the same regression, but cluster the errors at the country-level and add year fixed effects, respectively. In all four models, the interaction is statistically significant at least at the 0.1 level and does not change signs. Because coefficients for interactions cannot be easily interpreted, I plot the predicted probability of BSA receipt for allies and non-allies across a range of reliability, holding the other variables at their means. The plot is illustrated in Figure 4.1 below.

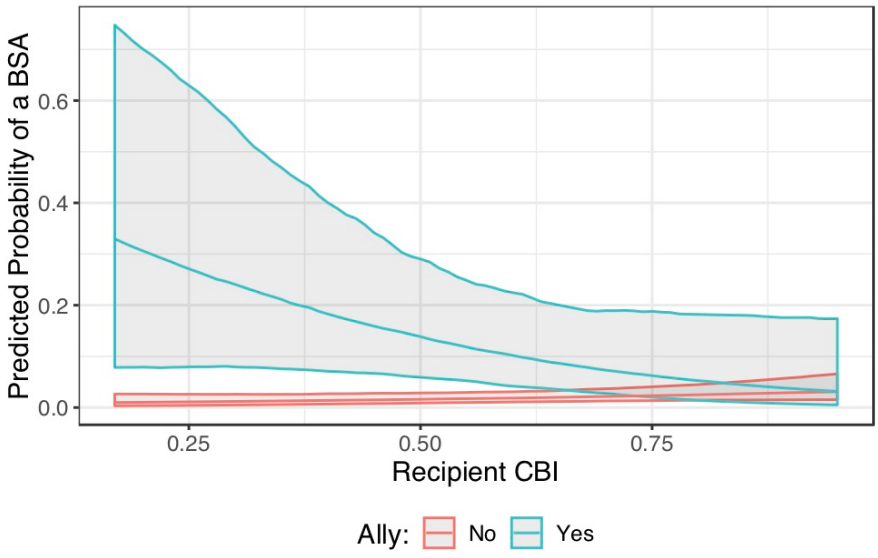

Figure 4.1: Probability of a PBOC BSA Given Political Ties and Recipient CBI

Table 4.1: Likelihood of a BSA from People's Bank of China

	(1) China BSA	(2) China BSA	(3) China BSA	(4) China BSA
Ally	3.940***	4.862***	4.862**	3.652**
	(0.562)	(1.169)	(1.505)	(1.244)
Central Bank Independence (CBI)	1.756***	1.519+	1.519	1.403
	(0.445)	(0.911)	(1.406)	(0.981)
Ally × CBI	-2.720***	-5.171**	-5.171+	-3.757+
	(0.815)	(1.867)	(2.731)	(1.951)
Capital Openness		-1.943**	-1.943+	-1.412*
		(0.696)	(1.041)	(0.645)
Per Capita GDP		-0.0513*	-0.0513+	-0.0755**
		(0.0201)	(0.0301)	(0.0240)
Reserves		0.0328+	0.0328	0.0321
		(0.0194)	(0.0377)	(0.0228)
IMF Program Current Year		-1.396	-1.396	-1.633
		(1.059)	(0.973)	(1.092)
IMF Program Prior Year		-1.266	-1.266	-1.479
		(1.070)	(0.992)	(1.101)
Non-China BSA Current Year		1.951*	1.951+	2.516**
		(0.912)	(1.016)	(0.968)
Non-China BSA Prior Year		1.768*	1.768**	1.272
		(0.777)	(0.573)	(0.913)
GDP % of World GDP		-104.0***	-104.0**	-147.5***
		(26.78)	(34.21)	(31.47)
Trade Exposure		36.26***	36.26**	66.10***
		(8.680)	(11.60)	(11.11)
FDI Exposure		59.82*	59.82*	76.08**
		(24.53)	(26.87)	(23.81)
Contiguous		-0.0675	-0.0675	0.0768
		(0.587)	(0.868)	(0.612)
Democracy		0.00209	0.00209	-0.198
		(0.434)	(0.706)	(0.422)
Constant	-3.394***	-3.455***	-3.455**	-3.355***
	(0.304)	(0.616)	(1.116)	(0.673)
Standard Errors	Robust	Robust	Clustered	Robust
Year FEs	No	No	No	Yes
Observations	2266	980	980	980

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The figure demonstrates that political ties increase the likelihood of receiving a BSA, primarily when the recipient is unreliable (low CBI). When the recipient is highly reliable, political ties do not meaningfully increase the probability of receiving a BSA from China. Consistent with my theory, the plot shows that there is a conditional effect of political ties on the probability of receiving a BSA.

Moreover, in line with my theory, I find support that the more China is economically exposed to the recipient's economy, the more likely the recipient receives a BSA. When the recipient's trade with China composes a large proportion of China's total trade, the recipient is more likely to receive a BSA. I find a similar relationship for China's foreign direct investment exposure. While China's direct exposure is significant for its trade and financial linkages, I do not find that potential exposure to migrant inflows impacts the probability of receiving a BSA. Interestingly, China is less likely to extend a BSA to recipients who hold outsized roles in the world economy. This finding may be because large economies are more diversified and have deeper financial markets, enabling them to more easily access alternative sources of funding should they experience a financing gap. This reasoning appears to be confirmed as more developed countries (Per Capita GDP) significantly decreases the likelihood of receiving a BSA. Overall, China's BSA program appears more responsive to direct bilateral exposure than indirect exposure to the global financial system.

I do not find evidence that China's BSA program is significantly influenced by a recipient's ability to self-insure through reserves or access to alternative funding from the IMF, though both sets of signs are in the right direction. However, I do find that a recipient is more likely to receive a BSA when it previously secured one from a different provider. There are two possible explanations for this finding. It might be the case that the Bank of Japan and the PBOC extend BSAs to a similar pool of recipients. Their similar geographic proximity might also mean they have similar trading relationships with the same recipients. Alternatively, countries that were severely impacted during the Great Recession may have secured multiple BSAs. This effect goes

away in model 4, when I include year fixed effects, indicating that it was likely the crisis driving the effect.

4.6.2 United States Federal Reserve

Because the Federal Reserve places a high value on its reputation for monetary independence, I do not expect to find a conditional effect of political ties on the likelihood a recipient receives a BSA. Following the same structure from the previous section, Table 4.2 below shows the results of logistic regressions for BSAs originating from the Federal Reserve.

The interaction is significant in the bivariate model, but it quickly loses significance once I add the full set of controls. Similar to BSAs from the PBOC, the more exposed the United States' trade is to the recipient's economy, the higher probability the recipient receives a BSA. Though I do not find a similar relationship for the United States' financial linkages, this is probably due to missingness in the data. Unfortunately, there is not an easy correction for this problem. It would be inappropriate to use multiple imputation given that it is highly improbable the financial data is missing at random.

Distinct from the PBOC program, the Federal Reserve's decision to extend a BSA is informed by a recipient's access to alternative emergency financing. The Fed is less likely to offer a BSA if the recipient has sufficient reserve holdings. Moreover, if a recipient was in an IMF program in the prior year, the Fed is less likely to extend a BSA. However, a recipient is significantly more likely to receive a BSA if it also received a BSA from another provider in the same year. Similar to the finding for the PBOC, this may be driven by the severity of the Great Recession. The absence of a finding for BSAs from other providers in the previous year lend support for this reasoning. Finally, the wealthier a recipient, the more likely it is to receive a BSA from the Federal Reserve. This finding aligns well with my theoretical expectations. Because the Federal Reserve is precluded from using political ties to induce sound economic policies, it is particularly sensitive to default risk. A consequence of this risk aversion is to offer BSAs to

Table 4.2: Likelihood of a BSA from the US Federal Reserve

	(1) USA BSA	(2) USA BSA	(3) USA BSA	(4) USA BSA
Ally	5.623***	2.179	2.179	5.038+
	(1.208)	(1.543)	(1.711)	(2.611)
Central Bank Independence (CBI)	7.443***	3.743*	3.743*	7.507**
	(1.400)	(1.664)	(1.622)	(2.480)
Ally × CBI	-6.290***	-2.199	-2.199	-5.908
	(1.581)	(2.094)	(2.489)	(3.630)
Capital Openness		-0.0106	-0.0106	2.967*
		(0.725)	(0.780)	(1.478)
Per Capita GDP		0.704***	0.704***	0.692***
		(0.125)	(0.160)	(0.192)
Reserves		-0.430*	-0.430	-0.585*
		(0.213)	(0.287)	(0.269)
IMF Program Current Year		-0.655	-0.655	-2.290+
		(0.542)	(0.520)	(1.263)
IMF Program Prior Year		-0.594	-0.594+	-2.862*
		(0.488)	(0.319)	(1.158)
Non-USA BSA Current Year		2.635***	2.635***	2.293+
		(0.495)	(0.404)	(1.315)
Non-USA BSA Prior Year		-0.698	-0.698	-2.689
		(1.066)	(1.158)	(2.014)
GDP % of World GDP		-52.45***	-52.45**	-38.23
		(11.86)	(17.22)	(83.65)
Trade Exposure		68.73***	68.73***	192.6***
		(9.463)	(15.68)	(55.62)
Bank Exposure		0.119	0.119	0.235
		(0.128)	(0.193)	(0.176)
Democracy		1.174	1.174*	1.002
		(0.777)	(0.562)	(0.734)
Constant	-8.229***	-8.522***	-8.522**	-25.56***
	(1.081)	(2.007)	(2.655)	(7.456)
Standard Errors	Robust	Robust	Clustered	Robust
Year FEs	No	No	No	Yes
Observations	1449	1109	1109	1109

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

countries that have a high likelihood of unwinding the swap. Repayment is more likely the more developed the recipient's economy.

Using the bivariate model, I investigate the influence of political ties on the probability of receiving a BSA from the Fed. In figure 4.2 below, I plot the predicted probability of receiving a BSA for allied and un-allied recipients across a range of reliability. The plot shows that across the entire range of reliability, political ties to the Fed increase the probability of receiving a BSA. Interestingly, if a recipient is not politically tied to the United States, only recipients who are highly reliable have a positive probability of receiving a BSA. This relationship is in line with my theoretical expectations. However, I am cautious to read too much into the relationship given its significance disappears once full controls are included.

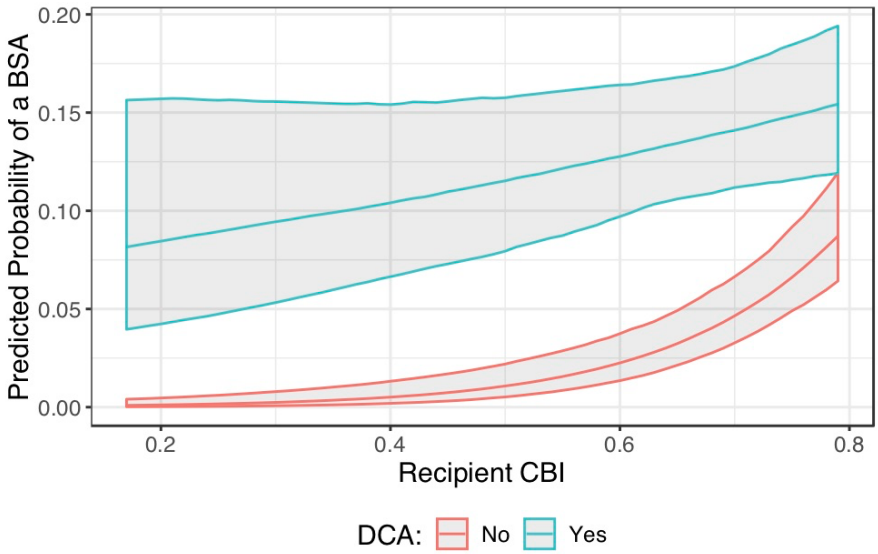

Figure 4.2: Probability of a Federal Reserve BSA Given Political Ties and Recipient CBI

4.6.3 Bank of Japan

BSAs originating from the Bank of Japan represent an interesting case. While institutionally, there are several barriers between the executive branch and the central bank, Prime Minister Abe has recently intervened in monetary policy and has appointed a close supporter to head the

bank. These events were sufficiently recent that I expect if there is a conditional effect of political ties on the likelihood a recipient receives a BSA, it should be small. Table 4.3 below shows the results of logistic regressions for BSAs originating from the Bank of Japan. Unlike the People's Bank of China or the Federal Reserve, the interaction effect is not significant even in the bivariate model though this may be driven by a power issue.

Similar to both PBOC and the Federal Reserve, the more Japan is economically exposed to the recipient, the greater the probability of a BSA. This is true for both trade and financial linkages. However, Japan is less responsive to indirect spillover exposure. Japan is less likely to offer a BSA to recipients with large economies relative to the world total. As mentioned above, this result may be driven by access to deeper and more diversified financial markets that mitigate the need for a BSA. Similar to China, the reasoning seems to be supported by the finding that richer countries are less likely to receive a BSA.

Moreover, compared to the other two providers, the Bank of Japan is most sensitive to alternative sources of emerging funding, albeit in conflicting directions. If a recipient was previously in or currently starting an IMF program, they are significantly less likely to receive a BSA. This makes logical sense as a provider may be unwilling to expose itself to potential political backlash if the recipient can obtain the necessary funds through the IMF. Though not significant with the exception of model 4, greater reserve holdings decrease the probability of receiving a BSA, which aligns with reasoning in the IMF result. If alternative sources of funding exist, there is less urgency for the Bank of Japan to act. On the other hand, if a recipient secures a BSA from an alternative provider in the previous year, they are more likely to receive a BSA from the Bank of Japan. This is puzzling as BSAs are usually much larger than IMF loans and therefore, contradicts its earlier behavior. One probable explanation for this finding is that the Bank of Japan and the PBOC extend BSAs to a similar pool of recipients given their similar geographic proximity and similar trading relationships.

To summarize, I find support for my theoretical prediction that political ties increase

Table 4.3: Likelihood of a BSA from the Bank of Japan

	(1) BOJ BSA	(2) BOJ BSA	(3) BOJ BSA	(4) BOJ BSA
Ally	3.448**	1.793	1.793	2.063
	(1.101)	(1.592)	(1.383)	(1.440)
Central Bank Independence (CBI)	1.870***	1.176+	1.176	1.572*
	(0.432)	(0.650)	(1.418)	(0.744)
Ally × CBI	-1.754	-0.882	-0.882	-1.545
	(1.455)	(2.041)	(1.835)	(2.060)
Capital Openness		-0.329	-0.329	0.128
		(0.521)	(1.149)	(0.543)
Per Capita GDP		-0.0258**	-0.0258	-0.0394***
		(0.00963)	(0.0201)	(0.0109)
Reserves		-0.0681	-0.0681	-0.111*
		(0.0462)	(0.0996)	(0.0559)
IMF Program Current Year		-2.133**	-2.133**	-2.433**
		(0.816)	(0.782)	(0.899)
IMF Program Prior Year		-1.035+	-1.035	-1.473*
		(0.578)	(0.649)	(0.615)
Non-BOJ BSA Current Year		1.064***	1.064**	0.669
		(0.317)	(0.369)	(0.460)
Non-BOJ BSA Prior Year		2.323***	2.323***	2.183***
		(0.300)	(0.297)	(0.450)
GDP % of World GDP		-62.67***	-62.67**	-75.92***
		(11.30)	(20.11)	(12.69)
Trade Exposure		79.83***	79.83*	127.4***
		(17.60)	(40.45)	(26.38)
Bank Exposure		0.314**	0.314	0.369**
		(0.113)	(0.212)	(0.120)
Democracy		-0.664*	-0.664	-0.499
		(0.331)	(0.796)	(0.392)
Constant	-3.320***	-5.391***	-5.391**	-5.244***
	(0.296)	(0.839)	(1.720)	(1.085)
Observations	2266	1287	1287	1220

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

the likelihood that a recipient receives a BSA when the recipient is perceived as unreliable, i.e. low levels of central bank independence. Further, my theoretical expectations about the providers' reputational concerns and institutional constraints were also generally supported, though not entirely. As expected, the People's Bank of China was able to take advantage of its home government's political ties to hold recipients accountable whereas the Federal Reserve was precluded from utilizing this mechanism due to its desire to protect its reputation for independence from the executive. The Federal Reserve's behavior might also reflect the United States' outsized ability to influence lending outcomes within the IMF.[24] Importantly, upon closer inspection of the role of politics in the Fed's BSA program, I cautiously find support for the intuition from my theory. Across all ranges of reliability, political ties increase the likelihood that a recipient receives a BSA from the Fed. However, a recipient needs to be highly reliable to secure a BSA from the Federal Reserve if it lacks any such affiliation. Finally, prior to Prime Minister Abe's actions, the Bank of Japan should have resembled the Federal Reserve. I did expect to find a small conditional effect for the Bank of the Japan. The lack of finding might be the result of a power issue or that my theoretical expectations were premature given the recency of Abe's attempts to exert control over monetary policy.

4.7 Robustness

In the following section, I address concerns over measures of the primary variables of interest and further test the theoretical conditions underlying political ties as a credible tool of coercion for unreliable recipients. I focus mainly on the People's Bank of China, however, similar analyses for the other two providers are available in Appendix. First, one potential concern is that a recipient's central bank independence does not perfectly measure its willingness to delay economic reform. This might be particularly true in countries where there is pervasive corruption.

[24] Stone 2011.

For instance, a country might have high levels of CBI but still attempt to inflate the economy to reap political benefits. As a robustness check, I use a recipient's inflation volatility in place of CBI, where higher volatility is equivalent to low levels of CBI. Volatile inflation is an indication of a recipient's failure to maintain monetary discipline. While both volatility and inflation level are standard measures of poor monetary policy, volatility is preferable because it better reflects uncertainty about a recipient's future behavior.[25]

Table 4.4: Alternative Models for People's Bank of China

	(1) China BSA	(2) China BSA	(3) China BSA
Ally	-2.210*		
	(0.934)		
Ally $\times$ Inflation Volatility	1.143***		
	(0.257)		
Inflation Volatility	0.0163^{+}		
	(0.00880)		
UN Voting Agreement		-8.395^{+}	
		(4.357)	
UN Voting Agreement $\times$ CBI		23.17**	
		(7.893)	
Central Bank Independence (CBI)		-20.58**	0.510
		(7.511)	(0.902)
AID $\times$ CBI			19.49
			(42.39)
Foreign Aid as % of Recipient GDP (AID)			3.352
			(25.13)
Constant	-3.391***	4.515	-2.989***
	(0.532)	(4.137)	(0.609)
Standard Errors	Robust	Robust	Robust
Year FEs	No	No	No
Observations	968	980	917

Standard errors in parentheses

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: All models include controls consistent with Models 2-4s.

[25]The results are robust to using inflation level rather than volatility.

Table 4.4 above shows the results of the main interaction between political ties and inflation volatility. While column 1 only shows the interaction effect, the model includes the full set of controls from the main model. Across all three providers, the results reflect the findings from the main models. For the People's Bank of China, the main interaction effect is still significant at the 0.1 level and is signed in the right direction. Because coefficients on interactions are difficult to interpret, I again plot the predicted probability of a BSA from the PBOC across a range of reliability for allied and un-allied recipients. The plot is illustrated in Figure 4.3 below. In line with my theoretical expectations, recipients who have strategic partnerships with China are more likely to receive a BSA when they have very volatile inflation. In short, the results do not change from before. As a whole, however, CBI is a better measure for reliability because it shapes the provider's expectations of recipient's behavior in the future.

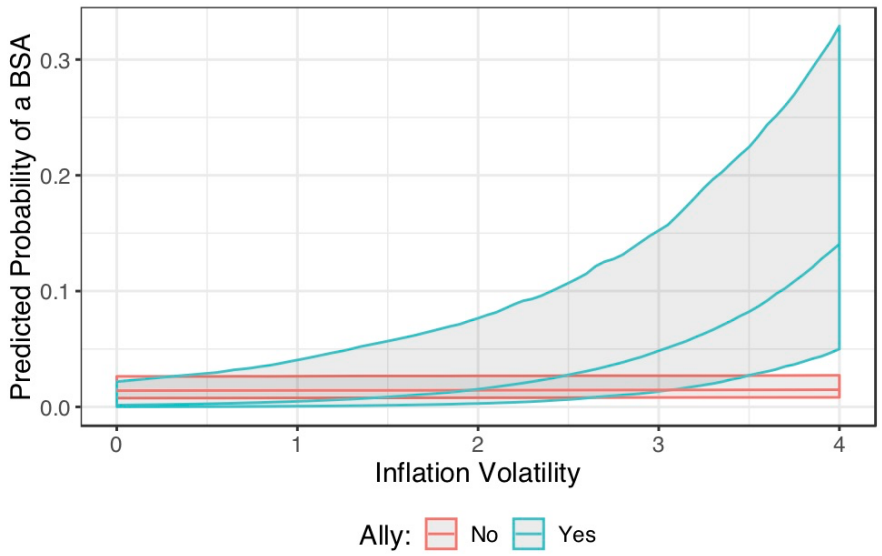

Figure 4.3: Probability of a PBOC BSA Given Political Ties and Recipient Inflation Volatility

Next, I further investigate the role of political ties as a means to induce cooperation from unreliable recipients. In the previous chapter, I claimed that for threats to punish through political linkages to be credible, the recipient must believe the punishment, if imposed, is costly. In other words, the recipient must sufficiently value the political benefit whose removal is threatened. As

detailed above, strategic partnerships and defense cooperation agreements meet this criterion. However, some may argue that diplomatic support in a multilateral institution like the UN can also be valuable to the recipient. While I am skeptical that failing to support a vote in the UN is particularly costly for the recipient, I nevertheless test the interaction. If there is a result, I would expect it to have a weaker effect because the threat to remove a vote is not particularly costly for the recipient. I measure UN voting similarity between the recipient and the provider using the voting similarity index (Bailey, Strezhnev, and Voeten 2016). The index measures the total number of votes where both states agree divided by the total number of joint votes. The measure ranges from 0 to 1, where higher values indicate more similar voting patterns. I use joint votes rather than ideological similarity measures because the theory refers to actual coercive actions taken by the provider rather than simply similar policy preferences. Results for the main interaction effect are listed in column 2 in Table 4.4 above. The main interaction effect is significant, which suggests that it is possible that recipients' value diplomatic support from the provider in the UN. However, I am wary of reading too much into the significance as there is little variability in joint votes. Indeed, the median is for this measure is quite high. Ideally, I would measure joint votes only on important resolutions. Unfortunately, that measure suffers from extremely severe missingness where I am prevented from running any statistical analyses.

Finally, my theory asserts that threats to punish through political ties are credible because punishment does not further harm the recipient's fragile economy. To test this assertion, I run a placebo test using a traditional tool of coercion: foreign aid.[26] It is well documented that China uses foreign aid to leverage policy concessions from recipient countries (Strüver 2016). If political ties were simply a proxy for any form of leverage, the main interaction should also be significant when I substitute foreign aid in place of *Ally.* I measure foreign aid as the bilateral amount of foreign aid from China as a percentage of the recipient's GDP. The data is from Aid Data (Strange et al. 2017). Results are shown in column 3 in Table 4.4 above. In line with my

[26]Economic sanctions are also a common tool for economic coercion. However, data on sanctions use is not available for China. Most sanctions are implemented by the United States or through multilateral institutions.

theoretical expectations, I do not find a significant conditional relationship between foreign aid and a recipient's reliability. This gives me greater confidence for my claim that political ties serve as an accountability mechanism.

4.8 Conclusion

To evaluate the observable implications from my theoretical model, I analyzed a newly-created dataset of all swap agreements offered by major reserve-currency countries between 2000 and 2016. I find that political ties are particularly associated with increases in the likelihood that unreliable recipients will obtain BSAs. Whereas prevailing wisdom on multilateral lending suggests that the recipients of emergency financing should benefit from alliances to powerful IMF creditors, the evidence suggests that providers do not indiscriminately offer BSAs to their allies, nor do they favor allies who they perceive as reliable. Instead, political ties enable providers to better manage the behavior of unreliable recipients from whom they would otherwise withhold support. Further, I demonstrate that provider central banks that place a high value on the appearance of institutional independence from their home governments are unlikely to manage risk using political relationships, while providers who are institutionally close to their home governments are more likely to use governmental political ties to compensate for economic risk. As a whole, the findings show that international politics not only plays an important role in central bank decision-making, it actually enables central banks to benefit by reducing their exposure to risk. The findings suggest that politics can enhance global stability by enabling providers to offer BSAs when they would otherwise be hesitant. In the next chapter, I more directly investigate how politics influences global financial stability by examining differences in financial behavior between allied and un-allied BSA recipients.

Table 4.5: Alternative Models for U.S. Federal Reserve

	(1) USA BSA	(2) USA BSA	(3) USA BSA
Ally (DCA)	-0.230		
	(0.624)		
Inflation Volatility	-0.397		
	(0.327)		
Ally (DCA) × Inflation Volatility	0.489		
	(0.331)		
ATOP Ally		0.158	
		(1.815)	
ATOP Ally × CBI		0.966	
		(2.232)	
Central Bank Independence (CBI)		6.047**	-6.406**
		(1.971)	(2.283)
UN Voting Agreement			-17.48***
			(4.412)
UN Voting Agreement × CBI			25.84***
			(5.885)
Constant	-6.499**	-10.82***	-4.831***
	(2.003)	(1.690)	(1.272)
Standard Errors	Robust	Robust	Robust
Year FEs	No	No	No
Observations	1149	1784	1567

Standard errors in parentheses

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: All models include controls consistent with Models 2-4s.

Table 4.6: Alternative Models for Bank of Japan

	(1) BOJ BSA	(2) BOJ BSA	(3) BOJ BSA
Ally	1.640*		
	(0.660)		
Inflation Volatility	-0.0436*		
	(0.0193)		
Ally × Inflation Volatility	-0.219		
	(0.243)		
Ally (DCA)		8.179*	
		(3.885)	
Ally (DCA) × CBI		-33.57*	
		(13.60)	
Central Bank Independence (CBI)		-0.948	-41.60***
		(1.242)	(7.010)
UN Voting Agreement			-30.79***
			(4.226)
UN Voting Agreement × CBI			48.62***
			(7.896)
Constant	-2.951***	-16.68*	18.62***
	(0.593)	(6.769)	(3.268)
Observations	1326	680	1128

Standard errors in parentheses

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: All models include controls consistent with Models 2-4s.

5 A Bilateral Seal of Approval: Financial Stability through Geopolitics

In the previous chapter, I showed that the existence of political ties serves as an accountability mechanism, enabling providers to offer bilateral currency swap agreements (BSAs) in situations where they would otherwise be hesitant. An implication of this theory is that the threat of punishment deters politically-tied recipients from otherwise risky behavior, thereby enhancing global financial stability. Yet, existing studies on multilateral bailouts suggest that political ties have perverse effects on a borrower's subsequent financial behavior, potentially increasing the system's financial fragilities. In this chapter, I test the accountability mechanism directly by testing against the predominant alternative explanation posited by the IMF literature. Comparing financial behavior both before and after a BSA announcement, I examine whether politically tied recipients are more likely to engage in increased risk-taking than unaffiliated recipients.

One of the most robust findings in international financial governance is the salient role of geopolitics influencing both access and leniency of terms for IMF loans (Steinwand and Stone 2008). In pursuit of their economic and strategic interests, powerful countries in the IMF offer generous bailouts to their allies. Expecting a favorable bailout, politically-connected borrowers avoid fully internalizing the true costs of their actions and as a result, are incentivized to pursue riskier economic policies than they otherwise would.

Existing theory would suggest that BSAs should also generate similar preserve incentives

among recipients. In the bilateral setting, a provider is unencumbered by the constraints of multilateral joint decision-making and any pursuit of its geopolitical interests is not diluted by delegation to a supranational agent. Moreover, unlike the IMF, the catalytic power of a BSA's seal of approval rests on the absence of explicit conditionality. These differences should enable a BSA provider's strategic interests to be even more pronounced, increasing the expectations of a financial rescue for recipients who are politically important to the provider. Therefore, similar to politically-motivated IMF loans, allied BSA recipients should also face a moral hazard problem.

However, I argued that a provider's decision to offer a BSA is not purely reflective of its geostrategic interests. Bilateral providers are sensitive to the risk of moral hazard among potentially unreliable recipients and therefore, only offer BSAs to recipients where providers have some mechanism to manage this risk. In contrast to IMF lending, I argue that geopolitical ties enable bilateral providers to credibly threaten punishment and thereby induce better behavior from swap recipients. Whereas the costs imposed by explicit conditionality in IMF loans deter risky economic policies, the costs of possible punishment from an ally produce a similar effect for BSAs. If the posited accountability mechanism is true, there should be no observable difference in financial behavior between politically-important and unaffiliated BSA recipients after receiving a swap.

I use a difference in differences design to test this hypothesis on an original dataset of bilateral currency swap agreements announcements from 2000 to 2016. I analyze the rate of difference in financial behavior between allied and unallied BSA recipients in the 24 months preceding and the 12 months following announcement of the swap agreement. Because a recipient's potential unwillingness to correct economic imbalances is observable through multiple channels, I utilize three general categories of financial behavior outcomes to capture the different elements of this process. First, I measure market actors' perceptions of a recipient's risk level. Next, I examine a recipient's actual financial behavior through its decisions over monetary policy in the immediate term. Finally, I analyze whether a recipient's continued risk-taking results in a

financial crisis.

In contrast to previous IMF studies, I fail to find any evidence that market actors perceive politically tied recipients as more risky than unallied recipients both pre- and post-swap. Moreover, I find that while politically tied recipients' financial behavior did significantly differ from unaffiliated recipients, the results were supportive of my theory that political ties can serve as an accountability mechanism and induce monetary discipline. Furthermore, contrary to Lipscy and Lee (2019), allied recipients are neither more likely than non-allies to experience a financial crisis before receiving a swap agreement, nor are allies more likely to experience crises following swap agreements—if anything, allied recipients seem to experience fewer crises than non-allied recipients. The findings provide evidence that in the bilateral setting, geopolitical ties may serve as an accountability mechanism that mitigates the risk of moral hazard. In other words, bilateral political ties may act as a seal of approval. The results highlight how different features of the global financial safety net might produce countervailing effects.

5.1 The Role of Politics in the Global Financial Safety Net

With increased global financial integration, countries frequently face periods of financial stress that can easily spiral into a financial crisis. Countries often experience a financing gap when capital inflows do not cover what it spends on goods and services abroad. Without funds to bridge this financing gap, countries may exhaust reserves and default on their loans. Skittish investors withdraw money, exacerbating the financing gap. Financial crisis and more defaults become a self-fulfilling prophecy as it becomes harder to overcome investor panic. The deleterious effects impact not only the country's own economy but reverberate throughout the international financial system. This is especially problematic if the country in crisis operates a central role in the global financial system. To prevent the spread of financial fragilities, countries have developed a global financial safety net to stabilize economies and restore economic growth, thereby preventing a

crisis from becoming a larger one.

As detailed in chapter two, the global financial safety net (GFSN) is a set of institutions and mechanisms that provide financial support to countries hit by a financial crisis or are temporarily excluded from accessing capital in international markets (Scheubel and Stracca 2016). It includes multilateral reserve pools like the IMF as well as bilateral arrangements like currency swap agreements (BSAs). The global safety net's assistance usually entails an immediate provision of liquidity to build reserves, stabilize currencies, and reduce the short-term risk of involuntary default as well as fiscal reforms to address improvements for long-term solvency. The ultimate aim is that financial assistance will offer a "seal of approval" and spur a catalytic effect, restoring investor confidence and jumpstarting capital inflows to participating countries (Bird and Rowlands 2004; Jensen 2004; Eichengreen, Gupta, and Mody 2008; Bauer, Cruz, and Graham 2012.)

5.1.1 The Liquidity—Moral Hazard Tradeoff

However, like any insurance scheme, the existence of a safety net can alter a country's risk appetite. A country that believes it is likely to be bailed out has weak incentives to pursue good economic policies that mitigate the risk of a balance of payments crisis. As a result, countries do not fully realize the costs of engaging in bad economic policies, which leads countries to overvalue the private benefits they reap from economic mismanagement and underappreciate the costs. The existence of a safety net can have the perverse effect of increasing risky behavior, which leads to higher financial fragility and higher likelihood that the safety net will need to be used to avert financial crises. This leads to a critical trade-off where countries want to contain financial instability through the global financial safety net by quickly providing liquidity to countries in need while simultaneously deterring risk-taking (Copelovitch and Rickard Unpublished working paper). To resolve the liquidity—moral hazard tradeoff, crisis lending attempts to raise the costs of accessing the safety net. For instance, the IMF requires borrowers to undertake prior action measures before an IMF loan is approved as well as achieving key macroeconomic targets

(performance criteria) after loan is dispersed.

5.1.2 Politics in Multilateral Emergency Lending

Despite efforts to price in the moral hazard risk, researchers have noted that macroeconomic fundamentals do not explain observed variation in access or size of IMF loans, nor the stringency of conditions attached (Joyce 2004, Steinwand and Stone 2008). Indeed, several borrowers received loans in excess of the amount they were eligible to receive while others received loans well below their borrowing threshold (Copelovitch 2010b). Explanations for this variation primarily center on political intervention by the IMF's major shareholders.[1] Because the structure of IMF decision-making gives disproportionate power to its major shareholders (G-5) through both votes and staff representation, IMF lending tends to reflect the major shareholders' preferences and foreign policy objectives (Copelovitch 2010b).[2]

Scholars have noted two related motivations driving the political intervention. First, major shareholders intervene in IMF lending to protect salient domestic financial interests. Several scholars have found that IMF loans tend to be large and have generous terms when the borrower is heavily indebted to private creditors located in the shareholder's country (Oatley and Yackee 2004; Broz 2005; Broz and Hawes 2006; Copelovitch 2010b). Moreover, borrowers who share strong economic ties to the large shareholders are more likely to receive generous loans (Barro and Lee 2005). Second, major shareholders use IMF loans as an additional foreign policy tool similar to bilateral foreign aid to either rescue distressed allies or as payment to advance specific foreign policy objectives. Numerous scholars have found a positive relationship between generous IMF loans and countries who are of strategic importance to the US or other G-5 countries (Thacker 1999; Stone 2002; Stone 2004; Barro and Lee 2005; Dreher and Jensen 2007; Copelovitch 2010b;

[1] Additional explanations for the variation in IMF loans include the borrower's political institutions (Vreeland 2003; Vreeland 2006), the preferences of IMF staff (Vaubel 1991; Dreher and Vaubel 2004b; Copelovitch and Rickard Unpublished working paper), and the role of private creditors (Gould 2003; Gould 2006).

[2] See also Stone (2011) for US influence.

Lipscy and Lee 2019).[3] A borrower's strategic importance to the US or other major shareholders is usually measured by voting alignment within the UN General Assembly (Barro and Lee 2005; Vreeland 2006; Dreher, Sturm, and Vreeland 2006); bilateral or foreign aid (Stone 2004; Stone 2008); the existence of an alliance (Oatley and Yackee 2004; Dreher and Jensen 2007; Dreher, Sturm, and Vreeland 2009b); or some combination of the above (Lipscy and Lee 2019).

Because of the strong evidence of political intervention, the IMF's commitment to rigorously enforce conditionality and thus its "seal of approval" may not be fully credible to market actors. Stone (2002) and Stone (2004) finds that strategically important borrowers face less rigorous enforcement of conditions and face shorter periods of punishment when they deviate from their programs. For the politically-connected borrower, lenient terms and weak punishment may enable the borrower to delay financial reform and to pursue risky policies that actually elevate a country's financial vulnerability. Lipscy and Lee (2019) find that politically important borrowers have lower levels of reserves and are more likely experience a banking or currency crisis than borrowers who do not have such powerful backers. Because the moral hazard problem is still present, market confidence deteriorates when the borrowing country is politically or economically important. Indeed, Chapman et al. (2017) find that geopolitically important borrowers are in fact penalized by market actors and are charged higher risk premiums by investors.

5.1.3 Politics in Bilateral Emergency Lending

While the role of political intervention in the IMF is well studied, less is known about how politics shapes bilateral emergency lending. The narrative surrounding bilateral lending strongly characterizes it as a form of strategic foreign aid used to rescue allies or obtain foreign policy objectives, similar to political intervention in IMF loans. Analyzing bailouts by G-7 countries, Schneider and Tobin (2019) find that countries in crisis are more likely to receive a bilateral bailout if they are important for geo-strategic, military, or political reasons. Similarly, Kinne and

[3]For a review, see Steinwand and Stone 2008.

Bunte (2018) find that creditors offer bilateral bailouts to countries in order to deepen security cooperation, and to gain support for their foreign policy agenda within the UN. Others have noted that bilateral bailouts are primarily motivated concerns of domestic economic exposure. Broz (2005) finds that in the US, economic exposure determines domestic support for bilateral bailouts. Likewise, Lipscy (2003) finds that bailouts depend on the importance of the crisis country's economy to the creditor country. Though nascent, the existing research suggests that at best, politics in bilateral lending operates in a similar vein to multilateral lending as in the IMF and at worst, bilateral lending is even more politicized as national interests are more directly translated into foreign policy.

However, unlike IMF lending, any explicit discussion of deleterious consequences of the moral hazard problem is seemingly absent. This is curious as existing studies typically argue that the IMF is better at attenuating the moral hazard problem. The multilateral nature of joint-decision making should constrain some of the degree to which political intervention is possible (Stone 2011; Tallberg 2010; Schneider and Tobin 2019). Moreover, the IMF has greater monitoring ability than bilateral lending that may deter risky policies even if a politically important country may face less rigorous punishment (Stone 2008; Drezner 2014). Perhaps more importantly, IMF decision-making delegates authority to IGO agents who have policy preferences and normative beliefs that restrict the ability of geopolitics to interfere with lending decisions (Dreher and Voigt 2011). Studies have shown that bureaucratic incentives and ideology of the Managing Director influence IMF decision-making (Vaubel 1991; Barnett and Finnemore 2004; Dreher and Vaubel 2004b; Chwieroth 2008; Copelovitch and Rickard Unpublished working paper).[4] Because bilateral lending lacks many of the features that constrains political interference in the IMF, it is puzzling that moral hazard risk is seemingly absent. The previous literature on the role of politics in emergency lending suggests that bilateral lending is likely to reflect geopolitical motivations and therefore, the moral hazard problem should be highly salient. As a result, bilateral providers

[4]Nielson, Tierney, and Weaver 2006 finds similar effects at the World Bank.

who are risk adverse should be hesitant to offer a bilateral currency swap agreement (BSA) to unreliable recipients.

5.2 The Role of Geopolitics on Global Financial Stability

How do geopolitics influence the financial behavior of BSA recipients and as a result, global financial stability? Extant IMF literature suggests that powerful shareholders prioritize their own foreign policy interests over broader concerns for international financial stability. As a result, strategically important borrowers have perverse incentives to engage in risky economic policies because they expect to be bailed out. This moral hazard problem weakens the efficacy of the IMF and heightens the risk that financial fragilities spread across borders, depressing global growth. In contrast to the IMF literature, I argue that political ties may enhance financial stability by enabling providers to offer bilateral currency swap agreements where they otherwise might be hesitant. Rather than a source of enhanced risk-taking, geopolitics serves to constrain risky behavior by recipients, particularly among those who may be unreliable. Therefore, the subsequent expectation that geopolitics increases the moral hazard problem is remarkably absent from BSAs.

5.2.1 A Provider's Dueling Interests

By its very nature, a provider's decision to offer a BSA reflects its national interests.[5] A provider is motivated to offer a BSA because it is concerned about its exposure to a country in nearing a financial crisis. The degree to which a provider is exposed stems from two sources. First, a provider may be motivated to offer a BSA because it is concerned about international financial stability and the indirect spillover costs from contagion. When the international financial system is stable, all countries benefit from increased trade and capital exchange that is supported

[5]Though, national interest may diverge from a government's political objectives when central banks are more institutionally independent from the executive branch.

by continued market confidence. However, all countries suffer from an unstable financial system. Panicked investors, uncertain of the future, are less willing to participate in economic exchange or only willing to do so if compensated well above normal means. The forgone international exchange results in global slowdowns, which can impact a provider's economy even if it is not directly linked to the crisis country.[6] This is especially problematic when the country in crisis operates a central position in the global economy, such as financial center or large economy. Therefore, not unlike the motivation to participate in the IMF, a provider may extend a BSA out of concern for international financial stability and because failing to act would impose indirect spillover costs on itself. Second, and perhaps more salient, a provider may be incentivized to extend a BSA when it faces a direct risk of economic exposure. A provider that shares intense trade and financial ties to a recipient nearing a financial crisis is directly harmed when the recipient's economy is under duress. For the recipient, sudden stops and reversal of capital flows contribute to deep and prolonged recessions, exacerbating social and political fragilities. Because the provider's economy and recipient's economy are intrinsically linked, any economic downturn in the recipient's country immediately filters through to the provider's economy, causing similar social and political upheaval.

When the provider is either directly or indirectly exposed to the recipient, it is motivated to extend a BSA. However, the provider incurs some cost to doing so. By offering a BSA, the provider commits its own finite resources to a non-productive use for the length of the agreement, which can last up to three years.[7] More importantly, however, by offering to transfer resources to the recipient, the provider accepts the possibility that the recipient may not use the funds in accordance with the provider's preferences, thus imposing a financial and potentially political cost on the provider without significantly reducing the risk of economic crisis. This is especially likely if the recipient's political willingness to repay deteriorates (Tomz 2012). Unlike the IMF where risk is pooled among all contributing members, the default risk is especially costly for bilateral

[6]This is reflective of the emerging market economies' experience during the 2008 global financial crisis.

[7]A BSA recipient's economy is not growing during this time, but rather the BSA stalls a complete collapse.

lenders where the risk rests solely with the provider. Moreover, the expectation that a recipient is likely to receive a BSA in the future, may incentivize risky behavior and poor economic policies. For instance, the recipient may be more likely to lack monetary discipline, running high levels of inflation or using the central bank to balloon domestic credits funding government deficits (Stone 2002).

The risk for moral hazard problems are not unique to BSAs, but inherent in any safety net. In the IMF, lenders can account for this risk through more stringent conditionality. BSAs, on the other hand, are precluded from traditional tools used to deter moral hazard. The entire power of BSAs as a signal to calm markets rests of its lack of an explicit risk premium. Thus, the provider is in a bind: it wants to mitigate the likelihood of spillover but recognizes recipient may misbehave and cannot manage risks by charging traditional risk premia.

As detailed in chapter three, one answer to the provider's dilemma is to utilize political ties as an accountability mechanism to manage this risk. Political ties enable the provider to credibly impose costs in non-economic settings on the recipient if it misbehaves.[8] The credible threat of punishment operates similar to explicit conditionality imposed in IMF loans. If political ties serve to constrain otherwise risky recipients, there should be no observable difference in either recipient behavior or market participants' risk assessment of the politically tied recipient. In other words, market actors should not charge an additional risk premium on recipients who are geopolitically important to providers. This results in the following testable hypothesis: *Allied swap recipients should behave no differently than non-allied swap recipients.*

5.3 Research Design: Data and Measurement

To test whether politics in bilateral lending (BSAs) generate similar perverse incentives for economic mismanagement, I investigate whether BSA recipients with political ties to the provider

[8]It is reasonable to assume that political punishment can be credible. Kinne and Bunte (2018) find that governments actively coordinate their economic and security policies.

behave differently from recipients who lack such direct connection. In IMF lending, geopolitically tied recipients reduce the credibility of the IMF's seal of approval and as a result, recipients' risk appetite for economic misbehavior is unmitigated. Using similar metrics from extant IMF studies, I examine whether politically tied BSA recipients pursue riskier actions because they expect a bailout and whether market actors subsequently price into their risk estimates a recipient's moral hazard risk. If my theory is false, geopolitically connected recipients should be more likely to pursue economic mismanagement as evidenced by higher inflation rates and greater likelihood of a financial crisis. In addition, they should also be penalized through higher risk premiums from market actors. Failing to find evidence that geopolitically tied recipients diverge from other BSA recipients in either actual behavior or in the eyes of market actors lends support for my theoretical mechanism.

I utilize a difference in differences (DID) strategy to analyze how a recipient's financial behavior changes between groups as a result of a discrete political event, the announcement of a bilateral currency swap agreement (BSA). The traditional IMF moral hazard argument would suggest that BSAs to allied recipients approximates a treatment effect. Receipt of a BSA would reassure an allied recipient that it is likely to expect an additional rescue in the future and as a result, allied recipients should be more willing to delay economic adjustment. The additional incentive to delay economic reform as a result of political importance to the provider is only present for allied recipients. Unallied recipients, therefore, represent a sort of control group. DID enables me to compare the rate of differences in my outcome variables (financial behavior) between allied and non-allied recipients after receiving a BSA. The benefit of a DID design is that I account for any biases in the post-BSA period that could be the result of unobservable differences between allied and unallied recipients.

For the data, I compiled the dates of all BSAs announcements for agreements formed between 2000 and 2016 from the three most prolific providers: Federal Reserve, People's Bank of China, and the Bank of Japan. From this data, I construct a time indicator that measures

the months since a provider announced the formation of a swap agreement *(Post-Swap)*. For a conservative estimate, a recipient only enters the dataset with the first swap it received from any of the three major reserve currency providers. While BSA announcements can also entail subsequent agreement renewals, increases in the swap amount, or extensions of the expiration date, I restrict my analysis to the first formation of a swap agreement. This enables me to avoid concerns that previous agreements might influence subsequent recipient behavior. There are 42 unique first-time BSA recipients.

5.3.1 Dependent Variables

Traditionally, the problem of moral hazard is depicted as heightened risk-taking by the recipient. Economic misbehavior by the recipient is directly observable through both the actions individual recipients take and how recipient's behavior is judged by international market actors. I utilize three general categories of dependent variables that capture different elements of this process. These variables are commonly used in the extant literature and therefore, represent a good test of IMF moral hazard argument. First, I examine how markets evaluate a recipient's riskiness. If the recipient is indeed pursuing bad economic policies, this should be reflected in the how markets evaluate the health of recipient's economy on a number of metrics. Second, I evaluate the actual policies recipients pursue prior to and in the aftermath of receiving a BSA. If receipt of a BSA encourages recipients to delay economic reforms, this should be evident in recipient's monetary policies in the short-term. Lastly, a recipient who continually exhibits increased risk-taking as a result of a BSA, in the long-run should experience a higher incidence of financial crises. Because I am trying to uncover a relationship posited by previous IMF literature, I use a broad inclusion of variables that could possibly capture heightened risk-taking. In culmination, the absence of any moral hazard finding across all variables in all three categories lends greater credence for my theory.

5.3.2 Market Risk Assessments

International investors continually assess country-specific risk to estimate the likelihood they will realize a return on their investments. To assess country-specific risk, market participants are concerned about a country's general and future economic health as well as the likelihood that a government's policies may inhibit a return on their investments. Therefore, market participants maintain a vested interest in acquiring information that attenuates uncertainty over their risk-assessment and to form expectations about a country's future policies. I assume that markets actively pay attention to political announcements such as a BSA formation. Indeed, numerous studies have established the importance of political events on financial market outcomes (Block and Vaaler 2004; Jensen and Schmith 2005; Bernhard and Leblang 2006; Leblang and Satyanath 2006; Bechtel 2009; Bechtel and Schneider 2010; Sattler 2013). Research has shown that statements by central bankers significantly impact financial investors' economic expectations (Sturm and De Haan 2011). This information acquisition is particularly salient immediately preceding and during periods of crisis as investors become increasingly uncertain about a country's ability and willingness to effectively resolve economic problems (Peterson and Sattler 2019). Therefore, market participants are likely highly attuned to when BSAs form and as a result, country-risk assessments provide an accurate depiction of market expectations of a recipient's willingness to pursue good economic policies. I use the following three measures to approximate market confidence in a recipient's economy: 1) estimates of a government's willingness to repay its debts measured by risk premia, 2) estimates of current market confidence measured by currency depreciations, and 3) estimates of future economic health measured by confidence in local stock markets.

Perhaps the most direct measure of the market's assessment of a country's risk of default is its sovereign bond spread.[9] The spread measures the difference between the yield on a sovereign

[9]Credit ratings are sometimes used as an alternative measure of a country's risk premia (Archer, Biglaiser, and DeRouen 2007; Ballard-Rosa, Mosley, and Wellhausen 2018). Sovereign bond spreads are a preferred measure of risk premia, however, because they reflect real time changes in investors' assessments. In contrast, credit ratings

bond and the yield on a commonly traded risk-free instrument like the U.S. Treasury security. Thus, the spread quantifies the premium investors charge as compensation for holding riskier investments. Recall that explicit conditionality in IMF lending is supposed to reduce country risk premiums, thereby stimulating capital flows. The efficacy of the IMF's seal of approval depends on market expectations about the likely compliance and enforcement of IMF programs. Because strategically important countries are punished less when they deviate from their programs, they are incentivized to deviate more often (Stone 2002; Stone 2004). As a result of this form of moral hazard, investors charge higher risk premiums for strategically important countries (Chapman et al. 2017). In the bilateral context, the likelihood a country deviates from an IMF program is equivalent to the likelihood that a country pursues risky economic policies such as loose monetary policy, high public debt burdens, and lenient financial regulations, which heighten the probability of default. (Brooks and Mosley 2007). This uncertainty about political risk will increase risk premia. If the same moral hazard risk is present for strategically important countries in BSA lending, risk premiums should account for this in the form of higher spreads. I measure monthly sovereign bond spreads *(EMBI Spread)* using J.P. Morgan's Emerging Bond Index Global. The index includes only foreign currency-denominated instruments, which means that any changes in the index should reflect shifts in perception about a country's default risk. In addition, the benefit of this index is that it aggregates instruments of varying maturities and accounts for broader conditions like risk aversion and herd effects.

Next, following Stone (2002), I use weighted changes in a recipient's exchange rate to capture decisions by foreign investors *(Exchange Rate Change)*. Stable exchange rates are an important indicator for macroeconomic policy and therefore, according to Stone (2002), exchange rate devaluations reflect deteriorating market confidence. When market participants are uncertain about the future health of a country's economy and the likelihood of default, they are more willing to take their investments to safer grounds. These capital outflows put pressure on local currency

rarely vary across time and are usually based on changes in sovereign spreads anyways. Additionally, high risk countries can select out of being rated.

to depreciate. As a result, a loss in market confidence should lower the demand for a country's currency, leading to capital outflows and eventually depreciation.

Finally, though a more indirect measure of recipient's economic prospects, I measure changes in estimates of local stock market returns *(Stocks Change)*. Following Jensen and Schmith (2005), I examine changes in expected returns for the local equity market index, measured in constant US dollars. If recipient's economies were expected to grow as a result of good economic policies, I should observe a positive change in the index that reflects this optimism. However, if investors are wary of the likelihood that a recipient will pursue economic reform, they would not be willing to invest in local stock market and the index would reflect deteriorating market confidence. Therefore, changes in the estimates of stock returns broadly reflect market confidence in the recipient's economy. The data for these three variables comes from the Global Economic Monitoring database, compiled from Data Stream and the IMF's International Financial Statistics database.

5.3.3 Short-Run Recipient Behavior

Next, I turn to two country-specific behavioral indicators that reflect a recipient's willingness to resolve underlying economic imbalances. Following Stone (2002), I measure a recipient's level of inflation *(Inflation)*. Inflation is commonly used by market actors as an indicator of a recipient's overall credibility of macroeconomic policy and quality of economic policies (Stone 2002). Politicians find it difficult to resist inflating public budgets to buy short-term political support. Inflation arises when central banks increase the money supply to finance government deficits, rescue failing banks, or loosely disperse credit, which creates an upward pressure on prices. Because of politicians' incentive to electioneer, inflation is perceived as a signal of bad economic policies (Grittersová 2017). Inflation undermines the confidence of international investors, resulting in depressed capital flows and higher real interest rates. Countries with credible inflation targeting regimes have lower risk premiums (Grittersová 2017). In addition, research has

shown that countries with higher inflation grew more slowly and attracted less FDI (Stone 2002). This is why inflation targeting is a common part of the performance criteria mandated by IMF's conditionality in order to catalyze private capital flows (Copelovitch 2010b). Moreover, inflation performance is often considered as a signal for a country's creditworthiness. Inflation erodes the value of local currency relative to foreign currency, which reduces the government's capacity to convert local currency to foreign currency in order to meet its external debt obligations. In effect, a government can repudiate its debt by inflating away its value. As a result, markets often charge a higher risk premium to countries with high inflation (Stone 2002, Brooks and Mosley 2007; Grittersová 2017). The data comes from the IMF's International Financial Statistics database.

Second, following Lipscy and Lee (2019), I measure a recipient's stockpile of foreign exchange reserves *(Reserves)*. Large levels of foreign exchange reserves provide countries with a cushion to weather sudden stops in capital flows, thus acting a self-insurance against a financial crisis. However, holding large piles of reserves is costly as the foreign exchange is not being used in a productive capacity. The moral hazard problem would predict that a country that anticipates a bailout if it gets in trouble will be more likely to under-insure (hold fewer total reserves). Therefore, if BSAs to allies incentivize risky behavior, I should observe allies holding fewer reserves after receiving a swap. The data comes from the Global Economic Monitor database.

5.3.4 Long-Run Recipient Behavior

Finally, I use a behavioral measure that captures a country's willingness to delay economic reforms in the long-run. Following Lipscy and Lee (2019), I measure whether a country has experienced a financial crisis in a given year *(Crisis)*. A country that expects a bailout because of its political ties might pursue riskier economic policies such as loose financial regulation, short-term capital inflows, and risky private lending. This increased risk-taking augments the likelihood a country will indeed face a financial crisis in the future. In other words, a country facing the moral hazard problem should be more likely to experience a subsequent financial crisis.

The measure is perhaps the ultimate indication of whether a country pursued sufficiently risky policies to invite a financial crisis. Unlike the previous variables, this is an annual indicator and therefore in the analysis, all relevant variables will also be measured annually. The measure takes the value of one if a recipient has experienced either a banking, currency, or sovereign debt crisis in the given year and a zero otherwise. The data is from Laeven and Valencia (2012).

5.3.5 Main Explanatory Variable

Central to the theory is that political ties provide a possible avenue for providers to threaten implicit conditionality such that the recipient is deterred from misbehavior. As I establish in the main empirical chapter, alliances best approximate the provider's ability to credibly impose punishment. Moreover, alliances are also commonly used to proxy for strategic importance within the IMF (Oatley and Yackee 2004; Dreher and Jensen 2007; Dreher, Sturm, and Vreeland 2009a; Lipscy and Lee (2019)). The principal hypothesis is that there should be no discernable difference in behavior between allied and non-allied recipients. I use a dichotomous measure called *Ally* for whether the recipient and the provider share an alliance during the relevant time period. The data comes from the Alliance Treaty Obligations Provisions (ATOP) Project (Leeds et al. 2002).[10]

5.3.6 Controls

Following existing literature, I control for both country-specific and global macroeconomic conditions that might influence assessments of a recipient's risk. First, I account for a country's *growth* rate, measured as a percentage change. Investors are more optimistic in countries with higher rates of growth and therefore, charge a lower risk premium. Higher growth rates mean that countries should be better able to service their debts and have better prospects for long term

[10]To be conservative, I exclude all swaps where the European Central Bank is the recipient. While the theoretical mechanism still applies, I acknowledge that the threat of punishment needs to pass through multiple channels, which may impact empirical analyses. Given the multilateral nature of the ECB, it is also possible that there exist additional channels whereby the threat to punish comes from other member states of the ECB who benefit from the existence of a BSA.

solvency. Studies have shown that equity and FDI investors are more likely to invest in countries with high growth (Jensen 2008; Mosley and Singer 2008). Similarly, I control for a country's level of development, measured as the natural log of *GDP.* Larger, developed economies may be better able to withstand exogenous shocks and economic downturns. Further, developed economies are not subject to the "original sin" and can more easily borrow in their own currencies (Eichengreen and Hausmann 2010). As a result, developed economies tend to have lower risk premiums. Both measures from the World Bank's World Development Indicators (Group 1978). I also control for a country's capital market openness, using the *Chinn-Ito* index. A country with greater capital market openness is more likely to be exposed to capital flight and volatility, which may increase the likelihood it experiences a financial crisis (Chinn and Frieden 2011). On the other hand, greater capital openness may enable a country to access a larger pool of resources, which lowers a country's risk premium (Simmons et al. 1999; Brooks and Mosley 2007). Finally, I control a government's *external debt* burden, measured as a percentage of its GDP. The larger a country's debt burden as a proportion of its economy, the less capacity a country has to service its debt obligations. As a result, country's with high external debt burdens are likely to face higher risk premiums and be more likely to experience a financial crisis as the result of default. Data for external debt comes from the IMF's International Financial Statistics and the World Bank's World Development Indicators.[11]

In addition to country-specific conditions, it is imperative to account for global capital market conditions that likewise influence market participants' risk appetite. Several studies have found that monetary conditions in the US influence aggregate risk appetites and capital flows in the international financial system (Ballard-Rosa, Mosley, and Wellhausen 2018; Arias 2017). When US interest rates are low, international investors seeking yield are willing to invest in risky countries where they otherwise would not if US interest rates were higher. In other words, low rates in the U.S. correspond to higher risk acceptance for investors and higher capital

[11] Department 2006; Group 1978.

availability for riskier countries. If the U.S. raises interest rates, capital flees to the safety of the United States and riskier countries are more likely to experience a sudden stop. Thus, the more adverse international liquidity conditions, the more likely risk premiums increase, and countries experience a financial crisis (Grittersová 2017). Similar to existing studies, I measure international liquidity using a monthly indicator of the US Federal Funds Rate *(FFR)*. Data is from the Federal Reserve Bank of St. Louis.

In addition, I include a second set of controls that incorporate key political factors that may impact a country's moral hazard risk. Several studies have found that markets use partisan cues as a shortcut when assessing political risk (Leblang 2002; Bernhard and Leblang 2002; Vaaler, Schrage, and Block 2006). Left governments are assumed to prioritize full employment and redistribution over monetary discipline or inflation control (Brooks and Mosley 2007). Moreover, support for leftist parties typically comes from labor and as such, a left government is sensitive to the distributional consequences of austerity. A left government is unlikely to undergo costly economic reforms necessary to avert a financial crisis. Previous research has consistently found that left-governments are punished by market participants through lower credit ratings or higher risk premiums (Barta and Johnston 2018; Campello 2015; Cho 2014; Sattler 2013; Pinto 2013). To control for the government's ideology, I include the dichotomous variable *Left* that takes the value of one if the government in power is left-leaning and zero if it is right or centrist. The data is from the World Bank's Database of Political Institutions (Beck et al. 2001).

A country's regime type might also impact assessment of its moral hazard risk. Democracies are perceived as less risky and more willing to repay debt because they have greater property right protections and face greater political costs for defaulting (Beaulieu, Cox, and Saiegh 2012; Cox and Saiegh 2018).[12] Jensen (2008) finds that democracies are better able to attract long-term capital. Furthermore, democracies are more transparent, which reduces an investor's uncertainty over its risk estimate. As a result, democracies should be charged lower risk premiums than

[12]Though Saiegh (2005) finds evidence against the "democratic advantage." He finds that democracies are more likely to reschedule debt obligations and they are not more likely to be charged a lower risk premium.

autocracies. To measure a recipient's regime type, I include a dichotomous measure of *Democracy* that takes the value of one when polity is greater than 6 and zero otherwise. The data is from the Polity IV.

Moreover, the presence of veto players may constrain a recipient's ability to engage in economic mismanagement. Keefer and Stasavage (2003) find that inflation reduction increases with the number of veto players in the government. However, while veto players may constrain bad economic policies, they also may make it harder to pass austerity measures necessary to avert a financial crisis (MacIntyre 2001; Peterson and Sattler 2019). Following existing studies, I use the natural log of the number of *Veto* players to control for the impact of a recipient's political institutions on risk perception (Vreeland 2006; Copelovitch 2010b). The data comes from the World Bank's Database of Political Institutions (Beck et al. 2001).

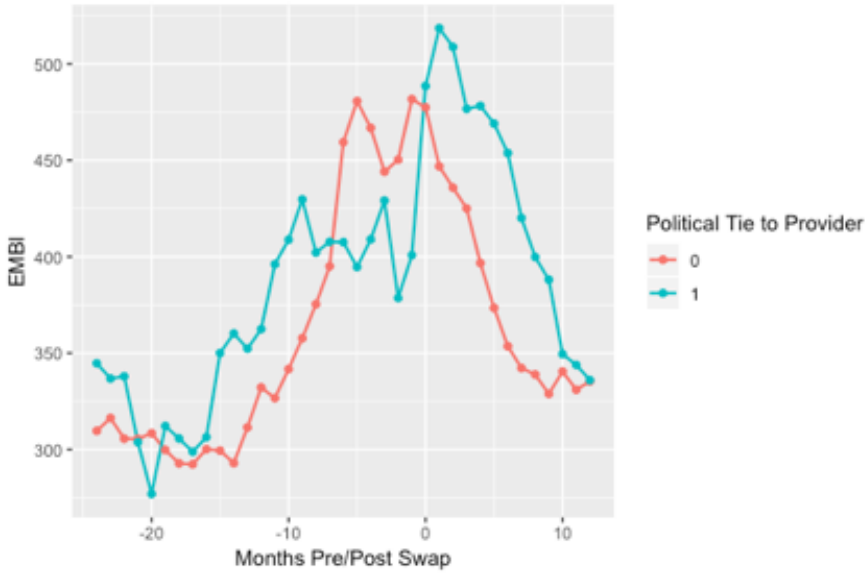

Figure 5.1: Sovereign Bond Spreads.

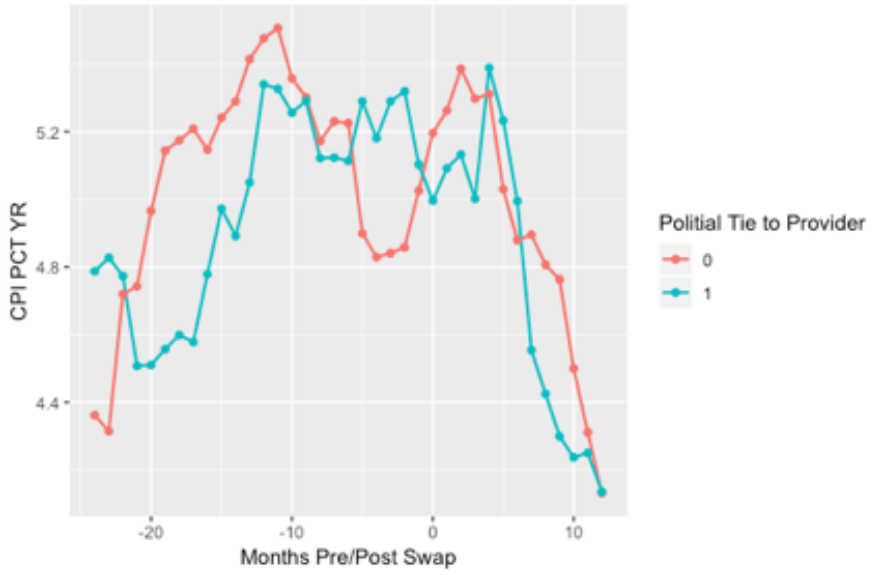

Figure 5.2: Inflation Rate.

5.4 Analyzing Financing Behavior of BSA Recipients: Empirical Tests

To test my hypothesis, I conduct a differences-in-differences test on an original dataset of BSA announcements from 2000 to 2016. The unit of observation is recipient-month-year. I analyze the differences in the rate of behavior between allied and non-allied BSA recipients 24 months preceding and 12 months following the announcement of a swap agreement.[13] A key assumption to ensure internal validity of the differences-in-differences design is parallel trends in outcomes. To satisfy the assumption, prior to the announcement of a BSA, allied and unallied recipients should trend at a similar rate. Figures 5.1 and 5.2 below plot market assessment and financial behavior outcomes for allied and unallied recipients preceding a swap. Importantly, the figures illustrate that both groups change at similar rates prior to receiving a BSA and therefore, it is possible to rule out that allied recipients are distinctly different from unallied recipients. While there might be slight movement immediately preceding a BSA, visual inspection appears to show

[13]The longer time span preceding the announcement enables me to gain confidence that allied and unallied groups have similar trends prior to BSA receipt.

the parallel trends assumption is generally met.[14]

5.4.1 Results

Where my dependent variables of interest are continuous, I use an ordinary least squares model for my difference-in-difference test. I include lagged dependent variables when it is appropriate. All models include the standards controls listed above with the exception of Left and Veto because of data constraints. The results are similar with the controls, but they are omitted from the main models because too much data would be lost. I cluster the standard errors to account for cross-sectional and temporal correlation. The key variable of interest is the interaction between time since BSA receipt *(Post-Swap)* and whether the recipient is allied with the provider *(Ally)*. The moral hazard argument posited by IMF studies would predict that this interaction should be significant, and that allied swap recipient behavior should reflect an unwillingness to address economic problems. If I fail to uncover this relationship and the groups continue to change at the same rate despite the treatment, I gain confidence that my theoretical mechanism holds. Rather than an incentive to delay economic reform, political ties can serve as an accountability mechanism that deters recipients from misbehavior. To preview my results, I do not find statistical significance for the interaction term in the majority of my models. In Model 4, the interaction is significant at the 0.05 level and in model 5, the interaction is close to significance at the 0.1 level. However, closer inspection of the interactions reveals that rather than incentivizing riskier behavior, allied recipients actually show an improvement in their behavior after receiving a BSA, lending further support for my theory. Below, I will evaluate the results by dependent variable category.

[14]There is no statistical test to evaluate whether assumption is met. Standard practice to use a visual inspection.

5.4.2 Market Risk Assessments

I examined three variables that approximate the estimates of market actors' assessment of recipient risk. If allied recipients are expected to be unwilling to correct underlying economic imbalances, market estimates of risk premia, measured by increased EMBI spreads, should reflect this assessment. Similarly, market confidence in the economic prospects of the allied economies should also deteriorate resulting in devaluations of the local currency or negative expected stock market returns. In other words, if a BSA generated similar perverse incentives as in IMF lending for allied recipients, outcomes for these three variables should be statistically different from outcomes for unallied recipients. Table 5.1 below shows the results for these three dependent variables. In all three models, I fail to find evidence for the moral hazard relationship posited by extant IMF studies. The interaction term is not significant in any of the models. For risk premia, demand for a recipient's currency, and expectations of stock market returns, I fail to find that market actors treat allied and unallied BSA recipients differently.

What explains the absence of evidence for the moral hazard problem? Perhaps market actors are uninformed about a BSA provider's political ties and therefore, do not charge an observable risk premium for allied recipients. Alternatively, market actors may be aware of bilateral political relationships and the moral hazard problem, but simply are unconcerned about how it impacts their return on investments. As long as markets are optimistic that allied BSA recipients will continue to be rescued, perhaps market actors believe additional risk premia is unnecessary. Both of these explanations, however, stand at odds with existing research on market reactions to the moral hazard problem in multilateral bailouts. Research on IMF lending has shown not only are market actors keenly aware of borrowers' political importance to powerful shareholders like the U.S. (Stone 2002), but also that markets charge a higher risk premium for allied borrowers specifically because of the incredibility of IMF conditionality for politically important borrowers (Chapman et al. 2017). It is not clear why market actors' ability to obtain information about a recipient's risk is constrained in the bilateral setting yet unmitigated in the

Table 5.1: Market Risk Assessments. Note: All models use OLS and include controls for GDP (ln), GDP growth, short-term external debt, months of imports covered by reserves, a dichotomous measure of democracy, capital account openness, and U.S. federal funds rate. Model (1) also includes a lagged dependent variable. All models use monthly observations for the 24 months preceding, the 12 months following, and the month in which each BSA was announced.

	(1)	(2)	(3)
	EMBI Spread	Exchange Rate Δ (%)	Stocks Δ (%)
Ally × Post-Swap	19.58	0.00700	-0.00591
	(18.11)	(0.00703)	(0.0200)
Ally	-10.27	0.00131	0.0132
	(12.59)	(0.00680)	(0.0158)
Post-Swap	-17.50**	-0.00695*	-0.0106
	(8.223)	(0.00406)	(0.0124)
Constant	19.23	0.0290	0.0322
	(46.26)	(0.0203)	(0.0526)
Observations	456	672	745
Adjusted R^2	0.922	0.005	0.036
F	492.0	1.368	3.785

Standard Errors in parentheses

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

multilateral environment. Moreover, the empirical record of BSA formation does not support the claim that markets expect politically important recipients to continue to be rescued. Several countries who previously obtained a BSA were unable to extend or renew the agreement. Market actors are savvy and any uncertainty over possible BSA rescue would be priced into their risk premia and be evident in statistical analyses. Therefore, something else must explain absence of observable premia for allied BSA recipients.

5.4.3 Short-Run Recipient Behavior

Next, I examine the actual policy behavior of BSA recipients in the 24 months preceding and the 12 months following a BSA. This should provide a more direct test of whether allied BSA recipients change their financial behavior as a result of the bailout compared to non-allied recipients. Studies on IMF bailouts would suggest that BSAs to allied recipients will contain no credible restraints on recipient behavior and as a result, allied BSA recipients have no incentive to undertake costly actions to reform their underlying economic imbalances through monetary discipline. Moreover, allied BSA recipients should have no incentive to self-insure through stockpiling reserves to decrease likelihood of a financial crisis in event of sudden stop or balance of payments crisis. Table 5.2 shows the results for recipient's financial policy behavior.

In contrast to the models of market perceptions, Model 4 does show that there is a statistically significant difference in inflation rates between allied and non-allied recipients after receiving a BSA receipt. Model 5 comes close to significance at the 0.1 level, suggesting that there might be a difference in reserve holding behavior between allies and unaffiliated BSA recipients after receiving a swap. The significance of the interaction term is suggestive of the moral hazard problem posited by IMF studies, but closer examination of the direction of the relationship is needed to determine if the support is warranted.

To investigate the direction of the relationship, I run an interaction between ally and each time period in the 24 months preceding a BSA and the 12 months following a BSA. Figure 5.3

Table 5.2: Short-Run Recipient Behavior. Note: Both models use OLS and include controls for GDP (ln), GDP growth, short-term external debt, a dichotomous measure of democracy, capital account openness, and U.S. federal funds rate. Model (4) includes a control for months of imports covered by reserves, but this is excluded from Model (5). Both models use monthly observations for the 24 months preceding, the 12 months following, and the month in which each BSA was announced.

	(4)	(5)
	Inflation	Reserves (ln)
Ally × Post-Swap	-1.351**	0.0816
	(0.584)	(0.0581)
Ally	-0.280	-0.152***
	(0.476)	(0.0468)
Post-Swap	0.246	0.00670
	(0.319)	(0.0338)
Constant	-2.132**	0.306***
	(0.988)	(0.112)
Observations	728	800
Adjusted R^2	0.329	0.935
F	36.60	1150.4

Standard errors in parentheses

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

shows the predicted levels of a recipient's inflation rate for allied BSA recipients in red and unaffiliated BSA recipients in blue, holding the other variables at their mean. The figure clearly illustrates that after receiving a BSA, allied recipients' predicted inflation rate decreases while unallied BSA recipients remain at a similar level. This downward shift following a BSA suggests that allied recipients exhibit greater willingness to correct economic imbalances through monetary discipline. Rather than encourage misbehavior, the evidence suggests that strong political ties can provide a credible accountability mechanism for BSA providers.

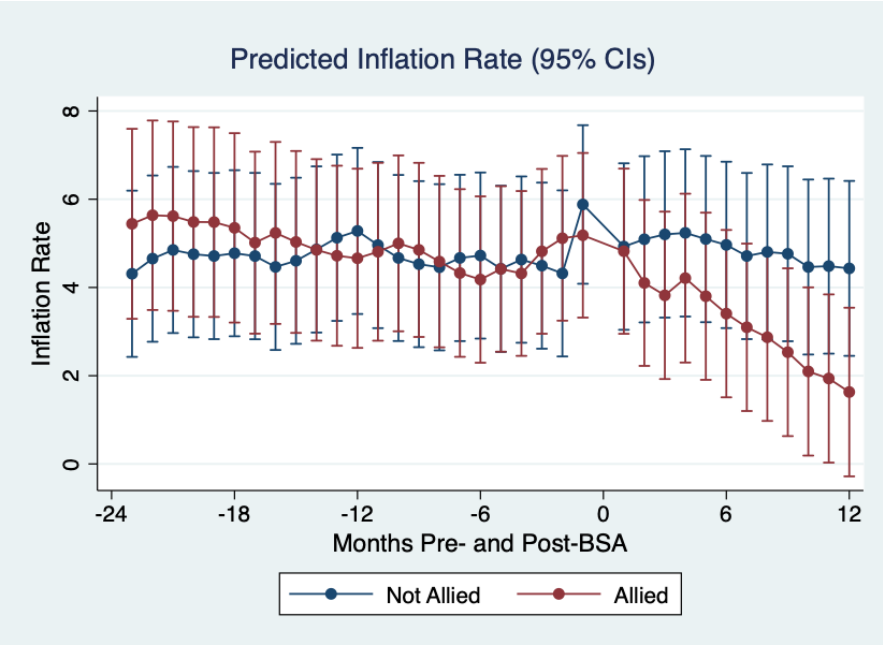

Figure 5.3: Predicted Inflation Rate.

Though not quite significant in the main model (5), I also investigate the direction of the relationship for reserve holding behavior. I run the same model as in Figure 5.3 and interact ally with each time period in the 24 months preceding a BSA and the 12 months following a BSA. Figure 5.4 below shows the predicted levels of a recipient's foreign exchange reserve holdings for allied and unallied BSA recipients, holding the other variables at their mean. While unallied BSA recipients do not appear to change their reserve holding behavior after receiving a swap agreement, allied BSA recipients exhibit a marginal increase in reserve holdings following a

BSA. It is possible there is an existing upward trend for allies. However, in the immediate three months following a BSA, reserve holdings for allies seem to jump larger than what a trend would predict. I am cautious to read too much into the predicted reserve holdings given its lack of statistical significance.

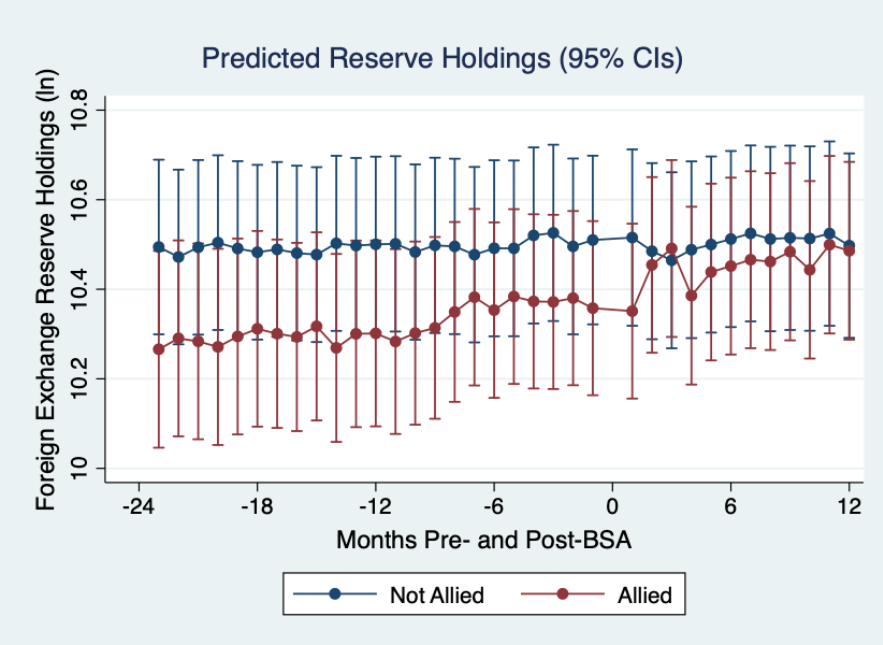

Figure 5.4: Predicted Inflation Rate.

5.4.4 Long-Run Recipient Behavior

While the results for inflation rates provide direct support for my theoretical mechanism, I only examine the 12 months following a BSA. Perhaps observable indications of willingness to delay economic reforms take longer to become apparent. In addition, allied recipients may pursue other means of risky financial policies outside of monetary policy. To account for these alternative explanations, I investigate whether allied recipients are more likely to experience a financial crisis in the years following BSA receipt. A recipient who continues over time to prioritize economic mismanagement over financial stability is likely to subsequently experience a financial crisis. Because BSAs were not prevalent until the 2000s, my ability to statistically analyze the

long-run behavior following a swap is limited. However, simple observational analysis reveals a striking relationship. Table 5.3 below shows the proportion of BSA recipients within each group who experience a financial crisis in the years following a swap agreement.[15] For instance, in year a country receives a swap (years since BSA = 0), only two allied recipients out of 16 allied recipients were in the midst of financial crises whereas five non-allied recipients out of a total of 26 non-allied recipients were also in a financial crisis. The table clearly shows that allied recipients seem to experience fewer crises than non-allied recipients following a BSA.[16] In contrast to Lipscy and Lee (2019), at least in the bilateral setting, I do not find that allied recipients are more likely to experience a financial crisis as a result of the moral hazard problem.

Table 5.3: Proportion of Financial Crises By Group

Years Since BSA	0	1	2	3	4	5
Ally	2/16	1/16	0/16	0/16	0/16	0/14
Non-Ally	5/26	1/26	1/26	1/23	2/18	1/16

5.4.5 Summary of Results

From three distinct avenues, I ran a battery of tests to uncover any evidence of the moral hazard problem for BSAs. I used three metrics of risk assessments by international market actors, two measures of financial policy behavior in the time closest to swap receipt, and finally, a measure of financial behavior in the five years following a BSA. Not only did I fail to find any evidence of the relationship posited by IMF studies, but the only statistically significant results were supportive of my theory that political ties can serve as an accountability mechanism and deter economic mismanagement. I did not find any evidence that allied BSA recipients were charged a higher risk premium nor were they penalized by market actors. Importantly, I found that allied recipients actually exhibited greater monetary discipline, decreasing their inflation rate

[15]The total population of the groups becomes smaller in the years further from a BSA receipt because not enough time has passed yet.

[16]The only incidence of an allied recipient experiencing a financial crisis in the years following a BSA is Switzerland.

following receipt of a BSA. Finally, I found that allied recipients experience fewer financial crises in the years following a BSA than non-allied recipients. The culmination of these results should provide confidence that my theoretical mechanism holds.

5.5 Conclusion

Since the Great Financial Crisis, scholars and pundits have fiercely debated the role of the BSAs within the global financial safety net. Some have heralded the re-emergence of BSAs as a panacea for glaring weaknesses in international financial governance (Henning and Walter 2016), while others have been more critical of BSAs' continued efficacy or ability to provide financial stability (Truman 2013). The size and speed of BSA lines of credit are a direct boost of liquidity that can forestall a financial crisis and contain its ability to spread. For these reasons, BSAs can clearly enhance global financial stability. However, as in IMF bailouts, politically motivated lending may create perverse incentives that actually generate additional risks to global financial governance. Given their nature, bilateral emergency lending such as BSAs are likely to be politically motivated. Despite this feature, I find that it is not the case that politically-connectedness increases a recipient's riskiness. I fail to find evidence that politically tied BSA recipients engage in economic mismanagement at higher rates than other BSA recipients. If anything, I find that political ties serve to deter any incentive to delay economic reforms. The results encourage more nuanced thinking about under what conditions political ties augment financial stability rather than weaken it. Moreover, the results highlight how different features of the global financial safety net might produce countervailing effects. Countries have various means to address a financial crisis. The results from this chapter suggest that how countries can access the global financial safety net can lead to different effects not only for the specific country, but for global financial stability as a whole. One possible avenue to investigate is to directly compare how politics in bilateral rescues might influence how politics functions in multilateral bailouts.

6 Conclusion

Since the Great Recession, the global financial safety net has been fundamentally transformed whereby traditional forms of external financing are increasingly supplanted by bilateral assistance in the form of bilateral currency swap agreements. In short, BSAs represent a new form of monetary cooperation and a distinct shift in the financial architecture, driven in large part by China's growing role as an economic superpower. My findings imply that geopolitics has a differential effect on international financial governance. In the case of the IMF, political-intervention in decision-making exacerbates the moral hazard problem. However, in the case of BSAs, political ties enable providers to hold recipients accountable and thereby offer BSAs in cases where they otherwise would be hesitant. As a result, geopolitics has significant implications for global financial stability and the future of China's role as a prominent global actor. These findings generate three additional lines of inquiry for future research.

First, to truly understand the impact of this transformation on global financial stability, additional research is needed to investigate whether BSAs serve as complements or substitutes to the traditional financial safety net, helmed by the IMF. On the one hand, BSAs mean more liquidity in the financial system. The more liquidity, the less likely financial crises are to occur, limiting the potential for financial contagion. The provision of BSAs may also liberate resources at the IMF, thereby broadening the number of countries that can access the global financial safety net at any time. Moreover, because politics serves to deter risky behavior by BSA recipients, unreliable recipients are incentivized to exhibit monetary restraint they would not pursue if providers lacked

this political leverage. By enabling providers to induce better economic governance among recipients, political ties may reduce the economic risks in the global financial system and enhance overall stability. On the other hand, if the presence of BSAs directs resources that would otherwise be used by the IMF, BSAs may weaken global financial stability. For instance, while countries with political ties to China may be protected, others will not be as well insured, leading to a fragmented safety net with gaping holes.

The second line further analyzes variation in behavior among a broader set of BSA providers. The dissertation primarily examined the actions of the three major reserve currency central banks. However, since 2016 the world has witnessed a rise in the number of emerging market economies and developing countries who are extending BSAs. Compared to larger providers, these smaller banks face higher risks when offering swaps; as a result, they should be more inclined to use political ties to manage their relations with potential recipients. At the same time, however, these countries may face difficulty exerting political leverage because relationships between such providers and recipients are more symmetric than those involving major reserve currency banks.

Finally, because the decision to offer a swap rests ultimately with the provider, the dissertation focuses largely on the supply-side of BSAs. Nevertheless, exciting variation exists among potential recipients, with some more inclined to request swaps than others. One of the next steps in this project is to examine conditions that motivate recipients to solicit BSAs. In theory, recipients who need temporary access to liquidity have several policy options when deciding to build their war chest: they may self-insure by building reserves, join regional financing reserve pools, request multilateral assistance through IMF bailouts, or pursue BSAs. In practical terms, recipients vary in their political access to these tools and the costs they may face for pursuing each option. I am constructing a dataset that details the global financial safety net portfolio of all IMF member countries. Taken with the dissertation, these projects contribute to our understanding of how political incentives shape whether countries contribute to and can easily access the global

financial safety net.

All chapters of this dissertation are being prepared for submission for publication of the material. The dissertation author was the primary investigator and author of this material.

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