

Exorbitant Privilege or Ultimate Responsibility?: Access to the International Lender of Last Resort

Devika Dutt

November 12, 2020

Abstract

As the issuers of the global reserve currency, the U.S. dollar, the Federal Reserve and the U.S. Treasury are the de facto international lender of last resort (ILLR) institutions in the global economy. Access to emergency liquidity in the U.S. Dollar is the most effective aspect of the global financial safety net. However, only some countries have access to the international lenders of last resort. In this paper, we explore the selective provision of emergency lending provided by the Federal Reserve, in the form of Reciprocal Currency Arrangements or swap lines, and in the form of a short term loan from the U.S. Treasury's Exchange Stabilization Fund. Furthermore, we investigate the economic and political factors in explaining the differential support provided by these lenders of last resort and the conditions under which this support is extended. We provide a historical account of the evolution of the role these ILLR institutions have played since 1962, and how the relationship between the Federal Reserve and the U.S. Treasury has changed in this regard. Thereafter, we estimate a panel logit model to assess the relative importance of several economic and political factors in explaining access to ILLR institutions between 1982 and 2018. We find that several political factors like capital account openness, trade and defense agreements with the United States, and party composition of the United States government play an important role in determining access to the ILLR institutions. We also confirm that the relative exposure of the assets of U.S. banks to an economy and an economy's share in US exports also play an important role. Therefore, this paper shows that even though these ILLR institutions are the only ones that have the capacity to serve as the International Lender of Last Resort, the extension of ILLR support is exercised in a discretionary and politically strategic manner.

1 Introduction

The global financial safety net is especially crucial insofar as it can provide emergency liquidity to countries that require it like an international lender of last resort. [Scheubel and Stracca \(2016\)](#) characterize the global financial safety net as consisting of (i) own foreign exchange reserves, (ii) the International Monetary Fund, (iii) Regional Financial Arrangements, and (iv) central bank swap lines. [Dutt \(2018\)](#) argues that countries that have access to central bank swap lines, and swap lines from the Federal Reserve in particular, rely less on other aspects of the global financial safety net. For instance, countries that have had access to Federal Reserve Swap lines hold fewer foreign exchange reserves. The differential use of the different parts of the global financial safety net is, in part, a reflection of differential access, especially to swap lines and emergency loans.

Emergency liquidity support from the International Lender of Last Resort has been found to be extremely effective in alleviating the pressure of or staving off an imminent crisis. It has often been the case that simply an agreement with the ILLR institutions has made it unprofitable for speculators to continue to speculate against a country or an economy and has therefore stemmed the outflow of capital from an economy in distress. [Munk \(2010\)](#) highlights how often ESF loans were used as “window dressing”¹ until such a time that an IMF agreement could be negotiated: therefore, they calmed financial markets even if the funds made available through the ESF loans were never used for stabilization. Similarly, the mere announcement of a swap line raised the potential cost for speculators to continue betting against a deficit country’s currency ([Bordo et al., 2014](#)). [Aizenman et al. \(2010\)](#) argue that in 2009, the Bank of Korea spent \$60 billion in defending the value of the won, but was unable to reduce the pressure on the won. It was only when the Federal Reserve established a swap agreement with the Bank of Korea of a maximum of \$30 billion drawing that some measure of stability was restored to the won markets. Further [Aizenman and Pasricha \(2010\)](#) find that extension of swap lines had a large impact on the currencies of emerging markets that had access to swap arrangements with the Federal Reserve relative to those that did not, even though the impact on the credit default swap spreads was much smaller. [Bahaj and Reis \(2019\)](#) additionally find that extension of swap agreements between central banks allowed commercial banks in recipient country to access funding at lower costs and in turn provide liquidity to firms, and reduce credit risk of the their respective banking systems ([Morelli et al., 2015](#); [Allen and Moessner, 2010](#)).

[McDowell \(2017\)](#) documents the extensive nature of the financial rescue operations of the Federal Reserve and the Exchange Stabilization Fund of the US Treasury, and the importance role the United States economy has played in stabilizing the global financial system. Drawing on [McDowell \(2017\)](#) and [Sahasrabuddhe \(2019\)](#), we show that very few countries have historically had access to swap lines from the Federal Reserve or have received assistance from the Exchange Stabilization Fund of the U.S. Treasury. Therefore, we pose the question: what determines access to emergency financial assistance from the United States, either in the form of a central bank swap line or emergency loan arrangement from the Exchange Stabilization Fund of the U.S. Treasury? Do these institutions provide emergency liquidity to the countries that have strong linkages with the U.S. economy, countries that exhibit “good” policy behavior, countries that can help the U.S. further its foreign policy objectives, or some combination thereof?

By examining FOMC meeting minutes between 1962 and 2020, this paper documents the number, size, and recipients of Reciprocal Currency Arrangements or swap lines from the Federal

¹This meant that the borrowing government were required to leave the funds in an account at the Federal Reserve Bank of New York until negotiation with the International Financial Institution concerned could be completed.

Reserve, and the extension of short term loans from the Exchange Stabilization Fund of the US Treasury. Thereafter, this paper empirically examines the economic and political factors that determine access to these institutions between 1982 and 2018. We find that US bank exposure to an economy and an economy's share in US exports play an important role in determining access to the Federal Reserve swap lines and short term loans from the US Treasury. We also find that, significantly, political factors such as capital account openness, trade agreements and defense cooperation agreements with the United States, unemployment in the United States, and party composition of the United States government also play an important role in determining access to these institutions.

The rest of the paper is structured as follows. Section 2 provides the historical context and background of the functions of an International Lender of Last Resort, and the institutions that have the capacity to act as the International Lender of Last Resort, namely the Federal Reserve and the US Treasury. Furthermore, this section also documents the changing objectives of these institutions over time, the relationship between these two institutions, and the limited literature that addresses the selective extension of ILLR support. Section 3 describes the data used and the methodology followed in this paper. Section 4 presents the descriptive statistics of our data. Section 5 presents the results of our empirical model and Section 5.1 describe the robustness checks performed to ensure that the results are robust to alternative specification. These results and robustness checks are conveniently summarized in Section 5.2. Section 6 examines the cases of countries that received ILLR support in some instances and not in others, and intertemporally compares the differences in our explanatory variables. Finally, Section 7 concludes the paper.

2 Historical Context and Background

2.1 The International Lender of Last Resort

A Lender of Last Resort has become an indispensable stabilizing feature of modern money, credit, and financial markets. National Central Banks are typically the lenders of last resort in their respective national economies as, in the event of destabilizing influences in national financial systems, they can and do lend freely, at a high rate of interest, based on good collateral, especially when credit markets seize up and are unwilling to provide liquidity to borrowers that need it (Bagehot, 1873). Central Banks are able to do so as, in the last resort, they can create liquidity in the national currency in which there is a shortage of liquidity in the national credit markets. Under normal circumstances, the availability of emergency liquidity alleviates any credit shortage that is making financial market participants nervous.

However, if there is a shortage of liquidity in another currency in the national credit markets that is threatening financial stability, the central bank's ability to act as an effective lender of last resort depends on its capacity to provide liquidity in the currency that is in short supply in the national credit markets. The questions of capacity arise crucially because a national central bank cannot necessarily create liquidity in the currency that it does not issue. This constraint on Central Banks has become increasingly relevant because of financial globalization which has resulted in increased borrowing and lending outside the borders of the national currency. Specifically, globalization has meant that more and more economic activity is being conducted all over the world in a few key currencies. The US Dollar, in particular, is the dominant anchor currency or the global reserve currency (Ilzetzki et al., 2017). Therefore, US Dollar shortages have the potential to create pressures on the financial system that individual central banks

cannot alleviate, apart from the U.S. Federal Reserve of course.

The Federal Reserve have paid attention to dollar shortages globally, since at least 1962, when the Federal Reserve established Reciprocal Currency Arrangements or a network of swap lines with 9 central banks in Austria, Belgium, Canada, England, France, Germany, Italy, the Netherlands, and Switzerland ([Bordo et al., 2014](#)). The swap arrangements between central banks typically take the following form: Central Bank A creates a deposit for Central Bank B on its balance sheet of the currency it issues loan. Central Bank B does the same for Central Bank A on its balance sheet. The size of the two deposits are determined by the spot exchange rate between the two currencies. At an agreed upon future date, this deposit is eliminated on the respective balance sheets. Effectively, one central bank loans the currency it issues to another central bank and holds the currency of that central bank as collateral ([Bahaj and Reis, 2019](#); [Allen and Moessner, 2010](#)). The Central Bank that is issuing the loan charges an interest rate that is agreed upon which is typically a spread on the overnight swap interest rate between the two currencies, which is the USD overnight index swap (OIS) rate ([Bahaj and Reis, 2019](#)). Since their inception, swap lines from the Federal Reserve were not standing facilities and are typically instituted occasionally for a fixed period of time and a limited amount of US Dollars. However, since 1994, the Federal Reserve has standing swap facilities with the Banco de México and Bank of Canada, as a part of the North American Framework Agreement, and with the Bank of Canada, the Bank of England, the European Central Bank, the Bank of Japan, and the Swiss National Bank since 2013.

Apart from the Federal Reserve, the US Treasury has also made US dollar loans to foreign governments that are “fundamentally solvent” ([Henning, 1999](#), pp. 9) through its Exchange Stabilization Fund for “preventing excessive downward overshooting of their currencies, smoothing their balance of payments adjustment, and reducing output and employment losses” ([Henning, 1999](#), pp. 9). The Exchange Stabilization Fund was created by the Congress of President Franklin D. Roosevelt through the Gold Reserve Act of 1934, and has made stabilization loans and foreign exchange interventions under the discretion of the Secretary of the Treasury, subject only to the approval of the President. The stabilization loans that the ESF provides are required to be short-term (less than 1 year), although the ESF has provided medium-term loans in the past, at an interest rate that is higher than the average interest rate on short-term government bills.

Therefore, a threat to financial stability in any financial system from a shortage of the reserve currency can only be resolved through a USD loan, either from the Federal Reserve or the US Treasury’s Exchange Stabilization Fund (ESF). Given that the a US Dollar shortage is the only currency that can create widespread financial instability, the US Federal Reserve and the US Treasury collectively are the International Lender of Last Resort (ILLR). To some extent, US Dollar reserves held by national central banks stabilize the exchange rate and the financial system to some extent, but this would be limited by the size of these reserves accumulated during normal times.

It is important to note here that the IMF does not and cannot play the role of the International Lender of Last Resort. The IMF does not have the necessary flexibility (as it cannot create high powered money ([Schwartz, 1998](#))) or agility to act in a rapid time-sensitive manner without conditionalities in order to provide emergency liquidity to economies that need it. This is despite the creation of two precautionary credit lines in the wake of the 2008 global financial crisis, the Flexible Credit Line (FCL) and Precautionary and Liquidity Line (PLL).² Therefore, unlike the

²Introduced in 2009 and 2011, respectively, the FCL and PLL were instituted as precautionary facilities through which funds could be disbursed rapidly to countries that were facing imminent balance of payments crisis. These facilities were available to countries with a “track record of prudent economic and financial management”

ESF and the Federal Reserve, the IMF cannot lend freely, at a premium, and against good collateral (Bagehot's rule) since most countries do not at present qualify or want to qualify for the IMF emergency credit facilities.

2.2 Changing Objectives of the ILLR

Even though we have defined the Federal Reserve and the ESF as the International Lender of Last Resort, the objectives of these institutions have evolved over time. Initially, both these institutions were geared towards stabilizing the value of the dollar through foreign exchange intervention at the time of the Gold Standard and the Bretton Woods era, when fixed exchange rates were the norm.

In fact, in the early years of the operation of the Federal Reserve's Reciprocal Currency Arrangements, the Federal Reserve used the swap lines with other several banks to borrow key foreign currencies in order to maintain the gold value of dollar at \$35 dollars an ounce of gold. From the 1962 to the closing of the gold window in 1971, the Federal Reserve drew on swap lines to borrow \$11.5 billion to "provide cover to foreign central banks for unwanted dollar exposures" (Bordo et al., 2014). This allowed the Federal Reserve to protect its gold reserves, and therefore alleviate the pressure of the Triffin paradox³. Similarly, foreign central banks drawing on the swap lines to borrow US Dollars also facilitated the defense of the gold value of the dollar, as foreign central banks could supplement their dollar reserves without adding to the U.S. current account deficit. However, after the collapse of the Bretton Woods system, the use of the swap lines to support the value of the dollar declined, and the Federal Reserve stopped drawing on swap lines for its foreign exchange interventions by 1980 (Bordo et al., 2014).

Similarly, the ESF was also initially geared towards defending the value of the US Dollar. In fact, it was created as a counterpart to the UK government's Exchange Equalisation Account, which was set up to manage the value of the pound sterling in global markets. The ESF served as the US Treasury's main instrument in the Tripartite Monetary Accord of 1936 with Britain and France. However, between the establishment of the ESF in 1934 and 1962, there was little need for intervention, and thereafter, ESF conducted foreign exchange intervention along with the Federal Reserve (Schwartz, 1997). A large number of loans that were extended from the ESF to foreign governments were also ultimately meant to support the value of the dollar and/or

(Birdsall et al., 2017, pp. 2). While FCL does not come with any conditionalities and the PLL has minimal conditionalities attached with it, countries need to pre-qualify to be eligible to avail of these facilities from the IMF. As of the time of writing, only Chile, Colombia, Peru, and Mexico are eligible to draw on the FCL and North Macedonia and Morocco are eligible to draw on the PLL. Poland also had a FCL facility until 2017, although it was not drawn upon. The low uptake of this facility is likely to be due to the stigma of approaching the IMF for assistance (Birdsall et al., 2017). In March and April 2020, the IMF created new lending arrangements that do not come with conditionalities, that are the Rapid Financing Instrument and the Rapid Credit Facility. However, they appear to come with policy "advice", and it is too soon to tell if these facilities can make the IMF a more effective ILLR.

³The Triffin paradox or dilemma refers to the basic conflict that arises for the economy of the country the currency of which is the global reserve currency (Triffin, 1960). Essentially, in order to supply the global economy with the US Dollar, the US economy needs to run trade deficits. However, the growing trade deficit of the US in a fixed exchange rate system would create depreciation pressures on the US Dollar, since the total claims on the gold reserves through the US dollar would exceed the total value of the Federal Reserve's gold reserves. In order to maintain its value, the Federal Reserve would have to sell gold, of which it had a finite supply. However, the existence of the swap network meant that the Federal Reserve could borrow Deutsche Mark or Swiss Francs and use them to defend the value of the US Dollar against these currencies. Eichengreen (2013) also draws attention to the Triffin Dilemma when considering the importance of international considerations in the Federal Reserve's monetary policy, when they identify that it was in the 1960s that US foreign monetary liabilities were going to be higher than the US gold reserves, which is when the Federal Reserve first established Reciprocal Currency Arrangements.

the fixed exchange rate system; for instance, dollar loans were made to the United Kingdom to facilitate a support of the value of the pound sterling in 1967 and 1968 ([Henning, 1999](#)). After the suspension of the fixed exchange rate system in 1973, the ESF and the Federal Reserve were not obligated to maintain the dollar at a fixed value relative to other currencies or gold. However, until the Reagan Administration, both the ESF and Federal Reserve intervened to support the value of the dollar on several instances. For example, in 1979 and 1980, the ESF intervened frequently to purchase foreign exchange, as the objective of the Carter administration was to eliminate dependence on foreign monetary authorities for maintaining the value of the dollar.

That being said, the objectives of the use of ILLR seem to be more ambiguous after the collapse of the Bretton Woods system, since one of the stated objectives of both the ESF and Reciprocal Currency Arrangements was the defense of the value of the US Dollar. Arguably, these institutions are still intervening to defend the value of the dollar as the global reserve currency, by alleviating dollar shortages outside the national borders of the United States. However, it is clear that neither the Federal Reserve or the U.S. Treasury conducts operation with the objective of acting as the International Lender of Last Resort. Specifically, it is not that these institutions want to act as the Lender of Last Resort for the global economy with a view to foster global financial stability, at least not consistently in the post-War era. Insofar as the confidence in the US Dollar is related to the stability of the global financial system, these institutions do act as the ILLR, but only incidentally.

This has been a consistent contradiction of the global monetary system for many decades that the issuer of the key global currencies are either unwilling or unable to stabilize the global monetary system. This could either be due to domestic political and economic concerns or due to strategies of foreign policy or simply because stabilizing the global financial system is not part of its mandate. And this situation is not without historical parallels; for instance, [Kindleberger \(1973\)](#) argues that duration and the devastation of the Great Depression was a result of the instability in the global economy. This in turn was a result of “British inability and the United States unwillingness to assume responsibility for stabilizing” the global economy ([Kindleberger, 1973](#), pp. 292). The British inability is relevant in that at this time the pound sterling can be thought of as the key currency, albeit a waning one. However, what is more relevant is the “United States unwillingness” as this was also the period that was characterized by the “changing center of gravity of the international system,” with its weight shifting away from the United Kingdom to the United States ([Eichengreen, 2008](#), pp. 89), and the US Dollar becoming the key currency in the global monetary system.

Therefore, in general, the institutions that have the ability to act as the International Lender of Last Resort, namely, the Federal Reserve and the Department of Treasury, are not willing to act as the International Lender of Last Resort. However, on several occasions, these institutions have fulfilled the role of the ILLR, only to certain countries. This paper explores what are the factors that determine which countries the ILLR institutions are willing to lend to.

2.3 Relationship between the Exchange Stabilization Fund and the Federal Reserve

While the US Treasury’s ESF and the Federal Reserve System’s Reciprocal Currency Arrangements are institutionally distinct facilities, this section discusses how they compare as regards the size of the loans available from each facility, the recipients of these loans, the institutions involved in the loans, and the duration and frequency of the loans that are typically extended.

Size: The Federal Reserve, like most modern central banks, is considered to be independent of the government of the United States. However, as regards the defense of the value and strength of the dollar, both the ESF and the Federal Reserve have played a key and inter-related role, often in coordination with the other institution. For instance, the foreign currency being held in the ESF could be temporarily converted into US dollars in order to conduct its operations and supplement the size of funds at its disposal.⁴ However, the size of the ESF was much smaller than the size of the funds at the disposal of the Federal Reserve, especially given that the Federal Reserve can create liquidity, while the ESF could only use the funds on its balance sheet. Therefore, the loans or bilateral swap arrangements were of a much larger magnitude than the outstanding loans that the ESF could provide. Nonetheless, the ESF had a much clearer mandate of conducting foreign exchange intervention to maintain the value of the dollar against gold and against other key currencies, as opposed to that of the Federal Reserve System. As a result, the Federal Reserve System carried the burden of stabilizing the global dollar system to a much larger extent than the ESF, especially during the gold exchange standard (Henning, 1999).

Recipients: Nonetheless, the ESF provided several stabilization loans to foreign governments throughout its existence. The list of recipients of loans from the ESF are much wider than the recipients of swap lines from the Federal Reserve. Specifically, the ESF extended stabilization loans to several governments in Latin America and Eastern Europe and on multiple occasions. By contrast, during the early years of operation of the Federal Reserve Reciprocal Currency Arrangements, most of the recipients were in Western Europe. Subsequently, swap lines were also extended to Japan and Mexico. It is not until the financial crisis in 2007 that the Federal Reserve entered into swap arrangements with a wider set of countries.

Institutions involved: Credits from the ESF and credits in the form of Reciprocal Currency Arrangements with the Federal Reserve are also distinct in that a ESF credit is a loan from the Federal Government of the United States to other governments, while swap lines are the provision of short term loans between central banks. However, both types of facilities can provide the emergency US dollar liquidity to an economy that needed it, albeit through different institutions and instruments.

Duration and Frequency: The ESF has been in operation for longer than the Federal Reserve's Reciprocal Currency Arrangements, as the ESF was established with the Gold Reserve Act of 1934, but the Reciprocal Currency Arrangements were first established in 1962. The ESF has been used consistently to make loans to foreign governments since its existence, though no loans have been made from the ESF since August 2002 (Table 11). Since, the loans from the ESF were for the purposes of stabilization and averting imminent balance of payment crises, all loans from the ESF were typically for 6 months, but could be for up to 12 months, but it needed to be accompanied by a justification by the President to Congress about the "emergency and unique circumstances" that required the term of the loans (Henning, 1999, pp. 54).⁵ In contrast, the Reciprocal Currency Arrangements have been in place consistently between 1962 and 1998,

⁴This is called the practice of *warehousing*. It involves the spot sale of foreign currency to the Fed for dollars along with a parallel repurchase at some specified date in the future. The size of the warehousing facility has varied over time, being raised from \$1.5 billion in January 1977 to \$15 billion in March 1990. The limit was then eventually reduced to \$5 billion in 1992, only to be increased again to \$20 billion in 1995 during the Mexican peso crisis.

⁵The duration and size of the loans that could be made from the ESF became a significant political controversy in 1995, when the Clinton administration extended a \$20 billion loan to Mexico for a period of 5 years. As a result, as per the D'Amato amendment to an "unrelated recession bill" (Henning, 1999, pp. 67), any ESF loans that were greater than "\$1 billion and 6 months' duration would require the approval of Congress unless the President certified in writing that a foreign financial crisis threatened 'vital US economic interests' " (Henning, 1999, pp. 69)

even though they had fallen into relative disuse since 1981 (Bordo et al., 2014). Thereafter, the Federal Reserve swap lines were reinstituted with some central banks in 2007 during the global financial crisis.⁶ The swap arrangement that have been established are bilateral in that they are agreements between two central banks, however, they are not reciprocal in nature in that the Federal Reserve cannot draw on them.⁷⁸ While the duration of the drawings on the swap lines were for 3 months, the arrangements could be for a duration of 12 months, and thereafter require renewal by the Federal Open Market Committee.

Relationship with the IMF: After the creation of the International Monetary Fund (IMF) in December 1945, US government officials envisaged the primary role of stabilization of the monetary system to be taken up by the IMF. In fact, the large majority of the US quota payment to the IMF (\$1.8 billion of \$2.75 billion) were made from the ESF. Furthermore, in 1976, the Gold Reserve Act was amended that required the Secretary of the Treasury to use the ESF in a manner that is “consistent with the obligations of the Government in the IMF” (Henning, 1999, pp. 23). It was during this time that the US Congress also limited the term of the ESF loans to 6 months or less unless so as to prevent conflict with the functioning and objectives of the IMF. The ESF has often be used to make bridge loans to governments that had approached the IMF for emergency financing, but negotiations were still underway of the terms of the IMF loan (McDowell, 2017; Henning, 1999). However, it does not appear that the ESF loans were accompanied by conditionalities, such as the ones that typically accompany loans from the IMF, unless of course they were part of a larger package of assistance along with the IMF.

The Federal Reserve’s swap arrangements on the other hand do not appear to have a clear link to the IMF. However, IMF membership and being compliant with the Articles of Agreement has been used in deliberations of whether a swap arrangement should be extended to certain Central Banks. For example, the establishment of a swap arrangement with Japan was slowed down due to the Japanese economy not being compliant with Article VIII of the Articles of Agreement of the IMF, which requires full currency convertibility. However, subsequently, the Federal Reserve System extended a swap arrangement to the Bank of Japan in anticipation of Japan achieving compliance with the IMF Article VIII by the following year (FOMC, 1963). Similarly, one of the reasons cited for not extending a swap line to the Central Bank of Venezuela was that it was not compliant with IMF Article VIII, among others (FOMC, 1965). On the other hand, the Swiss National Bank has had several swap arrangements with the Federal Reserve, the first one effective July 7, 1962, even though Switzerland did not accept Article VIII of the Articles of Agreement of the IMF until 1992, about 30 years later. Therefore, Article VIII does seem not appear to be a strict condition that the FOMC used when deciding which central banks should be included in its swap network.

2.4 Determinants of Recipients of Assistance from the ILLR in the Literature

Neither the US Treasury, nor the Federal Open Market Committee clearly outline which governments or central banks are eligible to receive assistance from the ILLR institutions. From a

⁶This is consistent with the hypothesis in (Eichengreen, 2013) that the Federal Reserve paid greater attention to international aspects of its monetary policy in the 1960s, but this was followed by a period of “benign neglect of the international dimension” (pp. 87).

⁷This is with the exception of the swap arrangements with the Banco de México that have been in place since 1994 and are bilateral in that the Federal Reserve can also draw on them.

⁸In parallel with these swap arrangements, the Federal Reserve also entered into swap agreements that would allow it to borrow foreign currency from these central banks. However, these foreign currency swap agreements were never used (Bordo et al., 2014).

legal standpoint, any ESF loan should meet the following requirements ([Munk, 2010](#)):

- i. Lending from the ESF should be in keeping with US obligations to the IMF on orderly exchange rate arrangements.
- ii. Lending from the ESF should have the requisite Presidential approval.
- iii. The term of the loan should be less than 6 months, or would require the President to justify the terms of the loan to Congress.
- iv. The ESF loans should have an assured source of repayment.

On the other hand, the report of the Government Accountability Office to the US Congress on the policies put in place during the 2007–2010 global financial crisis outlines that approval of requests for swap agreements with the Federal Reserve were approved based on the “economic and financial mass of the country’s economy, a record of sound economic management, and the probability that the swap line would make an economic difference.” As a result swap arrangements were put in place with foreign central banks of “important US trading partners or global financial centers” ([GAO, 2011](#), pp. 118). In addition, as per early discussions regarding the countries that should be part of the swap network, being compliant with the Article VIII of the IMF Articles of Agreement appears to have been an important consideration (for example, [FOMC \(1963\)](#) and [FOMC \(1965\)](#)), as mentioned previously.

In both cases, the existing documentation leaves a large degree of ambiguity as to whether there are strict pre-defined criterion regarding which countries can receive emergency liquidity assistance. As a result, the US treasury and the Federal Open Market Committee have substantial discretion in their decision about the recipients of stabilization loans and swap arrangements. There have been some examination of the selective nature of emergency liquidity assistance provided by the United States in the post-War era. [Munk \(2010\)](#) analyzes the role of the U.S. Treasury Department financing provided to sovereign countries from 1982 to 2010, with great success⁹. Typically, an ESF loan to a sovereign served as a bridge loan till financing from some other International Financial Institutions like the IMF or World Bank was finalized, or it was part of broader package of financing to the sovereign provided by multiple stakeholders. Loans from the ESF were typically structured as swap agreements, and were predominantly extended to Latin American countries, with some notable exceptions like Philippines (1984), Nigeria (1986), Hungary (1990), Romania (1991), and Liberia (2008), among others. Notably, no loans were extended to any Asian countries during the Asian Financial Crisis, despite extended negotiations between the U.S. Treasury and the Korean Finance Ministry ([Munk, 2010](#)).

[Schwartz \(1997\)](#) argues that the use of the ESF to provide dollar loans to other countries to stabilize their currencies comes from trying to ensure their return to the gold standard between 1924 and 1931. However, both [Schwartz \(1997\)](#) and [Munk \(2010\)](#) acknowledge the political nature of the decision that determines whether emergency liquidity assistance is extended to a sovereign borrower. [Humpage \(2008\)](#) also argues that loans from the ESF have a “distinct foreign aid and foreign policy flavor” (pp. 2), giving the example of ESF loans extended to Yugoslavia (1988) and Poland (1990) despite the currencies of these countries being relatively unimportant to the United States. In fact, the US Congress wanted the Secretary of Treasury to extend a longer-term loan to Poland, which was resisted given that they were uncertain about how the government of Poland would repay the loan. However, the Treasury Secretary relented and extended a loan to Poland as a short-term bridge loan once progress had been made on an IMF program ([Henning, 1999](#)).

⁹The ESF made a profit, all accrued interest paid, and principal amount repaid ([Munk, 2010](#)).

On the other hand, [Aizenman and Pasricha \(2010\)](#) discuss the selective extension of swap lines by the Federal Reserve to other Central Banks during the 2007–2009 financial crisis. The Federal Reserve extended dollar swaps arrangements to the Central Banks of only four emerging markets economies (Banco Central de Brasil, Banco de México, Bank of Korea, and the Monetary Authority of Singapore) and several OECD economies (Reserve Bank of Australia, Bank of Canada, Danmarks National Bank, Bank of England, European Central Bank, Reserve Bank of New Zealand, Norges Bank, Sveriges Riksbank, and the Swiss National Bank). [Aizenman and Pasricha \(2010\)](#) explores the reasons for this differential access by examining the relative importance of the following factors: US bank exposure to these markets, share of the country in total US trade in 2007, capital account openness, and year since independence or 1800 that the country spent in default or restructuring. They find that exposure of US banks to emerging markets was the most important selection criterion, consistent with the results of [McDowell \(2017\)](#). Specifically, [Aizenman and Pasricha \(2010\)](#) find that all countries that received swap lines from the Federal Reserve had higher shares of US bank exposures as compared to countries that did not received swap lines, with the notable exception of India. Similarly, [Bordo et al. \(2014\)](#) argue that the Banco de México was the only developing country central bank among the central banks that had reciprocal currency arrangements with the Federal Reserve in the 1960s and 1970s due to Mexico’s “close economic and financial ties with the United States” (pp. 15). [Seghezza \(2018\)](#) also argues that the central banks in countries with the closest link to the US banking system, with massive currency mismatches but low levels of official reserves relative to the currency mismatches received assistance from the Federal Reserve. As far as extension of swap lines to emerging market economies are concerned, ([Aizenman et al., 2010](#)) also highlight the importance of trade links in determining the recipients of swap arrangements, but also of being “fundamentally sound and well-managed emerging market economies” (pp. 17), where sound management included holding a significant pool of foreign exchange reserves.

Given that most Central Banks, including the Federal Reserve, are typically quasi-government institutions that are independent from the executive branch of the government, political motives behind policy actions are typically not attributed to central banks. However, there is a large and rich literature that argues that central banks are not fully technocratic institutions and often have policies that are politically and strategically motivated ([Epstein, 2019](#)). The selective extension of swap lines can be seen as another instance of that.

There are some recent studies that highlight the politically strategic nature of the Federal Reserve swap lines. [Sahasrabuddhe \(2019\)](#) argues that extension of swap lines to developing economies was “a more selective process” (pp. 462), and on the margin the decision to extend swap lines to some developing economies and not others was a political one. They show that the US banking system had higher exposure to certain economies which did not receive swap lines, notably India, as compared to others that received swap lines during the 2007-2010 Global financial crisis, like Brazil, Singapore, New Zealand, and Switzerland. Similarly, [Chey \(2013\)](#) argues that the extensions of swap lines to emerging market economies during the previous financial crisis was motivated, at least in part, by the need to strengthen the relationship of the United States with key emerging market in order to maintain its influence in global economic governance. This paper also challenges the now conventional wisdom that the identifying of feature of countries that received swap lines from the Federal Reserve are those that had significant US bank exposure. Specifically, it provides the example of Brazil, when it required emergency liquidity in 2001, and had US bank exposure similar to that of South Korea in 2008. However, the Banco Central do Brasil did not receive a swap lines from the Federal Reserve in 2001. Therefore, US bank exposure does not fully explain the recipients of swap lines from the Federal Reserve. What then, according to these studies, explains access to the ILLR for emerging market economies? [Chey \(2013\)](#) emphasizes the importance of the emerging market economies that received swap lines in the G-20 leadership. Brazil was in the annual rotating

position of G20 chair in 2008, while this position was occupied by South Korea in 2010. In fact, this paper cites the comments of the US Treasury Secretary in 2008, made on the eve of the first G20 summit, that the Federal Reserve swap lines with 4 emerging market economies was an indicator of strong international cooperation. Singapore, on the other hand, is a member of the exclusive Financial Stability Forum. Similarly, [Sahasrabudde \(2019\)](#) shows that the Federal Reserve was more likely to extend a swap arrangement to emerging market economies that shared its policy preference for greater financial openness, had a greater and growing role in forums of global economic governance such as the G-20, and did not raise objections against a US-centric global governance system.

Despite being an institution that is independent from the government, political considerations are known to have affected Federal Reserve policy. For example, the decision of the Clinton Administration to use the ESF to extend a \$20 billion stabilization loan to the Government of Mexico in 1995 created a significant political controversy. This was because it followed Congress not approving a \$40 billion package of economic assistance, as the use of the ESF was at the discretion of the Secretary of the Treasury ([Henning, 1999](#)). Therefore, the extension of the stabilization loan to the government of Mexico was seen in some quarters as the President and the Secretary of Treasury of the United States side-stepping the democratic accountability of the elected representatives of the Congress. The Federal Reserve supplemented the ESF loan by establishing a swap agreement with the Banco de México ([Conti-Brown and Zaring, 2019](#)). However, the political controversy surrounding the economic rescue provided to the Mexican economy allowed the FOMC participants that saw Federal Reserve swap lines as anachronistic and as a threat to its independence from the government to recommend the termination of existing swap arrangements. As a result, in 1998, after several years of disuse, all standing swap agreements were allowed to expire, with the exception of the swap agreements with Mexico and Canada under the North American Framework Agreement ([Bordo et al., 2014](#)). In the context of foreign exchange intervention being conducted, [Humpage \(2008\)](#) acknowledges that while the US Treasury (which has a distinct legal mandate to intervene in the foreign exchange market) cannot compel the Federal Reserve to intervene in the foreign exchange market when it determines it should, but the Federal Reserve is unlikely to refuse as it has only rarely done so.

Another interesting case study is the absence of ILLR assistance for countries that were worst affected by the Asian Financial Crisis in 1997–1998, especially South Korea that did receive a swap line from the Federal Reserve in 2008. [Henning \(1999\)](#) argues the Clinton administration did not use the ESF to make stabilization loans to Thailand, South Korea, or Indonesia as it was politically difficult to do so after the recent controversy over similar loans made to Mexico in 1995. This was especially the case since as per the D’Amato amendment (that was later allowed to lapse), any loans that were larger than \$1 billion for a period longer than 6 months would require Congressional approval. However, Congressional disapproval was something that the Clinton administration did not want to risk ([Henning, 1999](#)). Once the D’Amato amendment was not renewed, the US Treasury was prepared to contribute \$3 billion of contingent financing as part of the “second line of defense” for the IMF program in Indonesia. However, this could also be in response to the growing talks and negotiations about creating an Asian Monetary Fund, which US authorities feared would undermine the IMF.

In contrast, the Asian financial crisis does not appear in FOMC meeting minutes in 1997, until December, by when Indonesia, Thailand, and South Korea were already in IMF programs. William McDonough, who at the time was the President of the New York Fed, argued that the economies of East Asia that were in financial trouble had “command economies in which resources are allocated by politicians and bureaucrats and not by the marketplace”([FOMC, 1997](#), pp. 19-20). According to McDonough, even though the politicians and bureaucrats had

successfully managed these economies for a long time, they were unable to respond to changes in the global economy, which had resulted in this crisis. Here he draws a distinction with the Mexican peso crisis, as the political leadership of the Mexico understood “how a market economy behaves” (pp. 20), which he identified as the cause of the recovery from the crisis. He believed that the Asian economies are unlikely to have success that Mexico achieved with assistance from the Federal Reserve. Therefore, even though the possibility of swap arrangements with Thailand, South Korea, or Indonesia were not explicitly discussed in the FOMC in 1997, their unfavorable political orientation in the eyes of the FOMC members meant that they would be disinclined to consider swap arrangements with the central banks of these countries as they believed they would not be successful programs. This is arguably consistent with the hypothesis in [Sahasrabuddhe \(2019\)](#) that the FOMC favored swap agreements with countries that shared its policy preference for financial openness. Alternatively, it is also consistent with the informal criterion that determine which countries received swap arrangements from the Federal Reserve System as per the GAO ([GAO, 2011](#)) according to which a swap arrangement should make an economic difference.

Therefore, it does appear that several political economy factors play a role in determining which countries have access to support from the ILLR institutions. This paper parses out which factors are most important in this regard in the extension of support from the ILLR between 1980-2018. Based on the literature, we identify the most relevant economic and political factors and examine the role they play in determining which countries received assistance from the Federal Reserve system and from the US Treasury. This builds on the work of [Aizenman and Pasricha \(2010\)](#), [McDowell \(2017\)](#), and [Sahasrabuddhe \(2019\)](#), that analyze the extension of swap agreements by the Federal Reserve during the previous financial crisis, by extending the period under analysis, and focusing greater attention on the international political economy factors. In particular, [McDowell \(2017\)](#) is the only other study to examine which countries received assistance from the US Treasury. To the best of our knowledge, this is the first study to systematically examine the selective extension of ILLR assistance from both the Federal Reserve and the US Treasury taking into account both economic and political factors over a long time period.

3 Data and Methodology

The data used in this paper are collected from a variety of sources. The variables included in this study are listed here, and a detailed list of the sources are listed in the Appendix.

Details of the loans extended by the US Treasury through the ESF to foreign governments were obtained from the website of the Treasury Department of the US government. This is presented in Table 11, which, for the purposes of the econometric analysis is coded as a binary variable that takes the value 1 if a country received a loan in a given quarter, for the duration of the loan, and 0 otherwise. Similarly, details of the swap agreements between the Federal Reserve and the central banks of other countries are listed in Table 12. For the purposes of the econometric analysis, the countries that received swap lines from the Federal Reserve in a given quarter, for the duration of the loan, and 0 otherwise. These are our key independent variables. Data for both these variables are available from 1962Q1 to present, however, the availability of data of key independent variables are only available for a shorter period of time.

In order to identify the characteristics that made the difference between receiving and not receiving support from the ILLR institutions, we implement a random effects¹⁰ panel logistic

¹⁰We do not use a fixed effects model since a fixed effects model would eliminate between country differences and estimate only the within country effects over time, and we are interested in the differential access of countries

model. This takes the following form:

$$Prob(y_{it}|x_{it}, \beta, \mu_i) = \frac{\exp(\mu_i + x'_{it}\beta)}{1 + \exp(\mu_i + x'_{it}\beta)} \quad (1)$$

where y is the binary variable that indicates whether a country i has access to a swap line from the Federal Reserve or whether a country i has a short-term loan from the US Treasury through the ESF in a given quarter t , x_{it} is the vector of our explanatory variables and β is the vector of coefficients of our explanatory variables. The country specific effects, μ_i , are assumed to be normally distributed, that is $\mu_i \sim \mathcal{N}(0, \sigma_\mu^2)$. All continuous variables are in natural logarithmic form.¹¹

In addition to this, we also need to examine how the ILLR institutions respond to contemporary crises. Even though some instances of ILLR assistance, especially from the Federal Reserve have been in place regardless of an imminent crisis, it is likely that most extensions of ILLR assistance is in response to an imminent crisis. Therefore, we examine the behavior of the ILLR institutions when a sovereign default, or a currency crisis, or a banking crisis is imminent. We do this by interacting our dependent variables with a crisis variable that takes the value 1 if there is a systemic banking crisis, or currency crisis, or sovereign debt crisis in the previous quarter, and estimating our logit model using these interactions. The data on crises is obtained from [Laeven and Valencia \(2018\)](#).¹²

3.1 Explanatory Variables

3.1.1 Economic Variables

The vector of explanatory variables considered are a series of economic and political variables. As is mentioned in the Section 2, [Aizenman and Pasricha \(2010\)](#) and [McDowell \(2017\)](#) discuss the importance of US bank exposure and share of a country's trade in US trade in determining the recipients of the assistance from the Federal Reserve and the ESF. Data of US bank exposure to the each economy as a share of total international exposure of US banks is obtained from the BIS Consolidates Banking Statistics. This data is available quarterly from 1983Q4 to 2019Q4. Similarly, data for the share of a country's exports in US total exports and the share of a country's imports in US total imports are obtained on a quarterly basis from the website of the US Census Bureau. Data is available from 1987Q1 to 2019Q4. Furthermore, we have also included data on countries that have Free Trade Agreements (FTA) with the United States. The United States has FTAs with 20 countries, which are coded as a binary variable that takes the value 1 from the date of signing, and 0 otherwise.

Based on the analysis in [Aizenman et al. \(2010\)](#), data on foreign exchange reserves as a share of GDP and as a share of external debt are also included. These are only available on an annual basis¹³, and are taken from the Global Financial Safety Net database ([Scheubel and](#)

to the ILLR institutions.

¹¹Since some continuous variables in our dataset have negative values, we create a linear positive transformation of those variables of the form $x + c$, where $c = |\min(x)| + \epsilon$ and ϵ is a small positive value, before taking the natural logarithm.

¹²In this dataset, the duration of systemic banking crisis are identified. Therefore our crisis variable takes the value of 1 for the duration of the banking crisis. It does not identify the duration of sovereign debt crisis, but does identify the date of a sovereign debt restructuring. Therefore, we code crisis as 1 for the duration between the beginning of the sovereign debt crisis or currency crisis and sovereign debt restructuring.

¹³Given that [Aizenman et al. \(2010\)](#) argue that the size of foreign exchange reserves relative to GDP and

[Stracca, 2016](#)). We also extract data on whether a country is a member of a Regional Financial Arrangement (RFA). Membership in an RFA may be relevant since the formation of some RFAs have been seen as an unwelcome development by some, since it is seen as undermining the position of the IMF. For example, the creation of an Asian Monetary Fund was scuppered in the aftermath of the Asian Financial Crisis in 1997–98 ([Park and Wyplosz, 2008](#)). Data on capital account openness, the share of the country’s GDP in world GDP and data on whether a country has a swap agreement with the People’s Bank of China are also obtained from this database. Similarly, we also have quarterly inflation data from the IMF International Financial Statistics in order to account for sound economic policies, as high and persistent inflation would indicate poor fiscal and monetary policies in an economy.

3.1.2 Political Variables

In order to ascertain the importance of political factors and alliances in the determination of ILLR assistance, we also include data on the voting records of countries in the United Nations General Assembly (UNGA). In the political science literature, the voting record in the UNGA are used as one of the standards to measure foreign policy preference of countries. [Bailey et al. \(2015\)](#) create a measure of “ideal points” that reflect a country’s foreign policy preference according to its voting record, while accounting for changes in the UN agenda. These ideal points, estimated using a Item Response Theory statistical model, are able to “consistently capture the position of states vis-à-vis a US-led liberal order” ([Bailey et al., 2015](#), pp. 431), such as the Cold War and the shift in the foreign policy stance of the United States governments towards several Latin American countries after the election of Left-wing governments. Therefore, we include data on the difference between the calculated ideal point of a given country and that of the United States, which is used as our measure of foreign policy alliance with the United States. Similarly, we also include the ideal point difference between a country and that of China. We do so because of the typically differing foreign and economic policy objectives between the governments of the United States and China.

The United States also has several strategic military alliances with other countries and can provide insights into the strategic importance of certain nations to the Military-Industrial complex in the United States. Therefore, we include data on bilateral defense cooperation agreements from the Defense Cooperation Agreement Database, created by [Kinne \(2019\)](#). Bilateral defense cooperation agreements create the legal apparatus that facilitates the signatories’ joint engagement in joint defense exercises, formulation of coordinated defense policies, and joint production of weapons and technology ([Kinne, 2019](#)). While the Defense Cooperation Agreement Database contains data on various types of defense cooperation agreements (DCA), we create a binary variable that codes the existence of any DCA with the United States as a 1, and zero otherwise.

The domestic political and economic conditions in the United States may also play a role in determining whether countries will receive assistance from the ILLR. This is because the key function of the US Treasury is to implement policies to serve the interests of US citizens, and the primary policy objectives of the Federal Reserve is the maximization of US employment subject to maintaining price stability. Therefore, it may be politically difficult for the Treasury Secretary and the FOMC to justify assistance to foreign governments and Central Banks if the United States economy is facing a downturn. Therefore, we include quarterly data on unemployment that is obtained from the Federal Reserve Economic Data (FRED) produced by the Federal Reserve Bank of St. Louis. Similarly, party alliances of the US President and the

External Debt reflect sound economic management of the external account, which is unlikely to change rapidly, the use of annual data is acceptable.

Senate and House of Representatives may also play a role in determining which countries, if any, receive assistance from the ILLR. Therefore, we create three binary variables that take the value 1 if the President in office is from the Republican Party, if the Senate is in Republican control, and if the House of Representatives is in Republican control, and zero otherwise.

In our econometric model, we consider the impacts of economic variables and political variables on access to the Federal Reserve and access to the US Treasury in turn, and then consider both sets of variables in determining access to the ILLR institutions. As explained above, we estimate two specifications: one in which the vector of explanatory variables is

$$x_{it} = \begin{bmatrix} \text{Bank exposure} \\ \text{Import share} \\ \text{Export share} \\ \text{Reserves/GDP} \\ \text{Inflation} \\ \text{Ideal point difference with US} \\ \text{Capital Account Openness} \\ \text{US Trade Agreement} \\ \text{Defense Cooperation Agreement with US} \\ \text{US unemployment} \\ \text{Republican President} \\ \text{Republican House} \\ \text{Republican Senate} \\ \text{Emerging Market Dummy} \end{bmatrix} \quad (2)$$

and the other in which we interact all explanatory variables with our crisis variable which denotes whether the countries experienced an economic crisis in the previous year, or

$$x_{it} = \begin{bmatrix} \text{Bank exposure*crisis} \\ \text{Import share*crisis} \\ \text{Export share*crisis} \\ \text{Reserves/GDP*crisis} \\ \text{Inflation*crisis} \\ \text{Ideal point difference with US*crisis} \\ \text{Capital Account Openness*crisis} \\ \text{US Trade Agreement*crisis} \\ \text{Defense Cooperation Agreement with US*crisis} \\ \text{US unemployment*crisis} \\ \text{Republican President*crisis} \\ \text{Republican House*crisis} \\ \text{Republican Senate*crisis} \\ \text{Emerging Market Dummy} \end{bmatrix} \quad (3)$$

4 Descriptive Statistics

Since 1962, we find several instances of countries receiving assistance from ILLR institutions. Between 1962 and 2002, 27 countries received 93 mostly short-term loans from the ESF in 346 country-quarters, while between 1962 and 2020, 32 countries¹⁴ received assistance from the

¹⁴This count includes individual Euro Zone countries when the Federal Reserve has a swap agreement with the European Central Bank

Federal Reserve through 674 swap agreements with their respective central banks¹⁵. Figures 1 and 3 shows the number of countries that have received assistance from the US Treasury and the Federal Reserve since 1962, respectively and Figures 2 and 4 shows the total volume of loans outstanding from the US Treasury.

Figure 1: Number of Countries with loans from the ESF, 1962-2020

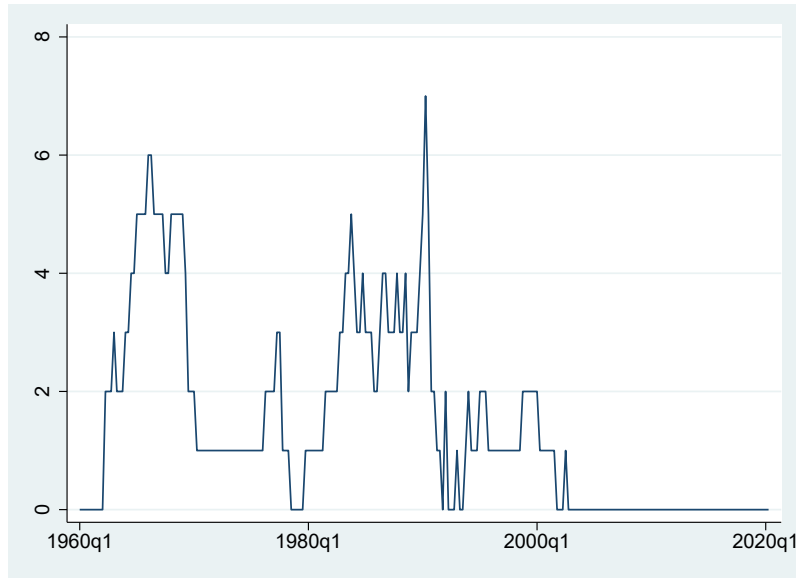
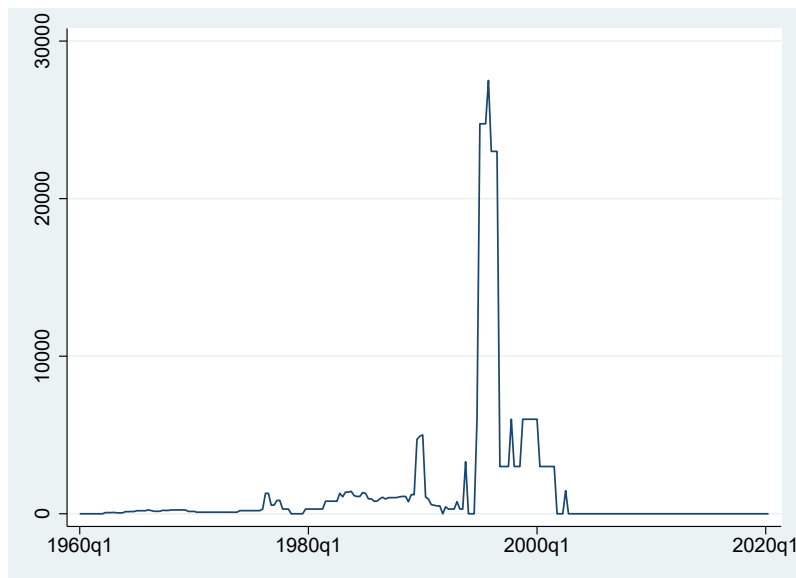


Figure 2: Total size of Loans outstanding from the ESF, 1962-2020, millions USD



We present the descriptive statistics of our key variables based on whether a country received assistance from the Federal Reserve in Table 1 and based on whether a country received assistance from the ESF in Table 2. The last column shows results of a t-test to check whether the means are significantly different at the 5 percent level between the two groups, accounting for unequal variances.

¹⁵Details are presented in Table 12, each renewal and change in size of line are counted as a new swap agreement.

Figure 3: Number of Countries with swap lines with the Federal Reserve, 1962-2020

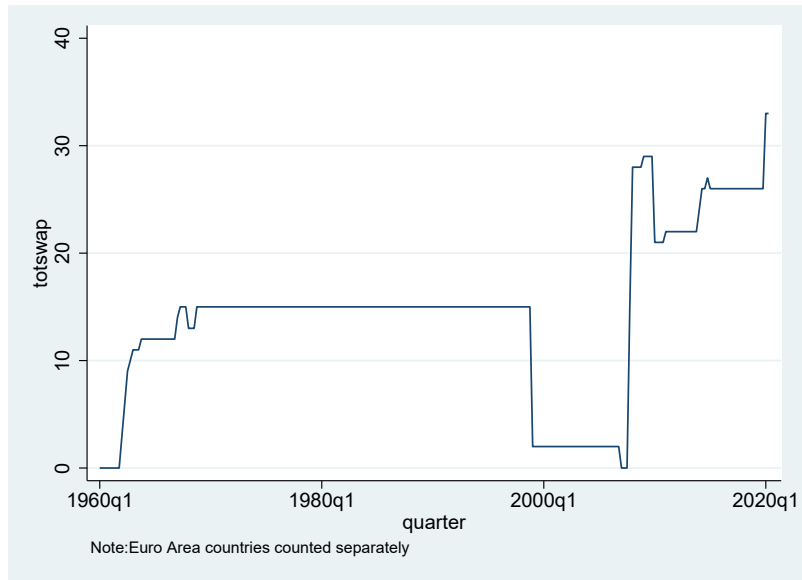
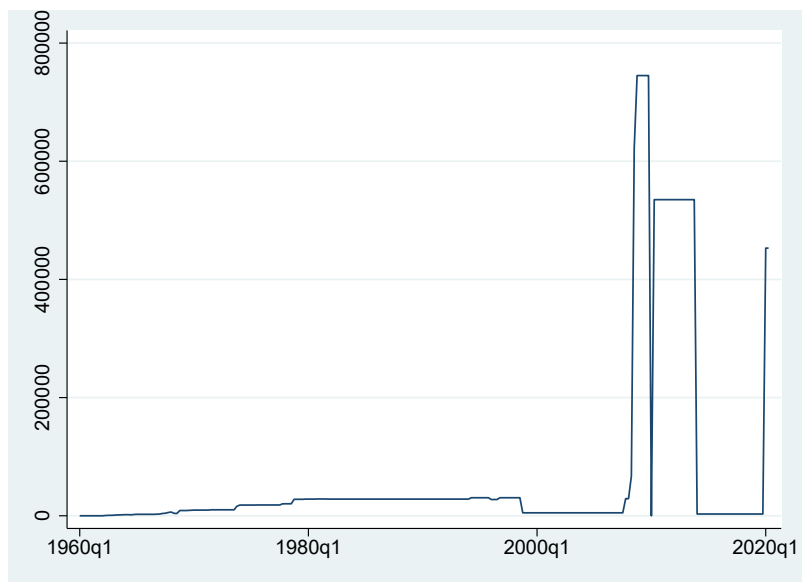


Figure 4: Total size of swap agreements with the Federal Reserve, 1962-2020, millions USD



Note: The five swap agreements of unlimited size are excluded from the calculation of total size in a given year

Table 1: Descriptive Statistics by Recipients of swap lines from the Federal Reserve

	Fed Swap = 1			Fed Swap = 0			Significant difference based on t-test
<i>Economic Variables</i>							
Variable	Mean	SD	N	Mean	SD	N	
Bank Exposure	3.20	4.79	1275	0.58	2.02	12839	Yes
Import Share	3.42	5.36	1987	0.39	1.64	18647	Yes
Export Share	3.71	5.86	1987	0.36	1.31	18647	Yes
Reserves/GDP	6.79	11.98	2190	15.60	18.21	20138	Yes
Reserves/Debt	25.34	20.04	141	58.51	200.27	13907	Yes
GDP share	2.43	3.22	2209	0.30	1.24	22569	Yes
Inflation	4.19	10.75	2437	35.85	660.82	19641	Yes
Article VIII	0.97	0.17	2445	0.64	0.48	25493	Yes
<i>Political Variables</i>							
Ideal point difference w/ U.S.	1.64	0.59	1814	3.03	0.77	20866	Yes
Ideal point difference w/ China	1.67	0.60	1814	0.69	0.65	20866	Yes
Chinn-Ito Index	0.86	0.22	1981	0.43	0.35	20855	Yes
U.S. Trade Agreements	0.10	0.29	2445	0.04	0.20	25493	Yes
D.C.A.	0.42	0.49	2418	0.11	0.31	23946	Yes
U.S. unemployment	6.37	1.81	2346	6.16	1.67	25082	Yes
Republican President	0.53	0.50	2445	0.59	0.49	25493	Yes
Republican Senate	0.47	0.50	2445	0.49	0.50	25493	Yes
Republican House	0.43	0.50	2445	0.50	0.50	25493	Yes

Table 2: Descriptive Statistics by Recipients of loans from the US Treasury

	ESF = 1			ESF = 0			Significant difference based on t-test
<i>Economic Variables</i>							
Variable	Mean	SD	N	Mean	SD	N	
Bank Exposure	5.84	4.18	49	0.84	2.68	14111	Yes
Import Share	4.15	0.43	99	0.69	2.52	20569	Yes
Export Share	5.15	4.66	99	0.70	2.45	20569	Yes
Reserves/GDP	4.61	2.54	172	14.73	17.91	22296	Yes
Reserves/Debt	11.50	10.26	128	58.60	200.16	13920	Yes
GDP share	1.18	0.65	172	0.71	2.88	24830	Yes
Inflation	44.83	103.87	150	32.05	623.10	22093	No
Article VIII	0.87	0.34	180	0.67	0.47	28008	Yes
<i>Political Variables</i>							
Ideal point difference w/ U.S.	2.68	0.89	180	2.90	0.87	22644	No
Ideal point difference w/ China	0.77	0.63	180	0.78	0.72	22644	No
Chinn-Ito Index	0.52	0.39	174	0.47	0.37	22810	Yes
U.S. Trade Agreements	0.18	0.38	180	0.05	0.21	28008	Yes
D.C.A.	0.06	0.24	180	0.12	0.32	19508	Yes
U.S. unemployment	6.50	1.63	180	6.18	1.69	27498	Yes
Republican President	0.76	0.43	180	0.58	0.49	28008	Yes
Republican Senate	0.48	0.50	180	0.49	0.50	28008	No
Republican House	0.21	0.41	180	0.49	0.50	28008	Yes

5 Results

Table 3 shows the results of our panel logistic model when we consider whether a country had a swap agreement with the Federal Reserve as the dependent variable. Columns (1), (2), and (3) show us the results for the model with economic independent variables, political independent variables, and both economic and political variables, respectively. On the other hand columns (4), (5), and (6) shows the results when we estimate the model with the interaction of our independent variables with our lagged crisis variable. When only economic variables are considered (Column 1), only foreign exchange reserves as a share of GDP is negatively and significantly correlated with the likelihood of having a swap agreement with the Federal Reserve. Specifically, a 1 percent increase in foreign exchange reserves held by a central bank as a share of GDP reduces the log odds of having a swap agreement with the Federal Reserve by 1.68. From Column 2, we can see that the political variables on their own do not determine the access to Federal Reserve swap lines. However, when we consider both sets of variables together, several of our coefficients become significant. A higher share of imports in total US imports, higher capital account openness, having a defense cooperation agreement with the United States, and higher US unemployment increases the likelihood of a country having a swap agreement with the Federal Reserve. On the other hand, a higher share of exports in total US exports and foreign exchange reserves as a share of GDP decrease the likelihood of receiving a swap agreement. Furthermore, swap lines are less likely to be extended by a Republican President, a Republican Senate, and a Republican House. From the results in Column 3, it appears the the size of the impact of our political variables on the likelihood of receiving a swap line from the Federal Reserve is larger than that of our economic variables, with the exception of foreign exchange reserves.

Table 3: Regression Results for Federal Reserve Swap Lines

				Interacted with Crisis Variable		
	(1) Economic	(2) Political	(3) Both	(4) Economic	(5) Political	(6) Both
Bank Exposure	-0.010 (0.346)		0.544 (0.344)	0.016 (0.339)		0.460 (0.334)
Import Share	0.579 (0.568)		1.033** (0.451)	0.511 (0.654)		1.003* (0.563)
Export Share	-0.458 (0.435)		-1.348*** (0.346)	-0.459 (0.408)		-1.343*** (0.356)
FX Reserves	-1.683*** (0.585)		-2.035*** (0.527)	-1.406** (0.585)		-2.069*** (0.581)
GDP Share	-1.836 (1.170)		-0.012 (0.567)	-1.448 (1.049)		0.512 (0.654)
Inflation	-7.266 (9.204)		0.706 (0.826)	-26.497*** (9.742)		-8.784 (6.882)
Ideal point difference w/ U.S.		-3.441 (23.000)	-1.085 (1.335)		-4.304 (.)	-0.670 (1.469)
Capital Account Openness		0.770 (10.385)	2.992** (1.214)		1.473 (0.973)	2.987** (1.456)
U.S. Trade Agreement		-0.275 (18.946)	0.775 (0.985)		1.610 (22.566)	2.029** (0.963)
D.C.A		-0.735 (9.239)	2.175* (1.214)		-0.181 (7.754)	1.519 (1.456)
U.S. unemployment		3.640 (13.532)	2.537*** (0.749)		2.515 (.)	2.157** (0.861)
Republican President		-1.115 (3.661)	-2.321*** (0.552)		-1.625 (3.525)	-2.509*** (0.609)

Republican Senate	-0.657 (2.175)	-0.701** (0.345)		0.222 (.)	-0.583 (0.364)	
Republican House		-1.476*** (0.419)		-2.484 (3.142)	-1.697*** (0.530)	
Emerging Market Dummy	2.622 (7.163)	-1.018 (67.868)	-2.590 (1.659)	2.621 (7.674)	-2.763 (.)	-4.602** (1.861)
Bank Exposure* Crisis				1.741* (0.943)		2.082*** (0.540)
Import Share* Crisis				-0.511 (0.863)		-0.178 (0.584)
Export Share* Crisis				0.778 (0.629)		2.609*** (0.706)
FX Reserves* Crisis				-3.203*** (1.084)		-5.395*** (0.990)
GDP Share* Crisis				-2.278 (1.785)		-3.845*** (0.729)
Inflation* Crisis				21.583** (9.002)		10.441 (6.813)
Ideal point difference w/ U.S.*Crisis				2.934 (.)		-12.284*** (4.224)
Capital Account Openness* Crisis				-0.202 (.)		1.823 (1.564)
U.S. Trade Agreement* Crisis				0.789 (.)		0.291 (1.871)
D.C.A* Crisis				-0.566 (3.339)		0.730 (1.218)
U.S. unemployment* Crisis				3.702 (.)		6.712*** (2.447)
Republican President* Crisis				0.094 (.)		-1.598 (1.479)
Republican House* Crisis				3.095 (.)		3.013*** (0.898)
Republican Senate* Crisis				-0.824 (.)		-2.858 (1.808)
Emerging Market Dummy* Crisis				-4.482* (2.359)	3.047 (.)	8.846*** (1.974)
Constant	20.463 (43.088)	-12.473 (36.840)	-5.958 (4.985)	106.786** (45.973)	-8.901 (.)	38.457 (31.676)
N	10682	20936	8776	10682	20936	8776

Standard errors in parentheses

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

The results in columns (4), (5), and (6) should be interpreted as follows: the coefficient of the interaction term is the additional impact of that variable on the log odds of having a swap agreement if there is an economic crisis in the previous quarter. Therefore, the total impact of any given variable on the log odds would be the sum of the coefficient on the variable under consideration and the coefficient on the interaction between that variable and the lagged crisis variable. When we interact all our variables with our lagged crisis variable, we find that, similar to the results in Column (1), economic variables alone do not appear to explain access to the Federal Reserve swap lines. The impact of foreign exchange reserves as a share of GDP is even larger than we previously estimated, as a 1 percent increase in foreign exchange reserves in the previous quarter reduces the log odds of having a swap arrangement with the Federal Reserve by 4.61 (-1.406 + -3.203). Our inflation variable becomes significant, and 1 percent increase in inflation reduces the log odds of having a swap agreement by 4.91. Interestingly, the coefficient

on our bank exposure variable also becomes significant, but at the 10 percent level. Significant. Similar to our results in Column (4), political variables alone do not explain access to the swap lines, even when we interact them with our lagged crisis variable. In Column (6), on the other hand, we find that several of our political variables are large and significant. Specifically, an increase in capital account openness by 1 percent increase the log odds of having a swap agreement with the Federal Reserve by 2.99, a trade agreement with the United States increases the log odds of a swap agreement by 2.03, and a 1 percent increase in US unemployment increases the log odds by 8.87. On the other hand, deviation from voting record of the United States in the United Nations General Assembly (Ideal point difference), a Republican President lowers the log odds of a swap agreement with the Federal Reserve by 12.24 and 2.51, respectively, while a Republican House raises the log odds by 1.32.

Our economic variables also become significant in Column (6). Specifically, consistent with the literature, we find that a 1 percent increase in bank exposure increases the log odds of having a swap agreement with the Federal Reserve by 2.08. Similarly, a 1 percent increase in export share is correlated with an increase in the log odds by 1.27. The coefficient on our inflation variable is not longer significant. The coefficient on foreign exchange reserves continues to negative and significant: a 1 percent increase in reserves as a share of GDP in the previous quarter is associated with a decline in log odds by 7.46. Interestingly, our GDP share variable is also significant, and a 1 percent increase in share of GDP in world GDP decreases the log odds of receiving a swap line by 3.85. Interestingly, in Column 6, the emerging market economies were more likely than other economies to have an swap agreement with the Federal Reserve.

Once we account for the occurrence of crises, we find that bank exposure is important in determining access to Federal Reserve swap lines. The importance of a country in the trade portfolio also appears to play a role in determining access, with higher export share increasing the likelihood of having a swap agreement with the Federal Reserve. Contrary to the hypothesis in Aizenman, we consistently find that reserve accumulation actually reduces the likelihood of receiving a swap line. This result is not surprising, as it may indicate reverse causation even though we use lagged values: central banks that do not expect to receive assistance from ILLR institutions have probably increased the long-term accumulation of foreign exchange reserves. Furthermore, despite the claims of technocratic and apolitical decision making by central banks, our political variables do appear to play a significant role in determining whether a country receives a swap line from the Federal Reserve. US Trade agreements and the party composition of the US government plays an important role. Interestingly, the coefficient on US unemployment is positive and significant across specifications. An explanation of this could be that the increasingly global nature of several economic crisis, and that the need for swap agreements in other countries may coincide with economic downturn in the United States. However, since there is no obvious tradeoff between the Federal Reserve responding to domestic unemployment and extending a swap agreement to another central bank, it appears that the Federal Reserve does extend swap agreements even if domestic unemployment is high.

Table 4 shows the results of our panel logit model when we consider whether a country received a loan from the Exchange Stabilization Fund of the US Treasury as the dependent variable. As in Table 3, columns (1), (2), and (3) show us the results for the model with economic independent variables, political independent variables, and both economic and political variables, respectively. Additionally, columns (4), (5), and (6) shows the results when we estimate the model with the interaction of our independent variables with our lagged crisis variable. When we consider our economic variables alone as determinants of receiving a loan from the US Treasury, only the coefficients on foreign exchange reserves and GDP Share is negative and significant at the 10 percent level of significance. However, unlike the results in Table 3, we find that several political variables play an important role in determining whether a country will receive an ESF

loan, when only political variables are considered in our model. Specifically, an increase in the the deviation of a country's voting record in the UNGA from that of the United States, U.S. unemployment, and a Republican House reduces the likelihood of receiving a loan from the Exchange Stabilization Fund. Counterintuitively, having a defense cooperation agreement with the U.S. also lowers the likelihood of receiving a ESF loan. On the other hand, having a trade agreement with the United States, a Republican President and a Republican House increases the likelihood of receiving an ESF loan. However, when we consider both economic and political variables, the coefficient on bank exposure becomes positive and significant, and the coefficient on GDP share becomes negative and significant. Interestingly, the coefficient on our foreign exchange reserves variable is no longer significant. The coefficients on deviation of a country's voting record from that of the United States in the UNGA, defense cooperation agreement variable, and the variables that measure the party composition of the US government are no longer significant. However, having a trade agreements with the United States continues to have a positive and significant impact on the likelihood of receiving an ESF loan, and unemployment in the United States continues to have a negative and significant impact on the likelihood of receiving an ESF loan.

Table 4: Regression Results for ESF Loans

				Interacted with Crisis Variable		
	(1)	(2)	(3)	(4)	(5)	(6)
	Economic	Political	Both	Economic	Political	Both
Bank Exposure	-0.190 (0.545)		0.693* (0.397)	-0.423 (0.608)		0.504** (0.241)
Import Share	0.481 (0.554)		0.389 (0.396)	0.747 (0.804)		0.062 (0.208)
Export Share	0.952 (0.608)		0.521 (0.655)	1.233* (0.745)		0.335 (0.478)
FX Reserves	-1.616* (0.875)		-1.632 (1.041)	-2.413 (2.032)		-2.465 (2.381)
GDP Share	-0.925* (0.499)		-1.426** (0.601)	-1.235* (0.663)		-0.737*** (0.238)
Inflation	-1.031 (0.848)		-1.379 (1.047)	0.954* (0.538)		2.033* (1.130)
Ideal point difference w/ the U.S.		-2.611** (1.276)	3.153 (2.140)		-4.856*** (1.834)	-1.523 (2.478)
Capital Account Openness		0.063 (0.319)	-0.256 (0.366)		-0.138 (0.344)	-0.522 (0.794)
U.S. Trade Agreement		1.447*** (0.552)	3.245*** (0.519)		0.638 (0.733)	8.728 (5.330)
D.C.A		-2.343*** (0.712)	1.029 (1.817)		1.496 (1.284)	3.470* (1.869)
U.S. unemployment		-4.659*** (1.221)	-9.608*** (3.645)		-6.415*** (2.071)	-5.362** (2.650)
Republican President		1.720* (0.921)	-0.066 (0.927)		2.044** (0.858)	-0.437 (1.349)
Republican House		-2.728*** (0.597)	-2.668** (1.344)		-3.460*** (1.341)	
Republican Senate		1.870*** (0.390)	1.095 (0.869)		1.855** (0.747)	
Emerging Market Dummy	2.415 (1.501)	3.497*** (1.192)	1.770 (1.541)	2.881 (1.897)	4.271** (1.770)	-0.933 (3.384)
Bank Exposure* Crisis				0.457 (0.834)		0.033 (0.647)
Import Share* Crisis				-0.009 (0.866)		0.317 (0.727)

Export Share* Crisis				-0.632 (1.014)	1.186 (1.190)	
FX Reserves* Crisis				1.781 (1.861)	1.429 (2.496)	
GDP Share* Crisis				0.718 (0.808)	-0.788 (0.584)	
Inflation* Crisis				-2.751** (1.188)	-3.382*** (1.139)	
Ideal point difference w/ the U.S.*Crisis				7.248** (3.501)	6.057 (4.455)	
Capital Account Openness*Crisis				0.403 (0.535)	0.392 (1.143)	
U.S. Trade Agreement*Crisis				0.000 (.)	0.000 (.)	
D.C.A.*Crisis				0.000 (.)	0.000 (.)	
U.S. unemployment* Crisis				3.529 (3.578)	-2.237 (4.171)	
Republican President*Crisis				-1.234 (1.081)	2.311* (1.180)	
Republican House*Crisis				1.229 (2.185)		
Republican Senate*Crisis				-0.022 (0.880)		
Emerging Market Dummy*Crisis				-2.334 (1.716)	-2.000* (1.036)	0.820 (3.876)
Constant	-1.003 (4.528)	0.018 (2.281)	12.872** (5.686)	-9.975*** (2.952)	4.136 (3.971)	-2.817 (2.267)
N	2939	12584	2812	2939	11580	2371

Standard errors in parentheses

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

When we interact all our variables with our lagged crisis variable, we find that, the coefficient of export share is positive and significant at the 10 percent level of significance. Furthermore, we can see that the impact of GDP share and inflation is negative and significant in Column (4). In Column (5) we find that several political variables play a role in determining whether a country receives a loan from the ESF. Specifically, we find that deviation from the United States voting record in the UNGA, unemployment in the US, and the party composition of the governments are important in order to determine whether a country receives a loan from the ESF. Counterintuitively, our results suggest that a greater deviation of a country's voting record from that of the US increases the likelihood of receiving a loan from the ESF. On the other hand, a Republican President and Senate increases the log odds by 2.04 and 1.85, respectively. On the other hand, a Republican House reduces the log odds of receiving an ESF loan by 3.24. A Republican House lowers the log odds of an ESF loan by 3.46. Furthermore, a one percent increase in unemployment in the United States reduces the log odds of receiving a loan from the ESF by 6.42.

Column (6) shows the results of our model when we consider both economic and political variables interacted with our lagged crisis variable. Interestingly, when all relevant variables are considered, bank exposure once again becomes positive and significant. Specifically, a 1 percent increase in bank exposure leads to a 0.50 increase in the log likelihood of receiving a loan from the ESF. Furthermore, a 1 percent increase in GDP share is associated with a 0.74 decline in the log odds of receiving a loan from the ESF. The presence of inflation in a potential recipient

nation also reduces the probability of receiving an ESF loan: a 1 percent increase in inflation is associated with a decline of log odds by 1.35. A defense cooperation agreement with the United States increases the log odds of receiving an ESF loan by 3.47 units, and 1 percent increase in unemployment in the United States is associated with a 5.36 units decline in the log odds of receiving an ESF loan. Finally, a Republican President increases the log odds of receiving an ESF loan by 2.31.

These results are interesting in several respects. Bank exposure continues to play an important role in determining access to this ILLR institution. Although, the size of its impact on the likelihood of receiving a loan from the ESF is relatively low as compared to the other factors we considered. Similarly, inflation plays a negative and significant role in determining access to the ESF, although, once again, the size of its impact is relatively small. In comparison, the impact of our political variables is larger in comparison. Furthermore, an increase in unemployment in the United States consistently reduces the likelihood of receiving an ESF loan. It is important to note that it is not the case that there is any trade-off between the funds of the US Treasury being used to stimulate the domestic economy and the ESF being used to make loans to foreign governments since the ESF is a self-financed fund that is earmarked for very specific uses. Nonetheless, a rise in unemployment in the United States likely makes it politically difficult to justify making loans to foreign governments when there is a downturn in the US economy. Contrary to our findings in Table 3, a Republican President is more likely to use the ESF to make loans to foreign governments across specifications.

Table 5 shows the results of our panel logit model when we our dependent variable takes the value 1 if a country has a swap agreement with the Federal Reserve or if a country received a loan from the ESF in a given quarter. As before, columns (1), (2), and (3) show us the results for the model with economic independent variables, political independent variables, and both economic and political variables, respectively. Columns (4), (5), and (6) shows the results when we estimate the model with the interaction of our independent variables with our lagged crisis variable. Similar to the results in Tables 3 and 4, none of the economic or political variables are significant on their own, with the exception of foreign exchange reserves. When we only considered our economic independent variables in our model, we find that a percent increase in the reserves to GDP ratio reduces the log likelihood of receiving support from either of the ILLR institutions by 1.71 units. When we consider both economic and political variables together, we find that the coefficients on our bank exposure variable and import share variable become positive and significant. Furthermore, the coefficient on the export share variable becomes negative and significant. As before, the reserves variable continues to be negatively a significantly related to the likelihood of receiving assistance from the ILLR institutions. Once again, a defense cooperation agreement is associated with 1.72 higher log odds of receiving assistance from the ILLR institutions. Furthermore, higher unemployment in the U.S. increases the log odds, while Republicans in the Presidency, the Senate, and the House lower the log odds of assistance from the ILLR institutions.

Table 5: Regression Results for Federal Reserve Swap Lines or ESF Loans

				Interacted with Crisis Variable		
	(1)	(2)	(3)	(4)	(5)	(6)
	Economic	Political	Both	Economic	Political	Both
Bank Exposure	0.032 (0.334)		0.594** (0.291)	0.039 (0.336)		0.468* (0.263)
Import Share	0.574 (0.551)		0.828** (0.408)	0.570 (0.660)		0.772 (0.506)
Export Share	-0.489 (0.428)		-1.269*** (0.327)	-0.477 (0.402)		-1.250*** (0.322)
FX Reserves	-1.706***		-2.133***	-1.422**		-2.042***

	(0.575)		(0.501)		(0.586)	(0.540)
GDP Share	-1.856 (1.158)		0.052 (0.469)		-1.534 (1.186)	0.536 (0.567)
Inflation	-6.264 (6.350)		-1.017 (1.322)		-20.875** (9.513)	-6.912 (4.733)
Ideal Point difference w/ the U.S.	-3.140 (138.692)		-1.970 (1.409)		-3.730 (28.564)	-1.603 (1.526)
Capital Account Openness	0.299 (9.029)		1.044 (0.691)		0.484 (10.651)	1.337 (1.155)
U.S. Trade Agreement	-0.082 (14.654)		1.098 (0.963)		0.999 (18.920)	1.692* (1.025)
D.C.A	-0.728 (4.219)		1.724* (1.042)		-0.869 (8.040)	1.453 (1.312)
U.S. unemployment	3.423 (159.271)		2.288*** (0.698)		3.252 (10.501)	2.056*** (0.774)
Republican President	-0.854 (4.385)		-2.139*** (0.461)		-0.759 (4.067)	-2.263*** (0.535)
Republican House			-1.426*** (0.373)			-1.646*** (0.475)
Republican Senate			-0.727** (0.343)			-0.613* (0.352)
Emerging Market Dummy	2.381 (7.152)	0.096 (1.737)	-2.726* (1.645)	1.440 (9.056)	-0.221 (520.386)	-4.254** (1.661)
Bank Exposure* Crisis				1.312** (0.669)		1.181** (0.496)
Import Share* Crisis				-0.644 (0.902)		-0.346 (0.609)
Export Share* Crisis				0.515 (0.614)		1.770*** (0.648)
FX Reserves* Crisis				-2.661*** (0.861)		-2.833*** (0.846)
GDP Share* Crisis				-1.307 (1.340)		-2.695*** (0.606)
Inflation* Crisis				14.306 (8.903)		2.082 (4.284)
Ideal point difference w/ the U.S.*Crisis					3.549 (30.158)	-5.948*** (1.577)
Capital Account Openness*Crisis					0.175 (12.914)	-0.619 (1.454)
U.S. Trade Agreement					0.837 (77.550)	2.961 (2.384)
DCA* Crisis					-0.055 (.)	1.856** (0.811)
U.S. unemployment* Crisis					0.383 (19.721)	0.631 (3.506)
Republican President*Crisis					0.126 (6.772)	-0.179 (0.894)
Republican House*Crisis						1.975*** (0.742)
Republican Senate*Crisis						-3.985* (2.112)
Emerging Market Dummy*Crisis				-1.388 (1.142)	0.499 (43.043)	5.141*** (1.678)
Constant	16.084 (30.159)	-10.990 (.)	3.116 (6.813)	81.325* (45.881)	-10.519 (129.268)	30.666 (21.773)
N	10682	20936	8776	10682	20936	8776

Standard errors in parentheses

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

When we estimate our model with our political variables interacted with crisis variables, none of the coefficients are significant. However, when we consider the economic variables interacted with the crisis variable (Column 4), we find that the a 1 percent increase in bank exposure increases the log odds of receiving assistance from the ILLR institutions by 1.31 units. Furthermore, we find that a 1 percent increase in reserves as a share of GDP reduces the log odds of support from the ILLR institutions by 4.08 units. Similarly, an increase in inflation also reduces the likelihood of having a swap line with the Federal Reserve or of receiving a loan from the ESF.

Column 6 shows the results of the model when we use all our economic and political variables interacted with the crisis variable as independent variables. The bank exposure variable is positive and significant, and our results show that a 1 percent increase in bank exposure leads to a 1.65 increase in log odds of receiving support from the ILLR institutions. Our trade variables are also important, as a 1 percent increase in export share leads to a 0.52 unit increase in the log odds of having access to the ILLR institutions. As in the other columns, we also find that an increase in reserves reduces the likelihood of receiving support from the Federal Reserve or the US Treasury. We also find that having a trade agreement with the United States and having a defense cooperation agreement with the United States increases the likelihood of receiving ILLR assistance. However, a Republican President and a Republican Senate lowers the likelihood of receiving assistance from the ILLR institutions. Finally, our results indicate that a 1 percent increase in the unemployment rate in the United States increases the log odds of having access to the ILLR institutions by 2.06 units.

5.1 Robustness Checks

We check whether these results are robust to alternate specifications by estimating a panel probit model and a linear probability model with random effects. The results are presented in Tables 13 and 14, respectively, in Appendix II. It is important to note that the sizes of the coefficients in the logit model are not comparable to the ones in the probit and linear probability model, given that there are very different assumptions about the nature of the data generating process underlying these models. However, when we consider our logit results for the extension of Federal Reserve Swap Lines, we find that in most instances, the signs of this coefficients are consistent across out logit, probit, and linear probability models. The exceptions are the that the positive and significant coefficient on the import share variable in Columns (3) and (6) in Table 3 and the negative and significant coefficient on the Republican Senate variable in Column (3). The positive and significant coefficient on the Export share variable in Column (6) in Table 3 becomes negative and significant in the linear probability model, even though it is also positive and significant in the probit model. Similarly, while the negative and significant coefficient on the GDP share variable is also seen in the probit model, it is not significant in the linear probability model. The logit coefficients on all political variables, with the exception of the coefficient on the Republican Senate variable, are robust to the alternative probit and linear probability specifications.

When we consider the coefficients in the logit results for the determinants of the recipients of ESF loans in Table 4 and in the probit model in Table 13 and in the linear probability model in Table 14, we can see that, once again, most of our coefficients have the same sign across all three models. Furthermore, the coefficients that are statistically significant in the logit model are also statistically significant in the probit model, except the coefficient of the GDP share

variable. The coefficients of all the political variables that are statistically significant in the logit model are also significant in the probit model. However, when we consider the linear probability model, only some of the coefficients are statistically significant: the coefficients on US bank exposure, GDP share, Inflation, US unemployment are not significant.

Finally, when we consider the logit coefficients in Table 5, for the model in which we consider the determinants of receiving any support from either ILLR institutions, we find all coefficients that are statistically significant in the logit model are also statistically significant in the probit and linear probability model, with the exception of coefficients on import share and GDP Share. The coefficient on export share in Columns (3) and (6) in Table 5 maintain their sign and significance in our probit model, but the sign changes in the linear probability model.

5.2 Summary of Results

Figure 5 graphically shows the marginal impacts of the results in Column 6 of Tables 3, 4, and 5 for the likelihood of having a swap agreement with the Federal Reserve, receiving a loan from the Exchange Stabilization Fund of the U.S. Treasury, or either having a swap agreement or receiving a loan from the ESF, respectively. Please note that Figure 5 shows the marginal impacts of our variables while the Tables 3, 4, and 5 show the log odds of a percent change in our independent variables. The confidence intervals around the marginal effects are shown at the 10, 5, and 1 percent level of significance.

Figure 5: Marginal Effects of Variables on Probability of Assistance from the Lenders of Last Resort

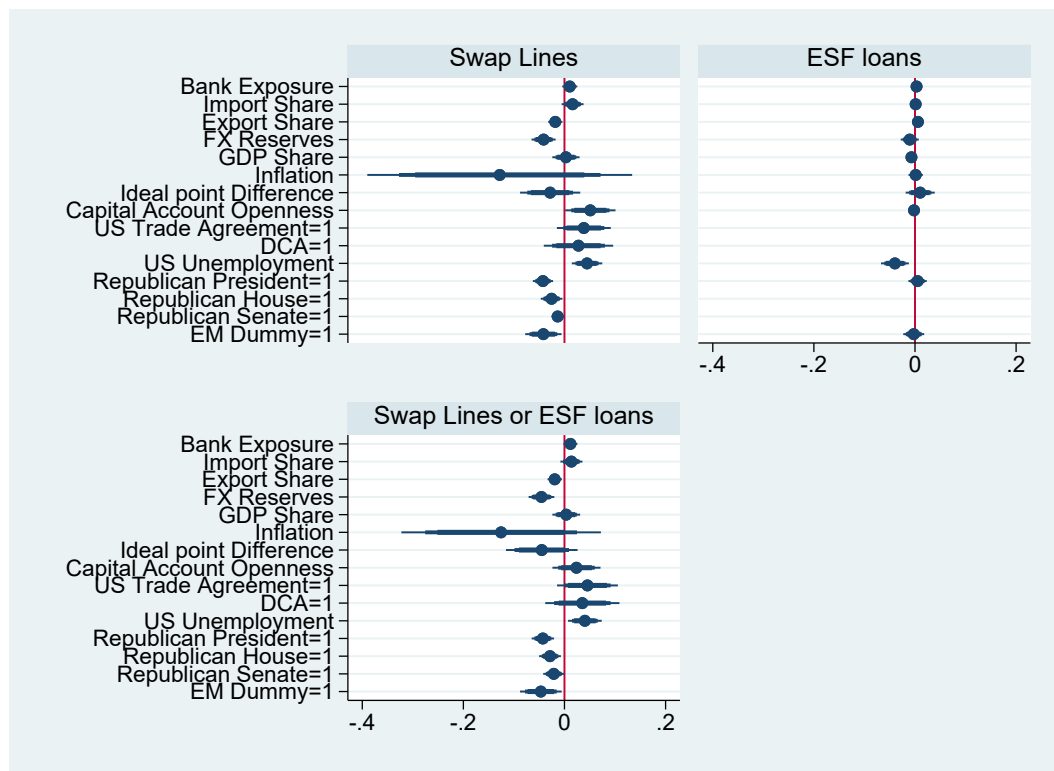


Table 6 summarizes the results from our different models. It identifies the direction of the impact of our variables on the likelihood of having a swap agreement with the Federal Reserve

or receiving a loan from the Exchange Stabilization Fund of the U.S. Treasury and whether the coefficients were statistically significant as per our panel logit model, and the cells that are shaded gray are the results that are robust to our alternative panel probit and linear probability models.

Table 6: Summary of Regression Results

Variable	Swap Agreement	ESF Loan	Swap Agreement or ESF Loan
<i>Economic Variables</i>			
Bank Exposure	Positive and Significant	Positive and Significant	Positive and Significant
Import Share	Positive and Significant		
Export Share	Positive and Significant		Positive and Significant
Reserves/GDP	Negative and Significant		Negative and Significant
GDP share	Negative and Significant	Negative and Significant	Negative and Significant
Inflation		Negative and Significant	
<i>Political Variables</i>			
Ideal point difference w/ the U.S.	Negative and Significant		Negative and Significant
Chinn-Ito Index	Positive and Significant		
U.S. Trade Agreements	Positive and Significant		Positive and Significant
D.C.A.		Positive and Significant	Positive and Significant
U.S. unemployment	Positive and Significant	Negative and Significant	Positive and Significant
Republican President	Negative and Significant	Positive and Significant	Negative and Significant
Republican Senate			Negative and Significant
Republican House	Positive and Significant		Positive and Significant
Emerging Market Dummy	Positive and Significant		Positive and Significant

6 Intertemporal comparison of Recipients of ILLR support

There are several countries in our database that have received ILLR support when they needed it in some instances and not in others. For instance, while the Bank of Korea had a swap agreement with the Federal Reserve in October 2008 and again in March 2020, it did not have a swap agreement with the Federal Reserve during the East Asian Crisis in 1998. Similarly,

the Argentine government received support from the US Treasury through the ESF on several occasions in 1995, 1988, 1987, 1985, and 1968, but did not receive assistance from the ESF or the Federal Reserve before or during its sovereign debt crises in and after 2002. This differential treatment allows us to further examine the factors that are important in determining the circumstances in which governments and central banks have access to the ILLR institutions, and acts as another robustness check of our results. Table 7 lists the countries that had a swap agreement with the Federal Reserve in some circumstances and not in others.

Table 7: Countries that had a swap agreement with the Federal Reserve in one or more instances, and not in others

Country	Year of Crisis	Type of Crisis	Notes
Brazil	1982	Currency Crisis	The Banco Central do Brasil received a swap agreement from the Federal Reserve in October 2008, April 2009, and March 2020
	1987	Currency Crisis	
	1990	Banking Crisis	
	1992	Currency Crisis	
	1994	Banking Crisis	
	1999	Currency Crisis	
Estonia	1992	Currency Crisis and Banking Crisis	Estonia received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as part of the EU
Finland	1991	Banking Crisis	Finland received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as part of the EU
	1993	Currency Crisis	
Greece	1983	Currency Crisis	Greece received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as part of the EU
Latvia	1992	Currency Crisis	Latvia received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as part of the EU
	1995	Banking Crisis	
Lithuania	1992	Currency Crisis	Lithuania received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as part of the EU
New Zealand	1984	Currency Crisis	New Zealand received a swap agreement from the Federal Reserve in October 2008 and March 2020
Slovak Republic	1998	Banking Crisis	Slovak Republic received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as

			part of the EU
Slovenia	1992	Banking Crisis	Slovenia received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as part of the EU
South Korea	1997	Banking Crisis	South Korea received a swap agreement from the Federal Reserve in October 2008 and March 2020
	1998	Currency Crisis	
Spain	1983	Currency Crisis	Spain received a swap agreement from the Federal Reserve in December 2007, September 2008, May 2010, and February 2014 as part of the EU

Of the countries that received ILLR assistance from the Federal Reserve mentioned in Table 7, most countries later received a swap agreement with the Federal Reserve by virtue of becoming members of the European Union. Therefore, the most interesting cases are those of Brazil, South Korea, and New Zealand. In all three cases, the central banks did not have swap agreements with the Federal Reserves during past crises, but did receive assistance from the Federal Reserve later during the global financial crisis and during the Coronavirus pandemic, even though there did not appear to be an imminent financial crisis taking shape in any of these countries at the time.

From the results in Table 3, it is clear that bank exposure, export share, GDP share, foreign exchange reserves, capital account openness, trade agreements with the United States, defense cooperation agreements with the United States, US unemployment, and the party composition of the government of the United States play a role in determining which countries are likely to have a swap agreement with the Federal Reserve. Therefore, it is instructive to examine the evolution of these variables in the countries that had swap agreements with the Federal Reserve during the global financial crisis and afterwards, but not during an earlier crisis.

Specifically, the primacy of exposure of the US banking system in determining the existence of a swap agreement with the Federal Reserve is often discussed in the literature. However, if we examine the evolution of the banking exposure share in South Korea, New Zealand, and Brazil over time, as we do in Figure 6, we can see that the share of exposure of US banks as a share of their total foreign exposure was higher in all these countries when their Central Banks had higher US bank exposure relative (and would have needed support from the ILLR) to when their Central Banks did have a swap agreement with the Federal Reserve. Furthermore, these importance of these countries as destinations for U.S. exports also appears to be lower when the Central Bank of a country received a swap line from the Federal Reserve relative to when it did not, as is evident from Figure 7. However, this is not the case when we consider exports to Brazil, as exports to Brazil constituted a higher share of total US exports at the time the Banco Central do Brasil received a swap line relative to when it did not. Furthermore, while we do not have trade data for the first two quarters of 2020, the share of exports to South Korea as a share of total US exports trended upwards after 2012.

Figure 8 shows us the trend in capital account openness as measured by the normalized Chinn-Ito index. Interestingly, the trend in capital account openness exhibits an increasing trend in

Figure 6: US Bank Exposure Share, %

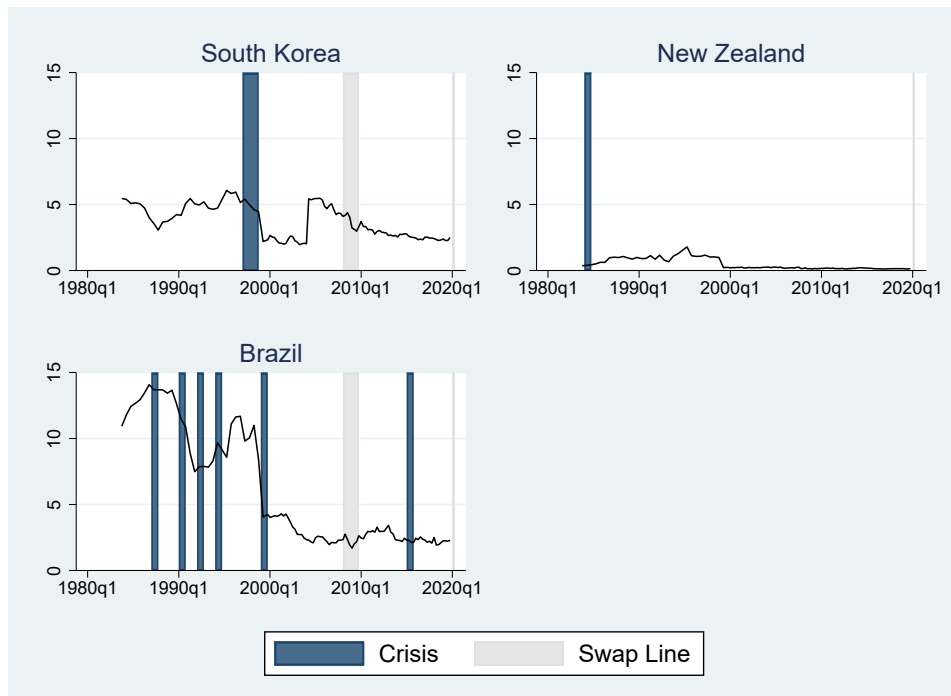
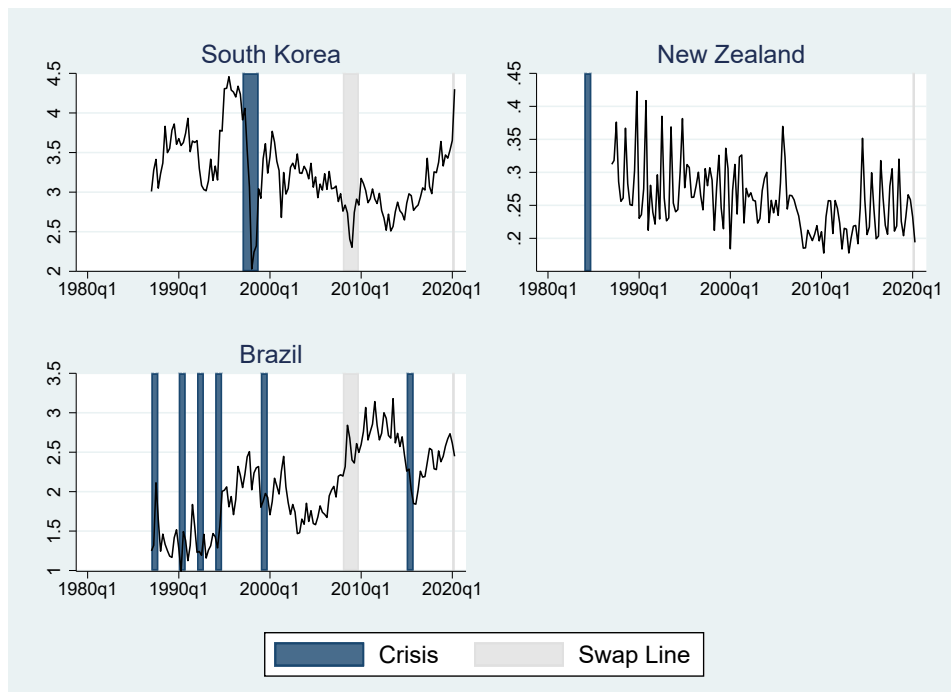


Figure 7: US Export Share, %



Note: The y axes for the different country charts are not the same

South Korea after 1999, with the Chinn-Ito index being much higher in 2008 (when the Bank of Korea did have a swap line with the Federal Reserve) onwards relative to 1997 (when the Bank of Korea did not have a swap line with the Federal Reserve). This is also the case for New Zealand and Brazil (except for in 2020).

Figure 8: Capital Account Openness measured by Chinn-Ito Index



Table 8 shows the descriptive statistics of our significant variables in Table 3 in two cases: two years or eight quarters prior to having a swap agreement with the Federal Reserve and two years or eight quarters prior to the beginning year of a financial crisis when the country did have a swap agreement with the Federal Reserve. The countries considered here are South Korea, New Zealand, and Brazil. Interestingly, we find that US bank exposure is on average lower when their central banks had a swap agreement with the Federal Reserve relative to when they did not. This is also the case for the average countries' share in US exports, but the difference is not significant. Also, in contradiction with the results in Table 3, on average these countries had a significantly higher level of reserves as a share of GDP immediately prior to receiving a swap agreement relative to when these countries did not receive a swap agreement.

These descriptive statistics once again confirm the importance of our political variables. On average, these countries had greater capital account openness prior to receiving swap agreements with the Federal Reserve relative to when they did not. The logit regression results in Table 3 found that higher U.S. unemployment was correlated with a higher likelihood of receiving a swap agreement. However, within this smaller sample, we find that the opposite is the case: US unemployment was lower when the central banks of these countries received swap agreements relative to when they did not. Furthermore, a Republican President and Republican Senate were more likely to be in office when these central banks received swap agreements with the Federal Reserve, contrary to our logit regression results.

Table 8: Descriptive Statistics by Recipients of swap lines from the Federal Reserve Countries in one or more instances, and not in others

	Fed Swap = 1			Fed Swap = 0 & Crisis = 1			Significant difference based on t-test
Variable	Mean	SD	N	Mean	SD	N	
Bank Exposure	2.30	1.45	40	6.15	3.34	25	Yes
Export Share	2.24	1.13	40	2.39	1.12	40	No
Reserves/GDP	17.21	6.92	28	6.11	4.19	48	Yes
GDP share	1.82	0.68	28	1.98	0.96	48	No
Ideal Point Difference w/ the U.S.	2.73	0.43	16	2.75	0.73	48	No
Chinn-Ito Index	0.48	0.06	16	0.20	0.19	48	Yes
U.S Trade Agreement	0.275	0.45	40	0	0	48	Yes
US unemployment	4.11	0.44	40	6.68	1.66	48	Yes
Republican President	1	0	40	0.42	0.50	48	Yes
Republican Senate	0.8	0.41	40	0.42	0.50	48	Yes
Republican House	0.5	0.51	40	0.5	0.51	48	No

Table 9 lists the countries that received a loan from the Exchange Stabilization Fund of the US treasury in some circumstances and not in others. Similar to Table 8, Table 10 shows the descriptive statistics of our significant variables in Table 4 in two cases: two years or eight quarters prior to receiving an ESF loan from the US Treasury and two years or eight quarters prior to the beginning year of a financial crisis when the country did not receive an ESF loan from the US Treasury. The countries considered here are the ones listed in Table 9.

Table 9: Countries that received a loan from the ESF in one or more instances, and not in others

Country	Year of Crisis	Type of Crisis	Notes
Argentina	2002	Currency Crisis	Argentina received ESF loans in March 1995, October 1988, February 1988, October 1987, March 1987, June 1985, December 1984, March 1984, May 1968, May 1967, and June 1962
Costa Rica	1981	Currency Crisis	Costa Rica received an ESF loan in May 1990
Ecuador	1999	Currency Crisis	Ecuador received an ESF loan in December 1987
Guyana	1992	Currency Crisis	Guyana received an ESF loan in

	1993	Banking Crisis	June 1990
Jamaica	1991	Currency Crisis	Jamaica received an ESF loan in December 1983
Nigeria	1997	Currency Crisis	Nigeria received an ESF loan in October 1986
Peru	1981	Currency Crisis	Peru received an ESF loan in March 1993
	1983	Banking Crisis	
	1988	Currency Crisis	
Philippines	1997	Banking Crisis	Philippines received ESF loans in October 1984 and May 1962
	1998	Currency Crisis	
Uruguay	1990	Currency Crisis	Uruguay received an ESF loan in August 2002
	1983	Currency Crisis	
	1981	Banking Crisis	
Venezuela	2002	Currency Crisis	Venezuela received ESF loans in March 1990, March 1989, and March 1968

Several other countries, such as Colombia, Chile, Dominican Republic, Nicaragua, and Yugoslavia also fall into this group. They have been left out of this table since they received a loan from the ESF prior to 1980 for which we do not have most relevant comparative data.

The data in Table 10 confirms the results of our logit regression when we consider the exposure of US banks to these countries. Specifically, the average exposure of US banks in these countries was higher immediately prior to receiving an ESF loan relative to when these countries did not receive an ESF loan. However, contrary to our logit regression results, the countries in Table 9 had a higher share of world GDP immediately prior to receiving an ESF loan relative to when they did not receive an ESF loan. None of these countries had trade agreement with the United States, and interestingly, none of these countries had a defense cooperation agreement with the United States when they received an ESF loan. Interestingly, these countries received an ESF loan when US unemployment was higher relative to when they did not receive an ESF loan, and Republican President was more likely to be in office when these countries received an ESF loan relative to when they did not receive an ESF loan.

The discussion in this section complicates the picture of the determinants of the recipients of emergency assistance from the international lenders of last resort in the form of swap agreements or U.S. dollar loans. These descriptive results provide a note of caution to our regression results. It may reflect a kind of hysteresis: once the ILLR institutions decide to extend support to a specific economy, the evolution of the specific variables identified here may matter less. This could reflect a situation in which something very dramatic has to change geo-politically for a country to then be informally disqualified for support. For instance, even though Venezuela received several emergency loans from the U.S. Treasury prior to 1990, the diplomatic relationship between the United States and Venezuela worsened dramatically with the election of Hugo Chavez in 1999. Therefore, the Venezuelan government would be an unlikely candidate for a loan during the currency crisis of 2002. This section does confirm that the decision to extend ILLR support is the result of a complex geo-political process, and not a simple straightforward one as the literature has suggested thus far.

Table 10: Descriptive Statistics by Recipients of ESF loans in one or more instances, and not in others

	ESF = 1			ESF = 0 & Crisis = 1			Significant difference based on t-test
Variable	Mean	SD	N	Mean	SD	N	
Bank Exposure	2.33	2.23	46	1.13	1.21	40	Yes
GDP share	0.35	0.32	111	0.17	0.21	103	Yes
Inflation	175.97	824.41	56	43.52	28.59	80	No
US Trade Agreement	0	0	111	0	0	0	
DCA	0	0	111	0.09	0.28	91	Yes
US unemployment	6.90	1.63	111	5.87	1.28	103	Yes
Republican President	0.91	0.29	111	0.46	0.50	103	Yes
Republican Senate	0.37	0.48	111	0.35	0.48	103	No

7 Conclusions

During the Eurozone crisis, the then President of the European Central Bank, Mario Draghi famously announced that “within our mandate, the ECB is ready to do whatever it takes to preserve the Euro.” The announcement in July 2012 and the policy actions that are followed are widely believed to have created the conditions for stabilizing the financial markets in Europe. However, these policy actions and the dollar support that the European Central Bank provided to banks in its jurisdiction was supported by the ECB drawing on its swap agreement with the Federal Reserve. However, not all central banks have the ability to do whatever it takes to stabilize a national financial system that has significant dollar liabilities, unless they have access to the international lender of last resort institutions.

This paper shows that only some countries have had access to international lender of last resort institutions, namely, the Federal Reserve through Reciprocal Currency Arrangements, and the US Treasury through the Exchange Stabilization Fund. And this access depends on a variety of economic and political factors. Countries that US banks have greater exposure to, countries that have a higher share in portfolio of US exports, countries that have lower foreign exchange reserves, and countries that have a trade agreement or a defense cooperation agreement with the United States are more likely to have a swap agreement with the Federal Reserve. Furthermore, countries are more likely to have a swap agreement when US unemployment is high (potentially, an indicator of increasingly global nature of economic crises), and when Democratic President or Republican House is in power. Similarly, countries that US banks have greater exposure to, a lower share of world GDP, low inflation, a trade agreement or a defense cooperation agreement with the United States are more likely to receive a loan from the Exchange Stabilization Fund (ESF) of the U.S. Treasury. Our results also show that countries are more likely to receive a loan from the ESF when unemployment in the US is low, and when a Republican President or Republican Senate is in office.

Our analysis confirms the importance of US bank exposure, as has been previously discussed in

the literature. However, when we examine the trends in bank exposure in countries that received swap agreements in one instance but not in others, bank exposure appears less important, since the average US bank exposure to these countries were actually lower when they had a swap agreement with the Federal Reserve relative to when they did not. When we examine the trend in bank exposure in countries that received loans from the ESF, the importance of bank exposure is confirmed. Therefore, we have mixed results in the relative importance of economic variables in explaining selective extension of support from the International Lender of Last Resort (ILLR) institutions. However, the importance of our political variables is confirmed when we analyze their trends in periods in which countries received loans from the ESF relative to when they did not.

Therefore, not only do ILLR institutions exercise discretion in which countries to assist and which countries to not assist, this discretion also depends to a large extent on political factors that have nothing to do with effective conduct of economic policy, but more to do with forging political alliances with the United States. Therefore, the issuers of the global reserve currency, namely our ILLR institutions are playing a key role in reinforcing several foreign policy goals of the United States. An alternative, but not necessarily incompatible, explanation is that the importance of financial openness and diplomatic connections reflects a desire on the part of U.S. policymakers in keeping many recipient economies open or further opening up recipient economies as destinations of trade and investment from the United States.

This matters because the implication is that the stability of the global financial system, the ultimate responsibility of which can only be on the ILLR institutions, depends on political importance of certain countries to policymakers in the United States and on the political and economic stability within the United States. This exposes the global financial system to importance sources of instability: whether the newest venue or source of global financial instability has sufficient political allegiance to the United States. This also raises concerns of the United States influencing national economic and foreign policy orientation of other countries, or underwriting or backstopping a certain neoliberal policy orientation, specifically as regards openness of the capital account. This can also be with a view to opening up new avenues and destination of production, trade, and investment for U.S. firms and financial actors. Therefore, the global monetary US dollar system has several sources of instability unless there is genuine internationalization of lender of last resort institutions or there is organic movement to a new global reserve currency. Both of these prospects appear highly unlikely.

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8 Appendix I

Table 11: ESF Loans to Foreign Governments, 1962–present

Country	Signing Date	Amount, millions USD	Multilateral /Bilateral	First Drawn	Fully Repaid /Expired
Uruguay	August 2002	1466	B	08/05/2002	08/09/2002
Mexico	December 2000	3000	B	not used	12/01/2001
Mexico	December 1999	3000	B	not used	12/01/2000
Mexico	December 1998	3000	B	not used	12/01/1999
Brazil	December 1998	5000	M	12/18/1998	04/12/2000
Mexico	December 1997	3000	B	not used	12/01/1998
Mexico	December 1996	3000	B	not used	12/01/1997
Mexico	December 1995	3000	B	not used	12/01/1996
Argentina	March 1995	250	M	05/04/1995	12/01/1995
Mexico	February 1995	20000	B	03/14/1995	01/16/1997
Mexico	January 1995	1500	B	not used	02/21/1995
Mexico	August 1994	3000	M	not used	12/30/1994
Mexico	April 1994	3000	B	01/09/1995	01/29/1996
Macedonia	February 1994	5	M	not used	02/22/1994
Mexico	March 1994	3000	B	not used	04/26/1994
Mexico	January 1994	300	B	not used	04/26/1994
Mexico	November 1993	3000	B	not used	03/30/1994
Peru	March 1993	470	B	03/18/1993	03/18/1993
Panama	January 1992	143	B	01/31/1992	03/11/1992
Mexico	January 1992	300	B	not used	01/12/1994
Romania	March 1991	40	M	03/07/1991	03/21/1991
Honduras	June 1990	82	M	06/28/1990	11/20/1990
Guyana	June 1990	32	M	06/20/1990	09/20/1990
Hungary	June 1990	20	M	06/21/1990	09/05/1990
Costa Rica	May 1990	28	B	05/21/1990	05/21/1990
Mexico	March 1990	600	M	03/28/1990	07/31/1990
Venezuela	March 1990	104	M	03/30/1990	04/30/1990
Mexico	January 1990	300	B	not used	01/12/1990
Bolivia	December 1989	75	B	12/27/1989	01/12/1990
Poland	December 1989	100	B	12/28/1989	02/09/1990
Bolivia	September 1989	100	B	09/22/1989	12/29/1989
Mexico	September 1989	4124	M	09/25/1989	02/15/1990
Bolivia	July 1989	100	B	07/18/1989	09/15/1989
Venezuela	March 1989	450	B	03/15/1989	04/03/1989
Argentina	October 1988	265	M	11/22/1988	02/28/1989
Mexico	July 1988	300	B	06/01/1988	09/15/1988
Brazil	July 1988	250	M	07/29/1988	08/26/1988
Yugoslavia	June 1988	50	M	06/15/1988	07/01/1988
Argentina	February 1988	550	B	02/24/1988	05/31/1988
Mexico	December 1987	300	B		12/31/1989
Ecuador	December 1987	31	B	12/04/1987	01/26/1988
Argentina	October 1987	200	M	11/13/1987	12/30/1987
Argentina	March 1987	225	M	03/09/1987	07/15/1987

Nigeria	October 1986	37	M	10/31/1986	12/11/1986
Bolivia	September 1986	100	B	not used	11/14/1986
Mexico	July 1986	273	M	06/29/1986	02/13/1987
Ecuador	May 1986	150	B	05/16/1986	08/14/1986
Mexico	December 1985	300	B	not used	12/31/1987
Argentina	June 1985	150	M	06/19/1985	09/30/1985
Argentina	December 1984	500	B	12/28/1984	01/15/1985
Philippines	October 1984	45	B	11/07/1984	12/28/1984
Argentina	March 1984	300	B	not used	09/15/1984
Mexico	December 1983	300	B	not used	12/31/1985
Jamaica	December 1983	50	B	12/29/1983	03/02/1984
Yugoslavia	April 1983	75	M	not used	11/15/1983
Brazil	February 1983	400	B	02/28/1983	03/11/1983
Brazil	December 1982	500	M	not used	11/30/1983
Brazil	December 1982	250	B	12/13/1982	01/11/1983
Brazil	November 1982	450	B	11/29/1982	03/03/1983
Brazil	November 1982	280	B	11/18/1982	02/01/1983
Brazil	October 1982	500	B	10/28/1982	12/28/1982
Mexico	August 1982	600	M	09/16/1982	08/26/1983
Mexico	August 1982	1000	B	08/16/1982	08/24/1982
Mexico	December 1981	300	B	not used	12/31/1983
Netherlands	August 1981	500	B	not used	08/17/1991
Mexico	December 1979	300	B	not used	12/31/1981
Mexico	December 1977	300	B		06/30/1978
Portugal	February 1977	300		02/01/1977	09/01/1977
United Kingdom	December 1976	250	M	not used	08/01/1977
United Kingdom	June 1976	1000	M	06/01/1976	12/09/1976
Mexico	September 1976	235	B	not used	08/25/1977
Mexico	September 1976	365	B	10/02/1976	11/05/1976
Mexico	September 1976	300	B	11/01/1976	04/01/1977
Mexico	December 1975	300	B	not used	12/31/1977
Mexico	December 1973	200	B	not used	12/31/1975
Mexico	December 1971	100		not used	12/31/1973
Mexico	December 1969	100		not used	12/31/1971
Argentina	May 1968	75			05/02/1969
Venezuela	March 1968	50			03/18/1970
Nicaragua	January 1968	5		not used	03/04/1969
Mexico	December 1967	100		not used	12/31/1969
Argentina	May 1967	75		not used	05/02/1968
Colombia	April 1966	13		04/01/1966	06/30/1969
Venezuela	March 1966	50		not used	03/17/1968
Mexico	January 1966	75		not used	12/31/1967
Brazil	February 1965	54		not used	01/12/1966
Chile	February 1965	16		02/04/1965	01/30/1966
Dominican Republic	August 1964	6		08/10/1964	06/30/1967

Chile	March 1964	15		03/13/1964	02/04/1967
Mexico	January 1964	75		not used	12/31/1965
Chile	January 1963	10		01/31/1963	06/30/1966
Philippines	May 1962	25			03/31/1963
Argentina	June 1962	50		06/07/62	06/30/1966

Source: [Henning \(1999\)](#) and U.S. Department of Treasury Resource Center

Table 12: US Dollar Swap Lines of the Federal Reserve, 1962–present

Country	Signing Date	Amount, millions USD	Unilateral/ Bilateral	Expiration Date	Notes
Australia	March 2020	60000	September 2020	U	
	April 2009	30000	February 2010	U	Renewal
	September 2008	30000	April 2009	U	
Austria	December 1973	250	December 1998	B	12 months duration, renewed annually
	December 1969	200	December 1973	B	12 months duration, renewed annually
	December 1968	100	December 1969	B	12 months duration, size increased to 200m in October 1969
	July 1967	100	December 1968	B	
	July 1964	50	July 1967	B	12 months duration, renewed annually
	October 1962	50	July 1964	B	3 months duration, renewed every 3 months
Belgium	December 1973	1000	December 1998	B	12 months duration, renewed annually
	December 1971	600	December 1973	B	12 months duration, renewed annually
	December 1969	500	December 1971	B	12 months duration, size increased to 600m in August 1971
	December 1968	225	December 1969	B	12 months duration, size increased to 300m in May 1969, and to 500m in August 1969

	December 1967	150	December 1968	B	12 months
	March 1967	50	December 1967	B	3 months duration, renewed twice
	December 1964	100	December 1967	B	12 months duration, renewed twice
	December 1962	50	December 1964	B	6 months duration, renewed four times
Brazil	March 2020	60000	September 2020	U	
	April 2009	30000	February 2010	U	Renewal
	October 2008	30000	April 2009	U	
Canada	February 2014	Unlimited	Standing facility	U	
	February 2013	30000	February 2014	U	Renewal
	August 2012	30000	February 2013	U	Renewal
	August 2011	30000	August 2012	U	Renewal
	May 2010	30000	August 2011	U	
	April 2009	30000	February 2012	U	Renewal
	September 2008	30000	April 2009	U	
	January 1994	2000	Standing Facility	U	North America Framework Agreement, renewed annually
	December 1973	2000	December 1994	B	12 months duration, renewed 20 times
	December 1968	1000	December 1973	B	12 months duration, renewed 4 times
	December 1967	750	December 1968	B	12 months duration
	December 1966	500	December 1967	B	12 months duration
	December 1963	250	December 1966	B	12 months duration, renewed twice
	June 1962	250	December 1963	B	3 months duration, renewed 5 times
Denmark	March 2020	30000	September 2020	U	
	April 2009	15000	February 2010	U	Renewal
	September 2008	15000	April 2009	U	
	December 1973	250	December 1998	B	12 months duration, renewed 24 times
	December 1969	200	December 1973	B	12 months duration, renewed thrice
	December 1968	100	December 1969	B	12 months

					duration, increased to 200m in October 1969
	May 1967	100	December 1968	B	
European Central Bank	February 2014	Unlimited	Standing Facility	U	
	February 2013	240000	February 2014	U	Renewal
	August 2012	240000	February 2013	U	Renewal
	August 2011	240000	August 2012	U	Renewal
	May 2010	240000	August 2011	U	
	April 2009	240000	February 2012	U	Renewal
	September 2008	240000	April 2009	U	Renewal
	August 2008	55000	September 2008	U	Original maturity January 2009, increase in size
	April 2008	50000	August 2008	U	Original maturity January 2009, increase in size
	December 2007	20000	April 2008	U	
France	December 1973	2000	December 1998	B	12 months duration, renewed 24 times
	December 1968	1000	December 1973	B	12 months duration, renewed 4 times
	July 1968	700	December 1968	B	3 months duration, renewed once
	March 1963	100	July 1968	B	3 months duration, renewed 22 times
	March 1962	50	March 1963	B	3 months duration, renewed thrice
Germany	December 1978	6000	December 1998	B	12 months duration, renewed 19 times
	December 1977	4000	December 1978	B	12 months duration
	December 1973	2000	December 1977	B	12 months duration, renewed thrice
	December 1968	1000	December 1973	B	12 months duration, renewed 4 times
	December 1967	750	December 1978	B	12 months duration, increased to 1000m in March 1968
	February 1967	400	December 1967	B	6 months

					duration, renewed once
	August 1964	250	February 1967	B	6 months duration, renewed 4 times
	February 1964	250	August 1964	B	3 months duration, renewed once
	February 1963	150	February 1964	B	3 months duration, renewed thrice
	August 1962	50	February 1963	B	3 months duration, renewed once
Italy	December 1974	3000	December 1998	B	12 months duration, renewed 23 times
	December 1973	2000	December 1974	B	12 months duration, size increased to 3000m in January 1974
	December 1970	1250	December 1973	B	12 months duration, renewed twice
	December 1968	1000	December 1970	B	12 months duration, renewed once, size increased to 1250m in March 1970
	December 1967	450	December 1968	B	12 months duration, size increased to 1000m in October 1968
	March 1967	450	December 1967	B	
	March 1965	450	March 1967	B	12 months duration, renewed twice
	October 1964	250	October 1965	B	12 months
	January 1964	250		B	3 months duration, renewed once
	December 1962	150	January 1964	B	3 months duration, renewed thrice
	April 1962	150	January 1964	B	3 months duration, renewed 5 times
	February 2014	Unlimited	Standing facility	U	

	February 2013	120000	February 2014	U	Renewal
	August 2012	120000	February 2013	U	Renewal
	August 2011	120000	August 2012	U	Renewal
	May 2010	120000	August 2011	U	Renewal
	April 2009	120000	February 2010	U	Renewal
	September 2008	120000	April 2009	U	
	December 1978	5000	December 1998	B	12 months duration, renewed 19 times
	December 1973	2000	December 1978	B	12 months duration, renewed 4 times
	December 1968	1000	December 1973	B	12 months duration, renewed 4 times
	July 1967	450	July 1968	B	12 months duration, size increased to 750m in November 1967
South Korea	July 1965	250	July 1967	B	12 months duration, renewed once
	July 1964	150	July 1965	B	12 months duration, size increased to 250m in March 1965
	January 1964	150	July 1964	B	3 months duration, renewed once
	October 1963	100	January 1964	B	3 months duration
	March 2020	60000	September 2020	U	
	April 2009	30000	February 2010	U	Renewal
	October 2008	30000	April 2009	U	
	March 2020	60000	September 2020	U	
	April 2009	30000	February 2010	U	Renewal
	October 2008	30000	April 2009	U	
Mexico	January 1994	3000	Standing Facility	U	North America Framework Agreement, renewed annually
	December 1996	3000	December 1998	U	12 months duration, renewed once
	February 1995	3000	January 1996	U	12 months duration
	April 1994	3000	December 1995	U	20 months
	December 1993	700	April 1994	U	
	December 1979	700	December 1993	U	12 months

					duration, renewed 13 times
	December 1975	360	December 1979	U	12 months duration, renewed thrice
	December 1973	180	December 1975	U	12 months duration, renewed once, size increased to 360m in August 1975
	December 1968	130	December 1973	U	12 months duration, renewed 4 times
	May 1967	130	May 1968	U	
Netherlands	December 1973	500	December 1978	B	12 months duration, renewed 24 times
	December 1969	300	December 1973	B	12 months duration, renewed thrice
	December 1967	225	December 1969	B	12 months duration, renewed once, size increased to 300m in May 1969
	September 1967	225	December 1967	B	3 months duration
	March 1967	150	September 1967	B	3 months duration, renewed once
	December 1963	100 million	March 1967	B	3 months duration, renewed 12 times
	June 1962	50	December 1963	B	3 months duration, renewed 5 times
New Zealand	March 2020	30000	September 2020	U	
	April 2009	15000	October 2009	U	Renewal
	October 2008	15000	April 2009	U	
Norway	March 2020	30000	September 2020	U	
	April 2009	15000	February 2010	U	Renewal
	September 2008	15000	April 2009	U	
	December 1973	250	December 1998	B	12 months duration, renewed 24 times
	December 1969	200	December 1973	B	12 months duration, renewed thrice

	December 1968	100	December 1969	B	12 months duration, size increased to 200m in October 1969
	May 1967	100	May 1968	B	12 months
Singapore	March 2020	60000	September 2020	U	
	April 2009	30000	February 2010	U	Renewal
	October 2008	30000	April 2009	U	
Sweden	March 2020	60000	September 2020	U	
	April 2009	30000	February 2010	U	Renewal
	September 2008	30000	April 2009	U	
	December 1973	300	December 1998	U	12 months duration, renewed 25 times
	December 1968	250	December 1973	U	12 months duration, renewed 4 times
	July 1967	100	July 1968	U	12 months duration
	July 1964	50	July 1967	U	12 months duration, renewed twice
	January 1963	50	July 1964	U	3 months duration, renewed 5 times
Switzerland	February 2014	Unlimited	Standing Facility	U	
	February 2013	60000	February 2014	U	Renewal
	August 2012	60000	February 2013	U	Renewal
	August 2011	60000	August 2012	U	Renewal
	May 2010	60000	August 2011	U	
	April 2009	60000	February 2010	U	Renewal
	September 2008	60000	April 2009	U	
	April 2008	120000	September 2008	U	Original maturity January 2009, increase in size
	December 2007	4000	April 2008	U	
	December 1978	4000	December 1998	B	12 months duration, renewed 19 times
	December 1973	1400	December 1978	B	12 months duration, renewed 4 times
	December 1971	1000	December 1973	B	12 months duration, renewed once
	December 1968	600	December 1971	B	12 months duration, renewed twice, size increased to

					1000m in August 1971
	December 1967	400	December 1968	B	12 months duration
	July 1967	250	December 1967	B	
	January 1967	200	July 1967	B	6 months duration
	July 1964	150	January 1967	B	6 months duration, renewed 4 times
	January 1964	100	July 1964	B	3 months duration, renewed once
	July 1962	100	January 1964	B	3 months duration, renewed 4 times
United Kingdom	February 2014	Unlimited	Standing Facility	U	
	February 2013	80000	February 2014	U	Renewal
	August 2012	80000	February 2013	U	Renewal
	August 2011	80000	August 2012	U	Renewal
	May 2010	80000	August 2011	U	
	April 2009	80000	February 2010	U	Renewal
	September 2008	80000	April 2009	U	
	December 1974	3000	December 1998	B	12 months duration, renewed 23 times
	December 1968	2000	December 1974	B	12 months duration, renewed 6 times, size increased to 3000m in March 1974
	May 1967	1350	May 1968	B	12 months duration, size increased to 1500m in November 1967, and to 2000m in March 1968
	May 1965	750	May 1967	B	12 months duration, renewed once
	May 1963	500	May 1965	B	12 months duration, renewed once, size increased to 750m in November 1964
	August 1962	50	August 1963	B	3 months duration, renewed

					thrice
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Source: Minutes of several FOMC meetings 1962–2020
Change in size of swap lines are listed as new swap arrangements

9 Appendix II: Robustness Checks

Table 13: Results of Probit Model

	Federal Reserve Swap		ESF Loan		Swap or ESF Loan	
	w/ Interactions		w/ Interactions		w/ Interactions	
	(1)	(2)	(3)	(4)	(5)	(6)
Bank Exposure	0.077 (0.284)	0.109 (0.288)	0.411** (0.194)	0.240*** (0.088)	0.317** (0.141)	0.253** (0.123)
Import Share	0.867 (0.672)	0.905 (0.609)	0.243 (0.272)	-0.022 (0.062)	0.385* (0.201)	0.360 (0.235)
Export Share	-0.571 (0.492)	-0.419 (0.485)	0.136 (0.296)	0.091 (0.168)	-0.668*** (0.182)	-0.676*** (0.178)
FX Reserves	-1.030** (0.506)	-0.996** (0.414)	-0.747 (0.607)	-0.750 (0.553)	-1.166*** (0.244)	-1.133*** (0.263)
GDP Share	-1.396 (2.990)	-1.295** (0.600)	-0.789 (0.561)	-0.362* (0.195)	0.071 (0.227)	0.307 (0.271)
Inflation	0.346 (1.839)	-7.478 (5.978)	-0.599 (0.413)	0.834 (0.547)	-1.026 (0.740)	-3.270 (2.034)
Ideal point difference w/ the U.S.			1.138 (0.857)	-0.683 (0.473)	-1.033 (0.762)	-0.957 (0.806)
Capital Account Openness	1.582* (0.823)	1.620* (0.846)	-0.194 (0.194)	-0.129 (0.189)	0.324 (0.254)	0.392 (0.390)
U.S. Trade Agreement	1.183 (2.778)	1.952 (1.558)	1.251*** (0.295)	3.491*** (1.311)	0.472 (0.541)	0.776 (0.579)
D.C.A.	0.650 (1.471)	0.642 (1.341)	0.397 (0.764)	2.280** (1.162)	0.921 (0.582)	0.878 (0.692)
U.S. unemployment	1.183** (0.590)	0.955** (0.415)	-3.633* (1.975)	-2.603 (1.704)	1.115*** (0.348)	0.968** (0.393)
Republican President	-0.904*** (0.275)	-0.896*** (0.160)	-0.367 (0.898)	0.072 (0.594)	-1.133*** (0.233)	-1.164*** (0.257)
Republican Senate	0.035 (0.101)	0.067	-0.461 (0.572)		-0.501*** (0.174)	-0.421** (0.174)
Republican House	-0.813* (0.449)	-0.902*** (0.315)			-0.749*** (0.214)	-0.867*** (0.269)
Emerging Market Dummy	0.964 (7.042)	-2.850 (5.762)	0.918 (1.086)	0.280 (0.530)	-1.504* (0.789)	-2.311*** (0.817)
Bank Exposure* Crisis		1.014** (0.479)		0.188 (0.329)		0.567** (0.222)
Import Share* Crisis		-0.845 (0.547)		0.528 (0.389)		-0.225 (0.310)
Export Share* Crisis		1.022** (0.423)		0.540 (0.532)		0.900*** (0.327)
FX Reserves* Crisis		-2.885*** (0.566)		0.352 (0.601)		-1.206*** (0.338)
GDP Share* Crisis		-0.810 (0.671)		-0.817*** (0.300)		-1.381*** (0.345)
Inflation* Crisis		8.267 (5.446)		-1.798*** (0.622)		0.151 (1.812)
Ideal point difference w/ U.S.*Crisis				2.447** (1.102)		-2.897*** (0.710)
Capital Account Openness*Crisis		2.832 (2.519)		0.120 (0.367)		-0.293 (0.459)
U.S. Trade Agreements*Crisis		0.604 (4.920)		0.000 (.)		2.635** (1.112)
D.C.A.* Crisis		0.750		0.000		0.955**

		(1.023)		(.)		(0.421)
Republican President*Crisis		-1.585 (1.861)		0.995* (0.522)		-0.472 (0.454)
Republican Senate*Crisis		-3.633 (2.948)				-3.055*** (0.877)
Republican House*Crisis		1.308*** (0.484)				0.787** (0.363)
Emerging Market Dummy*Crisis		6.282 (4.189)		-0.480 (0.988)		2.417*** (0.725)
Constant	-9.883 (29.315)	27.340 (26.756)	3.994 (3.017)	-1.947 (1.210)	3.980 (3.703)	14.557 (9.467)
<i>N</i>	9798	9798	2812	2371	8776	8776

Standard errors in parentheses

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

Table 14: Results of Linear Probability Model

	Federal Reserve Swap		ESF Loan		Swap or ESF Loan	
	w/ Interactions		w/ Interactions		w/ Interactions	
	(1)	(2)	(3)	(4)	(5)	(6)
Bank Exposure	0.004 (0.007)	0.001 (0.006)	-0.001 (0.002)	-0.000 (0.002)	0.005 (0.007)	0.002 (0.006)
Import Share	0.009 (0.008)	0.009 (0.008)	-0.002 (0.002)	-0.000 (0.001)	0.009 (0.008)	0.009 (0.008)
Export Share	-0.024** (0.012)	-0.017* (0.010)	0.003 (0.004)	0.002 (0.003)	-0.025** (0.012)	-0.019* (0.010)
FX Reserves	-0.116*** (0.026)	-0.091*** (0.026)	-0.010 (0.007)	-0.006 (0.005)	-0.117*** (0.026)	-0.092*** (0.026)
GDP Share	0.004 (0.014)	0.004 (0.012)	-0.001 (0.002)	-0.001 (0.002)	0.005 (0.014)	0.005 (0.012)
Inflation	-0.047*** (0.016)	-0.091*** (0.034)	-0.016 (0.014)	0.010 (0.009)	-0.054*** (0.018)	-0.091*** (0.034)
Ideal point difference w/ U.S.	-0.065 (0.045)	-0.066 (0.043)	0.001 (0.008)	-0.004 (0.005)	-0.070 (0.046)	-0.071 (0.043)
Capital Account Openness	0.033*** (0.009)	0.028*** (0.010)	-0.001 (0.003)	0.001 (0.003)	0.031*** (0.009)	0.026** (0.010)
U.S. Trade Agreement	-0.017 (0.025)	-0.007 (0.025)	0.226* (0.132)	0.291 (0.185)	-0.018 (0.025)	-0.007 (0.025)
D.C.A.	0.050 (0.063)	0.044 (0.060)	-0.007 (0.006)	-0.019 (0.013)	0.051 (0.063)	0.043 (0.060)
U.S. Unemployment	0.136*** (0.026)	0.065*** (0.023)	-0.028 (0.020)	-0.030 (0.027)	0.133*** (0.026)	0.066*** (0.023)
Republican President	-0.075*** (0.016)	-0.067*** (0.016)	-0.001 (0.004)	-0.008 (0.010)	-0.075*** (0.016)	-0.065*** (0.016)
Republican Senate	-0.037*** (0.011)	-0.035*** (0.012)	0.005 (0.004)	-0.006 (0.007)	-0.037*** (0.011)	-0.035*** (0.012)
Republican House	-0.022* (0.011)	-0.026** (0.012)	-0.007 (0.006)	-0.005 (0.007)	-0.023** (0.012)	-0.026** (0.012)
Emerging Market Dummy	0.004 (0.045)	-0.007 (0.042)	0.039 (0.025)	0.022 (0.015)	0.005 (0.046)	-0.008 (0.042)
Bank Exposure* Crisis		0.042*** (0.014)		0.001 (0.004)		0.041*** (0.014)
Import Share* Crisis		-0.014 (0.017)		-0.003 (0.004)		-0.015 (0.017)
Export Share* Crisis		0.007 (0.023)		0.009 (0.007)		0.011 (0.023)

GDP Share* Crisis		-0.022 (0.042)		0.004 (0.007)		-0.021 (0.043)
Ideal point difference w/ U.S.*Crisis		-0.175** (0.077)		0.044** (0.020)		-0.161** (0.074)
Capital Account Openness*Crisis		0.008 (0.013)		0.003 (0.006)		0.008 (0.014)
U.S. Trade Agreement* Crisis		0.051 (0.055)		0.632*** (0.218)		0.040 (0.056)
D.C.A.* Crisis		0.012 (0.076)		0.053** (0.025)		0.028 (0.074)
U.S. unemployment* Crisis		0.342*** (0.113)		-0.064 (0.040)		0.308** (0.120)
Republican President*Crisis		-0.036 (0.032)		0.024 (0.023)		-0.044 (0.031)
Republican Senate*Crisis		-0.018 (0.035)		0.036 (0.024)		-0.019 (0.035)
Republican House*Crisis		0.144*** (0.030)		-0.043* (0.026)		0.140*** (0.030)
Emerging Market Dummy*Crisis		0.034 (0.094)		-0.013 (0.019)		0.037 (0.096)
Constant	0.476*** (0.107)	0.742*** (0.198)	0.138* (0.081)	0.035 (0.051)	0.525*** (0.117)	0.750*** (0.197)
<i>N</i>	8776	8776	2812	2812	8776	8776

Standard errors in parentheses

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