The Fallacy of Funding: Why IMF-Supported Programs Fail to Catalyze Investment

by

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This paper examines the relationship between a country's involvement in an International Monetary Fund (IMF) facility and that country's ability to catalyze capital inflows. The IMF and policymakers tend to "take for granted" the catalytic effect of IMF lending (e.g. Schadler et al 1995; Bird and Rowlands 1997). However, with few exceptions, the empirical literature finds that Fund arrangements do not increase a participating country's access to private capital, and in fact more likely diminish the country's access to private capital. Why does there exist variation in the catalytic effect of Fund lending? This paper argues that the effect of IMF agreements on a country's access to private capital is dependent on whether or not investors believe the participatory country will implement the reforms tied to the IMF loan. Countries of geopolitical strategic importance to the U.S. are less likely to implement the agreed conditions of the IMF loan, and thus less likely to receive investment. I, using a new measure of geopolitical strategic importance, find that countries of greater importance to the U.S. experience less investment following participation in an IMF agreement, then countries of lesser importance. The data is time-series cross-section and covers 142 countries between the years 1977 and 2008

This paper examines the relationship between a country's involvement in an International Monetary Fund (IMF or Fund) facility and its ability to catalyze capital inflows. With few exceptions, the empirical research has shown that Fund arrangements do not increase a participating country's access to private capital, and in fact, some studies have found the opposite: that these arrangements tend to diminish the participating country's access to private capital. This is a puzzling result, considering that the IMF and policymakers tend to take the catalytic effect of IMF lending for granted (e.g., Schadler et. al. 1995; Bird and Rowlands 1997).[1] Why do policy makers argue the Fund increases a participating country's access to capital if researchers cannot find a consistent empirical relationship? Furthermore, countries which participate in IMF agreements experience both large inflows and outflows of FDI following participation; catalytic lending tends not to materialize in all countries (Schadler et. al. 1995). The data shows that a year following participation, countries have experienced outflows of up to $16,700,000,000, while others have experienced inflows of FDI up to $1,130,000,000.[2] Why does there exist variation in the catalytic effect of Fund lending? This paper presents a theory for the effect of IMF agreements on investment flows, by exploring the causes of variation in the catalytic effect of Fund lending.

[1] Although perhaps this is not as puzzling when one considers that the catalytic effect is central to the Fund's mission statement. Therefore, it is not surprising that the Fund would take for granted the catalytic effect, simply that it would be able to get away with doing so for such a long time when there is little empirical support (even from Fund supported research (e.g. Cottarelli and Giannini 2002)).

[2] For example, following an IMF program in Bulgaria in 2009, the net FDI inflows was 7.2 percent of GDP, 58 percent lower than in 2008 and 75 percent lower than in 2007. Conversely, in 2003, Argentinean FDI inflows

I argue that the catalytic effect of Fund lending[3] is not universally applicable to all participating countries, and that countries that are viewed by investors as less likely to implement the agreed-upon reforms are less likely to experience an increase in FDI. As a result, although a general theory of catalytic lending applies to creditors, investors and international donors, this paper develops a more specific theory of how IMF agreements catalyze private investment. My approach is an improvement upon previous research because it attempts to disentangle the complex relationships between member states, the IMF and private investors. In particular, I focus on how and why private actors (investors) change their behavior based on public information (from the IMF).

Previous studies have found that countries which are of geopolitical strategic importance to powerful member states of the IMF are likely to get preferential treatment.[4] This preferential treatment limits the program country's ability to catalyze financial inflows as international investors are aware of the bias in the IMF. Previous researchers (e.g., Stone 2004, 2010) have conceptualized geopolitical strategic importance along a single dimension, either UN vote affinity with the U.S. or the amount of bilateral aid given to a country. This paper contributes to the literature on the politicized nature of Fund lending by creating a new index which assess the geopolitical

[3] Throughout the paper, I refer to the IMF as "lending" and to the participatory countries as "borrowing;" however, technically the IMF does not "lend" money and countries do not "borrow" money. Officially, member states can make purchases by exchanging their currency for the equivalent of another members' currency or Special Drawing Rights (SDR), and then over time, the country repurchases its own currency. The IMF places charges on these purchases and thus the purchase and repurchase is equivalent to a loan with interest.

[4] Recent literature on the IMF has found that "important" countries receive preferential treatment. These "important" countries are more likely to initiate an IMF program (Pop-Eleches 2009, Thacker 1999); receive larger loans (Barro and Lee 2002, Oatley and Yackee 2004); have fewer conditions (Dreher and Jensen 2006); and receive less severe punishment for lack of implementation (Stone 2002).

strategic importance of countries to the U.S. along multiple dimensions. The index improves upon previous conceptualizations by capturing both economic and military strategic importance. Economic importance to the U.S. is captured using measures of bilateral trade, while military importance to the U.S. is captured by coding both military allies and potential adversaries of the U.S. Using the new index, I find that countries which are of geopolitical strategic importance to the U.S. receive less investment following an IMF loan.

In addition, the type of investment also matters. I find that there are important differences in how direct and portfolio investors respond to IMF agreements. Portfolio investors tend to increase investment following participation, regardless of international factors or program type. Direct investors, however, are sensitive to international affairs and program type, as well as domestic political institutions. It may not be surprising that there is variability in the results between direct and portfolio investors, considering the difference in the types of investments themselves. Portfolio investors may be responding positively to the quick injection of capital from an IMF loan. Because portfolio investments are more short-term, the capital a participatory country receives from the IMF may serve as an incentive for these types of investors in an effort to make a quick turnaround on investment. On the other hand, the situation may be an example of moral hazard, in that portfolio investors are willing to make risky investments because they know the IMF will be there to bail them out.

Literature Review: The Catalytic Effect of Fund Lending

The theory of the catalytic effect of IMF lending suggests that IMF participation should spur private investment because financing from the Fund is conditioned on a package of policy reforms that should convince both creditors and investors that the country is a good prospect for investment (Boughton 2004). Although conditionality was initially attached to Fund loans in an effort by the Fund to protect its own interests, governments began using conditionality as a way to establish credibility in their policies to markets (Dhonte 1997). Following the debt crisis in the early 1980s governments began to use conditionality as a way to convince creditors and investors that they were pursuing the proper policies to get their economies back on track. To the extent that participatory governments could convince creditors and investors that their policy choices were responsible, the IMF arrangement would serve as a "catalyst" for investment. Cottarelli and Giannini (2002) define the catalytic effect of IMF lending as "the extent [to which] the announcement of an economic program backed up by a limited amount of IMF resources (as compared to the size of the potential capital outflow) increases the propensity of private investors to lend to the country concerned" (6). Creditors and investors are likely to be keenly aware of the IMF's involvement in domestic markets of countries in which they are interested in investing or lending. In order for an IMF agreement to have a catalytic effect, the agreement must alter the behavior of investors to make them more likely than they otherwise would be to invest in participatory countries.

The theoretical literature identifies a number of potential channels through which IMF lending could catalyze additional financial flows (Cottarelli and Giannini 2002; Diaz-Cassou et al 2006; Boughton 2004). First, IMF participation increases a

country's liquidity. Second, conditionality imposes stringent reform policies expected to increase growth, to which investors respond positively. Finally, the IMF's approval for a loan signals approval of the country's policies already in place (Diaz-Cassou et al 2006). I argue that the second of these channels is the way by which IMF participation serves to increase a country's access to private finance. If IMF participation increases access to capital because it improves the country's liquidity, this is likely to be a result of moral hazard on the part of investors and lenders. At the same time, because there are different types of private investment – foreign direct investment and portfolio investment – liquidity may serve to catalyze private finance for portfolio investment which is characterized by shorter time horizons.

The third channel is also unlikely to be the mechanism through which catalytic lending works because it assumes that the IMF has an informational advantage over the market. It is unlikely that the IMF would have better information than the investment market, especially given that these actors have strong incentives to learn about their possible investment opportunities. It is also unlikely that the IMF has an informational advantage because countries often falsify numbers in order to appear as a good lending opportunity for the Fund (the most common example is manipulating levels of foreign reserves). By contrast, presumably investors are cognizant of factors that can influence their investment decision. If an international investor is planning on investing in a country, he or she has likely spent some time researching the economic situation of that

particular country.[5] Thus, I argue IMF arrangements serve to catalyze private finance primarily through commitment to macroeconomic policies that improve the investment environment in a participatory state.[6]

It is important to note that the catalytic lending argument is not universally accepted in the theoretical literature. For example, Morris and Shin (2006) argue that, "there is no agreed theoretical rationale for catalytic finance" (162). The authors suggest that IMF involvement induces moral hazard on both the part of the borrowers and lenders, and therefore catalytic finance can only work when it works as a strategic complement to appropriate behavior on the adjustment effort by the borrower and leads to roll-over on the part of the creditors. In other words, if IMF lending exacerbates moral hazard, then there is no theoretical basis for IMF loans to catalyze financial flows. Furthermore, Bird and Rowlands (1997) argue that the catalytic lending argument is unclear based purely on economic reasons. According to Bird and Rowlands, the economic, financial and monetary policies associated with an IMF agreement do not necessarily lead to increases in financial flows. As a result, although the majority of the theoretical literature posits that the IMF should be positively related to increases in financial inflows, it is important to note that there are theoretical concerns about this relationship.

Morris and Shin (2006) modeled catalytic lending formally and found that IMF involvement does not always exacerbate moral hazard. IMF lending works as a catalyst when it induces greater adjustment effort by the debtor and greater roll-over by

[5] In Stone's (2002) model, the IMF does not have an informational advantage over the other actors (e.g. the countries and the market) and he finds the institution is still able to have an effect on market actors' decisions.

[6] The specific causal mechanisms are addressed in greater detail in the following section.

creditors. According to Morris and Shin catalytic lending is likely to work when the country's economic fundamentals are poor, but not irrevocably so. Morris and Shin also found that when a country's fundamentals are good, catalytic lending is less likely to work. Thus, Morris and Shin have cautiously optimistic results: that it is only in the intermediate ranges of insolvency that IMF arrangements catalyze lending.

The majority of the empirical literature on the catalytic effect of Fund arrangements finds that Fund arrangements have no statistically significant effect on participating country's access to capital, and in fact more likely decreases the country's access to capital. Until the end of the 1990s, most of this empirical literature on the catalytic role of the Fund focused on private lending (as opposed to private investing) and found that Fund lending is negatively associated with private lending (Bird and Orme 1981; Cornelius 1987; Joyce 1992; Bird 1994, 1995). Yet even in these early papers, the acknowledgment of the Fund's belief in catalytic lending was explicit. Bird and Orme (1981) say that, "the Fund itself clearly believes…that borrowing from it, particularly on the basis of a stand-by agreement, acts as a catalyst for the generation of private capital inflows" (564).

In the latter half of the 1990s – after the 1997 East Asian financial crisis – researchers began to more closely scrutinize the catalytic lending argument advanced by the Fund. The East Asian financial crisis saw a rapid outflow of capital, and this phenomenon has become a major factor leading to increased IMF lending. If the IMF is being called in to fix problems of capital flight, the policies associated with structural adjustment programs should alleviate the problem and increase capital flows (or at least serve to "stop the bleeding" and slow the outflows). However, the empirical literature

on the subject has been unconvincing. With the possible exception of foreign aid (Bird, Mori and Rowlands 2000; Bird and Rowlands 2001, 2002), IMF programs have been found to be negatively associated with measures of capital inflows. Findings of empirical analysis which measure capital inflows in terms of lending do not general support the catalytic role of the IMF (Bird and Rowlands 1997; Hajivassiliou 1987; Adji et al., 1997; Rodrik 1995; Bordo et al., 2004).

Most studies which examine the catalytic effect in terms of investment specifically find that IMF involvement is associated with capital flight. These studies have used both FDI and portfolio investment as the dependent variable. Further, unlike some earlier studies, they controlled for selection into IMF programs, therefore their results suggest that signing an IMF agreement is causally associated with capital flight (Jensen 2004; Barro and Lee 2002; Edwards 2006). This paper follows earlier studies and employs a model that controls for the selection problem associated with examining the effects of IMF participation.

A handful of studies do indeed find a positive catalytic effect of Fund lending. For example, Marchesi (2001) finds a catalytic effect on private capital flows, in that the existence of a program raises the probability of rescheduling an existing loan. In a study of a variety of dependent variables Bird and Rowlands (1997, 2001) find a positive relationship between Fund involvement and increases in bilateral aid flows. Similarly, Dhonte (1997) and Edwards (2005) both find support for the catalytic effect. In particular, Edwards (2005) examines portfolio investment and finds evidence supporting the argument that IMF programs are an important signal to portfolio

investors. Thus, there are inconsistent findings in both the theoretical and empirical literature.

The literature also does not agree on the most appropriate way to operationalize IMF participation. Some simply use a binary measure of participation, without differentiating between the varying types of agreements (e.g. Vreeland 2002, 2003; Jensen 2004). Others explicitly examine either non-concessional (Stand-by Arrangements or Extended Credit Facilities) or concessional (Extended Credit Facilities) lending, depending on theory (Edwards 2005, 2006; Bird and Rowlands 2002). Edwards (2006) and Bird and Rowlands (2002) both find that when examining highly non-concessional loans, countries experience net capital outflows. Interestingly, Bird and Rowlands (2002) find that highly concessional loans are associated with increases in foreign aid flows, on the rationale that states which receive concessional lending are those in the direst conditions and most in need of aid. Biglaiser and DeRouen (2009) find that IMF agreements increase FDI flows originating from U.S. firms. But when they separate by agreement type, this relationship goes away for concessional loans. What these studies make clear is the need to differentiate between the types of agreements as the different agreements have different implications depending on the theory. Overall, the conflicting results in the literature on the catalytic effect of IMF participation suggest the need for further study.

Theory

The catalytic effect of Fund lending is a phenomenon that the IMF contends is necessary to achieve its goals and is central to its lending practices. However, as

discussed in the previous section, the results of empirical studies on the catalytic effect have been mixed. I argue that there are systematic reasons at the international, facility and domestic-level which explain why some IMF agreements fail to catalyze capital inflows. In this section, I explain the theoretical expectations at each of these levels. The catalytic effect essentially claims that IMF lending influences investor's decisions. Thus, I begin with a discussion of investors and how both international and facility-level factors affect investor perceptions and behavior.

Sophisticated Investors

If Fund arrangements are able to increase investments into participating countries, then IMF agreements would be expected to have an effect on behavior of international investors. For the catalytic effect to hold, not only would these arrangements be expected to have an effect on investor behavior, but they must do so in such a way as to increase the likelihood of investment into a participating country. Although clearly not the only or even the most important factor influencing investment decisions, survey data does suggest that international investors are aware of Fund activities (Bird and Rowlands 1997). International investors have incentives to pay close attention to the economies of the countries in which they are investing, and that includes knowing when that country has agreed to an IMF arrangement. Previous literature on the catalytic effect, at times, assumed that the IMF had an informational advantage over other international actors, such as international investors (Bordo et al 2004; Cottarelli and Giannini 2002). Thus, signing an IMF arrangement revealed new information about the state of the participatory country's macroeconomic policy and

current or future economic performance. However, given technology, globalization, and the incentives of savvy investors to research their target countries, it is unlikely that this is the case. Furthermore, recent theoretical work has shown that IMF agreements can influence economic outcomes even without an informational advantage (e.g. Stone 2002).

Investors care about more than IMF participation when making their investment decisions; there are a plethora of factors which influence investment decisions. Gooptu (1993) calls the two main types of factors "push" and "pull" factors. Push factors are exogenous conditions in international financial markets. For example, the recession in the U.S. in the 1980s led to increases in international investment in countries other than the U.S. Low interest rates also serve as push factors for investment. Pull factors, on the other hand, are the ways in which domestic governments can attract investment. These include: 1) a good track record of domestic policy reform and macroeconomic management, 2) reliable information that is available in a relatively costless manner, 3) monitoring of transactions and, 4) transparent guidelines for investors. Participating in an IMF agreement, while not revealing any "new" information about the participatory country's economy, can serve as a "pull" factor that makes investment more appealing.

The IMF has two goals when it negotiates agreements with member states. First, it wants to address the country's immediate need for access to liquidity. Second, it wants to have its loan repaid. In order to ensure that the country is able to repay the loan, the IMF places conditions to "fix" the economic fundamentals that led to the need for liquidity in the first place. In other words, the conditionality is essentially an effort to ensure that Fund resources are effectively used. The Fund monitors the conditions

(structural benchmarks and performance criteria) to make sure the country is implementing the prescribed reform policies, which are meant to improve the domestic economy and therefore increase the likelihood that the country will be able to pay back the loan, on schedule and in full. If the IMF believes that a country is not implementing the conditions, continued access to Fund resources is cancelled until the IMF determines that the country is complying with the conditions. If the IMF determines that the country is not attempting to implement the conditions in good faith, then they cut the agreement short. The conditionality attached to IMF agreements allows the IMF to monitor and enforce policy reforms that are favored by international investors.

I argue the IMF serves to catalyze capital through its work as a delegated monitor. Thus, I assume that the IMF policies are ones that are preferred by international investors.[7] It is not whether or not the policies are objectively correct from an economic point of view, but whether investors, with bounded rationality, believe that IMF policies create a good investment environment. More simply, IMF participation also increases government predictability, an important factor influencing investment decisions. Unpredictability is a deterrent to investment, and therefore governments may wish to bind themselves to outside agencies in order prevent policy reversal (Dhonte 1997). More than just agreeing to investor-preferred policies, the government has contracted an "agency of restraint" (Collier 1996) to signal a higher degree of

[7] In a review of IMF compliance Vreeland (2006) discusses how consensus has emerged that IMF agreements tend to have unfavorable macroeconomic effects, but it is unclear if this is the result of poor policy choices or policy compliance. I assume that it is a result of lack of compliance and not poor policy prescriptions. Although some attempts have been made at disentangling implementation and participation (e.g. Arpac et al. 2008), I argue these attempts have been modest at best. Including a measure of implementation in the econometric analysis limits the dataset, and all of the measures of implementation are indirect and tangential to the concept.

predictability and lower probability of expropriation. Loans are contingent on a state following the loan conditions which often require the state to alter the structure of their national economy. These conditions and policies are based on liberal economic theory and typically require the state to decrease spending, balance their deficit, and liberalize trade. Because the policies are aimed at sustainable economic growth and development, investors are expected to view such policies as favorable for the investment climate. In addition to promoting domestic policy reform and macroeconomic management, the IMF's increased transparency provides reliable information to investors. Thus, participation in an IMF agreement seems to make investment more favorable by altering the "pull" factors discussed above. Thus, it may not be that the macroeconomic changes have direct economic effects on investment (e.g., Bird and Rowlands 2002), but that the reform policies create what international investors perceive as a favorable investment environment more generally.

In addition to assisting[8] countries in formulating a package of policies to address balance of payments and other economic problems, the IMF also monitors policy implementation, punishing those states which fail to implement the policies and reach performance criteria. The catalytic lending argument works via this mechanism even without an informational advantage on the part of the Fund. I take as a premise that that Fund's policies are preferred by international investors and perceived by international investors to create a more positive investment, not that these policies are necessarily objectively correct from an economic standpoint. It is not simply the monitoring of the

[8] A more accurate word may be "force." Prior to the 1990s, most of the reform policies came from a cookie-cutter Washington Consensus approach. Today there is more discussion between IMF experts and country officials, but the IMF still has the final say on what reform policies are required. The major exception to this might be the concessional loans, which will be discussed below.

Fund which induces the catalytic flows, but also the punishment and enforcement for failure to implement the policies, and the threat of potential termination of access to Fund resources. Because there are punishments for the failure to comply with arrangements, there is a cost associated with failure to comply, increasingly the likelihood that the participatory government will reform. The costliness is likely magnified in countries participating in IMF agreements because they are likely (although not always) experiencing an economic crisis. Thus, the key to catalytic lending is the *implementation* of the reforms and conditions attached to the loans. When investors believe that these reforms are more likely to be implemented, then they are more likely to invest. The World Business Environment Survey (WBES) which was a firm-level survey administered by the World Bank Group in 1999/2000 in 80 countries throughout the world. Findings from this survey indicate that neo-liberal economic reforms are important for firms in terms of growth and investment (Kaufman, Batra and Stone 2003). Thus, firms should be interested in whether or not reforms – which will lead to increases in their sales growth – are implemented by domestic governments. Assuming that the policies are the ones favorable to investors, then, when a country participates in an IMF arrangement, investors are likely to view this positively because the IMF monitors and enforces the arrangements.

A leading factor associated with increases in private investment is macroeconomic growth; past, present and expected future growth (Gastanaga et. al. 1998). Because the reform policies of IMF programs are aimed at not only quelling an economic crisis, but also long-term growth, then investors should view IMF programs positively. Gastanaga et. al. contend that countries which pursue policies to increase

their growth (even though these may not be directly associated with investment), will also indirectly increase FDI. Furthermore, the authors find other policies associated with IMF programs, such as capital account liberalization, to be associated with increases in FDI. Thus, the reforms associated with IMF programs will indirectly increase FDI through "pull" factors.

It may not be that IMF policies create a good investment environment, however. Many of the policies associated with IMF structural adjustment programs can be contractionary and bad for economic development (Fanelli, Frenkel and Taylor 1994). For example, the macroeconomic policies often tied to such agreements require higher taxes, reduced spending and high interest rates, which lead to a shrinking of the national economy (Cardoso and Helwege 1993). Because the implementation of the policies can lead to recession in the short-run, critics of structural adjustment have come to refer to the IMF's programs as constituting a dose of "bitter medicine" (e.g., Bordo et. al. 2004; Khan 1990; Conway 1994; Marchesi and Thomas 1999). The empirical evidence regarding the macroeconomic effects of IMF program participation is mixed. Khan (1990), Conway (1994), Przeworski and Vreeland (2000), Hutchinson (2003) and Vreeland (2003) find that IMF agreements have a statistically significant negative effect on economic growth. On the other hand, studies by Killick, Malik and Manuel (1995), Bagci and Perraudin (1997), and Dicks-Mireaux, Macagni, and Schadler (2000) finds a positive relationship holds between IMF agreements and economic growth. Thus, the effect of IMF programs on domestic economic growth and development is unclear.

It may be that the contractionary effect of participation in an IMF program is not felt in the initial year following participation. Investors respond positively to the initial

participation in an IMF agreement, but as the contractionary effects are felt, investment falls over a longer time horizon (Bird and Rowlands 1997). If the above description is accurate and investors are sophisticated and strategic, then investment, while it may increase in the initial year following IMF participation, would decrease as the contractionary effects of participation are felt. By using a variety of lag structures for the dependent variable (investment), I will able to see how the data behaves.[9]

IMF lending could further serve to generate catalytic private finance if the loan served as a noisy coordination device for investors. The strategic interaction of catalytic lending involves three main actors: (1) the IMF, (2) borrowing countries, and (3) private investors.[10] Private investment has a coordination aspect, particularly as it relates to developing countries. Incentives to invest depend in part on the characteristics of the country (which is exogenous), but also on whether other firms are investing (Morris and Shin 2001, 32). As such, investors want to invest in order to benefit from a higher return; however, the higher return is itself dependent on whether or not other private investors invest.[11] Findings in the literature also suggest that agglomeration (firms investing in urban areas near other similar firms) is an important determinant in firm investment behavior because of increased returns of doing so (Wheeler and Mody 1992; Kinoshito and Mody 2001; Kinoshito and Campos 2002). Therefore, the probability of a higher return is in part dependent on whether others

[9] This paper uses two main lags for the dependent variable: a one year lag and a three year moving average. However, I do footnote the results for two, five and ten year moving averages, to see if investors respond differently over time as a result of IMF reforms.
[10] The catalytic argument can also be applied to international lenders, but I focus on international investment.
[11] This argument is most applicable to FDI but is also relevant for portfolio investment as there is often "herding" by foreign portfolio investors in a few countries (Gooptu 1993). .

invest in the country as well. This logic leads to a cacophony of actor's higher order belief structures (e.g. I believe that you believe that I believe that you believe, etc.) and is difficult, if not impossible, to model or realistically believe an actor would be able to follow (Morris and Shin 2001). However, given a noisy coordination device, investors can be more confident of the beliefs (and higher order beliefs) of the other actors (investors). In a sense, IMF participation serves as a "tipping point" for investors beliefs about the behavior of other investors. Thus, signing an IMF agreement can act as this "noisy" signal that investors coordinate around in making their investment decisions. When a country signs an IMF agreement, investors view that as a signal which increases the likelihood that other investors will invest in that country and therefore increase the likelihood of a high rate of return.

It is often noted that markets tend to "overreact" to public information. For example, financial markets behave as such in response to announcements from central bankers that merely state what is already known (Morris and Shin 2001). As discussed above, it is unlikely that the IMF has any information that is not already known to private investors (regarding the borrowing country's underlying economic fundamentals). Thus, signing an agreement does not serve as a signal of macroeconomic distress; this is already known to market actors. However, since the IMF's goal is macroeconomic stability and growth, and IMF conditionality is aimed at making the country viable and able to repay its loans, then investors should view IMF participation positively – because they view the reform policies associated with agreements positively. But more than that, signing an IMF agreement serves as a coordination device for investors. Investors see that the IMF has "blessed" a country

with a loan, and therefore update their beliefs about other investor's beliefs regarding the prospects for investing in that particular country and the likelihood of investment from other investors. Optimistic investors will then conclude that other actors believe the country is a good prospect for investment and therefore expect them to invest, thus improving their own prospects for investment. In this way, the IMF agreement conveys information not only about the underlying fundamentals of the country (the likelihood for macroeconomic success and viability of economy), but also conveys valuable information about the beliefs of other market participants – other investors.

There are two main types of investors: foreign direct investors and portfolio investors. Portfolio investors have short-time horizons and liquid investments, while, foreign direct investors have much longer time horizons due to the illiquid nature of their investments. Although the basic causal mechanisms by which I theorize the catalytic effect works remains the same between these two types of investments, there are some differences. First, portfolio investments tend to be more liquid, suggesting that these types of investments should respond to IMF participation much more quickly than FDI, which is illiquid. Because FDI is illiquid, the investments may take years to materialize. As such, foreign investors may not be as responsive to IMF agreements. If the direct investor is already planning on investing in the participating country, then the agreement might serve to increase investment in the future. On the other hand, if the direct investor had no plans of investing in a country, the country's decision to sign an IMF agreement would not be expect to alter his investment decision. Perhaps in a few years time the investor may choose the participating country as a result of their reforms and good macroeconomic management, but this would not manifest in the year

immediately following participation. Thus, if the catalytic effect works for FDI, the effects would not likely manifest until several years after the initial signing.

Conversely, portfolio investments are liquid at all points during the investment, allowing a portfolio investor to respond much quicker to additional information about an investment than a direct investor. Although portfolio investments have shorter time horizons and are more liquid, this does not suggest that they are necessarily speculative. If the portfolio investment is, "coming from investors with long-term capital appreciation motives such as large institutional investors," then the investors are interested in long-run growth and sustained market-oriented reforms (Gooptu 1993, 1). Therefore, while the catalytic effect of Fund lending likely manifests much more quickly for portfolio investment, there may still be longer term catalytic effects for portfolio investments. Portfolio investors are able to react much more quickly to market forces than their counterpart, direct investors. If these investments are sensitive to IMF participation, the effects should manifest much more quickly than for direct investors. At the same time, it is also possible that portfolio investors simply react to the infusion of quick capital from an IMF agreement, rather than scrutinizing if the reform policies will be implemented. If this is the case, then IMF involvement would serve as a catalyst for portfolio investors, regardless of likelihood of implementation.

In sum, participating in an IMF agreement catalyzes private finance because sophisticated and optimistic investors update their beliefs about the prospects of investment in a participatory country. Fund arrangements are tied to positive reform policy conditions which are good for investment, and thus increase the likelihood of investment by others, which in turn increase the expected return on investment. The

key to the theory is implementation of Fund programs. There are factors at the international, domestic and facility levels that increase or decrease the likelihood of implementation. Below I discuss each of these and the ways in which they influence the likelihood of implementation, and therefore the likelihood of investment.

Principal-Agent Framework

Fundamentally, agreements with the Fund are signed between the IMF and a participating member state. This assumes that both the IMF and the participating state are unitary actors. However, neither of these actors are unitary and both are involved in their own "two-level game" (Putnam 1988) in which their preferences and strategies are influenced by the preferences of other actors (Pop-Eleches 2009). Although treating international organizations and nation-states as unitary actors is a useful simplifying assumption, I argue that greater explanatory power can be gained by breaking down this assumption for both the IMF and the member state. In this section, I breakdown the unitary actor assumption for the IMF and use this to explain why the catalytic effect is not present in some agreements.

I treat the IMF as a principal-agent relationship between the staff of the IMF (the agent) and its multiple principals (the member states) (Lake 1996, Nielson and Tierney 2002, Copelovitch 2007). The member states created the IMF in order to protect the health of the global financial system, but to do so objectively and without pursuing individual national interests. Thus, states wished to bind their hands in order to achieve cooperation, even in the face of domestic pressures to engage in behavior that would be collectively suboptimal. The member states "hire" the IMF in order to overcome

problems of moral hazard and prisoner's dilemma. As such, the success of the Fund is based on its technical expertise and ability to objectively pursue its mandate independent of nation-states and their interests. The problem arises because governments still wish to pursue their individual interests (even at the detriment of the collective). The Fund remains an agent of its member states, and sometimes member states have an incentive to influence the IMF in ways that are not in pursuit of its original mandate. The agency problem arises when the preferences of the member states diverge from the objective goals of the Fund's staff. The goals of the Fund staff and the member states do not always diverge, but when they do, it results in a principal-agent problem.

Although originally conceived to be a lending agency to all member states, in its current form there are two types of member states: borrowers and lenders (Polak 1991). Thus, in general, there are those states which consistently borrow from the IMF and those which consistently lend to the IMF. [12] Because voting power in the IMF is based on contribution, the lenders are the principals with the highest vote share; the ones with the ability to wield the most power (sit on the Executive Board, hold virtual vetoes, etc.). Therefore, although all member states comprise the principals of the IMF, the principals that are able to wield power within the organization are the handful of member states with the highest vote share. These principals are the ones who are able to use the IMF to pursue their domestic interests (e.g., Broz 2008). Within the IMF, there are staff members who work for the organization itself and there are individuals

[12] Although this is generally true and has been for some time, there have been some exceptions, including most recently Iceland's decision to draw on Fund resources in 2008.

that work at the Fund that represent a particular member state. The individuals that represent member states are constantly lobbying the Fund to do what is in best interest of their particular state. Those states with the largest vote shares (i.e., the largest contributors to the Fund) are given individual seats on the executive board and the executive board members which represent the states with the largest vote share are able to wield significant power through both formal and informal channels (Stone 2011).

As such, throughout the paper I take the "principal" to be the most powerful member state of the IMF, the United States. The U.S. is able to influence the IMF independently.[13] The politicized lending literature argues that the most powerful members of the IMF openly wield their power to influence Fund decisions (Thacker 1999; Kahler 1990; Barro and Lee 2002; Stone 2002; Steinwand and Stone 2008). Although the other member states are principals as well, they are unable to influence decisions at the IMF as easily or without the assistance of other members. On the other hand, the individual staff members who work for the Fund rather than a member state have different objectives than the state representatives. These individuals wish to pursue the mandate of the IMF, which is the stabilization of the international monetary regime, as well as fixing balance of payments problems and sustainable economic growth for member states. The individual staffers that work directly for the Fund are the "agents."

The agency slack suggests that the IMF can have an effect on outcomes, independent of nation states. Again, this is part of the reason the institution was

[13] Recent literature has conceptualized the principals as the five members with the highest vote shares in the IMF (Copelovitch 2007, Nielson and Tierney 2002). Although it may be that these states can influence the IMF, especially when they act in concert, the U.S. remains the only state with a "veto" in the organization.

formed, to escape the state of anarchy in which each state is pursuing its narrow self-interest to the detriment of the international society. Conversely, Realists would argue that the IMF is simply a pawn of the powerful member states and therefore the international organization itself has no independent effect on international outcomes. These two extremes exist not as a mutually exclusive dichotomy, but along a spectrum in which the IMF can exert more or less autonomy independent of powerful member states. Rather than suggest that one of these perspectives is right and the other wrong, I argue that there are instances in which one of them is a more accurate depiction of reality than the other (for a similar argument, see Pop-Eleches 2009). Using the principal-agent framework, I develop a spectrum along which the independence of the Fund lies, depicted in Figure 1. At one end of the spectrum, agency slack is extremely high and the Fund acts on its own preferences independent of its principals; therefore, the IMF can be considered to have more autonomy.

At the other end, powerful member states intervene in order to pursue their own self interested goals. Theorists argue the IMF is highly politicized in its lending (e.g. Stone 2002, 2010; Barro and Lee 2003). Powerful member states (which make up the most important principals in the relationship) work to minimize the agency slack when countries are of political and/or economic significance to them. As such, the IMF makes lending decisions (which countries to lend to, how much to lend, the conditions attached to the loans, etc.), as well as punishment decisions for failed compliance (whether to punish at all, how long to punish) based on the preferences of powerful member states, rather than based on objective criteria. When powerful member states engage in such behavior, the IMF staff is unable to act as an independent actor and

instead acts in the interest of the powerful member states. This approach is in line with a Realist theoretical perspective and suggests that the Fund is not an independent actor on the international scene, but simply a guise for powerful member states to pursue their own interests. This manifestation of Fund behavior exists at the opposite end of the spectrum in Figure 1 in which the IMF has less autonomy.

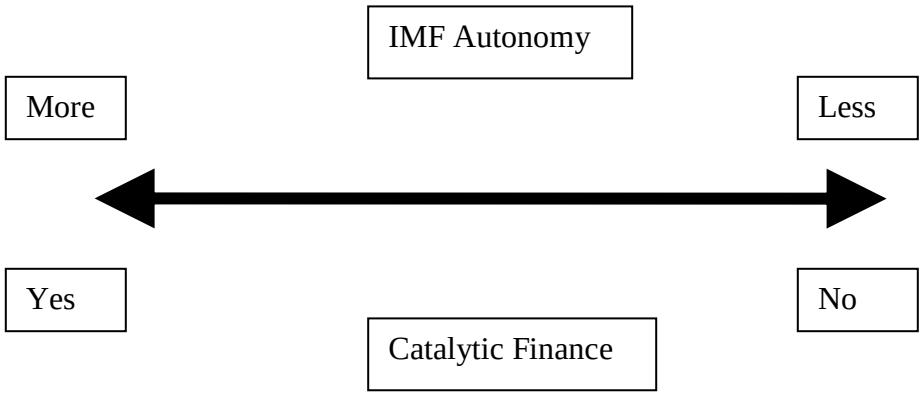


Figure 1: Scale of Autonomy of IMF and likelihood of catalytic finance

Thus, there appear to be two possible extremes: cases in which the Fund acts technocratically and independently, and cases in which the Fund is simply a tool through which powerful member states are able to pursue their self-interested agendas. The influence of geopolitics is limited to cases in which the five member states with the highest vote share are highly interested; the rest of the time the Fund is able to act technocratically (Stone 2002; Steinwand and Stone 2008).

From the IMF's point of view, agency slack is optimal because it allows the institution to pursue its interests and mandate. However, powerful member states can

and do intervene on behalf of economic and/or political important countries (e.g., Stone 2002; Steinwand and Stone 2008). Given that a country has signed an IMF conditionality agreement,[14] a powerful state can decide whether or not to intervene on behalf of the borrowing state or not.[15] Powerful member states are able to wield power through informal and formal mechanisms within the IMF (Stone 2011) in order to pursue their independent interests. When powerful states intervene and bestow preferential treatment (e.g., lax monitoring and enforcement) on IMF participating countries, private international investors are unlikely to view IMF participation as any type of signal or credible commitment, circumventing the mechanism by which catalytic lending works. Intervention by powerful member states can take the form of lax punishment for failure of participatory states to implement agreed conditions. Once a country signs an IMF agreement, the Fund does not have the ability to force implementation on program states. On the one hand, the Fund claims that there is preference homogeneity between the Fund and the program country; therefore, implementation is expected and would not need to be forced.[16] On the other hand, the Fund requires macroeconomic benchmarks and performance criteria to be met in order for continued access to Fund resources, which suggests that Fund programs are not

[14] Although initiation and design of programs are further important strategic decisions, I do not explicitly model them.

[15] Obviously powerful states can have influence at all parts of the program, including initiation and design. It could be that states which are important sign agreements more often and are given more favorable designs (larger loans with fewer conditions). However, because of time-inconsistency problems, states which sign agreements in time T1 may be unwilling to implement the agreed conditions in time T2 as a result of dynamic costs. As a corollary, powerful states may not intervene at the initiation and design phases (T1), but because of the same time inconsistency problems be compelled to intervene at time T2.

[16] Of course this depends on the timing involved. There are tine-inconsistency problems that arise with IMF programs, as well as exogenous shocks and crisis that prevent the homogeneity argument from manifesting consistently in the real world. In general, the Fund contends that there is strong homogeneity of preferences when it comes to program reforms.

actively implemented. The Fund does have an impact on how strictly program implementation is monitored and enforced. If implementation is more strictly monitored and enforced, countries are more likely to implement the agreed conditions of the program. Investors are sophisticated and strategic and thus are aware of the biases in the Fund and are able to discern the differences in when the Fund is acting technocratically and when it is acting simply as a tool for powerful member states. Given that a state has signed an IMF agreement, investors respond accordingly if they believe that a powerful member will intervene and bestow preferential treatment on the participatory country.

At the same time, the Fund is only an agent and sometimes the principals wish to wield tighter control. Such instances occur when a powerful member state has a stake in a particular program country. The U.S. is unable to resist the temptation to interfere when a program country is important to them. Therefore, when a country engaging in an IMF program is of political and/or economic import to a powerful member, monitoring and enforcement of conditions is likely to be relaxed (Stone 2002, 2008). As discussed above, implementation is the key to the theory of catalytic lending – IMF programs catalyze private finance because of investor belief in compliance with reform conditions. Countries which sign IMF agreements and receive preferential treatment from powerful member states are less likely to experience the catalytic effect of Fund lending because these states are less likely to be punished for failure to implement agreed conditions. Because investors know that countries of geopolitical strategic importance to powerful member states are less likely to be punished for not implementing conditions, then they are less likely to invest.

What makes a country important to the powerful member states? Borrowing countries can be important for either economic or political reasons. Political importance can relate to geographic location (such as Middle Eastern countries), or alliance patterns. Economic importance could be the amount of trade between two countries for example. I define geopolitical strategic importance as a country which is vital to the pursuit of a powerful state's international interests. The state's interests relate to international security and this may be achieved through a variety of behaviors such as economic expansion, political expansion, global peace and security, the spread of democracy, or any other of an infinite many possibilities. States cannot achieve their goals independent of the rest of the world, and at times in order to achieve their goals, the success and viability of a fellow state may be necessary.

However, both member states and the IMF are strategic actors, and therefore powerful member states should be aware that their influence mediates the efficacy of Fund programs and therefore works exactly against themselves. Yet powerful member states are unable to credibly commit to not intervening on behalf of an economically and/or politically important fellow member (Pop-Eleches 2009). When these states sign an IMF agreement, whether they are of geopolitical strategic importance or not, they can be considered highly vulnerable. IMF participation is needed precisely when countries are most vulnerable, when their economic fundamentals are so poor that they need access to Fund resources to stem the crisis. Thus, powerful member states understand that intervening in an IMF program on behalf of a geopolitical strategic important country negatively impacts the participatory country's ability to catalyze

private capital, but the powerful member state simply cannot help themselves.[17] The perception is that the short-term costs of not intervening outweigh the long term benefits. Because these states are vulnerable (and they can be considered as such because they are in need of IMF funding), powerful states to which they are important intervene despite the detrimental long term effects. In other words, the discount factor for powerful states is too high.

Furthermore, the IMF should be aware of the bias and the inability of strong states to credibly commit not to intervene. So, why does the IMF, as a strategic actor, not learn that these loans are not succeeding as a result of bias from powerful member states? From a technocratic standpoint, the IMF staff is concerned with distributing loans to member states facing economic crises, which they do. But when the powerful member state intervenes, the IMF is unable to prevent it. So, the IMF, driven by its objective mandate, makes loans even in anticipation of possible intervention by powerful member states.

The principal-agent interaction in the IMF is known to investors. As argued above, investors use the IMF as a noisy coordination device when making their investment decisions. However, IMF participation only serves as a noisy coordination device when the Fund is operating as an independent actor in pursuit of its mandate.[18] Cases on the other end of the spectrum depicted in Figure 1, in which the Fund is acting

[17] Stone (2010) has measured vulnerability separately and interacted it with geopolitical strategic importance. This is not necessary given that his measures of vulnerability are also highly correlated with participation in a Fund supported program (measures of trade openness and debt).

[18] The goals of the Fund when it is acting with autonomy are not only bureaucratic, but also mandate fulfilling. The IMF, in addition to maximizing its budget wishes to objectively fulfill its mandate, which is to provide short-term loans to countries facing balance of payments problems and to offer them sound advice on stabilizing their economy and achieving economic growth and development.

as a tool for powerful states should not serve as a noisy coordination device for investors. In these cases powerful member states are compelled to intervene on behalf of an important participating state. Powerful states intervene by applying lax monitoring and enforcement of the performance criteria and targets attached to the programs (Stone 2002). This type of intervention leads to a decrease in implementation of conditions by participatory states and investors do not view these positively. This suggests to the first hypothesis:

Hypothesis: States of greater (lesser) geopolitical strategic importance to the United States are less (more) likely to experience an increase in inflows in private investment after participating in an IMF program, ceteris paribus.

My argument echoes that of Stone (2002, 2010, also Pop-Eleches 2009), but fills a gap in the literature by examining the geopolitical influences of Fund lending on the ability of countries which sign IMF agreements to mobilize private financing.[19] While the literature has examined the politicized nature of the Fund on the one hand, and the catalytic effect on the other, I aim to merge these two strands and help explain why the literature on the catalytic effect of Fund lending is mixed. I contend that investors understand the difference between politicized and non-politicized lending and respond positively only to non-politicized lending (IMF loans in which powerful states' interests are not heavily involved). Cases in which the IMF lends to countries of geopolitical strategic importance to these powerful states, the catalytic effect is spoiled by the influence of politics. In other words, the catalytic effects of Fund lending are dependent

[19] Biglaiser and DeRouen (2009) is an exception which examines the effect of IMF participation on FDI from the United States.

on the level of importance of the borrower to the U.S. and/or powerful European states of the country involved in each particular loan.

Implementation

This paper argues that the causal mechanisms by which IMF agreements catalyze private investment is by credibly committing to reform policies that investors view favorably. Many empirical studies examine the effects of IMF lending, but because most of these assume successful implementation, it is important to study whether implementation actually occurred (e.g. Haggard 1985, Kahler 1996). Some studies have attempted to do just that – examine what factors are associated with the implementation of an IMF program (e.g. Dhonte 1997, Dreher 2002, Ivanova et al., 2003, Nsouli et al., 2004, Mecagni 1999, Arpac et al., 2008; case studies include Bredenkamp and Schadler 1999; Boughton and Mourmouras 2002). This paper focuses on the likelihood of implementation, with private investment as the dependent variable. There are a variety of reasons for focusing on the likelihood of implementation rather than implementation itself. First, the theory relates to *investor expectations* of implementation, rather than actual implementation. A theoretical argument based on "true" implementation would likely have more to do with direct economic interactions, rather than political economy factors and individual investor's perceptions. Bird and Rowlands (e.g., 2002) argue that the economic basis for the theoretical catalytic effect of Fund lending is ambiguous at best. However, they do not take into account political economy factors (Ivanova et al., 2003) and investor perceptions, which are also key to the theory in this paper.

Second, implementation is not observable. The IMF has a hard time monitoring implementation itself, and it is unclear that investors would be able to observe implementation even with their heightened incentives. The IMF has increased transparency of its loans and developed a Monitoring of Fund Arrangements (MONA) database that was available online in January of 2009. The database is extensive, but is only a crude measurement instrument of implementation at best. Because implementation is difficult (if not impossible) to observe directly, most of the measures of implementation are indirect. For example, Arpac et al. (2003) discusses two dominant measurements. First, the implementation index comes directly from the MONA dataset, but this only covers programs that are coming up for review by the Executive Board and thus leaves out cancelled or interrupted programs. A second measure is the interruption index, which is defined as "either an interval of more than six months between IMF arrangements, or a delay of more than six months in completing a program" (Arpac et al. 2003, 1496). This is the strictest test of implementation and these types of interruptions are excluded from the MONA dataset. However, neither of these measures accurately capture if the reform policies are being properly implemented in the participatory countries. A more appropriate measure may be to examine whether specific conditions are implemented rather than some aggregate index (Vreeland 2006), particularly because then the reforms which are of particular importance to investors could be studied. However, no such way to do this exists, and again, the dependent variable of interest relates to investor expectations of implementation and not necessarily implementation itself.

Thus, both for empirical constraints and theoretical reasons, measures of implementation are not included. It is not actual or observable implementation (not least of all because it is not observable), but expectation of implementation that influences investor behavior and thus economic effects.

Investors are sophisticated and strategic. They make their investment decisions based on information they receive, including whether or not a possible host country is participating in an IMF structural adjustment agreement. Countries which participate in Fund arrangements have attempted to credibly commit to enforcing policy reforms that international investors view favorably. Countries which participate in Fund arrangements should therefore experience an increase in private finance. At the same time, however, there are reasons at the international, facility and domestic-level that mitigate that ability of Fund arrangements to catalyze private finance. I argue that politicized lending is unlikely to be associated with a corresponding increase in private investment. The following section empirically test the hypothesis developed from the theory above.

Data and Model

The dataset is time-series cross-section data that covers 142 countries between the years 1977 and 2008. The observations are country-year and not all observations are included in all of the analysis due to missing data for certain variables and country-years (for example, post-Communist states do not enter the dataset until after 1990). A full list of countries, their participation "spells," and the years for which they are included in the sample is in the Appendix.

The dependent variable is whether or not IMF lending catalyzes private capital flows in participatory countries. I operationalize the dependent variable as the amount of investment a country receives, either in the form of foreign direct investment (FDI) or portfolio investment (PI). FDI is investment in a foreign firm greater than 10% of the enterprise. The 10% threshold is meant to distinguish between investments that are aimed at management of the enterprise and those which are not. Any foreign investment less than 10% is considered portfolio investment. Data on FDI flows and stocks tend to vary considerably. Incomplete reporting as well as difficulty tracking increasingly complex international financial transactions causes difficulty in consistent FDI measurements (Lane and Milesi-Ferretti 2006).

The measure I use for FDI is the log of FDI inflows in current U.S. dollars (*LogFDI*), taken from WDI.[20] The most common measure of FDI in the literature is FDI taken as a percentage of GDP (e.g., Jensen 2004). I choose to use a logged measure of raw FDI for a variety of reasons. First, I theorize that participation in an IMF agreement should catalyze investment, and this catalyst is not dependent on the size of the participating county's economy. However, because the size of a country's economy does influence the amount of investment the country receives, I include a control for this. Second, I log the raw measures of FDI in order to achieve a more

[20] The World Bank describes these measures in the following way, "FDI are net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investors. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. The series show net inflows (new investment inflows less deinvestment) in the reporting economy from foreign investors" (WDI online). The 10 percent threshold is the standard cutoff point in the literature separating FDI from PI.

normal distribution of the data, a standard assumption of regression analysis.[21] Lastly, following other studies, I also re-ran the model including an operationalization of the dependent variable of FDI as a percentage of GDP. However, because the inclusion of this variable did not meet an important assumption of the model (uncorrelated error terms in the simultaneous equations) it is not included in the main analysis. As a result, for both theoretical and empirical reasons, I use the log of FDI (*LogFDI*) as the dependent variable.[22]

The measure of portfolio investment, *Portfolio1*, is in current U.S. dollars and also comes from the WDI. This measure is of portfolio equity and "includes net inflows from equity securities other than those recorded as direct investment and including shares, stocks, depository receipts, and direct purchases of shares in local stock markets by foreign investors" (WDI). Similarly, the measures of portfolio investment are in raw current U.S. dollar form and transformed so there are no negative values and then logged.

FDI is considered a longer term investment than portfolio investment. Firms that engage in direct investment are subject to the obsolescing bargain because their investments are illiquid ex post. As such, these types of investments are less likely to be as elastic as portfolio investment. Because of this inelasticity, if participation

[21] I plotted Kernel Density plots against a normal distribution in addition to summary statistics to determine if logging was necessary. Other transformations were also attempted using trial and error. Because negative values cannot be logged, I added the lowest observed value of FDI to all observations so there were no negative values before logging.

[22] I also considered a third measure of FDI taken from an alternative dataset. This measure is of foreign direct investment asset stocks from the Center for Financial Statistics (CFS). The CFS dataset is gathered and compiled from a variety of sources such as the International Financial Statistics (IFS) online database by the IMF (Offermanns and Pramor 2007) and UNCTAD's *World Investment Reports*. Because it produced similar results to *LogFDI* and had a severely limited number of observations, I eliminated it from inclusion.

impacts FDI, it is not likely to do so in the year immediately following participation in an IMF agreement. Therefore, I include a three year moving average of FDI.[23]

Below are descriptive statistics, a correlation matrix and graphs of yearly totals for the measures of FDI and portfolio investment. As shown in the correlation matrix table, the two measures are positively and only slightly correlated.[24] The low level or correlation is expected given that the two concepts, while sometimes depicted as substitutes, are not the same thing. A slight positive correlation is expected, but the two are not proxying for one another.

Table 1: Descriptive Statistics

	Obs	Mean	Stand Dev.	Minimum	Maximum
LogFDI	5328	24.34129	.1701904	22.38477	26.60065
Portfolio1	5560	25.31764	0.0701611	24.10775	26.66241

Table 2: Correlation Matrix for Portfolio Investment

	Portfolio1	***EQA***
Portfolio1	1.0000	
EQA	0.3700	1.0000

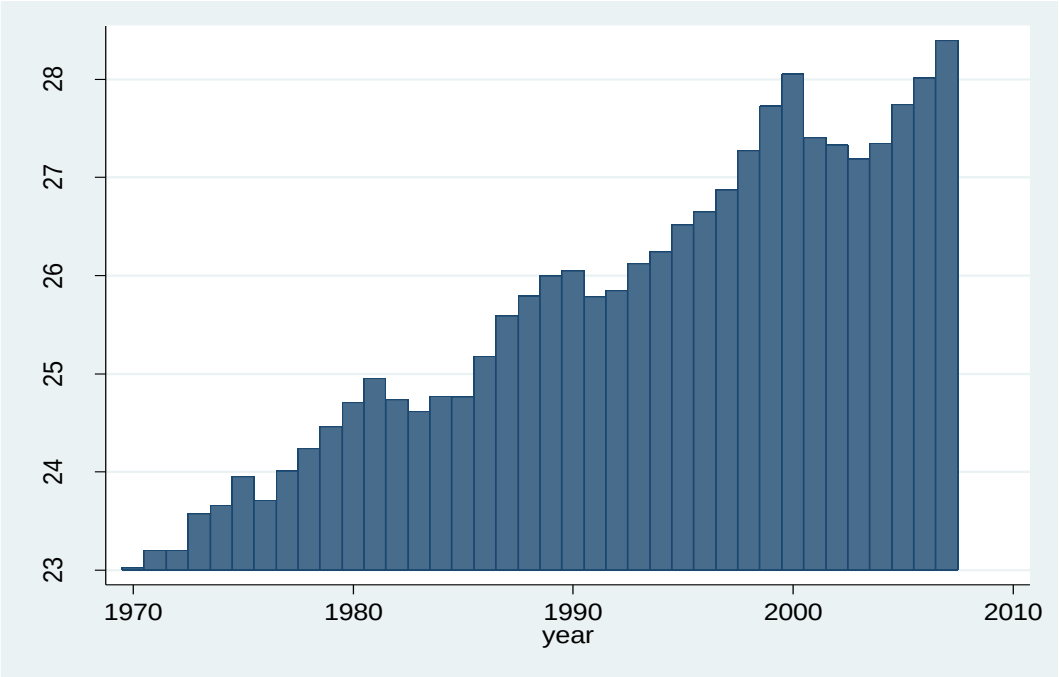
Above are the graphs of the logged total of FDI and portfolio investment in the world by year. As can be seen in Graph 1, FDI is increasing rapidly since 1970. FDI is

[23] Because the neo-liberal reform policies associated with IMF programs may lead to concretionary effects, I also examined a variety of other lag structures. I do not include the full tables, but discuss the results in footnotes.

[24] When the values are not logged they are more strongly correlated (0.4274).

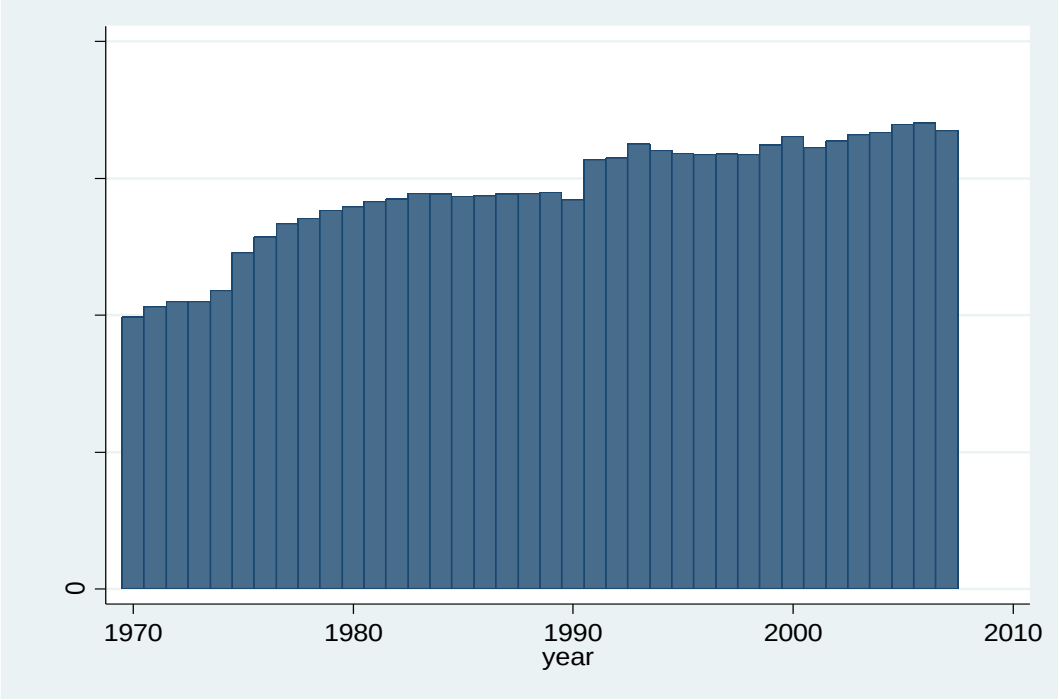
continually trending upwards, despite occasional dips during global recessions, such as in both the early 1980s and 2000s. Portfolio investment in the world is also increasing, with even fewer dips than FDI, depicted in Graph 2. Given this trend in the data, I include a control for the amount of investment available in the world (*WorldFDI* and *WorldPort1*) to control for exogenous shocks, recession and the consistent upward trend over time.

Graph 1: Log of WorldFDI by Year



Source: WDI (2010)

Graph 2: World Portfolio1 by Year



Source: WDI (2010)

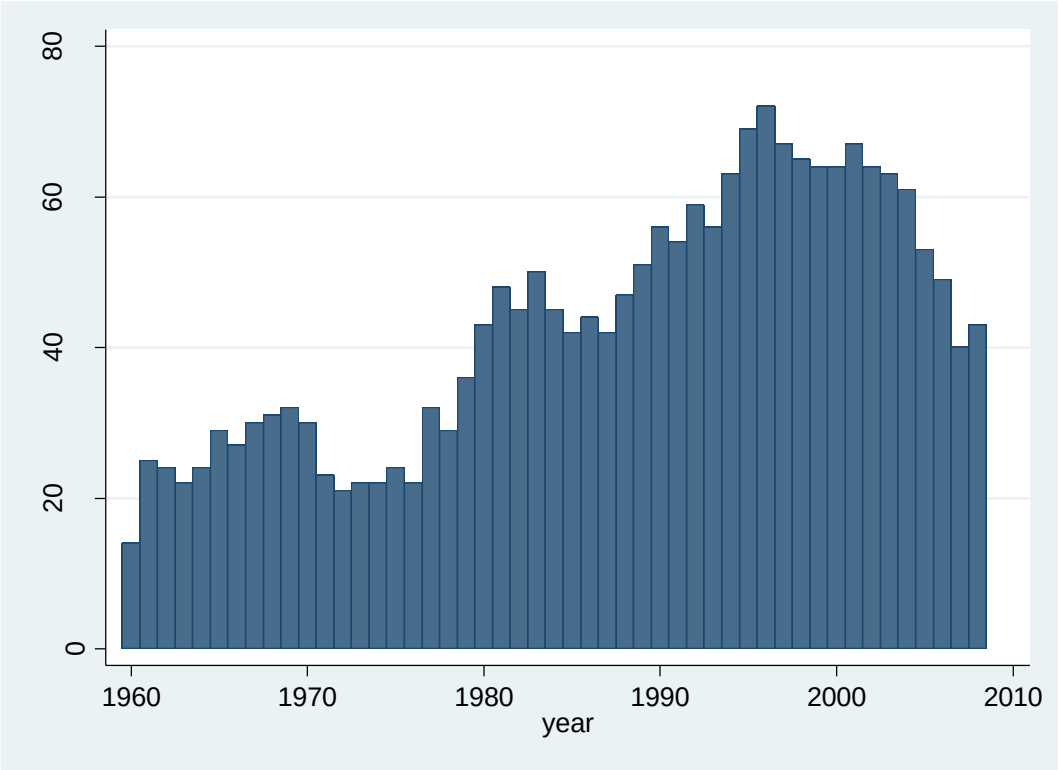
Next, I explain the two main independent variables of interest. The first independent variable is IMF participation, a variable referred to throughout the paper as *Under*. This is a dichotomous variable that measures whether or not a country was participating in an IMF arrangement in a particular year. The variable takes on a value of "1" if a country was participating in (or "under") an IMF arrangement and "0" otherwise. The *Under* variable is lagged 1 year.[25] This variable is taken from Vreeland (2003), which I extended through 2009. The variable takes on a value of "1" if a country participated in an IMF agreement at any point during the calendar year. Using the IMF's website I extended the dataset through 2009 by examining the Financial Activities Reports. These reports are weekly updates of the Fund's activities and list

[25] All independent variables are lagged on year unless otherwise noted. The dependent variables are measured in time *t*; so to obviate simultaneity, all the independent variables are measured at time *t*-1.

each country participating in an agreement and the type of agreement in which they are participating. Included in these reports are both the start and scheduled end date of each program. I used Vreeland's (2003) coding, and confirmed reliability by recoding the variable for years that he had already coded. I then compared the values and found that my coding matched that of Vreeland's.

For this section, the *Under* variable does not distinguish between agreement types. There are a variety of types of Fund arrangements, the three most common being Stand-by Agreements (SBAs), Extended Fund Facilities (EFFs) and Extended Credit Facilities (ECFs). The differences between the agreements are discussed in detail in Section 2 above, and are disaggregated in the empirical analysis in Section 4. However, following much of the literature, this section ignores the differences for simplicity's sake and because the ultimate goals of IMF lending arrangements are identical (fixing balance of payments problems, sustainable economic growth, poverty reduction, etc.) and all agreements come with some sort of conditions attached (see Vreeland 2003). Again, the full list of agreements by country and year can be found in the Appendix.

Graph 3: Countries Participating in an IMF Arrangement by Year



The above graph displays the number of countries participating in an IMF arrangement in a given year. This graph shows that the number of countries participating in an IMF arrangement appears to be trending upwards, but it is unclear if this trend will continue. Participation began to rise in the 1980s, most likely as a result of the Latin America debt crisis. The number of countries participating continues to grow until the late 1990s in which it levels off and then begins to decline. However, the number of countries participating in an IMF agreement currently is still higher than in the 1960s and 1970s.

As this paper examines the relationship between IMF agreements and private capital flows, IMF participation is a key independent variable. However, I argue that the effect of participation on capital flows is via an interaction between IMF

participation and another variable, geopolitical strategic importance. The pioneering work which studies the politicized nature of Fund lending (e.g., Stone 2002) examines whether a country is of geopolitical strategic importance to the largest vote shareholder in the IMF, the US.[26]

As discussed in the previous section, geopolitical strategic importance, much like catalytic lending, is a difficult concept to define, much less operationalize. A country may be of economic or political strategic importance, or both. Economic importance may be a bit easier to operationalize as it can be measured using available data – the amount of trade, bank exposure, etc. These measures capture importance at both the elite and mass level. Individuals will care about the economic performance of another country depending on how much the other country's economy influences their own economy. However, political strategic importance is less clear, particularly at the individual level. It is not directly observable and elites may in fact have reasons to subvert or enhance the strategic importance of another country (engage in cheap talk). According to Copelovitch (2007), previous literature has thusly conceptualized and measured geopolitical strategic importance in a variety of ways. On the one hand, the U.S. uses its position as a powerful member state to bestow more favorable treatment on states of geopolitical strategic importance. This has been measured using UN voting

[26] However, more recent literature has broadened this scope to examine if the importance of a participatory country to the top five shareholders affects the impact of participation (Tierney and Nielson 2002; Copelvitch 2007). While the U.S. maintains a virtual veto in the IMF, the other four largest vote shareholders can also exert influence over IMF lending decisions through both informal and formal channels (Stone 2011; Nielson and Tierney 2002; Copelvitch 2007). This is especially true when the top five largest shareholders share preferences. Yet, the U.S. remains the largest and most important member of the IMF, and I therefore limit my analysis to the US.

patterns and U.S. foreign aid allocations (e.g. Barro and Lee 2002, Stone 2002, Stone 2004, Vreeland 2005).

Conversely, influence may be driven by more domestic economic interests, and has been measured as such. For example, countries which owe larger amounts of debt to private creditors in the U.S. tend to receive larger IMF loans. This has been operationalized using commercial bank debts (Broz and Hawes 2006, Broz 2005, Oatley and Yackee 2004, Stone 2011). Although domestic economic interests are clearly important to the US, I do not operationalize geopolitical strategic importance in this way. For this section I avoid breaking down the unitary actor assumption for states in the interest of simplification.[27]

The diversity in measures of geopolitical strategic importance in the literature is due to the difficulty in operationalizing such a broad concept. One way to deal with such a problem would be to run several regressions using the different dependent variables. However, each of these dependent variables (whether it be a measure of bilateral trade, UN voting affinity, etc.) is measuring but one aspect, or dimension, of the concept. Countries which are of large economic importance to the U.S. may not be as militarily important to the U.S., or vice versa. Thus, regressions using different operationalizations of importance (whether economic, military, or different operationalizations with each of these two dimensions) may produce widely conflicting results. Therefore, geopolitical strategic importance, as I define it, relates to the ability of the powerful state, the U.S., to achieve two goals: security and prosperity. The U.S.

[27] Future research might include one or some of these measures in the index of geopolitical strategic importance, explained below.

hopes to achieve security through military relations and prosperity through economic relations with other states, and cannot achieve either goal independently.

Measuring strategic importance is difficult by definition. First, the U.S. expends effort and resources in an attempt to appear as though it is not bullying other states into doing want it wants. Second, in the international diplomatic arena, the U.S. tries to acknowledge every state as important. In other words, there are incentives for the U.S. to engage in cheap talk that muddles the understanding of which states are truly important and which are not. States are of geopolitical strategic importance if they can help or hinder in the dual goals of ensuring military and economic security. As a result, I developed a new operationalization of geopolitical strategic importance as having two dimensions: a military dimension and an economic dimension. I use one measurable indicator for each dimension.[28] I then categorize the different indicators into three bins each: low, medium and high, taking on values of "1," "2," and "3." Using these categories for the indicators, I created an index of geopolitical strategic importance by taking the sum across both indicators. Table 3 below illustrates the construction of the geopolitical strategic index variable.[29] The two dimensions are shown in the columns, with the military dimension separated into two different measures depending on if the whether country tends to vote with the U.S. in the UN general assembly. Each dimension is categorized into three "bins," which are the columns. The boxes explain

[28] The results displayed in the paper use one indicator for each dimension. However, I also ran the models with indices that included multiple measures for the economic variable. The results were similar (although not identical) across the different measures, so I omitted them in the interest of space. The two other economic measures I used were the share of world oil production and the amount of bilateral aid (OECD data that excludes military aid) from the US. Not only were the results similar, but including these two measure would have more heavily weighted economic measures relative to military measures, so I excluded them in the analysis in the paper.

[29] I choose the cutoff points for the bins by examining the data and finding cutoffs that made logical sense, but also had relatively similar sample sizes.

how the bins are scored for the two dimensions. In the section below, I first discuss how I constructed the military dimension of the index variable, and then I explain how I constructed the economic dimension.

Table 3: Geopolitical Strategic Importance Index Construction

	Military Dimension		Economic Dimension
	If UN affinity >0	If UN affinity <=0	
Low =1	Less than 10 US troops stationed in that country for that particular year (Ireland, Mali)	Less than 10,000 national military personnel (Burundi, Qatar)	Bilateral trade is less than 0.1% of US GDP (Belize, Luxembourg)
Bin Medium= 2	At least 10 but less than 100 US troops stationed in that country for that year (Guatemala, Romania)	At least 10,000 national military personnel, but less than 100,000 (Venezuela, Somalia)	Bilateral trade is at least 0.1% of US GDP, but less than 1% of US GDP (Argentina, Ireland)
High =3	100 or more US troops stationed in that country for that year (Canada, Germany)	100,000 or more national military personnel (Russia, Iran, Turkey)	Bilateral trade is 1% of US GDP or greater (Canada, Mexico, UK)

A clear projection of U.S. power on a military level, as well as an indication of countries the U.S. is willing to protect, would be the number of U.S. troops stationed abroad. U.S. troops stationed in a particular country would imply the U.S. is willing to use force as a deterrent or to achieve a goal. However, using only this as a measure of military strategic importance would miss many strategically important countries. While it would adequately capture allies or countries in conflict, it would fail to incorporate

strategically important non-allies. For example, China and Russia would not show up as important using such a measure, but both are clearly strategically important to the U.S. Similarly, alliance portfolios do not capture militarily important rivals of the U.S. To account for this discrepancy I combine two indicators of military importance. For allies[30] of the US, I use the number of U.S. military troops stationed on the ally's soil. For non-US allies, I use the total number of military personnel under the control of the national government by the non-US ally. In order to differentiate between ally and non-ally, I use affinity scores based on UN voting patterns (Gartzke 2006).

Scholars employ UN voting patterns to determine preferences of states, which are often unobservable. Whether UN voting patterns are a measure of sincere preferences or "strategic compliance" is unclear (Carter and Stone 2010), and may not be exceptionally important in this case. If UN voting patterns are a true measure of revealed preferences given that most votes in the UN General Assembly are not particularly important, then a strong affinity would accurately capture U.S. allies. Conversely, if voting patterns in the UNGA are more akin to vote buying, then a strong affinity may indicate a measure of U.S. strategic power over another state. In either case, these states would be the types of states most likely to have U.S. troops stationed within their national boundaries.

UN voting affinity scores are an index on a two unit scale between -1 and 1, with larger values indicating a closer affinity.[31] The data is dyadic, but I converted it to monadic data, given that I am only interested in the affinity between the U.S. and other

[30] The terms "ally" and "non-ally" are not meant to indicate whether or not states were in an alliance relationship with the US, but simply to indicate which military indicator I am using for a given state.
[31] I use the data which includes "yes," "no," and "abstain" votes, as well as interpolated for missing data (Gartzke 2006).

countries. I used the affinity score to create a dummy variable indicating whether a state is an ally or a non-ally of the US. States with UN voting affinity scores with the U.S. of 0 or lower are coded as a "0" and considered a non-ally of the US. States with UN voting affinity scores of higher than 0 are coded as a "1" and considered an ally of the U.S.[32] I chose to divide the sample at the zero point because a score of zero is midway between the two extremes and indicates neither a positive or negative affinity in voting. Further, I determined the division of the sample at zero had face validity after viewing the data and which countries fell into each sample.[33] For states which are coded as a "1" for the UN voting dummy I used a measure of the number of U.S. troops stationed within their national borders as the military dimension indicator. Conversely, for states that are coded as a "0" for the dummy I used the measure of their military personnel for the military dimension indicator. States that are not U.S. allies based on the UN voting affinity scores may still be important politically and militarily to the US. In an effort to pursue security and prosperity, the states that are most threatening to the U.S. would be those states with larger militaries. Just as the number of U.S. troops stationed abroad is used to measure the importance of allies, the importance of potential rivals is measured using the size of a non-ally's military force, measured by the number of national military personnel.

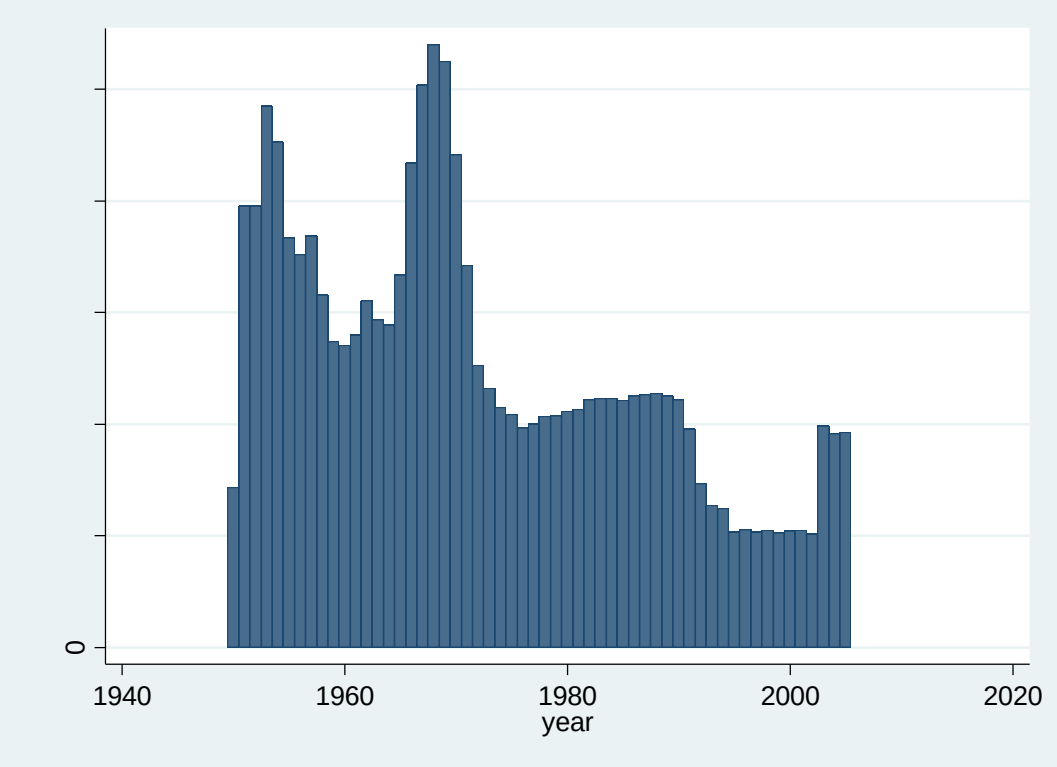
[32] Separating the sample in this way creates 794 observations of "US allies" and 2291 observations of "US non-allies." I also separated the UN voting affinity scores to create a more even split (at an affinity of -0.3) of 1582 "US allies" and 1503 "US non-allies". Doing so did not change the results and I therefore exclude them from the paper and include the theoretically more appealing zero split.

[33] I further checked face validity of the split and the U.S. troops data by summing the number of U.S. troops in the ally sample and the number of U.S. troops in the non-ally sample. The ally sample had more than 3 times as many U.S. troops than the non-ally sample.

Again, for allies, my indicator for the military dimension is the number of U.S. troops stationed abroad. This variable is taken from Kane (2006). The number of U.S. troops stationed in a particular country in a given year captures military and political importance because the level of interest by the home country positively correlates with the number of troops stationed in the host country. Countries in which the U.S. stations more troops are likely to be countries that the U.S. is willing to intervene in for other reasons. These are the types of countries that the U.S. wants to protect, both militarily and economically, and the U.S. government is able to do so directly.

The measure of the number of U.S. troops counts the raw number of U.S. troops stationed in a particular country in a particular year, and does not distinguish between branches of the military or mission. Below is a graph of the number of U.S. troops stationed abroad by year. Unsurprisingly, the number of U.S. troops stationed abroad peaked during the Cold War and then declined until post-9/11.

Graph 4: U.S. Troops Stationed Abroad by Year



For non-US allies (those which are coded as a zero in the UN voting affinity dummy) I used a count (in thousands) of the number of military personnel under the control of the national government. The military personnel data comes from the Correlates of War Project (version v.4, 2010). Military personnel are defined by the Project as "troops under the command of the national government, intended for use against foreign adversaries, and held ready for combat as of January 1 of the referent year" (2010, 11). This data also explicitly excludes foreign military forces in the count, and therefore is mutually exclusive of the U.S. troops data.

Both U.S. troops data and foreign military personnel data are continuous, and in order to create the index variable I converted them to categorical data with three categories, "low," "medium," and "high." I examined the data distribution in order to

determine what the proper cutoffs would be for both the U.S. troops and military personnel data.[34] For U.S. troops, the low category (coded a "1") if there were less than 10 U.S. troops stationed in the particular country in that year. The medium category (coded "2") included country-years that had at least 10 but less than 100 U.S. troops. Finally, the high category (coded "3") included all country-years with 100 or more U.S. troops.[35]

The foreign military personnel data was coded identically to the U.S. troop's data. The low category included those country-years in which the state had fewer than 10,000 national military personnel. Observations in the medium category included country-years with between 10,000 and 100,000 national military personnel. Country-years with 100,000 or more national military personnel fell into the high category. Each are coded "1," "2," and "3," respectively.[36] In sum, for the military dimension of the index, I used a measure of UN voting pattern affinity with the U.S. to determine the relationship between the U.S. and the particular country in a given year. If the country had a positive affinity with the US, I used the count of the number of U.S. troops stationed in that country in a particular year to create a 1 to 3 categorical variable. Similarly, if the country had a zero or negative affinity with the US, I used the number of national military personnel in that country in a given year to create a 1 to 3

[34] Using a higher threshold for U.S. strategic importance produces similar results. I re-ran the model with the low threshold of the number of U.S. troops having less than 100 troops, the medium threshold being countries with between 100 and 1000 troops and the high threshold being those countries with over 1000 U.S. troops. The results are nearly identical to the ones displayed below.

[35] The number of observations in each category are as follows: low: n = 944, medium: n = 1412, high: n = 668. For only those countries that are U.S. allies (coded as a "1" for the UN dummy): low: n= 104, medium: n = 333, high: n = 356.

[36] The number of observations in each category are as follows: low: n = 703, medium: n = 1450, high: n = 932. For only countries that are non-U.S. allies (coded "0" for the UN dummy); low: n = 634, medium: n = 1027, and high: n =630.

categorical variable. Thus, U.S. allies are considered more geopolitically strategic important if there are U.S. troops stationed within their national borders. Non-US allies are considered, using this measure, to be more important the more national military personnel they have, thus capturing states like China and Russia.

The second dimension of geopolitical strategic importance is economic. I focus on bilateral trade as the main indicator of economic importance to the US. The bilateral trade variable comes from the Correlates of War Project Trade Dataset (Barbieri, Keshk and Pollins 2008). Similar to the affinity scores, the data are dyadic data that I converted to monadic data, as I am only interested in bilateral trade with the US. The data has two variables, one that measures imports from Country A to Country B and one that measures imports from Country B to Country A. Trade positively benefits national welfare in terms of both imports and exports (although openness always creates winners and losers in the short run). Thus, I summed the values of imports from Country A to B and Country B to A to get a total value of trade between the two countries.[37] World trade levels rise and fall depending on the world economy, exogenous shocks and idiosyncrasies. Geopolitical strategic economic importance depends on how important the trading relationship is to the U.S. at a certain period in time. Therefore, I took the total trade between the U.S. and Country B and divided it by the GDP of the U.S. in that year. Thus creating not simply a raw measure of trade, but a measure of how important trade with that country is to the U.S. economy in a given year. Using this value, I again created a categorical variable with low, medium and high categories. If trade between

[37] The theoretical relationship between trade and alliances is not well understood, particularly as it relates to the causal direction of the relationship. Therefore, rather than separating by alliances I simply use the raw level of trade for all countries, whether they are an ally of the U.S. or not.

the U.S. and the other country was less than 0.1% of U.S. GDP, then the observation was considered to be in the low category and coded a "1." Trade that was between 0.1% and 1% of GDP were put in the medium category and coded "2." The high category included all country years in which trade between the U.S. and Country B was greater than 1% of GDP.[38]

In order to create the index, I added the values of the indicators for each dimension, the military and economic. Thus, a country that is both economically and militarily important would receive a score of 6, while a country that is neither economically nor militarily important would receive a score of 2, which creates a 5 point index for geopolitical strategic importance. Examples of countries that are coded as a 2 include The Gambia and Niger for the entirety of years they are in the sample. Conversely, countries which are coded as a 6 (the most geopolitically strategic important) include Japan, Russia, China, Korea, Great Britain and Saudi Arabia, for example.[39] Below is a list of countries which fall into the highest category and the lowest category for more than 3 years. The list is not inclusive, but serves to indicate that the index variable has face validity. Countries which would be expected to be consistently geopolitically strategic importance are on the list for the highest value of the index variable and those which would not be expected to be of geopolitical strategic importance are on the list of the lowest value of the index variable.

[38] The number of observations in each category is as follows: low: n = 917, medium: n = 990, and high: n = 1178.

[39] Not all of these countries are coded as a "6" for all the years they are in the sample. For example, Turkey and Russia are coded as "5's" for several years in the sample.

Table 4: List of Countries by Index Value

Index = 2 (lowest value)	Index = 6 (highest value)
Haiti	Canada
Dominica	Mexico
Belize	Brazil
Guyana	United Kingdom
Luxembourg	Netherlands
Malta	Belgium
Estonia	Spain
Latvia	Germany
Lithuania	Italy
Iceland	Russia
Guinea-Bissau	Algeria
Gambia, The	Iran
Mali	Turkey
Senegal	Saudi Arabia
Niger	South Korea
Burkina Faso	China
Liberia	Japan
Sierra Leone	India

I use a variety of other control variables that are commonly used when capital investment inflows is the dependent variable. These include GDP per capita (*GDPPC*), net trade as a percentage of GDP (*Trade*), and a logged measure of net investment in the world.[40] These variables all come for the WDI and are measured in current U.S. dollars. The descriptive statistics for the independent variables are given in the Appendix. I also include fixed effects.[41] Furthermore, the value of the Durbin Watson statistic indicated that it was necessary to include a lagged dependent variable to correct for serial autocorrelation. In addition, although Nickell can also potentially bias a lagged dependent variable downward in time-series cross-sectional data, Nickell bias is

[40] The net measure of investment varies for each model, depending on which specification of the dependent variable is used.

[41] I do not include time dummies because the measure of net world investment does not vary across countries by year. The Hausman test and the test statistic were significant, indicating that it is necessary to include fixed effects. The fixed effects are a series of country dummies.

minimal when the time period is greater than 15. The average number of time periods in the analysis is 17, suggesting that Nickell bias is likely not a problem.

The above control variables represent some of the most commonly used control variables when running regressions on aggregate investment flows (e.g. Jensen 2004). Larger, wealthier countries tend to attract more FDI, so the expected sign on *GDPPC* is positive. Similarly, countries that are more open to trade and more involved in international commerce are also more likely to attract FDI. As such, the coefficient for *Trade* is also expected to be positive. The measure of net global investment controls for shocks and time trends that affect the global supply of capital, while country dummies account for idiosyncrasies of countries.

Empirical analyses of the effects of IMF participation are plagued with statistical problems due to endogeneity and omitted variable bias.[42] To correct for these problems I use a treatment effects model with a Markov Transition in the treatment equation. This setup is used to address the potential endogeneity problems and capture the dynamic nature of IMF lending. A treatment effects model is a two-stage model with an endogenous dummy variable (IMF participation). These types of models are employed in many studies that examine the effects of participation in an IMF arrangement because this relationship is likely to suffer from endogeneity bias (when at

[42] According to Beck and Katz (1995), a standard ordinary least squares regression with panel corrected standard errors (OLS-PCSE) is recommended for time-series cross-sectional data to correct for panel heteroskedasticity and the correlation of errors. Beck and Katz argue that a simple OLS is not optimal for time-series cross-sectional data because the errors for any particular country are likely to be related to errors for that country at other times, and errors for one country in a specific time period may be related to other countries in the same year. Calculating the Durbin Watson statistic indicated the presence of correlated errors, and that Beck and Katz's suggestions apply to the data used in this analysis.

least one of the independent variables in the model is correlated with the error term).[43] If one of the independent variables (the regressors) is acting as a proxy for an unobserved factor in the error term, then one cannot interpret the effect of the regressor as the estimated coefficient since it is also capturing the effect of the unobserved variable. Endogeneity bias is likely in this case because IMF participation is not randomly distributed across all countries and the same factors which influence entry into an IMF agreement also influences FDI inflows directly. If the factors that affect Fund participation are not randomly distributed across the population of countries, then the error term in the IMF participation selection equation and the error term in the FDI inflows equation will be correlated.[44]

Treatment effects models are a series of two equations, which includes an endogenous treatment variable, in this case, a dummy variable measuring if a country is participating in an IMF program in a given year or not (*Under*).[45] Following the literature on FDI, a lagged dependent variable is included in the specifications to correct for serial autocorrelation (Beck and Katz 1995; Jensen 2004). I performed the Wooldridge test for serial correlation, and the significant test statistic indicated that

[43] If there is reverse causality between an independent variable and a dependent variable, and the dependent variable is determined simultaneously with at least on of the regressors, endogeneity bias may also be a problem. For endogeneity bias, the dependent variable is observed for all observations of the data. In contrast, sample selection bias arises when the dependent variable is observed only for a restricted, nonrandom sample of observations.

[44] For a thorough discussion of this problem see Steinwand and Stone (2008). However, while most of the recent literature addresses selection into IMF agreements, it does so without addressing the dynamic nature of IMF lending, which the selection equation by itself does not correct for. For example, see Abouharb and Cingranelli (2009).

[45] The following discussion is heavily dependent on Angrist et al (1996) and Jensen (2004).

Beck and Katz's recommendations applied to the data in this analysis.[46] This endogenous treatment variable enters into the following equation:

$$(1) \qquad Y_{it} = \beta_0 + \beta_1(Y_{i(t-1)}) + \beta_2(Index_{i(t-1)*}\ Under_{i(t-1)}) + \beta_3(Z_{i(t-1)}) + \beta_4(Under_{i(t-1)}) + \beta_5(Index_{i(t-1)}) + \varepsilon_{it}$$

Again, the dependent variables of interest are the measures of FDI and PI, denoted above as Y_{it}. The subscripts i and t are indicators of the observation and year. β_0 is the intercept, and the error term is ε_{it}. $Z_{i(t-1)}$ is a vector of explanatory variables (including the measures of geopolitical strategic importance and IMF participation). The main independent variable is the measure of geopolitical strategic importance, with the coefficient of interest being the β_2 on the interaction term between it and IMF participation.

The first hypothesis suggests that the ability of countries to catalyze private finance via an IMF arrangement differs for varying values of geopolitical strategic importance. Given that a country is participating in an IMF arrangement, the more important that country is to the US, the less likely it will experience the catalytic effect of Fund lending (i.e., increases in capital flows). I expect the sign on β_2 to be negative.

$Under_{it}$ is the outcome of unobserved latent variable $Under^*_{it}$, which is a function of IMF participation in the previous year, exogenous covariates X_{it} and random component *u* (Equation 2). In addition, I argue IMF participation is best modeled using

[46] Including a lagged dependent variable corrects for serial correlation, but also soaks up much of the variation. This is well known in the literature (see Achen 2000). Running the models without the lagged dependent variable should produce results with asymptotically correct coefficients, but with larger statistical significance.

a first ordered Markov process.[47] Using a dynamic model allows for the estimation of the likelihood of a state signing an IMF agreement conditioned on whether or not they were under an agreement in the previous year. This type of set-up allows for the differentiation between the determinants of an initial transition to IMF participation and the determinants of continued participation in an IMF arrangement. As a result, I include the interaction between the vector of covariates and IMF participation in the previous year ($Under_{i(t-1)}*X_{i(t-1)}$).

(2) $$Under^*_{it} = \beta_1(Under_{i(t-1)}) + \beta_2(X_{i(t-1)}) + \beta_3(Under_{i(t-1)}*X_{i(t-1)}) + u$$

$$Under_{it} = \begin{cases} 1 & \text{if } Under^*_{it} > 0; \\ 0 & \text{otherwise} \end{cases}$$

In using this model, the covariance between the error terms ε and *u* is assumed not to be equal to zero, suggesting that there are unobserved factors that influence both selection into an IMF program and investment inflows. The model assumes that assignment to the treatment group is ignorable, but receipt of the treatment of the treatment is non-ignorable. Here, the assignment to a treatment group can be considered to be the country's initial position in the control variables, while the receipt of the treatment is participation in an IMF agreement. "Even if assignment [to treatment] is random or ignorable, the actual receipt of treatment…is typically nonignorable. Therefore the difference of outcome averages by treatment received does

[47] Recidivism is common among participants in IMF arrangements. Countries which participate in an IMF agreement in time t-1 are far more likely to be under an agreement in time t than countries not under an agreement in time t-1.

not provided unbiased or even consistent estimate of the average causal effect" of IMF participation on investment flows (Angrist et al 1996, 447). The model attempts to correct for the unobserved correlations so that the comparison is between the outcome of units that received treatment (participated in an IMF arrangement) with their hypothetical outcome had they not received the treatment.

One potential unobserved factor might be "political will" (e.g. Vreeland 2002). Countries with government that have strong political will might be more likely to submit to the short-term costs and sovereignty costs associated with participation in an IMF arrangement in order to achieve the long-term benefits. Political will might also exercise an independent effect on amounts of investment inflows. If governments that have more political will are less likely to submit to the temptation to engage in expropriation of investment, then these states are likely to receive higher amounts of investment inflows. As such, the error terms in the two equations of the model are not assumed to be zero. If there is a correlation the model identifies and corrects for it.

(3) $$\text{Cov}[\varepsilon, u] = \rho$$

Thus, the model estimates two potentially correlated outcomes – the binary participation/non-participation in an IMF arrangement and the continuous outcome of investment inflows, with IMF as the endogenous dummy variable (Maddala 1983).

There is a large body of literature on the determinants of selection into an IMF program. I use some of the most common variables found to be significant in determining IMF participation (Biglaiser and DeRouen 2009; Jensen 2004; Vreeland

2002; Knight and Santaella 1997). The variables used to predict participation in an IMF program in year *t* are all measured in year *t*-1. They are: previous IMF participation (*LagUnder*), GDP per capita (*GDPPC*), annual inflation (*Inflation)*, and the log of foreign reserves (*Reserves*). Also, because IMF participation is modeled using a first order Markov process, I include interaction terms of all the independent variables with *LagUnder*. *GDPPC,* is in current U.S. dollars, the measure of inflation used is the GDP deflator and foreign reserves are measured in months of imports, all taken from the WDI. Furthermore, the results are robust to the inclusion of budget balance as a variable in the determinants of IMF equation. Budget balance is commonly used in the literature (see Biglaiser and DeRouen 2009), but is excluded here because it severely limits the number of observations (from over 3000 to just about 900.) The key in treatment effects models is that at least one covariate in the selection equation must be absent from the outcome equation and be statistically significant. This covariate acts as an instrument in the relationship; in this model the *Reserves*, *Inflation*, and *Reserves*Under* variables all serve as the instruments because they are all statistically significant and excluded from the outcome equation.

Results and Discussion

I begin with the probit model determining participation in an IMF program. This is equation (2) above and can be re-written as:

(4) $P(Under_{it} = 1) = Probit(\beta_1(Under_{i(t-1)}) + \beta_2(X_{i(t-1)}) + \beta_3(Under_{i(t-1)}*X_{i(t-1)}) + u$

The coefficients can be used to identify whether the processes that determine IMF program participation are different from transition into an IMF program versus continuation of program participation:

β_1: impact of being under an IMF agreement in time *t*-1 on the probability of continuing to remain under an agreement in time *t*

β_2: impact of vector of indicator variables $X_{i(t\text{-}1)}$ (determinants of IMF program participation) on the probability of going under an IMF agreement when a country is currently not under an agreement

β_3: denotes the difference between the impact of the vector of indicator variables $X_{i(t\text{-}1)}$ when the country is already under an agreement compared to when the country is not already under an agreement

The results of the probit are displayed in Table 4 below and the predictive ability of the model is displayed in Table 5.

As displayed in Table 4, the coefficients on the non-interacted terms indicate that given that a country is not under an agreement in the previous year, the coefficients on the standard control variables are all in the anticipated directions. *GDPPC*, and *Reserves* are both negative, while *Inflation* is positive, suggesting that the worse off a country's fundamentals, the more likely that country will enter into an IMF agreement. As the main contribution of the paper is the effect of IMF participation on the ability of countries to catalyze private finance, the probit model displayed above is important for its inclusion in the two-stage model. As Table 5 shows, the model performs relatively well and is able to accurately predict participation 92% of the time and non-participation 87% of the time.

Table 5: Determinants of IMF Participation (Probit)

Variable	Coefficient	Standard Error
Under Lagged	2.1688***	(0.1114)
GDP/Capita Lagged	-0.0001***	(0.0000)
Reserves Lagged	-0.1022***	(0.0218)
Inflation Lagged	0.0001*	(0.0000)
*GDP/Capita Lagged*Under Lagged*	0.0000	(0.0000)
*Reserves Lagged*Under Lagged*	0.0869**	(0.0293)
*Inflation Lagged*Under Lagged*	-0.0001	(0.0002)
Intercept	-0.9413***	(0.0821)
N	3344	
Pseudo R^2	0.5396	

*p≤.10; **p≤.01; ***p≤.001

Standard errors in parentheses.

Table 6: Predicted and Actual Values of IMF Participation

	Actual		
Predicted	**Under = 0**	**Under = 1**	**Total**
Under = 0	**1913**	165	2078
Under = 1	165	**1101**	1266
Total	2078	1266	3344
Percent Predicted Correctly	92%	87%	
Total Percent:	90%		

The results of the Treatment Effects Model with a Markov Transition are displayed in Table 6 below. This table displays the coefficient of interest for each regression: the interaction coefficient of *Under* and the geopolitical strategic importance variables. The columns in the table correspond to the dependent variables. The first column displays the coefficients with *LogFDI* one-year lag, the second displays *LogFDI* three-year moving average, and the third, *Portfolio1*. The full tables for each regression can be found in the Appendix.[48]

Table 7: The Effect of Geopolitical Importance*IMF Participation on Investment, Treatment Effects Model (Interaction Coefficients)

	Dependent Invest Variable		
	LogFDI	***LogFDI 3 Year***	***Portfolio1***
*Index*Under*	-0.0035 (0.0029)	-0.0021 (0.0016)	0.0026** (0.0009)
Other Controls	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes
N	3086	3125	3058

*p≤.10; **p≤.01; ***p≤.001

Standard errors in parentheses.

[48] As discussed in Section 2, scholars argue that not only can the U.S. influence IMF decisions, but so can other powerful member states, such as the top five vote shareholders (which, in addition to the U.S. includes Germany, France, Japan and Great Britain). Because I was unable to obtain numbers for the number of troops stationed abroad by country-year for the other four top shareholders, I do not include them in the analysis. However, I examined the data for the amount of bilateral aid given by the top five shareholders. Because these members are better able to influence policy when they act in concert with one another (Nielson and Tierney 2002), I summed the amount of bilateral trade by the five top shareholders by country year. I reran the model using this as the geopolitical strategic importance variable. For a one year lag of FDI, geopolitical strategic importance measured in this way is negative and statistically significant. For a three year moving average the association is negative but not statistically significant, and for a five year moving average geopolitical strategic importance is positive and not statistically significant. This offers preliminary evidence in support of the theory with a more comprehensive measure of powerful member states in the IMF.

The results in Table 6 do not appear to offer strong support for the hypothesis that states of geopolitical strategic importance to the U.S. experience a decrease in investment after participating in an IMF agreement, when investment is measured as foreign direct investment. For both the one-year lag and three-year moving averages of the dependent variables the log of FDI, the interaction between the index measure of geopolitical strategic importance and participation in an IMF agreement is negative and not significant. Conversely, when investment is measured as portfolio investment, conditional on geopolitical strategic importance, participation in an IMF agreement appears to increase portfolio investment. The coefficient on the interaction term in the regression that uses the log of portfolio investment as the dependent variable is positive and slightly statistically significant. This is a surprising result given the theory and indicates that more important states receive greater amounts of FDI after participating in an IMF agreement.

However, significance levels on an interaction term are not the whole story. The theory suggests that IMF participation influences investor decisions *conditional* on the level of geopolitical strategic importance to the most powerful country in the IMF, the U.S. Figures 2 through 4 below graphically represent the conditional results. Each figure corresponds to a different measure of the dependent variable. Figure 2 corresponds to *LogFDI* one-year lag; Figure 3 to the three-year moving average of *LogFDI*, and Figure 4 to *Portfolio1*. In each figure the value of the geopolitical strategic importance variable is given on the y-axis. The index is a 5 point categorical variable which can take a value between 2 and 6. Countries of the lowest geopolitical strategic importance receive a value of 2, and countries of the highest importance

receive a value of 6. The x-axis gives the conditional coefficient values. The dots represent the conditional coefficient at each value of geopolitical strategic importance and the surrounding lines represent the 95% confidence interval with a vertical dashed line at zero.

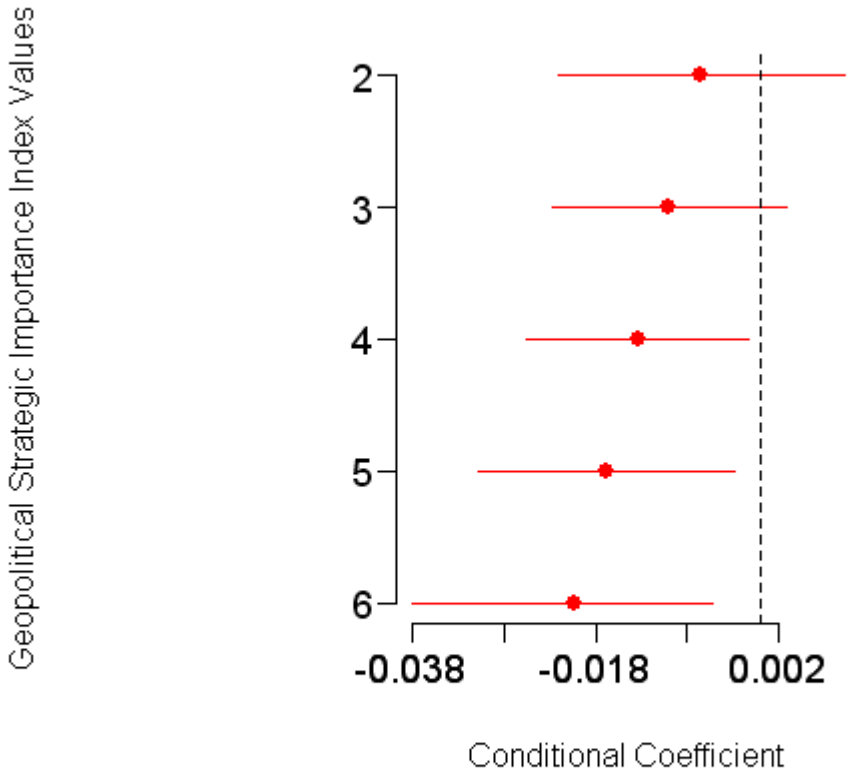


Figure 2: Conditional Effect of IMF Participation on the log of FDI at certain levels of geopolitical strategic importance

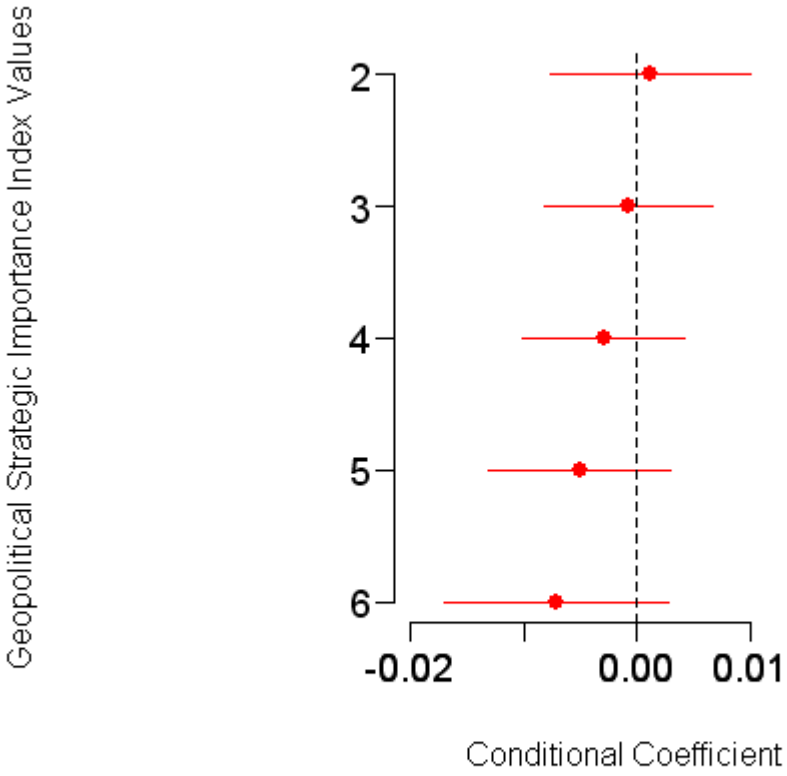


Figure 3: Conditional Effect of IMF Participation on log of FDI at certain levels of geopolitical strategic importance

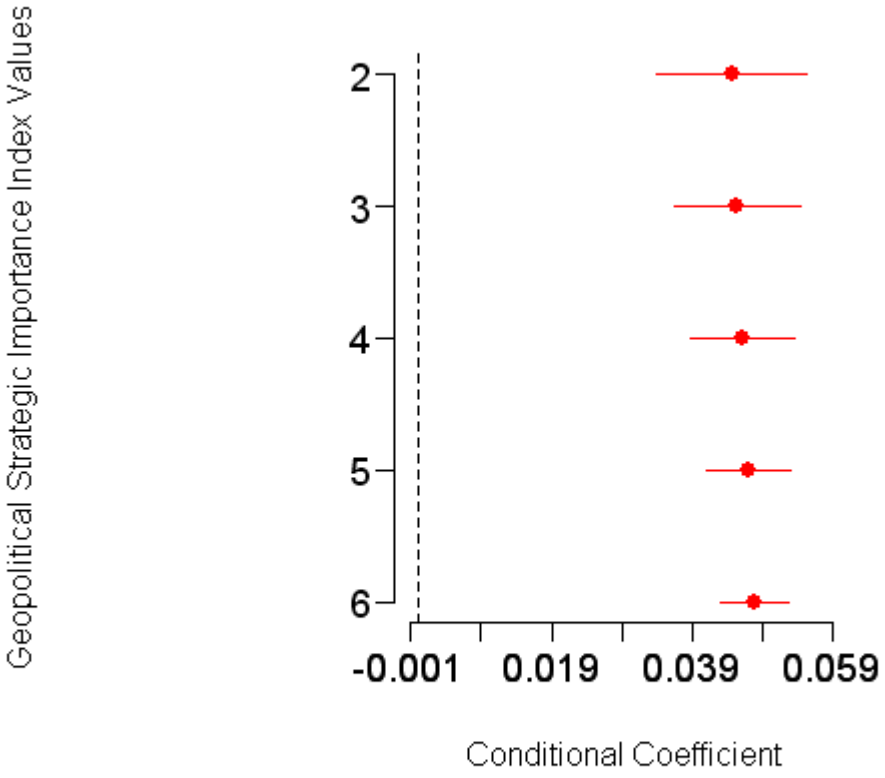


Figure 4: Conditional Effect of IMF Participation on log of Portfolio1 at certain values of geopolitical strategic importance

Figure 1 indicates the effect of participation on an IMF agreement is in fact conditional on the level of importance of the participatory country to the United States. The observations are at the country-year level, so a country's score on the geopolitical strategic index can and does change over time. For countries which take on the lowest two values of the geopolitical strategic index (values 2 and 3), signing an IMF

agreement does not influence FDI flows into their country. This can be seen in Figure 2 since both of the confidence intervals cross the zero line. However, countries that are of greater importance to the U.S. (meaning they take on values of 4-6 on the geopolitical strategic importance index), are associated with statistically significant lower levels of FDI. This finding is consistent with the theory that sophisticated investors take into account the likelihood of implementation of reforms before investing. Although the interaction term was not significant, the true significance of the interaction varies at different levels of the two interacted terms. Higher values of the geopolitical strategic important index are associated with statistically significant decreases in FDI following IMF participation. Countries which are not expected to implement the reforms (those countries of greater importance to the US) experience a decrease in FDI flows. It may be that the countries which sign IMF agreements experience a decrease in FDI flows no matter what, but implementation of reforms at the very least slows the bleeding of investment. Thus, the results in Figure 1 support the theory; the more important a country is to the U.S., the less FDI that country will experience after they participate in an IMF program.[49]

However, Figure 3 indicates that the interaction between geopolitical strategic importance and involvement in an IMF program does not influence FDI over a longer period of time (a three-year moving average). The confidence intervals cross the zero line al all values of the geopolitical strategic importance index, indicating that there are

[49] I also found identical results for a two-year moving average of FDI. Countries with the lowest two values on the index of geopolitical strategic importance are not associated with a statistically significant change in FDI. However, countries of the highest three values of the index of geopolitical strategic importance are associated with a statistically significant decrease in FDI.

no statistically significant results.[50] Although FDI is considered a longer term investment, it may be that attempting to measure FDI three years down the road (even with a moving average) simply introduces too much noise, especially given that IMF participation is not the only factor expected to influence FDI levels. Furthermore, investors are still able to pull out the investment. As time goes by, more information is revealed about the health of the (possible) host country's economy. Although implementation may not be observable, investors are still able to observe the investment climate, which may continue to deteriorate years after participation in an IMF agreement. Although Figure 2 does not support the theory, it may be that a three-year moving average is too far removed from participation. The results in Figure 3, although the confidence intervals all cross the zero line, does offer limited support for the theory. The conditional coefficients of the effect of IMF involvement on FDI are trending to the left as the level of geopolitical strategic importance rises.

Figure 4 shows that countries which sign IMF agreements *unconditionally* experience an increase in portfolio investment. Regardless of the level of geopolitical strategic importance, countries which sign an IMF agreement experience an increase in portfolio investment. These results are statistically significant at all values of both independent variables in the interaction term and contradict the theory; they indicate

[50] These results are the same for a five year moving average of FDI. As the level of geopolitical strategic importance increases, the amount of FDI inflows decreasing, going from a positive value to a negative value. However, the confidence interval is never statistically different from zero. I also ran the model on a ten year moving average of FDI. The results indicated that there is no statistically significant change in a ten year moving average of FDI following IMF participation. Further, all the conditional values are positive, indicating that there is not a negative trend as geopolitical strategic importance increases. This may be an indication that IMF programs do not have the "right" policies. However, this seems unlikely given that the contractionary effects are often considered to be short-run recession. Furthermore, because IMF participation influences investor behavior at the margins, a ten year moving average may simply be too long a time horizon to capture the relationship given noise.

that IMF participation is unconditional on geopolitical strategic importance. This result is contrary to the theory, but there are a couple possible explanations. One explanation for this discrepancy may be that portfolio investors are more interested in the short-term influx of capital, regardless of whether or not reforms will be implemented by the participating country. On the other hand, because FDI is a longer term investment, these types of investors take implementation of reforms more seriously, and therefore the politicized nature of Fund lending weighs more heavily into their investment decision. Portfolio investors are less likely to be interested in the likelihood of implementation because they are short term loans and may be more susceptible to moral hazard, meaning that because the loans are short term, they expect the IMF to bail them out. Countries which sign IMF agreements often also receive access to other loans and debt rollovers (e.g., Marchesi 2001). Portfolio investors may simply be counting on the fact that this financing will garner them a return on investment in the short run.

Conclusion

I argue that the catalytic effect of IMF program participation on private investment varies depending on the geopolitical strategic importance and vulnerability of participatory countries. Countries which participate in IMF agreements are likely to experience an increase in private capital flows because the conditions attached to the loans suggest a more positive economic investment environment. Previous work has shown that countries which are important to powerful member states (most notably the US) are less likely to implement the agreed conditions of the loan. If countries that are of importance to powerful member states do not implement agreed conditions, should they be likely to experience increases in private capital? To address this question I

analyze the relationship between IMF participation and private investment inflows, conditional on geopolitical strategic importance. Using an index variable of geopolitical strategic importance that factors in both military and economic importance, findings indicate that participation in an IMF agreement lowers FDI, conditional on the importance of that state to the US. These findings do not appear to hold over the long term, as measured by a three-year moving average of FDI.

Conversely, portfolio investors appear to be more susceptible to moral hazard, given the increases in investment in participatory countries with large U.S. troop stocks. Short-term portfolio investors may simply want to make a quick return, and understand that the U.S. is unable to give in to the short-term incentive to assist a country of geopolitical strategic importance to them. It is because of both the short-term nature of portfolio investors and the short-term interests of the U.S. that drive them to intervene on behalf of important countries that portfolio investors believe the U.S. will bail them out in these types of countries.

This paper represents a first step in the shared understanding of both the catalytic effect of Fund lending, as well as the politicized nature of IMF participation. Although the results are modest, they do support the theory and suggest further research. First, better measures of geopolitical strategic importance may be the most beneficial avenue to pursue. The concept of geopolitical strategic importance is a multifaceted concept that is difficult to define. Because it has multiple dimensions, scholars have measured it in different ways. However, these different measures do not always correlate and tend to be measuring different concepts. In an effort to alleviate this problem I develop a five point index to measure strategic importance along two

important dimensions, military and economic. Other dimensions of importance that future research might consider are geographical relationship, alliance patterns, the historical relationship between the dyad or if the state is currently in a position of power in an international organizations (such as being on the Security Council in the UN or the President of the EU). Adding more dimensions would more accurately capture the different aspects of importance, but in doing so a weighting of the dimensions would also need to be included. Those dimensions of greater importance would need to be weighted more heavily than those of less importance, such as, perhaps, geography.

Second, building a better understanding of investor perceptions of geopolitical strategic importance would not only assist in identification of geopolitical strategic importance constructs, but if investors consider these types of factors in general. The theory assumes that individual investors take IMF participation into account when making investment decisions.[51] Individual level surveys could determine how important IMF participation is to investment decisions. These surveys could not only specifically ask investors their feelings on IMF participation, but establish micro-level links between participation and Fund involvement, beyond aggregate cross-national studies. Furthermore, these types of surveys could help identify why portfolio investors respond strikingly different to direct investors following a host country's participation in an IMF program.

The findings in this paper suggest that future research is necessary to better understand the relationship between IMF participation and international private capital

[51] Bird and Rowlands (1997) find in a survey that investors are aware of potential host country's involvement in IMF agreements.

flows. As the IMF becomes more transparent, greater access to data will allow for more detailed empirical analysis. However, if the catalytic effect works through the mechanisms theorized in this paper – through commitment and likelihood of implementation – then future studies should examine variation in implementation of IMF agreements. Although the need to study implementation has been proposed by studies for the past 20 years (e.g., Haggard 1985; Kahler 1996; Dreher 2002), unfortunately, the data on implementation is limited, measured as either disruptions in the loan, or loans left undisbursed. These measures are not often correlated and the new MONA dataset only covers programs coming up for review by the executive board and thereby excludes canceled or interrupted programs (Arpac et. al., 2008).

I argue above that direct measurement of implementation is unnecessary for this paper because the theory relied on investor expectation of implementation and not on implementation itself. That said, future research should make an effort to improve measures of the extent of implementation. Implementation is interesting in and of itself, but researchers could then see if investors are correct in their expectations. Furthermore, the IMF itself should develop better measures of implementation in an effort to monitor and enforce programs.

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Table A1:
Descriptive Statistics

	Obs	Mean	Stand Dev.	Minimum	Maximum
Geopolitical importance measures:					
Index	4511	3.7536	1.3679	2	6
Control Variables:					
GDPPC	6397	5262.757	8024.014	56.46796	59182.83
LogPop	7394	15.49528	1.925658	9.725795	20.99962
Trade	6284	72.43968	42.95353	1.530677	462.4626
GovConsum	6101	15.83126	6.812106	2.650635	76.22212
WorldFDI	6305	25.79725	1.526452	23.01987	28.39152
LIEC	5201	5.358008	2.157317	1	7
Democracy	6484	0.4549661	0.4980062	0	1

Table A2:
Countries and IMF Programs in the Sample

"Enters": The year a country enters into the sample
"Leaves": The year a country leaves the sample
"Programs": The number of programs
SBA: Stand-by Arrangement
ECF: Extended Credit Facility
EFF: Extended Fund Facility

Albania
Enters: 1990
Leaves: 2008
Programs: 4
- 1992-1993 SBA
- 1993-1996 ECF
- 1998-2002 ECF
- 2002-2005 ECF

Algeria
Enters: 1963
Leaves: 2008
Programs: 4

1989-1991 SBA
1991-1992 SBA
1994-1995 SBA
1995-1998 EFF

Argentina
Enters: 1955
Leaves: 2008
Programs: 10
1984-1986 SBA
1987-1989 SBA
1989-1991 SBA
1991-1991 SBA
1992-1995 EFF
1996-1998 SBA
1998-2000 EFF
2000-2003 SBA
2003-2003 SBA
2003-2006 SBA

Armenia
Enters: 1995
Leaves: 2008
Programs: 4
1995-1996 SBA
1996-1999 ECF
2001-2005 ECF
2005-2008 ECF

Azerbaijan
Enters: 1991
Leaves: 2008
Programs: 4
1995-1995 SBA
1996-1999 EFF
1996-1999 ECF
2001-2005 ECF

Bangladesh
Enters: 1971
Leaves: 2008
Programs: 4
1985-1987 SBA
1987-1989 SBA
1990-1993 ECF

2003-2007 ECF

Belarus
Enters: 1995
Leaves: 2008
Programs: 1
1995-1996 SBA

Belize
Enters: 1981
Leaves: 2008
Programs: 1
1984-1986 SBA

Benin
Enters: 1963
Leaves: 2008
Programs: 4
1989-1992 SBA
1993-1995 ECF
1996-2000 ECF
2000-2008 ECF

Bolivia
Enters: 1950
Leaves: 2008
Programs: 6
1986-1986 SBA
1986-1988 ECF
1988-1994 ECF
1994-1998 ECF
1998-2002 ECF
2003-2006 SBA

Bosnia
Enters: 1992
Leaves: 2008
Programs: 2
1998-2002 SBA
2002-2004 SBA

Brazil
Enters: 1950
Leaves: 2008
Programs: 5

1983-1986 EFF
1988-1990 SBA
1992-1993 SBA
1998-2000 SBA
2001-2005 SBA

Bulgaria
Enters: 1990
Leaves: 2008
Programs: 8
1991-1991 SBA
1992-1993 SBA
1994-1995 SBA
1996-1996 SBA
1997-1997 SBA
1998-2001 EFF
2002-2003 SBA
2004-2007 SBA

Burkina Faso
Enters: 1963
Leaves: 2008
Programs: 5
1991-1992 SBA
1993-1995 ECF
1996-1998 ECF
1999-2002 ECF
2003-2006 ECF

Burundi
Enters: 1963
Leaves: 2008
Programs: 1
2004-2008 ECF

Cambodia
Enters: 1970
Leaves: 2008
Programs: 2
1994-1997 ECF
1999-2003 ECF

Cameroon
Enters: 1963
Leaves: 2008

Programs: 6
- 1988-1990 SBA
- 1991-1992 SBA
- 1994-1994 SBA
- 1995-1996 SBA
- 1997-1999 ECF
- 2000-2004 ECF

Central African Republic
Enters: 1963
Leaves: 2008
Programs: 5
- 1984-1984 SBA
- 1985-1986 SBA
- 1987-1990 SBA
- 1994-1995 SBA
- 1998-2001 ECF

Chad
Enters: 1963
Leaves: 2008
Programs: 5
- 1987-1990 SBA
- 1994-1995 SBA
- 1995-1999 ECF
- 2000-2004 ECF
- 2005-2008 ECF

Chile
Enters: 1951
Leaves: 2008
Programs: 3
- 1983-1985 SBA
- 1985-1988 EFF
- 1989-1990 SBA

China
Enters: 1952
Leaves: 2008
Programs: 1
- 1986-1987 SBA

Colombia
Enters: 1950
Leaves: 2008

Programs: 3
1999-2002 EFF
2003-2004 SBA
2005-2006 SBA

Congo, Republic of
Enters: 1963
Leaves: 2008
Programs: 5
1986-1988 SBA
1990-1992 SBA
1994-1995 SBA
1996-1999 ECF
2004-2008 ECF

Costa Rica
Enters: 1950
Leaves: 2008
Programs: 6
1985-1986 SBA
1987-1988 SBA
1989-1990 SBA
1991-1992 SBA
1993-1994 SBA
1995-1997 SBA

Cote d'Ivoire
Enters: 1962
Leaves: 2008
Programs: 9
1984-1984 SBA
1985-1985 SBA
1986-1987 SBA
1988-1988 SBA
1989-1990 SBA
1991-1992 SBA
1994-1997 ECF
1998-2001 ECF
2002-2005 ECF

Croatia
Enters: 1991
Leaves: 2008
Programs: 5
1994-1996 SBA

1997-2000 EFF
2001-2002 SBA
2003-2003 SBA
2004-2006 SBA

Czech Republic
Enters: 1993
Leaves: 2008
Programs: 1
1993-1994 SBA

Congo, Democratic Republic of
Enters: 1970
Leaves: 2008
Programs: 6
1983-1984 SBA
1985-1985 SBA
1986-1986 SBA
1987-1988 SBA
1989-1990 SBA
2002-2006 ECF

Djibouti
Enters: 1978
Leaves: 2008
Programs: 2
1996-1999 SBA
1999-2003 ECF

Dominica
Enters: 2002
Leaves: 2008
Programs: 2
2002-2003 SBA
2003-2006 ECF

Dominican Republic
Enters: 1951
Leaves: 2008
Programs: 6
1983-1984 EFF
1985-1986 SBA
1991-1992 SBA
1993-1994 SBA
2003-2004 SBA

2005-2008 SBA

Ecuador
Enters: 1951
Leaves: 2008
Programs: 9
1983-1984 SBA
1984-1985 SBA
1986-1987 SBA
1988-1988 SBA
1989-1990 SBA
1991-1992 SBA
1994-1995 SBA
2000-2001 SBA
2003-2004 SBA

Egypt
Enters: 1950
Leaves: 2008
Programs: 4
1987-1988 SBA
1991-1992 SBA
1993-1995 EFF
1996-1998 SBA

El Salvador
Enters: 1950
Leaves: 2008
Programs: 6
1990-1991 SBA
1992-1992 SBA
1993-1994 SBA
1995-1996 SBA
1997-1997 SBA
1998-2000 SBA

Estonia
Enters: 1992
Leaves: 2008
Programs: 6
1992-1992 SBA
1993-1994 SBA
1995-1995 SBA
1996-1996 SBA
1997-1999 SBA

2000-2001 SBA

Ethiopia
Enters: 1950
Leaves: 2008
Programs: 3
1992-1995 SBA
1996-1999 ECF
2001-2004 ECF

Gabon
Enters: 1962
Leaves: 2008
Programs: 7
1986-1988 SBA
1989-1990 SBA
1991-1993 SBA
1994-1994 SBA
1995-1999 EFF
2000-2002 SBA
2004-2005 SBA

Gambia, The
Enters: 1966
Leaves: 2008
Programs: 5
1984-1985 SBA
1986-1987 SBA
1988-1991 ECF
1998-2001 ECF
2002-2005 ECF

Georgia
Enters: 1991
Leaves: 2008
Programs: 4
1995-1995 SBA
1996-1999 ECF
2001-2003 ECF
2004-2007 ECF

Ghana
Enters: 1957
Leaves: 2008
Programs: 8

1983-1983 SBA
1984-1985 SBA
1986-1986 SBA
1987-1987 EFF
1988-1992 ECF
1995-1999 ECF
1999-2002 ECF
2003-2006 ECF

Guatemala
Enters: 1951
Leaves: 2008
Programs: 5
1983-1984 SBA
1988-1990 SBA
1992-1994 SBA
2002-2002 SBA
2003-2004 SBA

Guinea
Enters: 1962
Leaves: 2008
Programs: 5
1986-1987 SBA
1987-1990 SBA
1991-1996 ECF
1997-2001 ECF
2001-2004 ECF

Guinea-Bissau
Enters: 1977
Leaves: 2008
Programs: 3
1987-1990 SBA
1995-1998 ECF
2000-2003 ECF

Guyana
Enters: 1966
Leaves: 2008
Programs: 4
1990-1993 SBA
1994-1997 ECF
1998-2001 ECF
2002-2005 ECF

Haiti
Enters: 1961
Leaves: 2008
Programs: 5
1983-1985 SBA
1986-1989 ECF
1989-1990 SBA
1995-1996 SBA
1996-1999 ECF

Honduras
Enters: 1950
Leaves: 2008
Programs: 4
1990-1991 SBA
1992-1997 ECF
1999-2002 ECF
2004-2007 ECF

Hungary
Enters: 1971
Leaves: 2008
Programs: 6
1984-1985 SBA
1988-1989 SBA
1990-1991 SBA
1991-1992 EFF
1993-1994 SBA
1996-1998 SBA

India
Enters: 1950
Leaves: 2008
Programs: 3
1981-1984 EFF
1991-1991 SBA
1991-1993 SBA

Indonesia
Enters: 1961
Leaves: 2008
Programs: 3
1997-1997 SBA
1998-1999 EFF

2000-2003 EFF

Iraq
Enters: 1954
Leaves: 2008
Programs: 1
2005-2008 SBA

Jamaica
Enters: 1962
Leaves: 2008
Programs: 7
1984-1984 SBA
1985-1986 SBA
1987-1987 SBA
1988-1989 SBA
1990-1990 SBA
1991-1991 SBA
1992-1996 EFF

Jordan
Enters: 1954
Leaves: 2008
Programs: 6
1989-1991 SBA
1992-1993 SBA
1994-1995 EFF
1996-1998 EFF
1999-2001 EFF
2002-2004 SBA

Kazakhstan
Enters: 1991
Leaves: 2008
Programs: 4
1994-1994 SBA
1995-1995 SBA
1996-1998 EFF
1999-2002 EFF

Kenya
Enters: 1964
Leaves: 2008
Programs: 8
1983-1984 SBA

1985-1986 SBA
1988-1989 SBA
1989-1992 ECF
1993-1994 ECF
1996-1999 ECF
2000-2002 ECF
2003-2007 ECF

Kyrgyz Republic
Enters: 1991
Leaves: 2008
Programs: 5
1993-1993 SBA
1994-1997 ECF
1998-2000 ECF
2001-2004 ECF
2005-2008 ECF

Laos
Enters: 1970
Leaves: 2008
Programs: 3
1989-1992 ECF
1993-1997 ECF
2001-2005 ECF

Latvia
Enters: 1992
Leaves: 2008
Programs: 7
1992-1992 SBA
1993-1994 SBA
1995-1995 SBA
1996-1996 SBA
1997-1998 SBA
1999-2000 SBA
2001-2002 SBA

Lesotho
Enters: 1968
Leaves: 2008
Programs: 6
1988-1990 ECF
1991-1993 ECF
1994-1995 SBA

1995-1996 SBA
1996-1997 ECF
2001-2004 ECF

Liberia
Enters: 1961
Leaves: 2008
Programs: 2
1983-1983 SBA
1984-1985 SBA

Lithuania
Enters: 1991
Leaves: 2008
Programs: 5
1992-1992 SBA
1993-1993 SBA
1994-1997 EFF
2000-2000 SBA
2001-2003 SBA

Macedonia
Enters: 1992
Leaves: 2008
Programs: 5
1995-1996 SBA
1997-1999 ECF
2000-2001 EFF
2003-2004 SBA
2005-2008 SBA

Madagascar
Enters: 1963
Leaves: 2008
Programs: 8
1984-1984 SBA
1985-1985 SBA
1986-1986 SBA
1987-1987 ECF
1988-1988 SBA
1989-1992 ECF
1996-2000 ECF
2001-2005 ECF

Malawi

Enters: 1965
Leaves: 2008
Programs: 6
- 1983-1986 EFF
- 1988-1993 ECF
- 1994-1994 SBA
- 1995-1999 ECF
- 2000-2004 ECF
- 2005-2008 ECF

Mali
Enters: 1963
Leaves: 2008
Programs: 7
- 1983-1984 SBA
- 1985-1987 SBA
- 1988-1991 ECF
- 1992-1995 ECF
- 1996-1998 ECF
- 1999-2003 ECF
- 2004-2007 ECF

Mauritania
Enters: 1963
Leaves: 2008
Programs: 8
- 1985-1985 SBA
- 1986-1986 SBA
- 1987-1988 SBA
- 1989-1991 ECF
- 1992-1994 ECF
- 1995-1998 ECF
- 1999-2002 ECF
- 2003-2004 ECF

Mauritius
Enters: 1968
Leaves: 2008
Programs: 2
- 1983-1984 SBA
- 1985-1986 SBA

Mexico
Enters: 1950
Leaves: 2008

Programs: 5
- 1983-1985 EFF
- 1986-1988 SBA
- 1989-1993 EFF
- 1995-1997 SBA
- 1999-2000 SBA

Moldova
Enters: 1992
Leaves: 2008
Programs: 4
- 1993-1994 SBA
- 1995-1995 SBA
- 1996-1999 EFF
- 2000-2003 ECF

Mongolia
Enters: 1985
Leaves: 2008
Programs: 4
- 1991-1992 SBA
- 1993-1996 ECF
- 1997-2000 ECF
- 2000-2005 ECF

Morocco
Enters: 1957
Leaves: 2008
Programs: 6
- 1983-1984 SBA
- 1985-1985 SBA
- 1986-1987 SBA
- 1988-1989 SBA
- 1990-1991 SBA
- 1992-1993 SBA

Mozambique
Enters: 1975
Leaves: 2008
Programs: 5
- 1987-1989 ECF
- 1990-1995 ECF
- 1996-1998 ECF
- 1999-2003 ECF
- 2004-2007 ECF

Nepal
Enters: 1990
Leaves: 2008
Programs: 4
1985-1986 SBA
1987-1990 ECF
1992-1995 ECF
2003-2007 ECF

Nicaragua
Enters: 1950
Leaves: 2008
Programs: 4
1991-1993 SBA
1994-1997 ECF
1998-2001 ECF
2002-2006 ECF

Niger
Enters: 1963
Leaves: 2008
Programs: 9
1983-1983 SBA
1984-1984 SBA
1985-1985 SBA
1986-1987 ECF
1988-1991 ECF
1994-1995 SBA
1996-1999 ECF
2000-2004 ECF
2005-2008 ECF

Nigeria
Enters: 1960
Leaves: 2008
Programs: 4
1987-1988 SBA
1989-1990 SBA
1991-1992 SBA
2000-2001 SBA

Pakistan
Enters: 1950
Leaves: 2008

Programs: 9
- 1988-1991 SBA
- 1993-1994 SBA
- 1994-1995 EFF
- 1994-1995 ECF
- 1995-1997 SBA
- 1997-2000 EFF
- 1997-2000 ECF
- 2000-2001 SBA
- 2001-2004 ECF

Panama
Enters: 1951
Leaves: 2008
Programs: 6
- 1983-1984 SBA
- 1985-1987 SBA
- 1992-1994 SBA
- 1995-1996 SBA
- 1997-1999 EFF
- 2000-2002 SBA

Papua New Guinea
Enters: 1975
Leaves: 2008
Programs: 4
- 1990-1990 SBA
- 1991-1992 SBA
- 1995-1997 SBA
- 2000-2001 SBA

Paraguay
Enters: 1951
Leaves: 2008
Programs: 1
- 2003-2005 SBA

Peru
Enters: 1950
Leaves: 2008
Programs: 7
- 1984-1985 SBA
- 1993-1995 EFF
- 1996-1998 EFF
- 1999-2000 EFF

2001-2001 SBA
2002-2003 SBA
2004-2006 SBA

Philippines
Enters: 1950
Leaves: 2008
Programs: 6
1984-1985 SBA
1986-1988 SBA
1989-1990 EFF
1991-1993 SBA
1994-1997 EFF
1998-2000 SBA

Poland
Enters: 1986
Leaves: 2008
Programs: 4
1990-1990 SBA
1991-1992 EFF
1993-1993 SBA
1994-1996 SBA

Portugal
Enters: 1960
Leaves: 2008
Programs: 1
1983-1985 SBA

Romania
Enters: 1972
Leaves: 2008
Programs: 7
1991-1991 SBA
1992-1993 SBA
1994-1996 SBA
1997-1998 SBA
1999-2000 SBA
2001-2003 SBA
2004-2006 SBA

Russian Federation
Enters: 1992
Leaves: 2008

Programs: 4
- 1992-1993 SBA
- 1995-1995 SBA
- 1996-1998 EFF
- 1999-2000 SBA

Rwanda
Enters: 1963
Leaves: 2008
Programs: 3
- 1991-1994 ECF
- 1998-2001 ECF
- 2002-2006 ECF

Senegal
Enters: 1961
Leaves: 2008
Programs: 8
- 1983-1984 SBA
- 1985-1985 SBA
- 1986-1986 SBA
- 1987-1987 SBA
- 1988-1992 ECF
- 1994-1997 ECF
- 1998-2002 ECF
- 2003-2006 ECF

Sierra Leone
Enters: 1962
Leaves: 2008
Programs: 5
- 1984-1985 SBA
- 1986-1989 SBA
- 1994-1995 SBA
- 1994-1998 ECF
- 2001-2005 ECF

Slovakia
Enters:
Leaves: 2008
Programs: 1
- 1994-1996 SBA

Somalia
Enters: 1961

Leaves: 2008
Programs: 2
    1985-1986 SBA
    1987-1990 SBA

Korea
Enters: 1954
Leaves: 2008
Programs: 3
    1983-1984 SBA
    1985-1987 SBA
    1997-2000 SBA

Sri Lanka
Enters: 1950
Leaves: 2008
Programs: 5
    1983-1984 SBA
    1988-1990 ECF
    1991-1995 ECF
    2001-2002 SBA
    2003-2006 EFF

Sudan
Enters: 1972
Programs: 2008
Programs: 1
    1984-1985 SBA

Tajikistan
Enters: 1993
Leaves: 2008
Programs: 3
    1996-1996 SBA
    1998-2001 ECF
    2002-2006 ECF

Tanzania
Enters: 1962
Leaves: 2008
Programs: 6
    1986-1986 SBA
    1987-1990 ECF
    1991-1995 ECF

1996-1999 ECF
2000-2002 ECF
2003-2007 ECF

Thailand
Enters: 1950
Leaves: 2008
Programs: 2
1985-1986 SBA
1997-2000 SBA

Togo
Enters: 1962
Leaves: 2008
Programs: 6
1984-1984 SBA
1985-1985 SBA
1986-1987 SBA
1988-1988 SBA
1989-1993 ECF
1994-1998 ECF

Turkey
Enters: 1950
Leaves: 2008
Programs: 5
1984-1985 SBA
1994-1996 SBA
1999-2002 SBA
2002-2004 SBA
2005-2008 SBA

Uganda
Enters: 1963
Leaves: 2008
Programs: 6
1983-1984 SBA
1987-1988 ECF
1989-1993 ECF
1994-1996 ECF
1997-2001 ECF
2002-2005 ECF

Ukraine
Enters: 1993

Leaves: 2008
Programs: 5
1995-1995 SBA
1996-1996 SBA
1997-1997 SBA
1998-2002 EFF
2004-2005 SBA

Uruguay
Enters: 1950
Leaves: 2008
Programs: 9
1983-1984 SBA
1985-1987- SBA
1990-1991 SBA
1992-1993 SBA
1996-1996 SBA
1997-1998 SBA
1999-1999 SBA
2000-2001 SBA
2002-2005 SBA

Uzbekistan
Enters: 1992
Leaves: 2008
Programs: 1
1995-1997 SBA

Venezuela
Enters: 1952
Leaves: 2008
Programs: 2
1989-1993 EFF
1996-1997 SBA

Vietnam
Enters: 1989
Leaves: 2008
Programs: 3
1993-1993 SBA
1994-1997 ECF
2001-2004 ECF

Zambia
Enters: 1965

Leaves: 2008
Programs: 6
1984-1985 SBA
1986-1987 SBA
1995-1995 ECF
1995-1998 ECF
1999-2003 ECF
2004-2008 ECF

Zimbabwe
Enters: 1980
Leaves: 2008
Programs: 5
1983-1984 SBA
1992-1992 EFF
1992-1995 EFF
1998-1998 SBA
1999-2000 SBA
N=105

Non-Program Countries

Australia
Enters: 1950
Leaves: 2008

Austria
Enters: 1950
Leaves: 2008

Bahrain
Enters: 1971
Leaves: 2008

Belgium
Enters: 1958
Leaves: 2008

Bhutan
Enters: 1981
Leaves: 2008

Botswana
Enters: 1968
Leaves: 2008

Canada
Enters: 1950
Leaves: 2008

Cyprus
Enters: 1970
Leaves: 2008

Denmark
Enters: 1951
Leaves: 2008

Eritrea
Enters: 1994
Leaves: 2008

Fiji
Enters: 1970
Leaves: 2008

Finland
Enters: 1950
Leaves: 2008

France
Enters: 1950
Leaves: 2008

Germany
Enters: 1950
Leaves: 2008

Greece
Enters: 1951
Leaves: 2008

Iceland
Enters: 1950
Leaves: 2008

Iran
Enters: 1955
Leaves: 2008

Ireland
Enters: 1950
Leaves: 2008

Israel
Enters: 1953
Leaves: 2008

Italy
Enters: 1950
Leaves: 2008

Japan
Enters: 1952
Leaves: 2008

Kuwait
Enters: 1970
Leaves: 2008

Lebanon
Enters: 1991
Leaves: 2008

Malaysia
Enters: 1957
Leaves: 2008

Malta
Enters: 1967
Leaves: 2008

Namibia
Enters: 1990
Leaves: 2008

Netherlands
Enters: 1951
Leaves: 2008

New Zealand
Enters: 1960
Leaves: 2008

Norway

Enters: 1950
Leaves: 2008

Oman
Enters: 1971
Leaves: 2008

Saudi Arabia
Enters: 1970
Leaves: 2008

Singapore
Enters: 1966
Leaves: 2008

Slovenia
Enters: 1992
Leaves: 2998

Solomon Islands
Enters: 1981
Leaves: 2008

South Africa
Enters: 1950
Leaves: 2008

Spain
Enters: 1957
Leaves: 2008

Swaziland
Enters: 1969
Leaves: 2008

Sweden
Enters: 1950
Leaves: 2008

Switzerland
Enters: 1950
Leaves: 2008

Syria
Enters: 1960

Leaves: 2008

Taiwan
Enters: 1951
Leaves: 2008

Trinidad and Tobago
Enters: 1963
Leaves: 2008

Tunisia
Enters: 1961
Leaves: 2008

Turkmenistan
Enters: 1993
Leaves: 2008

United Arab Emirates
Enters: 1972
Leaves: 2008

UK
Enters: 1950
Leaves: 2008

USA
Enters: 1950
Leaves: 2008