IMF Conditionality and Capital Controls: Capital Account Liberalization to Capital Inflow Management?

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Abstract

Since the end of the Bretton Woods system, promoting capital account liberalization has been one of the tenants of the IMF. Capital account liberalization was deemed one of the 10 pillars of what was often dubbed the "Washington Consensus." Yet things changed drastically with the Global Financial Crisis of 2008. From 2009 to 2012, comments from top IMF officials and staff reports displayed quite clearly that the IMF had revised its position where capital controls could be part of the toolkit. In this paper, we assess the role of the IMF in capital account liberalization from 1995 to 2015. We use a midpoint-inflated ordered probit model to estimate the effects of being under IMF conditionality on capital controls, allowing for different effects for pre- and post-Financial Crisis. We find that the IMF did indeed drive liberalization of capital inflows in the pre-crisis era, but stopped doing so in the post-crisis period.

Keywords: capital controls, IMF conditionality, global financial crisis
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1 Introduction

Since the end of the Bretton Woods system, promoting capital account liberalization has been one of the tenants of the IMF. Capital account liberalization was deemed one of the 10 pillars of what was often dubbed the "Washington Consensus."[1] Yet things changed drastically with the Global Financial Crisis of 2008. From 2009 to 2012, comments from top IMF officials and staff reports (Strauss-Kahn, 2010; Lipsky, 2010; Ostry et al., 2010, 2011) displayed quite clearly that the IMF had revised its position. This position was articulated in the IMF (2012) *Liberalization and Management of Capital Flows: An Institutional View*, which stated that "in certain circumstances, capital flow management measures can be useful."[2]

One vehicle available to the IMF to impose its preferred policies is lending with policy conditionality. "IMF Conditionality" is intended to help resolve the balance of payments problems of the member nations and also to ensure that the member's external position is sufficiently strong for it to repay its loan. In practice, each loan has a large number of conditions covering multiple economic policy areas like general government, central bank and financial sector (IMF, 2018a). The vast majority of these conditions are performance criteria where the recipient must meet certain prescribed targets like fiscal targets. There are also structural benchmarks such as institutional reform, public wages and employment and privatization of national assets.

In this paper, we assess the role of the IMF in capital account liberalization from 1995 to 2015. We use a midpoint-inflated ordered probit (MIOP) model of Brooks et al. (2012) to estimate the effects of IMF conditionality on capital

[1] Technically, the original Washington Consensus had FDI openness as one of its items, while the augmented Washington Consensus had "prudent" capital-account opening as an item (Rodrik, 2006).

[2] The three circumstances cited are when 1. the room for adjusting macroeconomic policies is limited, 2. the needed policy steps require time, or the macroeconomic adjustments require time to take effect, 3. an inflow surge raises risk of financial instability

controls, allowing for different effects for pre- and post-Financial Crisis periods. The MIOP model simultaneously estimates a probit equation to model the decision to change policy *and* an ordered-probit to model the direction (i.e. tighten, no-change or loosen) of that policy change. As such, we can capture the two distinct ways to explain a "no change": the decision to not change policy per se *or* the decision to keep policy constant despite being willing to act.

We find that the IMF did indeed drive liberalization of capital inflows in the pre-crisis era, but stopped doing so in the post-crisis period. In the probit equation, IMF conditionality increases the probability of changing capital controls in the pre-crisis period, while stops doing so during the post-crisis era. In the ordered probit equation, there is a negative impact on the direction of change prior to the crisis and positive post-crisis, although the effects are largely insignificant. The most striking results occur when we calculate the marginal changes in the probability of tightening or loosening capital controls before and after the crisis. In the pre-crisis period, we find that IMF conditionality had a positive (and significant) impact of loosening capital inflow controls. In contrast, we find that IMF conditionality had a negative (and significant) effect on loosening capital inflow controls in the post-crisis period.

The only papers to date that test the effects of IMF programs on capital controls are Joyce and Noy (2008) and Gallagher and Tian (2017). Joyce and Noy (2008) estimate a probit model for 53 developing nations for 1982 to 1998. They find that countries were more likely to liberalize their capital accounts after signing a loan agreement with the IMF, especially in the 1990s. Their sample however does not allow them to test the effects of IMF conditionality in the post financial crisis period. Gallagher and Tian (2017) analyze IMF Article IV reports for 31 emerging market economies under IMF conditionality for 1998 to 2012 to create "capital flow management" policy-advice measures. They then

regress these variables on a crises dummy (which is 1 after 2008) and a set of controls and find that IMF support for capital controls increased after the crises. Their results however have little to say on the capital control policies of the recipient countries. In addition, the analysis of both papers does not account for the simultaneous decision to change policy and the direction of that policy shift.

2 Background

2.1 Capital Controls

Modern capital controls were developed by the participants of World War I to finance wartime expenditures through seignorage. After a brief post-war disappearance, they returned in the 1930s during the Great Depression. In 1944, these capital controls became officially permitted with the signing of the IMF Articles of Agreement (Article VI, section 3) at the Bretton-Woods conference. Under Bretton-Woods, capital restrictions were used by member countries to cope with balance of payments problems.[3]

Starting in the late-1970s, capital controls began to fall due to institutional and intellectual changes. Institutionally, the Bretton-Woods system of fixed exchange rates was replaced by a predominately flexible system. As a result, there was less need for capital controls, especially among the OECD. The intellectual change was the growing movement in economics towards free trade, floating exchange rates, competitive markets and macroeconomic stability, which culminated with the Washington Consensus of 1990.

The IMF's statements on capital controls started to change in the wake of the Asian Financial Crisis. Influential critics such Bhagwati (1998) and Rodrik

[3]Ghosh and Qureshi (2016) provide a detailed history of capital controls and the IMF's stance towards them.

(1998) warned about the potential dangers of free capital flows. In 2000, the Executive Board of the IMF stated it "has emphasized the substantial benefits of capital account liberalization, but stressed the need to carefully manage and sequence liberalization in order to minimize risks" (IMF, 2000). This position was later reaffirmed by Kenneth Rogoff, Chief Economist and Director of Research, who wrote that the IMF keep "an open mind on the issue of capital controls and debt – especially when debating ways to better immunize the global financial system against crises in the twenty-first century" (Rogoff, 2002).

However, the IMF only officially abandoned its support of capital control liberalization in the wake of the Global Financial Crisis. In a series of research and policy papers, Ostry et al. (2010, 2011, 2012) and IMF (2010, 2011a,b) stated that capital controls should be considered alongside taxes and other macroprudential measures to ward off crises. This research backed up previous statements by then First Deputy Managing Directory John Lipsky (2010) and President Dominique Strauss-Kahn (2010) who first commented critically on capital account liberalization. Figure 1 confirms the shift in capital controls as the mean value of capital controls starts to rise in 2004-2007 for each group of countries.

What about individual changes in capital controls? Figure 2 plots the distribution of countries by changes in their capital controls. There are six categories: (i) unambiguous increase, (ii) mixed-increase where more controls are raised than lowered, (iii) no change, (iv) balanced change where individual controls were introduced and abandoned keeping the index exactly the same, (v) mixed-decrease where more controls are lowered than raised, and (vi) unambiguous decrease. In any given year, countries typically only introduce or abolish controls with fairly few examples of countries simultaneously doing both as part of a major capital market reform. As a result, the vast majority of countries experience no change in capital controls in each year. Nevertheless, two important

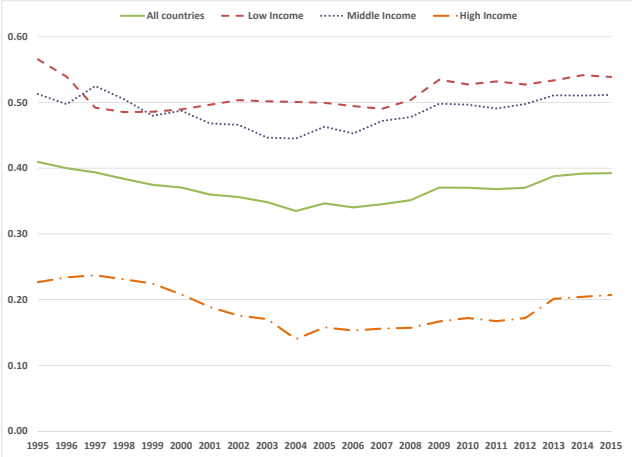

Figure 1: Average level of capital controls

trends in the graph support the policy shift. At the bottom the percentage of countries that increased capital controls (i+ii) falls from 22 percent in 1996 to 9 percent in 2003, and then bounces up and down at a higher percentage after that. At the top the percentage of nations that decreased controls (v+vi) trends down from 16 percent in 1996 to 7 percent in 2015.

2.2 IMF Conditionality

The IMF extends credit to a member to meet its BOP needs through a number of lending "arrangements" or "special facilities." The main arrangements are Stand-By Arrangements (SBA), Standby Credit Facility (SCF), Extended Fund Facility (EFF) and Extended Credit Facility (ECF) (IMF, 2018b). The SBA and EFF are loans issued at the market-based SDR interest rate; while SCF and ECF are concessional loans made to low-income countries at below-market interest rates. The EFF and ECF arrangements give considerable emphasis to structural elements. In fact, the ECF replaced the former structural-adjustment

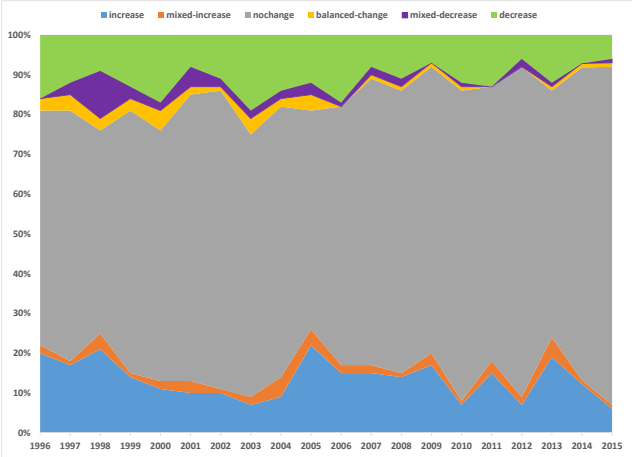

Figure 2: Changes in capital controls

Poverty Reduction and Growth Facility (PRGF) in 2010. The PRGF had in turn replaced the Enhanced Structural Adjustment Facility (ESAF) in 1999.

Each of these lending arrangements carries commitments on the part of the recipient to undertake a program of economic policies. The policy commitments take three general forms: quantitative performance criteria such as fiscal balances, external borrowing; indicative targets for completing revision; and structural benchmarks like financial and labor market reform. The recipient has the "primary responsibility of selecting, designing and implementing the policies that will make the IMF-supported program successful" (IMF, 2018a).[4]

Figure 3 plots the number of new arrangements each year on the left axis and the percentage of our sample under an IMF arrangement on the right axis. We

[4]There is no single way to quantify or even count the number of conditions for each lending arrangement. One method is to count the number of individual economic descriptors for each loan in the IMF *Monitoring of Fund Arrangements* database. For 1992 to 2017, the mean number of conditions is 80.7 with a median of 29. There however is duplication of conditions across descriptors. An alternative method is to use all available archival documents to identify the number of unique conditions. Using this method, Kentikelenis et al. (2016) report a mean number of 35.8 and a median of 34 for 1985 to 2014.

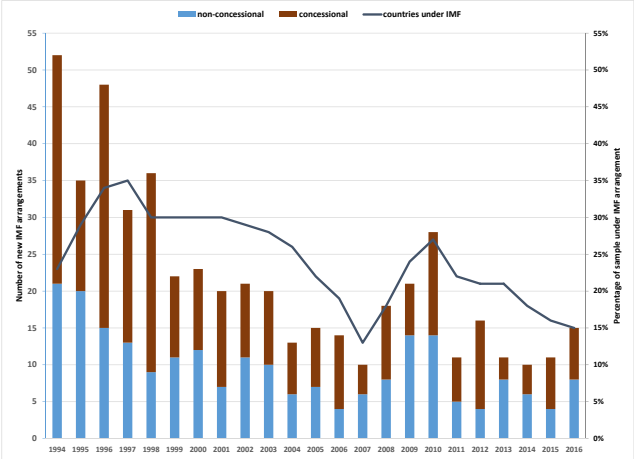

Figure 3: IMF arrangements

use the *Monitoring of Fund Arrangements* (MONA) database of the IMF. The non-concessional arrangements are in blue and the concessional arrangements to low-income countries are in brown. There are on average 22 new arrangements each year, with more than half being concessional. Not surprisingly, new arrangements spiked during the crisis years of 1994-1998 and 2008-2010. In our 100-country sample, 24 percent are under IMF conditionality on average with increases in 1996-2001 and in 2009-2011.

Past research has found that IMF conditionality can impact macroeconomic policy decisions and outcomes.[5] For economic growth, papers such as Przeworski and Vreeland (2000) and Barro and Lee (2005) estimate an immediate negative effect, followed by no effect or even a positive effect after the program. As with most cross-country analysis, the results depend critically upon the sample period, control variables, and estimation technique (Eichengreen et al., 2008). For

[5]Steinwand and Stone (2008) and Dreher (2009) provide excellent surveys of the issues surrounding IMF conditionality and the empirical literature that has testing its impact.

macroeconomic policy, the results are more clear-cut. Conway (1994), Dreher and Vaubel (2004), Dreher (2005), and Atoyan and Conway (2006) find that IMF conditionality raises the budget balance and lowers monetary growth. The one exception is Evrensel (2002) who show an immediate effect that disappears in subsequent years. Interestingly, these results tend to be independent to the degree of implementation of the loan arrangement.

3 Empirical strategy

3.1 Capital controls

Fernández et al. (2016) provide capital control data for 100 nations from 1995 to 2015. These data were first produced by Fernández et al. (2015) to assess whether or not capital controls are countercylical, extending the independent work of El-Shagi (2010) and Schindler (2009).

The Fernández et al. (2016) data is based on the IMF's Annual Reports on Exchange Arrangements and Exchange Restrictions (AREAER). The AREAER reports provide detailed descriptions of controls in more than five distinct capital markets (including stock, bond and credit markets), separated by whether domestic or foreign residents are restricted in either purchases or sales. For each capital market area, an indicator is constructed that takes a value of one if a control exists in that sector and zero otherwise.

The individual indicators are prone to substantial measurement error since they do not capture the intensity of controls in the distinct areas. However, Fernández et al. (2016) aggregate the indicators to create indices for all controls, inflow controls and outflow controls, which can mitigate this measurement error to a large degree. Each capital control index is thus a share of sector controls ranging from 0 (for no controls) to 1 (to fully controlled).

3.2 IMF arrangements

The information on IMF conditionality is taken from the *Monitoring of Fund Arrangements* (MONA) database. We do not distinguish by the type of program or economic focus (labelled "economic descriptor") in the original database. We are interested in to what extent the IMF utilizes its power to enforce policies to drive capital account liberalization. In other words, we do want to account for the *possibility* that the IMF can pressure a country to liberalize because the country is part of an arrangement, rather than controlling for situations where the IMF is known to have targeted capital account liberalization.

There are more than 400 arrangements during our sample period. Due to limited coverage of the capital control database, we include roughly 200 of these programs in our analysis.

We define a dummy variable IMF that is set to one if the country is part of an IMF program and zero otherwise. We alternatively control for the initial year of programs only. The results are similar, but typically less strong. Since it seems plausible for longer programs that the policy changes are distributed over the program, rather than being introduced immediately, the results reported in this paper are based on the originally described IMF variable. The initial year results are available from the authors on request.

3.3 Method

We use the indices for all controls, inflow controls and outflow controls as our dependent variable. The specific subs-sector indicators cannot account for the magnitude of each control. While being the best available measure, the indices are still subject to some degree of measurement error that makes the interpretation of the magnitude of - usually subtle - changes difficult. However, countries typically only introduce *or* abolish controls in each year, with fairly few exam-

ples of a nation simultaneously doing both. As a result, we are very confident that the indices used capture the correct direction of change.

We use an ordinal model to assess the probability of tightening or loosening capital controls. The conventional approach to model this situation is to use a simple ordered probit (or logit) model. However, the recent literature of zero-inflated ordered outcomes has shown that the decision to change policy might well be made independent of the question of which type of policy to pursue.[6]

We therefore estimate a midpoint-inflated ordered probit model - a simultaneous equation model that separately estimates the decision to act (i.e. to even consider policy changes) through a probit equation and the directional decision (i.e. to tighten, loosen or keep the current level of capital controls) through an ordered probit equation. Most importantly, this method implies that there are two distinct ways to explain "no change": First, the decision to not change policy per se, and second, the decision to keep policy constant despite generally being willing to act. This method was originally proposed by Brooks et al. (2012) to assess monetary policy, extending the work by Harris and Zhao (2007) on zero-inflated ordered probit models.

We control for the level of capital controls, giving our model – that explains changes – the flavor of a cointegration model in the spirit of Pesaran et al. (2001). Since we find evidence of nonlinearity in mean reversion, we include both the level and squared level of capital controls.

Our model thus consists of the probit equation

$$d_{it}^{*} = \beta_0 cc_{i,t-1} + \beta_1 cc_{i,t-1}^2 + \beta_2 PC_t + \beta_3 IMF_{i,t} + \beta_4 PC_t \times IMF_{i,t} + \tilde{X}_{i,t}\tilde{\beta} + \varepsilon_{i,t} \quad (1)$$

and the ordered probit equation

[6] Hill et al. (2011) reproduce a range of papers published in political science journals, demonstrating that their results could have been improved using zero-inflated ordered models.

$$c^*_{it} = \gamma_0 cc_{i,t-1} + \gamma_1 cc^2_{i,t-1} + \gamma_2 PC_t + \gamma_3 IMF_{i,t} + \gamma_4 PC_t \times IMF_{i,t} + \tilde{X}_{i,t}\tilde{\gamma} + \eta_{i,t} \quad (2)$$

with

$$\begin{aligned}
\Delta cc_{i,t} &> 0 \text{ if } d^*_{i,t} > 0 \wedge c^*_{i,t} > \mu \\
\Delta cc_{i,t} &< 0 \text{ if } d^*_{i,t} > 0 \wedge c^*_{i,t} < 0 \\
\Delta cc_{i,t} &= 0 \text{ if } d^*_{i,t} < 0 \vee (c^*_{i,t} > 0 \wedge c^*_{i,t} < \mu),
\end{aligned}$$

where cc is our index of capital controls, d^* and c^* are the latent variables governing the discrete choice processes involved, PC is a post-crisis dummy (which is one if $t > 2007$ in our baseline specification), IMF is an indicator of being under an IMF program, and $\tilde{X}$ are a set of covariates. The terms $\tilde{\beta}$ and $\tilde{\gamma}$ collect the elements of the coefficient vectors β and γ corresponding to these additional controls. Both ε and η are independent error terms drawn from a standard normal distribution.

Collecting all covariantes in $X_{i,t} = \left[cc_{i,t-1}\, cc^2_{i,t-1}\, PC_t\, IMF_{i,t}\, PC_t IMF_{i,t}\, \tilde{X}_{i,t}\right]$, we thus can write:

$$\begin{aligned}
P(\Delta cc_{i,t} > 0) &= \Phi(X_{i,t}\beta)(1 - \Phi(\mu - X_{i,t}\gamma)) \\
P(\Delta cc_{i,t} < 0) &= \Phi(X_{i,t}\beta)\Phi(-X_{i,t}\gamma) \qquad (3) \\
P(\Delta cc_{i,t} = 0) &= \Phi(X_{i,t}\beta)(\Phi(\mu - X_{i,t}\gamma) - \Phi(-X_{i,t}\gamma)) + (1 - \Phi(X_{i,t}\beta))
\end{aligned}$$

Each of the above captures the probability of tightening, loosening or keeping the current level of capital controls that is implied by considering equations (1)

and (2) together.

3.4 Further controls

While our main interest is on the impact of IMF conditionality on capital controls, we include other potential drivers of capital account policy as controls. We organize these controls into three groups: macroeconomic conditions; banking, currency, and debt crises; and political and institutional indicators.[7] We select those variables that have complete or near-complete coverage in our 100-country sample.

Macro controls We focus on indicators that have been identified by the previous literature, namely current account balances and GDP (c.f. Grilli and Milesi-Ferretti, 1995; Alfaro, 2004; Joyce and Noy, 2008). Although not a macro indicator in the narrowest sense of the word, we also include the exchange rate regime as defined by Ilzetzki et al. (2017). For simplicity, we consider all highly interventionist systems as "fixed,"s with the exception of "no separate legal tender or currency union." The latter mostly reflect the Euro area countries with their joint central bank rather than traditional "fixed exchange rate regimes." The detailed mapping is summarized in Table 1.

Crisis controls In the past, the debate regarding capital controls has often been linked to economic crisis. Since countries often seek IMF lending in times of turmoil, we need to separate the individual impacts of crises and IMF policy. To this end we include dummies for banking, currency and debt crisis from Laeven and Valencia (2013).

Political controls We also include a set of political variables taken from the database of political institutions originally proposed by Beck et al. (2001) and

[7] See Eichengreen (2001) for a survey of the literature on capital control determinants.

Table 1: Classification of Exchange rates

	Currency Union
1	No separate legal tender or currency union
	Fixed Exchange Rates
2	Pre announced peg or currency board arrangement
3	Pre announced horizontal band that is narrower than or equal to +/-2%
4	De facto peg
5	Pre announced crawling peg; de facto moving band narrower than or equal to +/-1%
6	Pre announced crawling band that is narrower than or equal to +/-2% or de facto horizontal band that is narrower than or equal to +/-2%
7	De facto crawling peg
8	De facto crawling band that is narrower than or equal to +/-2%
9	Pre announced crawling band that is wider than or equal to +/-2%
10	De facto crawling band that is narrower than or equal to +/-5%
11	Moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time)
12	De facto moving band +/-5%/ Managed floating
	Flexible Exchange Rates
13	Freely floating
14	Freely falling *
15	Dual market in which parallel market data is missing.

Note: * Freely falling exchange rates typically represent currency crises, which are captured through the separate "currency crisis dummy".

now hosted by the Inter-American Development Bank. We include a set of dummies describing the political stance of the government - $left$ and $right$ dummies - to capture the potential redistributive effects of capital controls. Since the baseline group includes both governments that cannot be clearly attributed to either left or right wing and most non-democratic countries, we also include a dummy for "finite term" of government to control for the effects of democracy.

Additionally, we control for the possibility of strategically-timed political activity by including dummies for an election year, as well as the year before and after. These election variables account for the possibility that a government may act just before elections (to rally their electorate) or after coming to power (to quickly push their agenda).

4 Results

4.1 The impact of IMF conditionality

Table 2 reports the coefficient estimates for the probit and ordered probit equations using capital inflow controls as the dependent variable. The results support our hypothesis regarding IMF conditionality and capital controls. For the probit results, the probability of changing the level of capital controls strongly increases while being subject to an IMF arrangement until 2007. After the crisis, this is no longer the case where the total effect (i.e. the sum of the coefficients for IMF and $PC \times IMF$) is essentially zero. For the ordered probit results, we find a negative (although insignificant) impact on the direction of change prior to the crisis, which becomes positive (and significant) after the crisis.

The Appendix reports the probit and ordered probit results for outflow controls 2 and for total controls A2. As could be expected given the IMF statements, we get insignificant results for outflow controls and much weaker results for total

Table 2: Coefficient estimates for capital inflow controls

	(1)	(2)	(3)	(4)	(5)
			Probit equation		
$inflow_{t-1}$	4.170 ***	4.196 ***	4.331 ***	4.709 ***	4.062 ***
	(4.950)	(6.433)	(2.956)	(4.756)	(6.396)
$inflow^2_{t-1}$	-3.533 ***	-3.522 ***	-3.678 ***	-4.019 ***	-3.393 ***
	(-4.528)	(-5.745)	(-2.755)	(-4.437)	(-5.646)
PC	-0.338 ***	-0.349 ***	-0.353 ***	-0.352 ***	-0.340 ***
	(-3.652)	(-4.074)	(-2.917)	(-3.507)	(-4.072)
IMF	0.208 **	0.239 **	0.193	0.217 *	0.213 **
	(2.108)	(2.389)	(1.550)	(1.947)	(2.226)
$PC \times IMF$	-0.299 *	-0.258	-0.297	-0.325 *	-0.224
	(-1.662)	(-1.504)	(-1.294)	(-1.713)	(-1.335)
			Ordered probit equation		
$inflow_{t-1}$	-0.623	-0.777	-0.578	-0.618	-0.851
	(-0.863)	(-1.025)	(-0.807)	(-0.872)	(-1.026)
$inflow^2_{t-1}$	-0.250	-0.356	-0.254	-0.246	-0.391
	(-0.355)	(-0.462)	(-0.374)	(-0.354)	(-0.453)
PC	0.114	0.130	0.101	0.147	0.168
	(0.822)	(0.908)	(0.728)	(1.060)	(1.056)
IMF	-0.101	-0.293 *	-0.063	-0.051	-0.286
	(-0.773)	(-1.850)	(-0.474)	(-0.398)	(-1.598)
$PC \times IMF$	0.544 *	0.711 **	0.501	0.494 *	0.746 *
	(1.763)	(2.074)	(1.577)	(1.704)	(1.912)
			Controls		
Macro	NO	YES	NO	NO	YES
Crisis	NO	NO	YES	NO	YES
Political	NO	NO	NO	YES	YES

Note: Specifications (1)-(4) includes a set of control variable whose coefficient values are not reported. The values in () are t-statistics where *, **, *** indicate significance at the 10%, 5% and 1% level respectively. Due to multicollinearity issues, specification (5) only includes those variables found to be significant in (2), (3) and (4).

Table 3: Signs and significance of total marginal effects

CC	*Controls*	*PRE/UP*	*PRE/DOWN*	*POST/UP*	*POST/DOWN*
Total	None	-0.013	0.030	0.061	-0.051
		(0.354)	(0.147)	(0.089)	(0.071)
Total	Macro	-0.016	0.073	0.061	-0.036
		(0.330)	(0.038)	(0.109)	(0.164)
Total	Crisis	-0.008	0.025	0.058	-0.051
		(0.418)	(0.217)	(0.102)	(0.072)
Total	Political	-0.008	0.023	0.064	-0.055
		(0.406)	(0.223)	(0.091)	(0.058)
Total	All†	-0.012	0.061	0.056	-0.038
		(0.371)	(0.074)	(0.119)	(0.153)
Inflow	None	0.018	0.052	0.022	-0.050
		(0.724)	(0.040)	(0.281)	(0.046)
Inflow	Macro	-0.006	0.095	0.033	-0.041
		(0.431)	(0.003)	(0.209)	(0.097)
Inflow	Crisis	0.014	0.034	0.020	-0.045
		(0.687)	(0.113)	(0.288)	(0.065)
Inflow	Political	0.024	0.042	0.025	-0.054
		(0.782)	(0.075)	(0.261)	(0.037)
Inflow	All†	-0.001	0.086	0.031	-0.041
		(0.485)	(0.008)	(0.226)	(0.098)
Outflow	None	0.019	0.017	0.050	-0.009
		(0.710)	(0.288)	(0.177)	(0.409)
Outflow	Macro	0.013	0.044	0.037	-0.002
		(0.617)	(0.117)	(0.240)	(0.477)
Outflow	Crisis	0.012	0.022	0.040	-0.007
		(0.623)	(0.258)	(0.212)	(0.428)
Outflow	Political	0.027	0.013	0.046	-0.008
		(0.762)	(0.348)	(0.191)	(0.414)
Outflow	All†	0.018	0.033	0.034	-0.006
		(0.660)	(0.194)	(0.249)	(0.446)

Note: CC refers to the capital control indicator, *Controls* to the set of control variables used. p-values are given in parentheses. All tests are one sided (with the alternative hypothesis being decreasing controls before, and increasing controls after the crisis).

† Due to multicollinearity issues, specifications using "All" controls only include those variables found to be significant the other specifications.

controls where inflow and outflow controls are combined.

Table 3 aggregates these effects using the set of equations (3) to generate marginal effects. These marginal effects assess the change in probability for tightening (UP) or loosening ($DOWN$) of capital controls before (PRE) and after ($POST$) the crisis. Unlike the coefficient estimates for the ordered probit results, the combination of the increased probability of change and the increased pressure to lower controls under an IMF arrangement before the crisis is highly significant in the second column for total and inflow capital controls. Likewise, the change in the (conditional) upgrade probability under an IMF arrangement after the crisis is strong enough to generate a jointly significant increase in the probability to raise capital controls in the fourth column for total and inflow controls. In terms of magnitude, IMF conditionality raises the probability of lowering inflow controls by 4.2 to 9.5 percent before the crisis and reduces the probability of lowering inflow controls by 4.1 to 5.4 percent after the crisis.

The results also bear witness to the importance of our method. For a regular ordered probit approach, an increase in the probability of the UP category would almost always correspond to a decrease in the probability of the $DOWN$ category. This is not the case here. The increase in the probability to loosen under an IMF arrangement before the crisis is almost exclusively compensated by a change in the probability for "no change". The same is true for the increase probability to tighten capital controls under an IMF arrangement after the crisis.

4.2 When did the break happen?

We estimated our model with alternative breakpoints ranging from 2000 to 2011. The results with the 2007 breakpoint reported performed best. Therefore, although the IMF only acknowledged its change a few years after the crisis, our results find that the actual shift occurred in 2008 immediately after the real

estate crisis in the US.

4.3 Robustness tests

There are two reasons why the IMF might have been reluctant in recent years to pursue its own long standing agenda. First, there seems to be a shift in the academic consensus going more towards regulation. Second, with the GFC for the first time in decades not only emerging markets but also (and primarily) high income economies where going to a period in economic turmoil. That is, the results we find might also be explained by a potential difference in treatment of poor and rich economies by the IMF. We control for this to some extent by including per capita GDP as control variable. However, to make sure that this is not what is driving our key results, we also repeat our analysis for a subset of low and middle income countries. If anything, our results are even stronger. For capital inflow controls we find marginal effects that are qualitatively and quantitatively similar, but far more significant.

5 Conclusion

Using a midpoint inflated ordered probit model, we find strong evidence that the IMF was a driving force behind the capital account liberalization from the early nineties to the Global Financial Crisis during the period of the so-called Washington Consensus. Being subject to an IMF arrangement significantly increases the probability to liberalize, both due to an increasing probability of political activity and an increasing probability to loosen controls (conditional on becoming active). This behavior completely disappears and to some extent even reverse in the post-crisis period. Possibly as part of their support for macroprudential policies, the results indicate that countries receiving IMF support tighten rather than loosen capital controls after the crisis.

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Appendix

Table A1: Coefficient estimates for outflow controls

	(1)	(2)	(3)	(4)	(5)
			Probit equation		
$outflow_{t-1}$	7.252 ***	5.897 ***	6.073 ***	6.509 ***	5.952 ***
	(5.305)	(4.969)	(4.367)	(4.918)	(4.842)
$outflow^2_{t-1}$	-6.714 ***	-5.318 ***	-5.553 ***	-5.979 ***	-5.428 ***
	(-5.014)	(-4.717)	(-4.140)	(-4.659)	(-4.594)
PC	-0.668 ***	-0.591 ***	-0.605 ***	-0.628 ***	-0.610 ***
	(-5.118)	(-4.660)	(-4.441)	(-4.801)	(-4.724)
IMF	0.201	0.192 *	0.132	0.168	0.110
	(1.585)	(1.688)	(1.229)	(1.432)	(1.079)
$PC \times IMF$	-0.055	-0.070	-0.019	-0.040	0.000
	(-0.264)	(-0.386)	(-0.103)	(-0.208)	(-0.002)
			Ordered probit equation		
$outflow_{t-1}$	-0.312	-0.164	-0.268	-0.263	-0.205
	(-0.566)	(-0.232)	(-0.410)	(-0.419)	(-0.300)
$outflow^2_{t-1}$	-0.280	-0.688	-0.428	-0.366	-0.499
	(-0.519)	(-0.925)	(-0.637)	(-0.580)	(-0.707)
PC	0.112	0.148	0.134	0.147	0.153
	(0.988)	(1.029)	(0.999)	(1.129)	(1.082)
IMF	-0.002	-0.086	-0.027	0.020	0.042
	(-0.021)	(-0.585)	(-0.203)	(0.164)	(0.312)
$PC \times IMF$	0.135	0.203	0.163	0.123	0.125
	(0.548)	(0.648)	(0.560)	(0.446)	(0.417)
			Controls		
Macro	NO	YES	NO	NO	YES*
Crisis	NO	NO	YES	NO	YES*
Political	NO	NO	NO	YES	YES*

Note: Specifications (1)-(4) includes a set of control variable whose coefficient values are not reported. The values in () are t-statistics where *, **, *** indicate significance at the 10%, 5% and 1% level respectively. Due to multicollinearity issues, specification (5) only includes those variables found to be significant in (2), (3) and (4).

Table A2: Coefficient estimates for all capital controls

	(1)	(2)	(3)	(4)	(5)
			Probit equation		
cc_{t-1}	5.651 ***	4.548 ***	5.127 ***	5.834 ***	4.318 ***
	(4.736)	(4.161)	(4.635)	(4.838)	(4.377)
cc^2_{t-1}	-5.068 ***	-3.974 ***	-4.572 ***	-5.215 ***	-3.761 ***
	(-4.500)	(-3.954)	(-4.393)	(-4.606)	(-4.143)
PC	-0.495 ***	-0.404 ***	-0.464 ***	-0.498 ***	-0.389 ***
	(-3.947)	(-3.505)	(-3.924)	(-3.970)	(-3.642)
IMF	0.077	0.144	0.058	0.062	0.109
	(0.693)	(1.553)	(0.569)	(0.564)	(1.254)
$PC \times IMF$	-0.069	-0.057	-0.052	-0.062	-0.023
	(-0.381)	(-0.372)	(-0.312)	(-0.351)	(-0.153)
			Ordered probit equation		
cc_{t-1}	0.413	0.644	0.474	0.535	0.765
	(0.784)	(0.783)	(0.822)	(0.954)	(0.734)
cc^2_{t-1}	-0.871	-1.341	-0.966	-0.971 *	-1.532
	(-1.572)	(-1.415)	(-1.588)	(-1.653)	(-1.259)
PC	0.058	0.069	0.059	0.084	0.095
	(0.587)	(0.533)	(0.552)	(0.810)	(0.644)
IMF	-0.084	-0.260	-0.073	-0.062	-0.254
	(-0.825)	(-1.462)	(-0.644)	(-0.578)	(-1.179)
$PC \times IMF$	0.399 *	0.629 *	0.410 *	0.399 *	0.673
	(1.877)	(1.724)	(1.780)	(1.827)	(1.525)
			Controls		
Macro	NO	YES	NO	NO	YES*
Crisis	NO	NO	YES	NO	YES*
Political	NO	NO	NO	YES	YES*

Note: Specifications (1)-(4) includes a set of control variable whose coefficient values are not reported. The values in () are t-statistics where *, **, *** indicate significance at the 10%, 5% and 1% level respectively. Due to multicollinearity issues, specification (5) only includes those variables found to be significant in (2), (3) and (4).