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The Exceptions that Prove the Rule? Revisiting the effectiveness of Capital Controls Under International Investment Agreements

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Abstract

This paper examines how international investment agreements constrain the use and effectiveness of capital controls in emerging and developing economies. Leveraging a novel database on the specific content of investment treaties, I identify those that include "macro-stability exceptions", which allow countries to derogate from their legal obligations in times of crisis. Although theoretical models highlight the effectiveness of capital controls in moderating capital flows, empirical evidence remains inconclusive. I argue that this is partly due to the potential conflict between capital controls and countries' treaty commitments, and to the limited attention given to endogeneity bias in existing studies. To address this identification challenge, I construct two indicators of policy space restriction and flexibility, reflecting the content of countries' investment agreements in force, which I use as instruments for capital controls on outflows. Instrumental Variable (IV) estimates reveal that capital controls have a statistically significant causal effect on sudden stops. However, the direction of the effect differs across investment types. Moreover, countries with more restrictive treaty commitments are less likely to deploy capital controls, whereas those with greater policy space due to macro-stability exceptions use controls more extensively.

Keywords: International Investment Agreements, Exceptions, Capital Controls, Sudden Stops, Instrumental Variable

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1 Introduction

Following the 1997 East Asian crisis and the 2008 Global Financial Crisis, the consensus on unrestricted capital account liberalization has weakened, prompting institutions such as the IMF to recognize capital controls as legitimate tools for macroprudential policy, for instance, to reduce the risk of a sudden stop (Adrian et al., 2021)[1]. In fact, extreme volatility in capital flows poses significant risks to financial stability in emerging market and developing economies (EMDEs). Surges in inflows can cause overheating and sharp currency appreciations, while sudden stops trigger recessions and financial crises (Forbes and Warnock, 2021, Erten et al., 2021)[2].

However, empirical evidence on the effectiveness of capital controls remains inconclusive. Most studies find that such measures have a negligible impact on the volume of capital flows (Magud et al., 2018, Pasricha et al., 2018, Han and Wei, 2018). Additional findings also indicate that capital controls in EMDEs tend to be acyclical (Fernández et al., 2015) and are not systematically implemented during crises to the extent predicted by theoretical models (Eichengreen and Gupta, 2016, Bhargava et al., 2023).

This could be because the use of capital controls might conflict with countries' obligations under international agreements (IMF, 2012). This paper assesses whether the limited adoption and efficacy of capital controls in EMDEs during crises is due to constraints imposed by international investment agreements (IIAs) that these countries have previously signed[3]. More specifically, this paper examines the effectiveness of capital controls in mitigating sudden stops, while accounting for the specific provisions of IIAs that legally constrain a country's macroprudential policy space.

Countries, and particularly EMDEs, sign investment agreements to promote capital inflows.

[1]These policy conclusions are part of the new IMF's Integrated Policy Framework, see Basu et al. (2020).

[2]This risk is particularly pronounced for debt liabilities, such as portfolio and other investment holdings, although resident FDI flight has also become more relevant (Blanchard and Acalin, 2016, Eichengreen et al., 2018).

[3]IIA is a term that encompasses various specific agreements. The vast majority of IIAs are bilateral investment treaties (BITs). However, they also include trade and economic cooperation agreements with investment provisions (TIPs), and other investment agreements (OIAs), such as the Energy Charter Treaty.

Many of these treaties typically contain provisions designed to provide strong investor protection[4]. Of particular relevance to this paper is the inclusion of Free Transfer of Funds (FTOF) provisions, which grant investors the right to repatriate capital freely without delay. This can constrain a country's policy space, especially during financial crises, when capital controls may be necessary. To mitigate this constraint, "macro-stability exceptions" allow temporary suspensions of FTOF provisions under specific circumstances (for instance, during Balance of Payments crises), thereby provisionally restoring policy space.

How many IIAs with macro-stability exceptions are currently in force, and how relevant are they for EMDEs? Does including such exceptions affect the capital that foreign investors are willing to commit? Most importantly, to what extent do IIAs constrain the use of capital controls during sudden stops, and can macro-stability exceptions restore policy space?

To answer these questions, I leverage a novel database - the UNCTAD's IIAs Navigator - detailing the content of investment agreements, a resource overlooked in the macroeconomic literature on capital controls. The analysis focuses on episodes of sudden stops in Portfolio Debt and Other Investments, which represent the most volatile types of capital flows in EMDEs[5].

First, I adapt the model of capital controls on outflows developed by Chang et al. (2024) to incorporate a new parameter of policy space restriction, providing the theoretical foundation for the empirical analysis. After presenting novel stylized facts on the presence of macro-stability exceptions in investment agreements, I analyze how the inclusion of such exceptions in IIAs affects countries' investment positions. The results indicate that countries with agreements containing such exceptions tend to have lower Portfolio and Other Investment liabilities. However, this effect is mainly driven by treaties concluded with advanced economies. Consequently, EMDEs face a trade-off between preserving greater policy space and the potential downside of attracting less investment from capital-abundant partners.

[4]These include, for instance, fair and equitable treatment and safeguards against uncompensated expropriation. In the event of a breach by the host state, investors often have access to investor-state dispute settlement (ISDS) mechanisms, enabling them to pursue legal recourse directly against the state (Egger et al., 2023).

[5]I focus more on Emerging Market Economies as, with some exceptions over time, they are more prone to sudden stops. In addition, these economies are also more likely to sign an international investment agreement to attract foreign investment due to reputational costs. As you can see in Appendix Figure H.1, very few treaties have been signed between two advanced economies.

Then, the paper looks at the impact of capital controls on outflows (CCOs) on sudden stops, specifically for Portfolio Debt and Other Investment flows. I argue that the documented limited empirical effect of controls on sudden stops is due to issues with commonly employed identification strategies. In fact, Bhargava et al. (2023) emphasize the substantial reverse causality bias in studying the relationship between capital outflows and capital controls. To overcome this challenge, I instrument CCOs with newly created variables that capture a country's policy space for macroeconomic stability, determined by the extent of its international commitments sanctioned by IIAs in force.

More specifically, the analysis controls for whether these agreements include FTOF provisions, distinguishing between those with and without macro-stability exceptions. The indicator of policy space restrictiveness captures the share of a country's liabilities that is safeguarded by FTOF provisions with no exceptions, whereas the indicator of policy space flexibility reflects whether those liabilities fall under treaties containing macro-stability exceptions instead.

I show that countries with more restricted policy space have fewer capital controls on outflows in place. On the other hand, if a bigger part of their liabilities is covered by agreements containing exceptions, they tend to implement more controls. Moreover, by using these two variables as instruments, I find that capital controls have a statistically significant effect, thereby bridging theory with empirical evidence. However, while controls reduce the probability of a sudden stop in portfolio debt flows, they increase the probability of a stop in other investments.

The paper is structured as follows. I review the literature in Section 2. Section 3 outlines the theoretical framework. Section 4 presents the data and stylised facts. Section 5 investigates the impact of macro-stability exceptions in IIAs on countries' foreign liabilities. The instrumental analysis and the policy discussion are undertaken in Section 6. Section 7 concludes.

2 Related Literature

This paper relates primarily to the literature on the use and effectiveness of capital controls. As shown by Erten et al. (2021), during booms (and conversely during busts), monetary au-

thorities can raise (or lower) interest rates to counteract overheating (cooling), but this often comes at the cost of undesired exchange rate movements. Capital controls on inflows or outflows can help mitigate this trade-off by enhancing monetary policy autonomy while preserving exchange rate stability.

From a theoretical perspective, capital controls have been viewed as a special-case solution in models of insufficient aggregate demand, where externalities arise because agents fail to internalize the positive welfare effects of increasing their individual demand (Farhi and Werning, 2014, Farhi and Werning, 2016, Schmitt-Grohé and Uribe, 2016). Capital controls have more recently gained relevance through their inclusion in the IMF's Integrated Policy Framework (Basu et al., 2020, Adrian et al., 2021).

Although most of the literature focuses on capital controls on inflows, Chang et al. (2024) have recently developed a theoretical model of capital controls on outflows (CCOs) as devices to ensure the coordination of market expectations toward a desirable equilibrium without capital flight. I adapt Chang et al. (2024)'s theoretical framework to account for the possibility of policy space restriction when dealing with capital flights.

On the empirical side, Magud et al. (2018) find that capital controls generally increase monetary policy independence, even though they do not significantly affect the volume of capital flows. Similarly, Pasricha et al. (2018) and Han and Wei (2018) confirm a link between the "trilemma" and "dilemma" frameworks (as in Rey, 2015) for emerging market economies, but also fail to detect substantial impacts of capital controls on net capital flows. Furthermore, Klein (2012) and Klein and Shambaugh (2015) argue that countries employing episodic capital controls ("gate" countries) are no more vulnerable to external shocks than those with permanent controls ("wall" countries). Additional evidence suggests that in EMDEs, capital controls are generally acyclical (Fernández et al., 2015) and are not implemented during crises or periods of extreme capital volatility, as predicted by theoretical models (Eichengreen and Gupta, 2016; Bhargava et al., 2023). Nonetheless, Ghosh et al. (2017) show that, while capital controls themselves may not be countercyclical, the broader policy toolkit in EMEs is indeed used more actively during inflow surges than in normal periods.

This raises an important question: are capital controls, particularly in EMDEs, underutilized in times of need because international investment agreements (IIAs) constrain policy space? Although studies such as Ostry et al. (2012) and Erten and Ocampo (2017) use US Bilateral Investment Treaties (BITs) and EU accession treaties, different kinds of investment agreements, as instruments to examine the use and effectiveness of capital controls on inflow surges, there remains a gap in the literature regarding the specific impact of IIAs (and their provisions) on capital control policy during episodes of non-resident capital flights. This paper aims to fill this gap. More broadly, to the best of my knowledge, it is the first to estimate a causal relationship between capital controls and sudden stops (as defined in Forbes and Warnock, 2021) while addressing endogeneity issues that have hindered prior research.

This paper also relates to a strand of the international law literature that examines policy space in investment treaties, especially with respect to macroeconomic and financial policy. Commitments under trade and investment treaties can, at times, conflict with domestic policy needs or IMF recommendations aimed at crisis prevention and mitigation (Jeanne et al., 2012; Gallagher, 2014). According to Vandevelde (2013), exceptions help to "rebalance" BITs by allowing states to derogate from their obligations to guarantee the free transfer of funds under exceptional circumstances. These exceptions are increasingly included in newer generations of IIAs (Titi, 2015), reflecting growing concerns that international commitments may overly restrict national policy flexibility, especially when combined with strong investor-state dispute settlement (ISDS) provisions (Thompson et al., 2019).

Jones and Rao (2020) show that states have responded to controversial ISDS rulings in various ways: some by terminating treaties or rejecting arbitration, others by updating treaty language to better reflect domestic priorities. In a related contribution, Thrasher et al. (2021) develop a composite index of treaty flexibility based on the extent of policy space for capital flow management (CFM) measures. They find that North-South treaties tend to offer significantly less policy space than South-South ones, and that treaties with the least flexibility account for nearly half of global capital flows.

This paper contributes to this body of work by assessing how macroeconomic stability excep-

tions in IIAs affect countries' ability to implement capital controls, presenting theoretical and empirical evidence on the trade-offs between legal commitments and economic policy autonomy.

3 Theoretical Framework

In this section, I will present the theoretical framework to better understand how restricted policy space can affect the possibility of capital flight via capital controls on outflows. This model builds upon Chang et al. (2024)'s anonymous sequential game setting, which in turn is an adaptation of the seminal Diamond and Dybvig (1983) model of bank runs. Chang et al. (2024)'s model already provides an excellent foundation for my analysis. The main modification I introduce is the inclusion of an additional parameter capturing macro-stability policy space restrictions, which directly affects the effective tax rate on outflows and indirectly influences the probability of capital flight.

3.1 Base Setting

A small open economy lives for 3 periods ($t = 0, 1, 2$). The game has 2 players: the government, endowed with an initial amount of dollars A, and a continuum of foreign investors, each contributing on average i. The initial size of the project is $I_0 = A + i$, and at $t = 2$ projects return RI_2 (with 0<R<1) to investors[6]. We could have a situation in which the return for foreign investors (R_F)is different from the return of the government (R_G), but for the sake of simplicity, we assume that $R_F = R_G = R$.

Foreign investors (normalized to 1) are risk-neutral and can either invest in the project or in an alternative safe asset that yields a net interest rate of 0. Therefore, in order to participate in the project, they expect to be paid at least the opportunity cost of their capital, $RI_0 \geq i = I_0 - A$.

[6]Note that $I_2 \leq I_0$

Rearranging, one obtains the initial size of the project[7]:

$$I_0 = \frac{1}{1-R}A \tag{1}$$

3.2 Non-Residents Capital Flight

At $t = 1$, each foreign investor can decide to divest depending on the state of the economy revealed at that time. In particular, at $t = 1$ the economy can be in a normal state, with probability $1 - q$, or in a fragile state, with probability q. In the fragile state, investors can exit the project and obtain a (smaller) return ωi, where $0 < \omega < 1$, and $\omega < R$. The last assumption is essential as investors would probably decide to exit the project regardless of the state of the economy if they are obtaining the same return at time $t = 1$ as they would at $t = 2$.

At the same time, in the fragile state, the project's return will depend on the share of investors that will stay (or leave). We can define the size of the project at the end of the third period $I_2 = g(\lambda)I_0$ where λ is a function of how many investors decided not to exit the project.

We can assume without loss of generality that $g(1) = 1$ and $g(0) = 0$. The exact functional form of $g(\lambda)$ affects when investors will decide to either stay in the project or leave, especially as λ approaches 0. However, this is outside the scope of this paper. The model presented here simply serves as a rationalization of how policy space restriction could enter a situation where a government would like to impose capital controls, and, as later presented, the focus will be on the limit case where $g = 1$.

The payoff from not exiting is, therefore, a measure of what other investors choose. At $t = 2$, investors who stay are expected to receive the following rate of return:

$$f(\lambda) = \frac{g(\lambda)}{\lambda} R \frac{I_0}{i}$$

This way, if everyone stays: $f(1) = R\frac{I_0}{i}$. However, there is an exogenous probability p of

[7] $\frac{1}{1-R} > 1$ is the leverage ratio L.

capital flight when the economy is in the fragile state. An individual investor will then stay if $f(\lambda)i > i$. This implies that the expected return on their investment (which depends on how many investors will stay in the project) is higher than the return of leaving the investment when the fragile state materializes.

Proposition 1: Under laissez-faire, for any given p such that $0 \leq p \leq 1$, there is an equilibrium in which capital flight occurs with probability pq[8]. Capital flights are ultimately the result of coordination failure that can be fixed with capital controls.

3.3 Costly Capital Controls and Policy Space

The government can decide to impose at $t = 1$ an exit tax rate $\bar{\tau} = (\tau - \rho)$ that reduces the payoff from exit to $(1-\bar{\tau})\omega i$. More specifically, the government would like to impose a tax rate τ but is restricted by a share of its liabilities covered by investment agreements that prevent it from doing so. This implies that while the government at $t = 1$ can decide the tax rate, the effective rate will depend on an exogenous variable ρ reflecting the amount of liabilities that cannot be prevented from being withdrawn. The variable is effectively exogenous as agreements have been signed before the current unfolding of events (i.e., $t = 0$).

In particular, $0 \leq \tau, \rho \leq 1$, with $\min(\bar{\tau}) = 0$, as the level of restriction cannot be negative. In fact, assuming that the tax rate that the government would like to impose is lower than the restricted share, it would imply that the effective tax rate is 0. This model could be extended by allowing the government to impose a tax rate higher than its restriction and incur additional (non-linear) costs. However, this is out of the scope of the paper and could be an avenue for future research.

Imposing capital controls, however, entails a deadweight loss that shrinks the size of the project to $I_2 = (1 - \phi)I_0$.

The expected payoff of an investor is the sum of the originally stipulated return in case that at $t = 1$ the state remains normal, and the reduced return (due to the deadweight loss that

[8]See Appendix H.3.1 for a formal proof.

shrank the project) if the state turns out to be fragile and the government imposes capital controls preventing investors from exiting.

$$E(\Pi^{CCO}) = q(1-\phi)RI_0 + (1-q)RI_0$$

Investors enter if the expected payout is equal to the opportunity cost of their funds $\Pi^{CCO} = i = I_0 - A$.

$$\begin{aligned} E(\Pi^{CCO}) = \Big[q(1-\phi) + (1-q)\Big]RI_0 &= I_0 - A \\ I_0 - RI_0\Big[q(1-\phi) + (1-q)\Big] &= A \\ I_0\Big[1 - R(q - q\phi) + 1 - q)\Big] &= A \end{aligned}$$

And rearranging, we obtain:

$$I_0 = \frac{1}{1-(1-q\phi)R}A \tag{2}$$

Compared to Equation 1, the expression in (2) shows that the possibility of costly capital controls (and of a fragile state) reduces both the leverage ratio and the initial size of the project by $q\phi$.

We have a single contract and the same risk aversion for all investors, regardless of whether their investment is protected by an agreement or not. Investors will now remain if:

$$(1-\bar{\tau})\omega i \leq (1-\phi)f(1)i \tag{3}$$

where one can rewrite the right hand side term as $(1-\phi)RI_0$. Substituting (as outlined in Appendix H.3.2) allows me to express Eq.(3) in a way to directly link the tax rate with the deadweight loss a state might incur as determinants of a potential capital flight equilibrium.

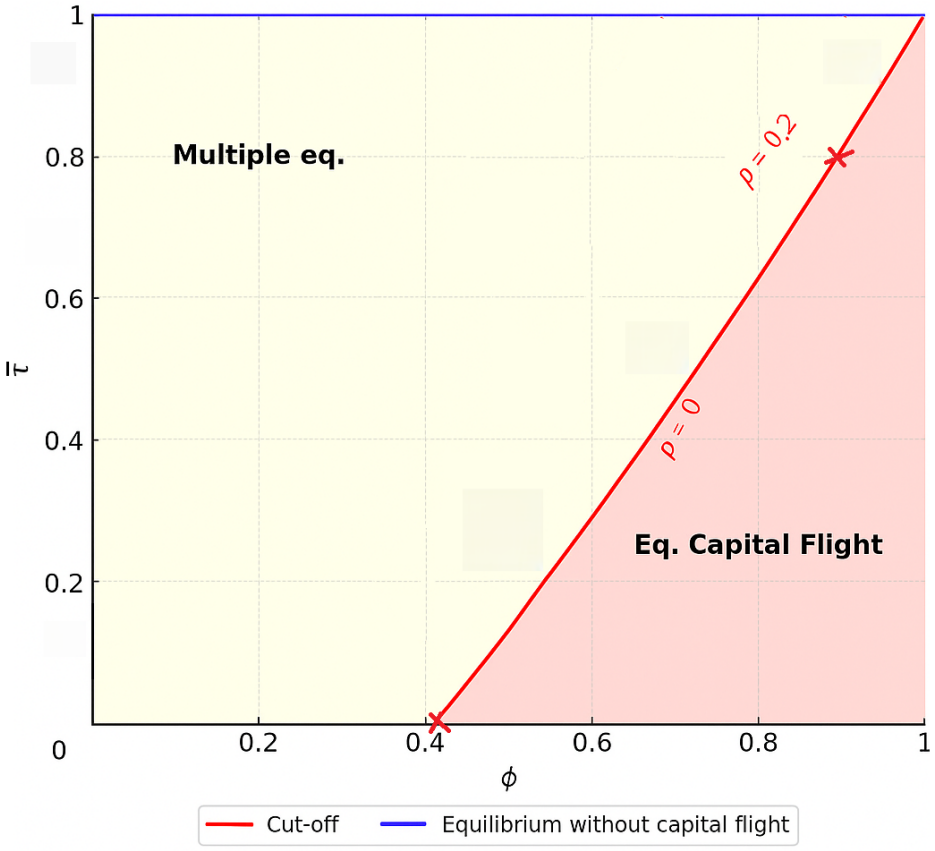
In this setting, the level of restriction indirectly influences the possibility of capital flight depending on the level of capital controls on outflows that the government can effectively impose

and the associated deadweight loss. Rearranging Eq.(3), I obtain the following condition. For a given τ, an equilibrium without capital flight exists as long as:

$$(1-\bar{\tau})\omega \leq \frac{1-\phi}{1-q\phi} \tag{4}$$

To better visualize this condition, let's assume that $\omega = 0.64$ (i.e. 80 percent of the original return R, also assumed to be 80 percent) and $q = 0.2$. Figure 1 presents the combinations of $\bar{\tau}$ and ϕ for which the economy is in an equilibrium with or without capital flights (or multiple equilibria) for different levels of policy space restriction, ρ.

Figure 1: Equilibria with CCO Policy for Different Levels of Restriction



Whenever ϕ is relatively small, a sufficiently large τ rules out capital flight as a best response. However, this only holds for $\tau = 1$ and $\rho = 0$. This specific case is represented by the blue line identifying the equilibrium without capital flight.

At the same time, if $(\tau - \rho)$ is not large enough, investors may decide to exit in the fragile state

(i.e., multiple equilibria) even if they pay the exit costs. Whether or not CCOs are optimal may depend on p and ϕ, but their full effectiveness will depend also on ρ, which is exogenously taken at $t = 1$. This specific feature marks the departure from Chang et al. (2024)'s setting.

Let's now assume that $\rho = 0.2$. The government was previously sure of preventing a capital flight by imposing a 100% tax. Now, it cannot do it anymore. Even if the τ it would like to impose is equal to 1, the effective $\bar{\tau}$ is equal to 0.8. In this case, if the tax rate would cause a deadweight $\phi > 0.89$, the economy would still see all investors pull out. Appendix Figure H.2 shows the same inequality but with ρ on a third z-axis and τ instead of $\bar{\tau}$ on the y-axis, to clearly identify the relationship between τ and ρ.

This framework allows me to test empirically the potential implications of being restricted by IIAs, as well as the effect that exceptions might have on the amount of investments received and on the level of capital controls a country might put in place. Moreover, it stresses how the level of policy space restriction affect the possibility of a capital flight only indirectly, via the effective rate of capital controls a government can put in place.

4 Economic and Legal Relations of IIAs and CFMs

Countries sign IIAs to promote investment inflows. International investors' capital is protected, for instance, from expropriation. If a country violates an investment treaty, it is then brought in front of an international tribunal directly by the investor, without the intercession of the investor's home state. Therefore, an IIA is ultimately a tool of promotion and protection, not capital account liberalization, as host countries, in most cases, can still decide whether or not an investment is allowed to enter the country[9].

At the same time, most IIAs include the Free Transfer of Funds provision, which allows investors to withdraw their capital without delay. This can seriously hinder a country's ability to react to sudden stops via capital controls, with serious implications for its financial stability and

[9]China, for instance, is an example of a "wall" country: a country with capital control on inflows in place, that has signed a great amount of investment treaties. China has complete policy space on inflows; however, on outflows, it depends on the content of its treaties

the effectiveness of monetary and exchange rate policies. If a country has signed agreements that constrain its policy space, capital controls could prove ineffective as breaching the FTOF clause could expose the country to expensive arbitration processes. Countries can, therefore, either decide to deploy capital controls on those investments that are not covered by a BIT, not deploy controls, or risk being brought in front of an international tribunal. It is ultimately a political decision, as international arbitration is an expensive process for the investor as well[10]. On the other hand, including macro-stability exceptions in IIAs allows signatory countries to derogate the FTOF during periods of extreme economic and financial distress, such as during a Balance of Payment crisis or when a sudden stop could occur.

4.1 International Investment Agreements - Data and Stylised Facts

Data on the exact content of IIAs are obtained from the publicly available UNCTAD's IIA Mapping Project (UNCTAD, 2020)[11]. The initiative is an ongoing effort to map all IIAs for which texts are available[12]. The database comprises dummy variables for a variety of different elements. To my knowledge, this paper is the first one to leverage data on the specific contents of investment agreements in the macroeconomics literature. Given the focus of this paper on capital flows and macro-financial policy space, only a subset of variables has been considered in the analysis.

Table 1 reports the more relevant IIAs' dummy variables for the analysis, and how they are defined. The first two elements of Table 1 allow me to identify whether the IIA covers only FDI or other types of capital flows. If some other specific assets are excluded, I will not consider that agreement for the analysis of Other Investments as available data prevents from specifically disentangling specific assets in the Other Investment category. In general, the Free Transfer of Funds clause covers what is defined as investments in the agreement, however, there might be

[10] There are not many examples of arbitration regarding the violation of the FTOF clause. However, this appears to be changing, and disputes regarding prudential exceptions are likely to increase in the coming years (Mitchell et al., 2016).

[11] https://investmentpolicy.unctad.org/international-investment-agreements/iia-mapping.

[12] As such, even though more than 2500 treaties out of the about 3300 that exist have already been mapped, it is still marginally incomplete.

Table 1: International Investment Agreements' Content Definitions

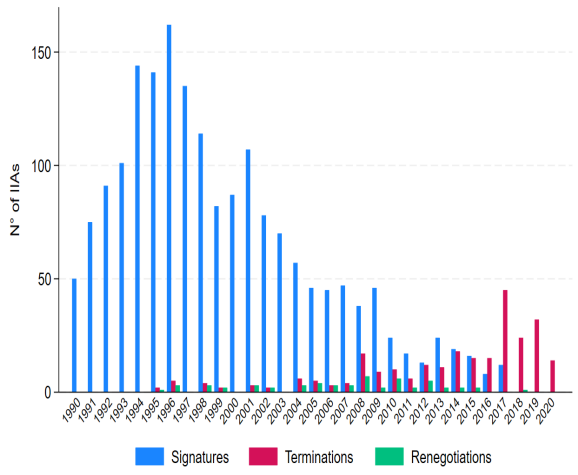
Excludes portfolio investment	1 if it specifically excludes "portfolio" investment or expressly covers FDI only.
Excludes other specific assets	1 if it excludes certain assets from the investment definitions.
Includes Transfer of Funds (TOF)	1 if it includes the provision regarding the free transfer of funds (outward and/or inward transfers).
Includes exceptions for Balance-of-payments (BOP) crisis	1 if contains an exception that allows derogating from the free TOF during BOP difficulties as well as "exceptional financial or economic circumstances", "serious difficulties for macroeconomic management, in particular, monetary and exchange rate policies" or similar circumstances.
Prudential carve-out	1 if allows derogating to free transfer of funds for macro-prudential reasons.

Source: UNCTAD (2020) mapping project

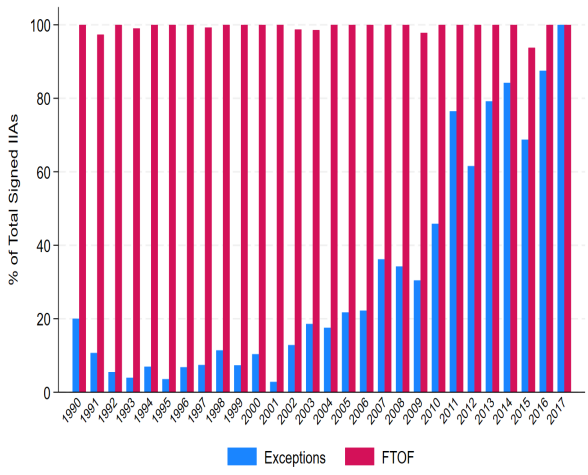
cases in which some specific flows are excluded from this clause. For the rest of the paper, I assume that the FTOF clause covers the entirety of the investments defined in the scope. The main variable of interest, namely the macro-stability exception is equal to 1 if either exceptions for BOP crisis or a prudential carve-out are included in the agreement[13].

Figure 2: International Investment Agreements - All countries

(a) Signatures, Terminations and Renegotiations



(b) Share of newly signed IIAs containing Macro-stability Exceptions

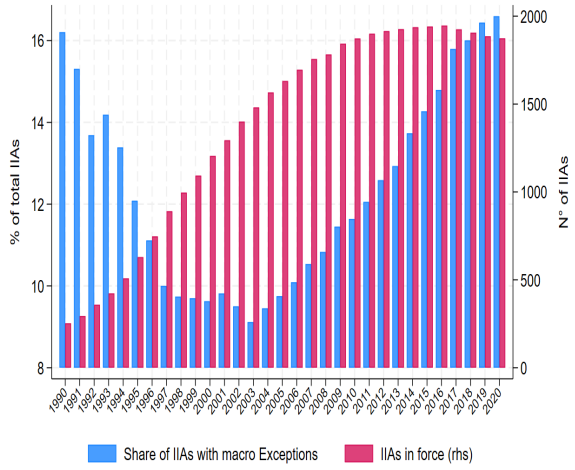


[13]According to Mitchell et al. (2016) the characterization of prudential clauses as exceptions, carve-outs, autonomous rights etc.. is uncertain and complicated.

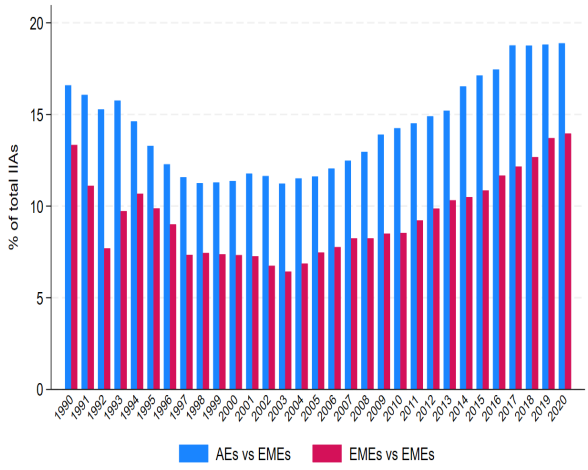
In the 1990s, countries signed a large number of IIAs with new treaties peaking at over 150 in 1996 (Figure 2a). However, since then, the pace of ratification has slowed, and many countries, particularly EMDEs, have either terminated or renegotiated existing agreements as policymakers seek to balance the benefits of globalization with the need to preserve domestic policy space (Thompson et al., 2019)[14]. At the same time, while FTOF provisions have been the standard in newly signed IIAs, macro-stability exceptions have become increasingly common (Figure 2b). This trend peaked in 2017, the year with the highest number of treaty terminations, when all newly signed IIAs incorporated these exceptions.

Figure 3: Shares of outstanding IIAs with Macro-stability Exceptions

(a) Shares vs Total Numbers



(b) Different Country Groups



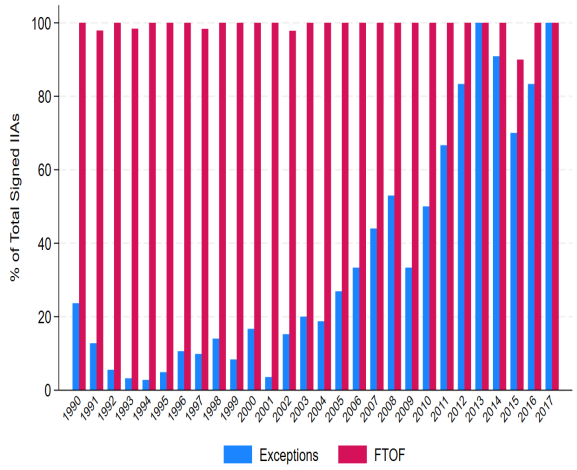
Shifting the focus to the share of IIAs in force in a given year that include macro-stability exceptions, Figure 3a provides interesting insights. In recent years, over 16% of active treaties contain such exceptions, a level comparable to the early 1990s. However, with the surge in treaty ratifications during the late 1990s and early 2000s, the share of exceptions fell below 10%, before gradually rising again after the Global Financial Crisis. Once again, focusing solely on EMDEs, panel (b) shows that treaties with Advanced Economies generally feature a higher

[14] As you can see from Appendix Figure H.1, the majority of treaties are with EMEs, with the number of treaties signed, terminated or renegotiated between only Advanced Economies is minimal (panel b).

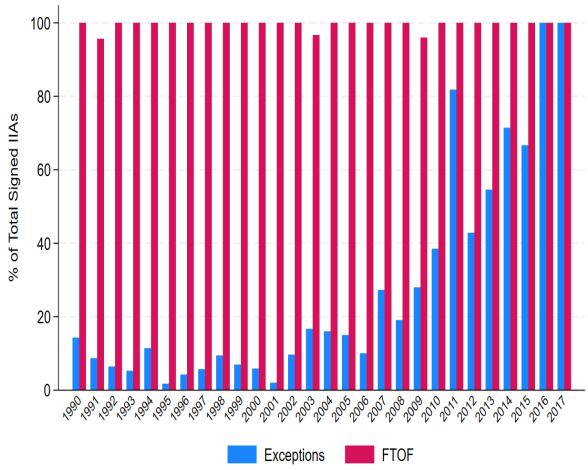
incidence of macro-stability exceptions than treaties among Emerging Economies, with both groups following the same U-shaped pattern observed in panel a.

Figure 4: Newly signed IIAs containing Macro-stability Exceptions - By Country Groups

(a) AEs & EMEs



(b) EMEs & EMEs



Finally, Figure 4 adds nuance to previous findings. Focusing again on EMDEs, I distinguish between treaties signed between advanced and emerging economies (North–South as defined in the international law literature) and those signed only among emerging economies (South-South). While almost all treaties include FTOF provisions, strikingly enough, newly signed North–South agreements began to incorporate macro-stability exceptions earlier, and at a higher frequency, than South–South treaties.

4.2 Other Data Sources

This paper uses bilateral capital stocks (and flows) data from the JRC-ECFIN database by Nardo et al. (2017) for a subset of EMDEs countries. To my knowledge, this paper constitutes the first attempt at using this database to investigate the relationships between IIAs and Portfolio and Other Investments at the bilateral level.

The JRC-ECFIN database resolves potential mismatches between countries' declarations. This implies that outflows from country A to country B perfectly match inflows into country B from country A, a well-known issue in most publicly available datasets on bilateral FDI flows where

these discrepancies can be pretty significant. Therefore, I consider outflows to host countries as inflows into host countries from non-residents. The database consists of annual data for bilateral stock and flow position for 80 countries for the period 2000-2018[15]. Furthermore, I restrict the sample to EMDEs: the final selection comprises annual data for 29 countries spanning the same time period. Given this paper's focus on bilateral investment agreements, having reliable data on bilateral investment positions is essential. However, this requirement considerably narrows the sample, as such detailed bilateral data are often limited or unavailable for many countries, especially for emerging economies[16].

Data on capital controls are obtained from the updated Fernández et al. (2015)' dataset which in turn collects information from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions database (AREAER). This database distinguishes between controls on all types of assets (FDI, Portfolio Debt, Portfolio Equity, and Banking) and whether they are imposed on residents or non-residents. Given the focus on Portfolio Debt and Other Investment outflows, I consider control measures imposed on the following transaction categories: money market, bonds, collective investments, guarantees, financial, and commercial credits. I exclude controls on equity and on derivatives. The former is due to the focus of this paper on (more volatile) debt flows, and the latter due to the fact that derivatives are not part of the JRC-ECFIN database. Controls on money market, bonds, and collective investments (which constitute controls on Portfolio Debt in aggregate) are considered only if applying to non-residents[17]. Note that the resulting annual indices represent the level of capital controls in place and are therefore useful to capture the extensive margin of controls[18].

Sudden stops are obtained from Forbes and Warnock (2021). The authors estimate sudden

[15]Note that flows are available from 2001 as they are estimated from the stock position, and that financial derivatives and reserves are not included in the database. Moreover, the total aggregate flows by country do not match the total liabilities as in Broner et al. (2023) . I decided to use this database as Broner et al. (2023) do not provide data for banking stocks.

[16]We cover approximately 20% of total liabilities in EMDEs between 2000 and 2018.

[17]The data available do not allow me to make the same distinction for banks, however, this should not bias the results in any meaningful way.

[18]Pasricha et al. (2018) create a measure of capital controls at the intensive margin representing how the restrictions change over time. While this measure is potentially more precise when assessing the effectiveness of controls, there is not that much available data. Moreover, for the sake of our paper, the level of capital controls offers an important point of view to investigate their effectiveness.

stops using quarterly aggregate inflow data for the different categories of capital flows. These quarterly episodes are aggregated annually to match the frequency of the data used in the analysis. For an episode to be considered when aggregated annually, it needs to last a minimum of 2 quarters. Data for most other determinants of sudden stops are also obtained from the same dataset. The remaining variables come from standard public sources and are listed in the Appendix.

4.3 New Measures of Policy Space

Knowing how many treaties with or without exceptions a country has in force is only a first step. The relevance of each agreement varies depending on the volume of investment the recipient country receives from its treaty partners. For this reason, this paper identifies two measures of "macro-stability policy space": an index of restriction (IIA_{it}^{FTOF}) and one of flexibility (IIA_{it}^{EXC}). These are specifically related to macro-stability issues of capital flow management. These two measures are defined as follows:

$$\text{IIA}_{it}^{FTOF} = \frac{\sum_{j=1}^{J}(l_{ijt}^{PT,OT} * IIA_{ijt}^{FTOFnoexc})}{l_{it}^{PT,OT}}$$
$$\text{IIA}_{it}^{EXC} = \frac{\sum_{j=1}^{J}(l_{ijt}^{PT,OT} * IIA_{ijt}^{FTOFexc})}{l_{it}^{PT,OT}}$$

where $l_{ijt}^{PT,OT}$ is bilateral Portfolio or Other Investment stock liabilities in country i owned by country j at time t. IIA_{ijt}^{FTOF} is a dummy equal to 1 if that country-pair has an investment agreement with a Free Transfer of Funds provision and no macro-stability exceptions. In a sense, IIA_{ijt}^{FTOF} identifies perfectly with the variable ρ in the theoretical framework. On the other hand, IIA_{ijt}^{EXC} is equal to 1 if the agreement includes macro-stability exceptions. These bilateral stocks are then added up for all J partners and divided by the total liability stock of the relevant capital type.

These are continuous indexes taking values between 0 and 1 and are, in essence, weighted averages[19]. The policy space restrictiveness index is equal to 1 if all liabilities stocks are covered

[19]Note that the JRC-ECFIN database is not complete, meaning all bilateral stocks aggregated do not provide

by IIAs with an FTOF and no exceptions. An increase in this index restricts a country's policy space in relation to CFMs. The opposite holds true for the policy space rebalancing index, where an increase signals a wider policy space. The intuition for these indexes is that, if in a certain year, the majority of a country's liabilities are protected by stringent IIAs, capital controls on outflows will not be effective. Countries could then either put in place controls that will have an effect on the remaining parts of flows not covered by the agreements, or avoid using controls altogether. The opposite holds true if the majority of your liabilities have macro-stability exceptions[20].

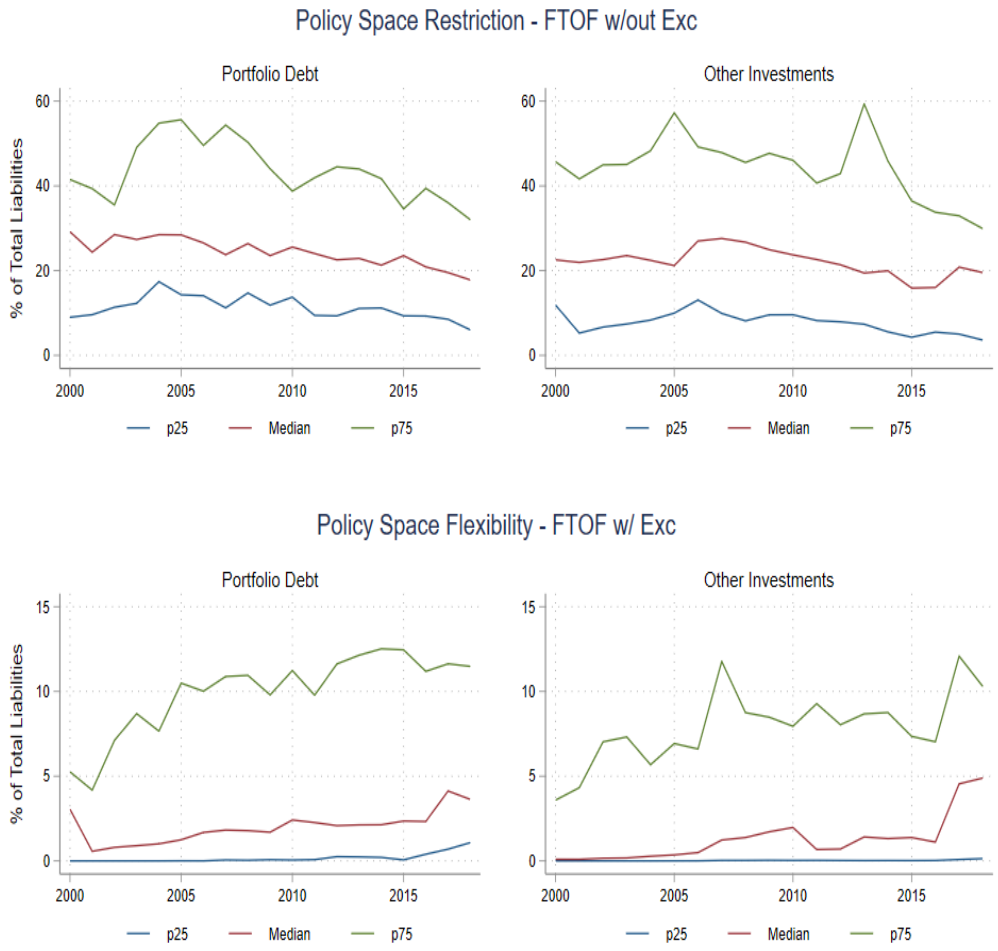
Figure 5 plots the evolution over time of the two indices of macro-stability policy space. While there is some variety in the extent to which countries are restricted or not by IIAs, there are also some common patterns. For both Portfolio Debt and Other Investments there is a slight downward trend in restrictiveness and an upward trend in rebalancing. There are some stark differences between the first and the last quartiles. In terms of restrictiveness, some countries are at times constrained in up to 60% of their total liabilities, whereas others are completely flexible. For instance, Brazil is an example of a country that has complete control over its policy space, as it has no signed IIA currently in place. On the other hand, there are many countries in the sample that have almost no policy space rebalancing, namely, no IIAs that they signed contain an exception. As regards the policy space rebalancing, the top quartile has more policy space, reaching peaks of up to 12 percent.

More generally, the distributions highlight high heterogeneity in the level of policy space that EMDEs in our sample have at their disposal when dealing with sudden stops.

total liabilities. Moreover, stocks can also be negative in rare cases. This could lead to the indexes being even greater than 1. However, this is not the case in the current dataset.

[20]I have decided to specifically calculate the measure of flexibility via the exceptions instead of (1-restriction-non covered by an IIA)*100 as I am specifically interested in the effects of exceptions. These are more relevant for CFMs instead of simply not being restricted as they allow countries to operate as they see fit during a period of stress. Not having an IIA would grant theoretically the same priviledge, but the reputation costs will likely be higher.

Figure 5: Macro-stability Policy Space Indices



Notes: The figure reports the evolution of the two indices of policy space on Portfolio Debt and Other Investment outflows over time. An increase in policy space restrictiveness implies less policy space for CFMs, and an increase in policy space rebalancing implies more policy space for CFMs. Indexes are between 0 and 1, here rescaled to 100.

5 Agreements, Exceptions and Bilateral Investments

While, in theory, including an exception clause in an agreement can broaden a country's macro-prudential policy space, it may also weaken foreign investors' confidence in the security of their capital. On one hand, if investors perceive that a country's ability to impose controls is limited, they may be more inclined to invest. Conversely, if macro-stability exceptions enhance the country's discretion to apply such measures, this could deter investment. This section examines whether the inclusion of these provisions in IIAs influences the level of bilateral foreign liabilities held by recipient countries.

Equation 2 showed that the possibility of capital controls affect the level of initial investment as foreign investors factor in the risk of potential deadweight losses caused by such policies. The presence of exceptions could, in the eyes of the investor, increase the level of capital controls in place, and consequently increase ϕ indirectly.

While most of the empirical literature revolves around the effects of IIAs on FDI, only a handful of studies have focused on the impact on bilateral Portfolio and Banking investments. Daude and Fratzscher (2008) investigate the effect of trade and investment agreements on all types of cross-border investment positions. The authors include gravity variables, such as distance and common language, in their analysis. More recently, Mercado Jr (2023) has also shown how gravity factors are significant determinants of bilateral Portfolio and Other investment flows. Equation (5) builds upon these studies by differentiating IIAs depending on their content, with a special focus on the effect of macro-stability exceptions on bilateral Portfolio (PT) and Banking (OT) liabilities.

$$\mathrm{l}_{ijt}^{PT,OT} = \alpha + \eta_{it} + \eta_{jt} + \beta_1 \mathrm{IIA}_{ijt} + \beta_2 exc_{ijt} + \beta' \mathbf{\Gamma}_{ijt}^{GR} + \epsilon_{ijt} \tag{5}$$

where $l_{ijt}^{PT,OT}$ indicates Portfolio or Other Investment Liabilities in country i owned by country j at time t in percentage of country i's nominal GDP. The ηs identify country-year fixed effects for the recipient and the partner economy, to control for multilateral resistances and country-specific and global shocks[21]. IIA_{ijt} is a dummy variable that takes a value of 1 if a bilateral treaty is in force at time t[22]. Moreover, if the IIA explicitly excludes portfolio or other investments, the agreement is excluded from the corresponding regression. exc_{ijt} takes the value of 1 if the agreement that is in force contains a macro-stability exception. Finally, Γ_{ijt}^{GR} is a vector of two gravity variables: distance and common language[23].

[21] I do not include country-pair fixed effects as a wide share of IIAs has been signed before the starting date of the analysis. In addition, all gravity variables would drop.

[22] In case of terminations, the dummy takes again the value of 0. In case of renegotiation, the dummy keeps the value of 1.

If the renegotiation includes an exception, the exception dummy will be 1. In case of multiple agreements for the same country-pair in the same year, the one that entered into force last is taken into account.

[23] When dealing with bilateral stocks, some studies include the lag of the dependent variable. However, given that the coefficients on the lag is usually very close to one, the coefficients of the other variables would capture,

Table 2: Effects of Agreements and Exceptions on Initial Investments

	All countries		**North-South**		**South-South**	
	Portfolio	Other	Portfolio	Other	Portfolio	Other
	(1)	(2)	(3)	(4)	(5)	(6)
IIA	0.0533	0.250***	0.0374	1.152***	0.0418	-0.120***
	(0.0640)	(0.0532)	(0.0306)	(0.129)	(0.0931)	(0.0455)
Macro-stability Exception	-0.133**	-0.654***	-0.145***	-1.377***	-0.0845	0.0102
	(0.0532)	(0.131)	(0.0415)	(0.187)	(0.0850)	(0.198)
Common language (9%)	0.738***	0.494***	0.653***	0.708***	0.765***	0.605***
	(0.0609)	(0.0688)	(0.0628)	(0.189)	(0.0712)	(0.0577)
Distance (thousands of km)	-0.0272***	-0.0926***	-0.0324***	-0.202***	-0.0247***	-0.0739***
	(0.00410)	(0.00662)	(0.00338)	(0.0322)	(0.00440)	(0.00506)
Constant	0.495***	1.178***	0.706***	2.276***	0.405***	0.827***
	(0.0327)	(0.0649)	(0.0331)	(0.244)	(0.0378)	(0.0545)
Host country × year FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner country × year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41,063	40,518	12,274	11,925	28,789	28,593
R^2	0.283	0.165	0.489	0.204	0.270	0.165

Notes: Dependent variables are in percent of GDP. Robust standard errors in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 2 shows that having a bilateral agreement has a positive and statistically significant effect solely for Other Investments. More specifically, having an agreement, on average, is associated with investments in the host country being 0.25 percent of GDP higher than not having an agreement. The effect is driven by the treaties that EMDEs in our sample have with Advanced Economies, as the effect for treaties with other EMDEs is puzzlingly negative for Other Investments liabilities.

At the same time, if the agreement includes a macro-stability exception, it negatively affects the level of both Portfolio and Other Investment liabilities (in percentage of GDP) in the host country. This finding might signal that investors (mostly banks) are scared off by the presence of an exception as, in case of crisis, they might not be able to retrieve their entire investment promptly, or at all. Moreover, the effect is driven by treaties with Advanced Economies, in line with what one would expect.

in a sense, the effect on flows rather than stocks. In addition, there would be an issue of valuation changes.

This finding is consistent with equation (2) as the initial investment is lower for those countries that include macro-stability exceptions in their treaties.

The gravity variables are statistically significant for both types of stocks with the expected sign[24].

6 Capital Controls and Policy Space During Sudden Stops

While most of the empirical literature has focused on the effects of CFM measures on inflow surges, given the specific scenario in which IIAs can restrict policy space, this paper focuses on the effect of capital controls on sudden stops (SS), a topic somewhat overlooked.

Bhargava et al. (2023) show that capital controls are rarely deployed in times of crisis and, whenever they are in place, they fail to curb non-resident outflows. Furthermore, the authors highlight the severity of the endogeneity bias when investigating the relationship between capital outflows and capital controls that might be implemented specifically to counteract them. While capital controls entered Forbes and Warnock (2012) regressions (no significant relationship was found between capital controls and a country's likelihood of experiencing a sudden stop), they were later dropped in the following paper by the authors on the same topic (Forbes and Warnock, 2021). However, not controlling for potential endogeneity, and specifically reverse causality, might have biased the original results.

I build upon Forbes and Warnock (2021)' complementary logarithmic (cloglog) framework[25]:

$$Prob(e_{it} = 1) = F(\mathbf{\Phi}_t^{\text{Global}} \boldsymbol{B}_G + \beta_1 CCO_{it} + \mathbf{\Phi}_t^{\text{Domestic}} \boldsymbol{B}_D) \tag{6}$$

where the dependent variable is a dummy variable equal to 1 if country i has experienced a sudden stop in either Portfolio Debt or Other Investments, separately, in year t.

[24]It is important to stress that this exercise's aim is not to state a causal relationship between macroeconomic exceptions in investment treaties and bilateral investment stocks. On the other hand, it paints a useful picture for policy implications.

[25]This framework provides more precise estimation whenever the dependent variable is prevalently equal to 0. The estimation strategy assumes that F(z) = 1 - exp[-exp(z)]. The authors also employ SUR method, whereas I keep a panel structure.

The vector $\mathbf{\Phi}_t^{\text{Global}}$ includes global variables such as the VXO index (global risk), global growth, global liquidity, oil prices, and a proxy for global long-term interest rates.

The vector $\mathbf{\Phi}_t^{\text{Domestic}}$ contains local determinants: real GDP growth, domestic credit to the financial sector (or bank credit, depending on the dependent variable) as a percentage of GDP (following Eichengreen and Gupta (2016)), a dummy indicating whether the country experienced an inflow surge in the previous year (consistent with the boom-bust cycle hypothesis), and a measure of institutional quality.

Finally, the regression contains a measure of capital controls on outflows: for Portfolio Debt Sudden Stops, it captures controls on non-resident transactions (excluding equity and derivatives), while for Other Investments, it reflects controls on credits, loans, and guarantees.

Table 3 presents the results of the standard complementary log-log regressions based on Equation (6). Consistent with Forbes and Warnock (2012), the level of capital controls in place does not have a statistically significant effect on the likelihood of experiencing sudden stops in either Portfolio Debt or Other Investment flows[26].

As previously discussed, the potential reverse causality between capital controls and the probability of a sudden stop may bias the estimates. To address this, I estimate the clog-log model in Equation (6) using a two-stage Instrumental Variable (IV) approach.

6.1 An Instrumental Variable (IV) Approach

Capital controls lagged by one quarter are sometimes used to overcome the endogeneity bias. However, this approach is not applicable here due to the annual frequency of my data. Section 4.3 introduced two new variables of policy space: policy space restriction and policy space rebalancing. The former is obtained by measuring the share of a country's total liabilities covered by an IIA with an FTOF provision and no macro-stability exception. The latter instead identifies what part is covered by these exceptions.

The rationale behind these indexes is that when a significant share of a country's liabilities

[26]It is worth noting, however, that the data used here are annual, in contrast to the quarterly frequency employed by Forbes and Warnock (2012).

Table 3: Effect of Capital Controls on Sudden Stops - Standard Cloglog

	Portfolio Debt SS (1)	Other Investment SS (2)
CCO^{PT}	-0.340	
	(0.318)	
CCO^{OI}		0.209
		(0.386)
VXO (std)	-0.0663	-0.0585
	(0.0526)	(0.0389)
Oil Price	0.0119	0.0109*
	(0.00859)	(0.00588)
Global Money Growth	0.199**	0.127
	(0.0793)	(0.0782)
Global Growth	-0.212*	-0.556***
	(0.123)	(0.0793)
Domestic Real GDP Growth	-0.00935	-0.0218***
	(0.00797)	(0.00508)
Institutional Quality	-0.142	-0.0291
	(0.295)	(0.247)
L. Surge	0.267**	0.284**
	(0.117)	(0.124)
AE Long-term Interest Rate	0.0171	-0.0580
	(0.216)	(0.263)
Domestic Credit (% of GDP)	-0.00321	0.00283
	(0.00313)	(0.00303)
Constant	-1.563**	-1.149**
	(0.690)	(0.543)
Observations	418	455

Notes: ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

is protected by stringent IIAs, capital controls on outflows may be ineffective or not deployed at all. In response, countries might either impose controls only on flows not covered by these agreements or refrain from using controls altogether. The opposite holds when most liabilities are covered by IIAs with macro-stability exceptions, allowing for greater policy discretion.

These instruments are theoretically valid: they are expected to be correlated with capital controls (as reduced policy space limits the use of CFMs, and vice versa) while remaining

exogenous to sudden stops. In fact, a country is not likely to be experiencing a sudden stop today as a result of an agreement signed decades before[27].

Ostry et al. (2012) instrumented capital controls with US BITs and EU accession treaties to investigate the exogenous effects of these measures on capital inflows and surges. The policy space variables draw inspiration from that study and expand it by considering all IIAs in place and weighting them depending on their relevance in the host country's economy. Moreover, this paper focuses on sudden stops instead of surges and considers the different content of IIAs, namely if they include FTOF provisions and macro-stability exceptions.

Table 4 reports first and second-stage results for the IV-Cloglog model employed to estimate the exogenous effects of capital controls on sudden stops. Columns (1) and (2) report the results of the first (linear) stage. The coefficients of the policy space variables are of special relevance. Having a more restrictive policy space reduces the level of capital controls in place for both Portfolio and Other Investment outflows. On the other hand, rebalanced policy space through macro-stability exceptions increases the level of capital controls for both types of investments. Columns (3) and (4) report the results of the second stage analysis, where the dependent variables are sudden stops on Portfolio Debt and Other Investments, respectively. The capital controls on outflows (CCO) variables are now statistically significant. This is an empirical confirmation of the theoretical rule. More specifically, capital controls on non-resident portfolio debt reduce the probability of incurring a sudden stop of that specific type of liability. On the other hand, capital controls now increase the probability of Other Investment's sudden stops. This seems to suggest that banking flows are free to flee EMDEs in times of crisis. Therefore, when implementing capital controls, EMDEs should be mindful that they might be able to counteract sudden stops in a certain type of flows but not in another one if a big part of these liabilities is protected by an FTOF provision without exceptions.

The finding of increased probabilities of sudden stops in bank flows is consistent with the possibility of multiple equilibria as depicted in Figure 1, as well as the fact that governments might not be able to impose capital controls so expensive to prevent a capital flight because

[27]The correlation between the two indices of policy space and sudden stops is 0.

Table 4: Effects of Policy Space and Capital Controls on Sudden Stops - IV Cloglog

	First Stage		**Second Stage**	
	CCO Portf.	CCO Other Invt.	Portf. Debt SS	Other Invt. SS
	(1)	(2)	(3)	(4)
Policy Space Restriction^{PT}	-0.215***			
	(0.0772)			
Policy Space Restriction^{OI}		-0.284*		
		(0.160)		
Policy Space Flexibility^{PT}	1.447***			
	(0.363)			
Policy Space Flexibility^{OI}		0.356**		
		(0.172)		
CCO^{PT}			-1.165**	
			(0.564)	
CCO^{OI}				2.220***
				(0.799)
VXO (std)	0.00164	0.00426*	-0.0674	-0.0686*
	(0.00314)	(0.00248)	(0.0515)	(0.0380)
Oil Price	-0.000487	-0.000759	0.0112	0.0127**
	(0.000740)	(0.000822)	(0.00829)	(0.00628)
Global Growth	0.0109	-0.00223	-0.209*	-0.550***
	(0.00962)	(0.00623)	(0.119)	(0.0811)
Global Money Growth	-0.00245	-0.00631	0.198***	0.140*
	(0.00440)	(0.00390)	(0.0769)	(0.0797)
Dom. Real GDP Growth	0.000529	0.00193*	-0.00984	-0.0258***
	(0.000958)	(0.00116)	(0.00808)	(0.00603)
Institutional Quality	-0.439***	-0.248***	-0.551	0.513
	(0.0637)	(0.0804)	(0.374)	(0.368)
L. Surge	0.00604	0.00144	0.286**	0.298***
	(0.0178)	(0.0160)	(0.127)	(0.113)
AE Long-term IR	0.0355	0.00928	0.0550	-0.0484
	(0.0281)	(0.0199)	(0.221)	(0.260)
Dom. Credit (% of GDP)	0.00101	0.00109	-0.00241	0.000806
	(0.000935)	(0.00109)	(0.00328)	(0.00241)
F-stat	52.72	11.95		
ALN p-value			0.2120	0.3339
Observations	418	455	418	455

Notes: The dependent variables in the first stage are capital controls on outflows and are regressed linearly on the two instruments for policy space. The dependent variables in the second stage cloglog are dummy variables equal to 1 if there's a sudden stop (SS) in the specific type of capital flow. Standard errors clustered at the country level are reported in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

they might be constrained by investment agreements.

Given that this methodology employs two instruments for one endogenous control variable, I need to test for overidentification. Table 4 reports the p-values for the Amemiya-Lee-Newey (ALN) chi-square test. The test fails to reject the null of valid instruments in both cases, strengthening the results. As a robustness check, I also use the lag of the policy space variables as instruments, the variables in first difference, as well as only the policy space restriction variable as a single instrument. Results do not substantially differ.

6.2 Controls and Sudden Stops Since the Crisis

Forbes and Warnock (2021) document that the occurrence of these extreme capital flow movements has not significantly changed since the GFC, even though their drivers did, with sudden stops being less correlated with changes in global risk and more correlated with changes in oil prices.

Given that post-2007, countries started ratifying less agreements and include more exceptions, in this section, I investigate whether there is a time component to be considered in the analysis by including a post-GFC dummy.

Table 5 shows that, if anything, after 2007, the incidence of sudden stops for portfolio flows in our sample has reduced. The effect, on the other hand, is not statistically significant for banking flows. The sign and significance of the other controls is not affected[28]. At the same time, F-stats are slightly lower in these regressions. And particularly for sudden stops in other investments, the F-stat is closer to the minimum rule-of-thumb value of 10 for weak instruments.

6.3 Policy Implications

EMDEs tend to maintain tighter control over exchange rate fluctuations, for reasons ranging from high levels of foreign-currency-denominated debt to concerns that currency appreciation

[28]Results available on request.

Table 5: Post Global Financial Crisis Dummy - IV Cloglog

	First Stage		**Second Stage**	
	CCO Portf. (1)	CCO Other Invt. (2)	Portf. Debt SS (3)	Other Invt. SS (4)
Policy Space Restriction^{PT,OI}	-0.211***	-0.284*		
	(0.0780)	(0.160)		
Policy Space Flexibility^{PT,OI}	1.451***	0.356**		
	(0.361)	(0.171)		
CCO^{PT,OI}			-1.272**	2.289***
			(0.568)	(0.855)
Post GFC	-0.193**	-0.0299	-2.708**	-1.191
	(0.0846)	(0.0525)	(1.057)	(1.642)
Global Controls	Y	Y	Y	Y
Domestic Controls	Y	Y	Y	Y
F-stat	48.68	10.93		
Observations	418	455	418	455

Notes: The dependent variables in the first stage are capital controls on outflows and are regressed linearly on the two instruments for policy space. The dependent variables in the second stage cloglog are dummy variables equal to 1 if there's a sudden stop (SS) in the specific type of capital flow. Standard errors clustered at the country level are reported in parentheses. ***, **, and * indicate statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

could undermine export competitiveness. According to the impossible trinity, or trilemma, countries can sustain a fixed exchange rate only by forgoing either free movement of capital or monetary policy autonomy. At the same time, as Forbes and Warnock (2021) note, sudden stops are increasingly driven by global factors, with EMDEs disproportionately affected.

To counteract sudden stops and prevent sharp depreciations of the local currency, an EMDE can intervene in the foreign exchange market by selling reserves, although these can quickly deplete. Alternatively, it may seek to curb capital outflows, especially if the shock is believed to be exogenous and temporary. However, as this paper highlights, the presence of Free Transfer of Funds (FTOF) clauses in international investment agreements can constrain such responses. Macro-stability exceptions are designed to restore this lost policy space during crises, particularly when the affected country bears no responsibility for the crisis.

Results from Table 4 show that macrostability exceptions grant higher policy space for countries to implement capital controls on outflows. At the same time, these capital controls do not necessarily rule out capital flights, as the theoretical framework also points out (Figure 1). Furthermore, including these exceptions in treaties with advanced economies, which are more likely to invest higher amounts of capital, can have an adverse effect, leading to a lower capital stock in the country.

Whether a country should then renegotiate deals to include these exceptions or exit investment agreements altogether (both trends have been rising recently, as outlined in Section 4) is ultimately a political decision. Countries will then have to decide whether they would rather have more policy space to deal with a crisis at the expense of lower capital inflows.

7 Conclusions

This paper constitutes a first attempt to investigate the effects of macro-stability exceptions in International Investment Agreements. More specifically, their impacts on investment inflows in EMDEs as well as on these countries' policy space when dealing with sudden stops. Sudden stops usually involve Portfolio Investments and Other Investments, the focus of the analysis. Macro-stability exceptions have a negative effect on the overall level of liabilities, suggesting that investors are worried that their capital might not be allowed to flow freely and without delay outside of the recipient economy in times of crisis.

When looking at the effect of capital controls on non-resident outflows on sudden stops, reverse-causality issues heavily bias the results. I use an instrumental variable approach to overcome this issue.

The new measures of policy space restrictiveness and rebalancing are suitable instruments both from a theoretical and an empirical point of view.

The empirical analysis shows that policy space restriction negatively affects the level of capital controls on outflows in place, whereas the measure of policy space rebalancing positively affects it. At the same time, when controlling for the amount of policy space that EMDEs have at

their disposal in times of crisis, this paper shows that capital controls have a statistically significant effect on sudden stops. The literature on capital controls has long been marked by a discrepancy between theoretical predictions and empirical findings. Accounting for policy space helps bridge this gap and provides an empirical explanation for the theoretical "rule".

However, the direction of the effect is not certain a priori. In my sample, the probability of experiencing a sudden stop in Portfolio Debt is decreased by stronger capital controls. At the same time, the probability of Other Investment stops increases. Banks will decide to pull off their funding in periods of crisis exacerbating the seriousness of the situation, as they are more likely covered by IIAs with an FTOF provision an no exceptions. This is consistent with the possibility of multiple equilibria outlined in the theoretical framework.

These conclusions have strong policy implications, especially in a period of geoeconomic fragmentation that is influencing the international investment agreement regime as well. Countries should consider whether to re-negotiate existing agreements, including macro-stability exceptions to rebalance their policy space, or exit the agreement altogether. The ultimate decision is political, and countries should carefully consider whether their current pool of investors are more or less prone to pull out capital in the aftermath of capital controls implementation.

Future research could explicitly model how varying degrees of policy restriction influence the deadweight losses associated with capital controls. Moreover, one could allow for multiple contracts, where investors who know that are not protected by the IIA due to macro-stability exceptions, might factor additional risk in the return required to enter the project in the first place. From an empirical perspective, future research could focus on potential non-linearities in policy space restriction to explain the possibility of multiple equilibria.

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H Appendix

H.1 Additional Tables

H.1.1 List of countries

Argentina	Lithuania
Brazil	Malaysia
Chile	Mexico
China, P.R.: Hong Kong	Panama
China, P.R.: Mainland	Philippines
Colombia	Poland, Rep. of
Costa Rica	Romania
Croatia, Rep. of	Russian Federation
Czech Rep.	Singapore
Hungary	South Africa
India	Taiwan Province of China
Indonesia	Thailand
Israel	Türkiye, Rep. of
Korea, Rep. of	Venezuela, Rep. Bolivariana de
Latvia	

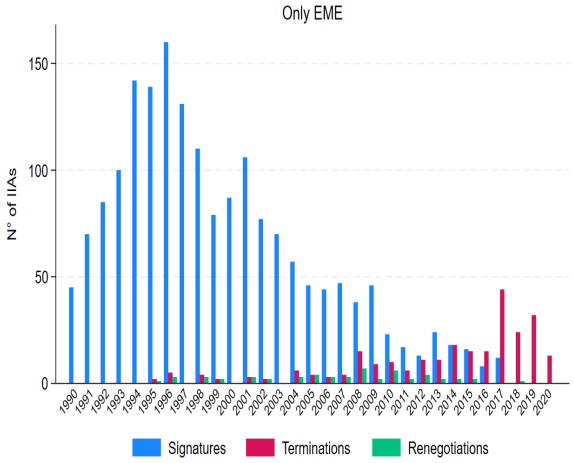
H.1.2 Data Sources

Variable	**Source**	**Frequency**
Investment Agreements Content	UNCTAD	annual / 1990-2020
Bilateral Investment Stocks	JRC-ECFIN (Nardo et al., 2017)	annual / 2000-2018
Sudden Stops & Surges	Forbes and Warnock, 2021	quarterly / 1978-2020
VXO	Forbes and Warnock, 2021	quarterly / 1978-2020
Oil Price	Forbes and Warnock, 2021	quarterly / 1978-2020
Global Money Growth	Forbes and Warnock, 2021	quarterly / 1978-2020
Long-term Interest Rate	Forbes and Warnock, 2021 + IMF's IFS	quarterly / 1978-2020
Capital Controls	Fernández et al., 2015 + IMF's AREAER	annual / 2000-2018
Domestic Credit	WB's WDI	annual / 2000-2018
Assets and Liabilities	EWN Lane and Milesi-Ferretti, 2018	annual / 2000-2018
Institutional Quality	WB's WEO	annual / 2000-2018

H.2 Additional Figures

Figure H.1: International Investment Agreements - Country Groups

(a) Signatures, Terminations and Renegotiations



(b) Signatures, Terminations and Renegotiations

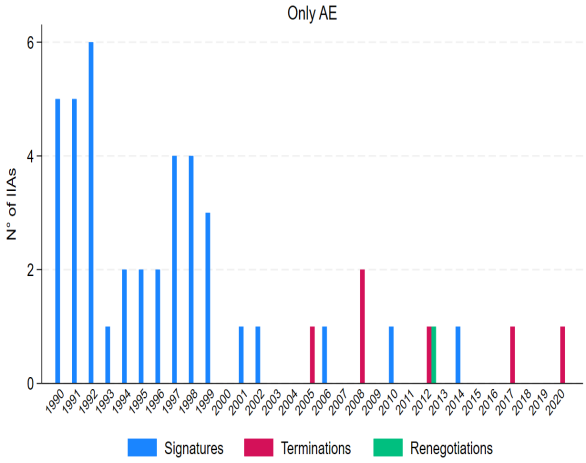
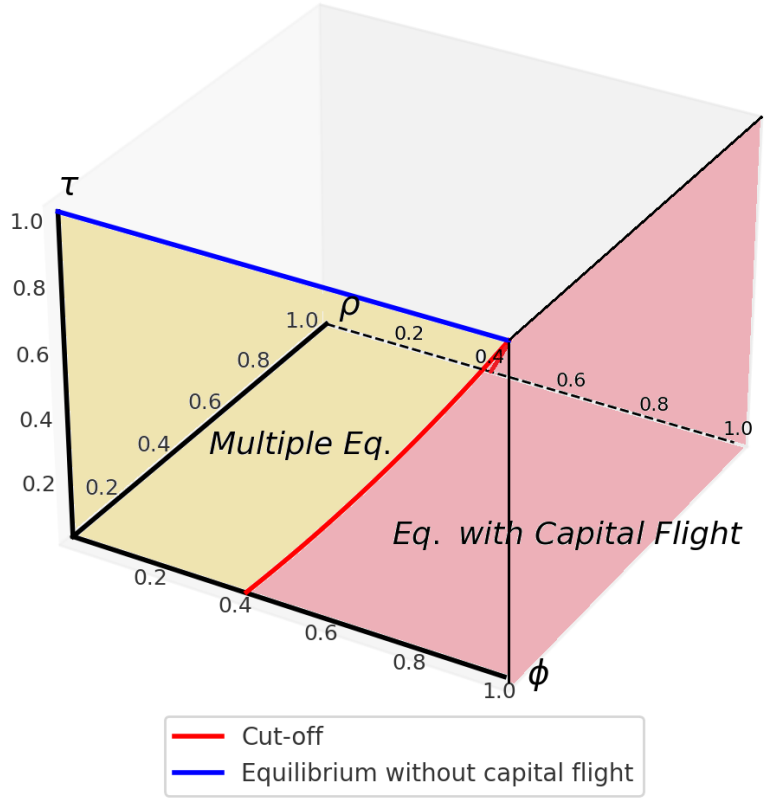


Figure H.2: Equilibria with CCO Policy for Different Levels of Restriction - 3D



H.3 Model

H.3.1 Equilibrium Under Laissez-Faire

- **Assumption** $f(0) = 0$ (could be relaxed if needed) and $\omega < 1$
- **Proposition 1** Under laissez-faire (LF), for any given p such that $0 \leq p \leq 1$, there is an equilibrium in which capital flight occurs with probability pq
- To see this, let's highlight two extreme cases when the state turns out to be fragile with probability q at $t = 1$, keeping in mind that investors stay if their expected rate of return at $t = 2$ is higher than the payout at $t = 1$
- If all investors believe other will exit, $\lambda = 0$ so the individual payoff is $f(0)i = 0$ which is less than ωi. Equilibrium outcome: all investors exit in the fragile state
- If all investors are expected to stay, an individual investor will stay if $f(1)i > \omega i$ or, more simply, if $f(1) > \omega$
- This condition must hold in equilibrium for any pq and it can be proven as such
- At $t = 0$ the expected payoff to an investor to contribute in LF will depend on whether the state at $t = 1$ is normal (probability $1 - q$) or fragile (q), and in that case whether investors will leave (probability p) or stay $(1 - p)$

$$\begin{aligned} E(\Pi^{LF}) &= (1-q)RI_0 + q(1-p)RI_0 + qp\omega i \\ &= qp\omega i + RI_0[q(1-p) + 1 - q] \\ &= pq\omega i + (1-pq)RI_0 \end{aligned}$$

- Therefore, at $t = 0$ there is a probability pq that the investment will end with exit and a corresponding payoff ωi (see Proposition 1) or a probability $(1 - pq)$ that will be carried to completion, and each investor will receive RI_0

- For an investor to enter, the expected payoff needs to equal the opportunity cost of invested funds

$$\Pi^{LF} = i = pq\omega i + (1 - pq)RI_0$$

$$i - pq\omega i = (1 - pq)RI_0$$

$$i = \frac{(1 - pq)RI_0}{1 - pq\omega}$$

- Given that $f(1) = R\frac{I_0}{i}$

$$f(1) = \frac{1 - pq\omega}{1 - pq} > 1$$

- So $f(1) > \omega$, as $\omega < 1$ by assumption, and there is an equilibrium with no capital flights.
- Capital flights are ultimately the result of coordination failure that can be fixed with capital controls.

H.3.2 Equilibrium With Costly Capital Controls

- An equilibrium with no capital flights exists if

$$(1 - (\tau - \rho))\omega i \leq (1 - \phi)f(1)i$$

- Recall from Eq.(2) that

$$I_0 = \frac{1}{1 - (1 - q\phi)R}A$$

- Where $A = I_0 - i$

- Substituting and rearranging holds:

$$
\begin{aligned}
I_0 - \frac{I_0}{1-(1-q\phi)R} &= \frac{-i}{1-(1-q\phi)R} \\
\frac{I_0[1-(1-q\phi)R-1]}{1-(1-q\phi)R} &= \frac{-i}{1-(1-q\phi)R} \\
-I_0[(1-q\phi)R] &= -i \\
i &= I_0[(1-q\phi)R]
\end{aligned}
$$

- Recall also that $f(1) = R\frac{I_0}{i}$, therefore substituting in the first inequality gives:

$$
\begin{aligned}
(1-(\tau-\rho))\omega i &\leq (1-\phi)RI_0 \\
(1-(\tau-\rho))\omega &\leq \frac{(1-\phi)RI_0}{RI_0(1-q\phi)} \\
(1-(\tau-\rho))\omega &\leq \frac{1-\phi}{1-q\phi}
\end{aligned}
$$

- As in Equation (4)