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Tilting the Balance Towards Equity: Capital Controls and the Structure of External Liabilities

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Tilting the Balance Towards Equity: Capital Controls and the Structure of External Liabilities
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ABSTRACT: Capital flow restrictions have long been debated as a tool to manage external financial vulnerabilities, as volatile international capital flows and high external debt can contribute to financial crises. However, empirical evidence on whether capital flow management measures (CFMs) can shift the composition of countries' external liabilities toward more stable types of funding is limited. Using a novel dataset of granular capital account openness indicators measuring policy intensity, we show that an asymmetric liberalization favoring equity over debt can tilt external capital structures toward equity. This effect is stronger in countries with higher institutional quality, underscoring the role of governance in attracting stable foreign investment.

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Prepared by Tobias Krahnke and Wenjie Li¹

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1 Introduction

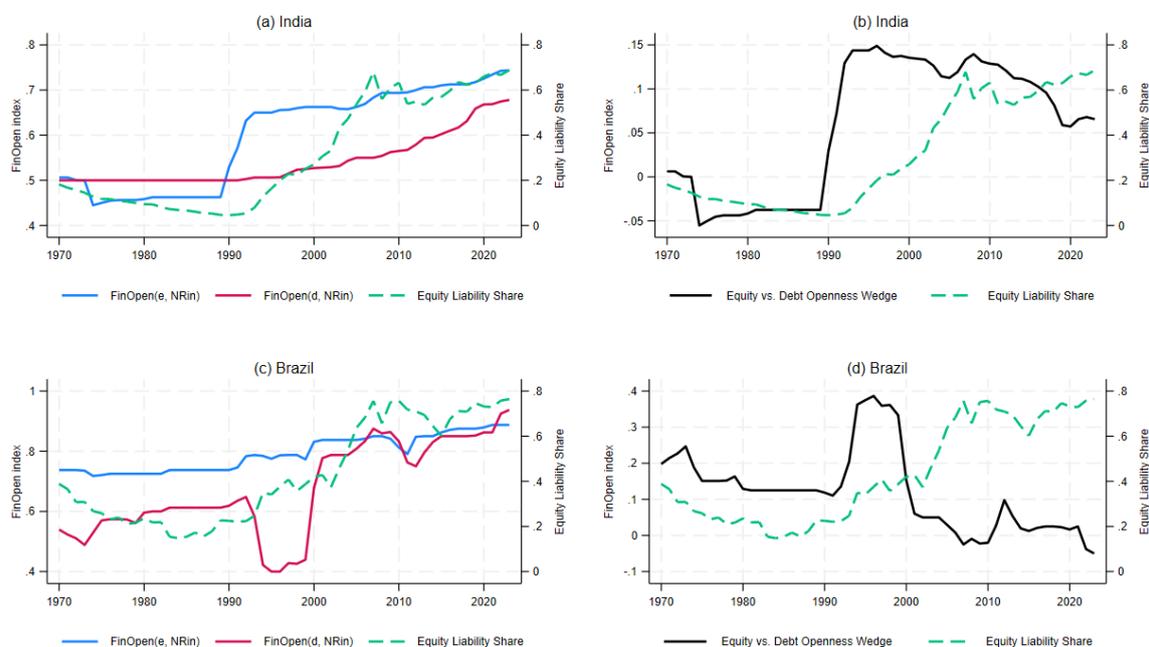
”The advocacy of a control of capital movements must not be taken to mean that the era of international investment should be brought to an end [...] The object [...] is to have a means of distinguishing [...] between movements of floating funds and genuine new investment for developing the world’s resources.”

—J.M. Keynes (1942), as cited in [IMF \(1969\)](#), p. 13.

The role of capital flow restrictions in managing external financial vulnerabilities has been widely debated, as volatile international capital movements and large external debt can amplify the risk of financial crises, especially in emerging market economies ([Ma and Wei \(2020\)](#)). Liquidity crises seldom arise from sudden stops in equity inflows. Instead, they are more often triggered by abrupt halts in debt inflows, making high external debt levels a key risk factor ([Catão and Milesi-Ferretti \(2014\)](#)). Against this backdrop, there is growing consensus that the structure of a country’s foreign liabilities – i.e., the relative shares of foreign direct investment (FDI), portfolio equity, and external debt in its external financing – significantly influences its susceptibility to external financial crises. While contained external leverage is thus deemed preferable, attracting equity financing and avoiding over-borrowing remains a complex challenge for many countries. Especially in the aftermath of the global financial crisis, the role of capital controls has thus come under renewed scrutiny, not as a means to shut out international investment, but as a potential instrument to promote more stable and resilient external financing. The debate has focused primarily on capital inflows rather than outflows. Inflow measures are typically viewed as tools to influence the scale and composition of external financing during more normal times, whereas outflow controls are used far less frequently and are usually deployed as temporary crisis-management instruments during periods of acute stress. To the extent that policy can influence the composition of capital flows, an important consideration is whether these flow responses ultimately cumulate into changes in the stock of external liabilities – a key determinant of crisis vulnerability. This naturally raises the question whether capital flow management measures (CFMs) can meaningfully shape a country’s external capital structure by tilting it towards more equity-type liabilities. If so, an asymmetric approach to capital account liberalization – one that distinguishes between equity and debt flows – could allow policymakers to actively influence the composition of external liabilities and reduce vulnerability to external crises. Two examples that offer suggestive evidence are India and Brazil. [Figure 1](#) displays the equity share in total foreign liabilities alongside a novel indicator of capital flow openness on equity (blue line) and debt (red line) inflows by non-residents. Starting in the early 1990s, India

liberalized equity inflows while maintaining restrictions on debt inflows. This asymmetric liberalization was followed by a significant rise in the equity share of foreign liabilities, which plateaued after the global financial crisis (panel a). Brazil, by contrast, adopted a different path, tightening restrictions on debt inflows in the mid- to late-1990s while gradually easing equity inflow controls. A similar increase in the equity share followed these policy changes (panel c). This pattern becomes even clearer when focusing on the difference between openness on equity and debt inflows, what we refer to as the *equity openness wedge* (panels b and d). In both countries, a relatively more favorable treatment of equity inflows, as reflected in a positive (and increasingly rising) wedge, appears to coincide with a higher equity share in external liabilities.

Figure 1: Capital Inflow Openness and Equity Share in Foreign Liabilities



Source: EWN database and own calculations.

Theoretical models also suggest that CFMs can be used as a policy lever to influence the composition of external liabilities (Ma and Wei (2020)). However, robust empirical evidence on their effectiveness in shaping a country's external capital structure remains limited. This gap largely stems from shortcomings of existing indicators of capital flow restrictions, which sometimes lack sufficient granularity (e.g. by not distinguishing between various types of flows) or only capture the presence or absence of restrictions, without enabling cross-country comparisons of policy intensity or stance. Most existing indices

on capital controls rely on binary labels for capital transactions (‘no’ for full openness and ‘yes’ for any form of control) drawn from the IMF’s *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER). As systematic evaluations of capital transactions, these binary indices can provide a useful benchmark for comparing the overall level of capital controls across countries (Chinn and Ito (2006), Fernández, Klein, Rebucci, Schindler, and Uribe (2016), Baba, Cervantes, Darbar, Kokenyne, and Zotova (2026)).¹ However, they are limited by their reliance on aggregate classifications: a ‘no’ label for any type of control fails to capture the intensity of restrictions, which may lead to misleading estimates of the extent of capital controls. To address this limitation, this paper employs the *FinOpen* index, which quantifies the policy intensity of controls across different types of flows (Li (2026)).

The aim of this paper is to fill the current gap in the literature by empirically testing the predictions of existing theoretical models and providing new evidence on whether capital flow restrictions can effectively tilt the composition of foreign liabilities toward more stable sources of funding, thereby increasing the equity share. Using a novel dataset of granular capital control indicators, we show that a less restrictive stance on equity-type inflows by non-residents is associated with a higher equity share in a country’s foreign liabilities. In contrast, greater capital account openness with respect to debt-type flows – such as portfolio debt and loans – tends to be associated with a lower equity share. We also confirm several predictions from theoretical models on the design of capital controls. In particular, our findings support the idea that an asymmetric approach to capital account liberalization – that is, allowing greater openness to equity-type inflows relative to debt-type flows – can meaningfully influence a country’s external capital structure by shifting it toward more equity-based liabilities. While our analysis does not assess welfare effects, it is broadly consistent with guidance from the IMF’s Institutional View (IV) on the Liberalization and Management of Capital Flows (International Monetary Fund (2022)), which recommends sequencing capital account reforms in line with domestic fundamentals, typically liberalizing equity flows before debt flows.² We also find that the effects of an asymmetric liberalization are stronger in countries with relatively higher institutional quality, consistent with the established view that stronger institutions help attract equity inflows from foreign investors, e.g. by lowering the risks of expropriation. We also briefly investigate capital outflow measures and show that, consistent with their infrequent and

¹The Chinn-Ito index provides only an aggregate measure of capital account openness. By contrast, the Fernández et al. and FARI indices use labels for detailed categories of capital transactions, allowing them to quantify controls on various types of flows.

²The IMF’s IV emphasizes that premature liberalization in countries with weak institutional quality, shallow financial markets, or limited macro-financial buffers can heighten vulnerability to external shocks. In such contexts, a roadmap of “safe liberalization” – prioritizing equity inflows over debt inflows – is recommended as a sequencing strategy.

crisis-driven use, outflow policies play a limited role once inflow controls are taken into account. Beyond these cross-sectional patterns, we analyze the dynamics of these effects, showing that changes in capital flow restrictions gradually translate into shifts in external liability composition over time. Finally, using a micro-level dataset of more than twelve million firm-year observations across emerging markets, we provide complementary firm-level evidence that increasing the wedge in favor of equity inflows – primarily through tighter restrictions on debt-type inflows rather than large easing on equity inflows – raises firms’ propensity to issue equity.

The structure of the rest of this paper is as follows. In [Section 2](#), we give a brief overview of the relevant literature and survey existing hypotheses regarding the determinants of countries’ external capital structure and the role of capital controls. [Section 3](#) presents our novel indicator of capital control measures and highlights its advantages compared to existing indicators. In [Section 4](#), we first replicate previous empirical studies on the determinants of external capital structure and demonstrate a strong association between our granular capital flow restriction indices and the equity share. Building on this, we then examine how changes in capital flow restrictions translate into dynamic adjustments in external liabilities using local projections, and complement the macro evidence with firm-level data. [Section 5](#) concludes.

2 Relevant Literature

The related literature can be grouped into three strands. The first examines the determinants of countries’ external liability structures, focusing on how institutional, financial, and macroeconomic characteristics shape the balance between debt and equity financing. The second explores the macroeconomic effects of capital account restrictions, including their implications for growth, volatility, and crisis vulnerability. The third, much smaller strand investigates the impact of capital controls on the composition of capital flows, rather than their overall volume. Our paper contributes to this emerging line of research by linking these strands: we study how capital flow restrictions can shape the structure of external liabilities (i.e., stocks), providing the first systematic empirical evidence on this relationship.

While the composition of countries’ external balance sheets has received increasing attention in recent years, a unified theoretical framework explaining cross-country differences in liability structures remains elusive. The literature has approached this question from several perspectives, often drawing on insights from corporate finance, asymmetric information, and contract theory. Early work by [Razin, Sadka, and Yuen \(1998\)](#), building on [Gordon and Bovenberg \(1996\)](#), introduces a model with asymmetric information

between investors and host countries. Their framework establishes a "pecking order" of capital inflows (FDI first, followed by external debt, and then portfolio equity) reflecting the informational advantages of direct investors. [Goldstein and Razin \(2006\)](#) extend this logic to explain why developing countries attract a higher share of FDI relative to portfolio equity. Their model highlights agency frictions as the key difference between FDI and portfolio investment, yielding a trade-off between management efficiency and liquidity. [Albuquerque \(2003\)](#) links cross-country differences in liability composition to expropriation risk and weak contract enforcement. Because FDI often involves intangible assets such as technology or brand value, it is less susceptible to expropriation, making it more resilient in environments with weak institutions. As a result, financially constrained countries or those with limited institutional credibility tend to attract a larger share of FDI. [Wei and Zhou \(2018\)](#) broaden this framework by linking public governance to both the structure and maturity of external liabilities. In their model, stronger institutions lead to a higher share of FDI and portfolio equity in total liabilities, as well as longer-term debt structures.

The theoretical literature on how capital flow restrictions affect the composition of foreign liabilities is scarce. Existing studies largely focus on external credit, motivated by concerns about sudden stops, retrenchment, and fire-sale dynamics, and emphasize pecuniary and aggregate demand externalities associated with external debt inflows ([Bianchi \(2011\)](#), [Bianchi and Mendoza \(2018\)](#), [Jeanne and Korinek \(2010\)](#)). A parallel strand of work studies restrictions on equity flows in isolation, typically grounded in political economy constraints or strategic-control motives for restricting foreign ownership ([Pandya \(2016\)](#), [Bian \(2021\)](#)). Most closely related to our question at hand is the recent theoretical contribution by [Ma and Wei \(2020\)](#), who model the endogenous composition of international capital inflows. Their framework emphasizes two distortions: weak institutional quality leads to an inefficiently low equity share, while overall debt inflows can become excessive relative to fundamentals. They show that optimal capital flow management may involve targeted restrictions on both equity and debt inflows to correct these distortions, thereby bridging the theory of liability composition with the policy design of capital account regulation.

Empirical research has largely confirmed the importance of institutions and financial development for external capital structure. [Daude and Fratzscher \(2008\)](#) find that portfolio flows are the most sensitive to institutional quality, while [Alfaro, Kalemli-Ozcan, and Volosovych \(2008a\)](#) identify institutional weaknesses as a key reason why capital does not always flow from rich to poor countries. Similarly, [Wei and Wu \(2002\)](#) show that lower corruption tilts inflows away from debt and toward FDI, and [Hausmann and Fernandez-Arias \(2000\)](#) associate weak governance with higher shares of debt-like liabil-

ities. Macroeconomic and structural factors also matter. [Borensztein, De Gregorio, and Lee \(1998\)](#) demonstrate that human capital acts as a "pull factor" for FDI, while [Lane and Milesi-Ferretti \(2000\)](#) find that trade openness raises the equity share in developing countries. [Faria and Mauro \(2004\)](#) and [Faria and Mauro \(2009\)](#) show that countries with larger, more open economies, higher institutional quality, and abundant natural resources tend to have greater equity shares in external liabilities.

Building on this literature, our paper extends the analysis by introducing capital flow restrictions as an additional, policy-based determinant of countries' external liability structures. While previous studies such as [Faria and Mauro \(2009\)](#) emphasize slow-moving fundamentals like institutional quality, financial development, and human capital as key drivers of a country's external capital composition, we examine whether the policy stance toward international capital mobility can also play a role. Specifically, we investigate whether asymmetric liberalization between equity and debt flows can influence the long-run composition of external liabilities by tilting it toward more equity-based forms of financing. In doing so, we complement the existing literature by focusing on a policy dimension that, although related to institutional frameworks, represents a more direct lever available to governments to influence their external balance sheet structure. Moreover, by extending the literature along these lines, we are able to empirically test several predictions derived from the theoretical framework of [Ma and Wei \(2020\)](#) – predictions that had not been examined previously due to the lack of sufficiently granular indicators of capital flow restrictions.

The second related strand of research examines the broader macroeconomic implications of capital account restrictions. This topic has been extensively debated, with evidence pointing to both benefits and costs. The liberalization of capital accounts can support economic growth by improving resource allocation, facilitating technology transfer, and enabling consumption smoothing across borders ([Obstfeld \(1998\)](#), [Kaminsky and Schmukler \(2003\)](#), [Quinn and Toyoda \(2008\)](#), [Kose, Prasad, Rogoff, and Wei \(2009\)](#)). However, these growth benefits are conditional. They tend to materialize in countries with strong institutions, deep financial markets, and credible macroprudential frameworks that can safely intermediate foreign capital ([Klein and Olivei \(2008\)](#), [Arteta, Eichengreen, and Wyplosz \(2001\)](#), [Bekaert, Harvey, and Lundblad \(2005\)](#)). In the absence of such supporting conditions, the removal of capital controls may not generate sustained growth and can instead amplify financial volatility.

Numerous studies emphasize the stabilizing role of capital controls, especially in economies exposed to volatile capital flows. Excessive or premature liberalization has been associated with greater susceptibility to boom-bust cycles, sudden stops, and financial crises ([Reinhart and Reinhart \(2009\)](#), [Korinek \(2018\)](#)). In this context, CFMs

have gained renewed policy relevance as instruments to mitigate systemic risks and preserve monetary autonomy under the global financial cycle. Recent evidence suggests that well-designed CFMs can complement macroprudential and exchange rate policies, helping contain vulnerabilities and smooth capital flow volatility, though at the cost of potential distortions to investment efficiency and cross-border financial integration (Ostry, Ghosh, Chamon, and Qureshi (2012), Ghosh, Ostry, and Qureshi (2017), Pasricha, Falagiarda, Bijsterbosch, and Aizenman (2018)).

The third strand of related literature is relatively limited. While there is broad agreement that, compared with foreign debt, equity liabilities provide greater risk-sharing benefits and are less prone to amplifying boom–bust cycles, few studies directly examine how differential capital controls on foreign equity and debt influence the composition of external liabilities. The most closely related study is Binici, Hutchison, and Schindler (2010), who use disaggregated measures of capital controls to assess whether restrictions targeted at specific asset classes (FDI, equity, and debt) affect the volume and composition of associated capital flows. They find that controls are generally ineffective at curbing inflows, but more effective at limiting outflows, and that tighter outflow restrictions on equity tend to tilt the composition of outflows toward debt. Magud, Reinhart, and Rogoff (2011) provide complementary evidence that capital controls can affect the composition of capital flows, drawing on a meta-analysis and synthesis of more than 30 empirical and case-study papers. Our paper contributes by employing a new, more granular indicator that distinguishes between controls on foreign equity and debt to systematically assess how capital flow restrictions shape countries’ external balance sheets.

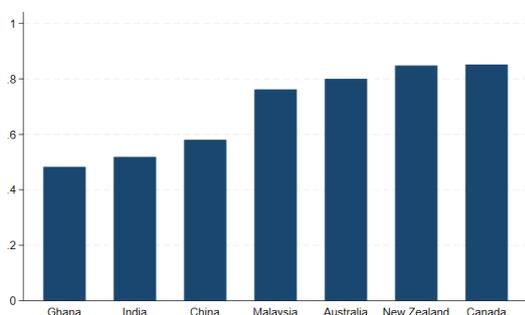
3 Data

3.1 A Novel Indicator of Capital Openness

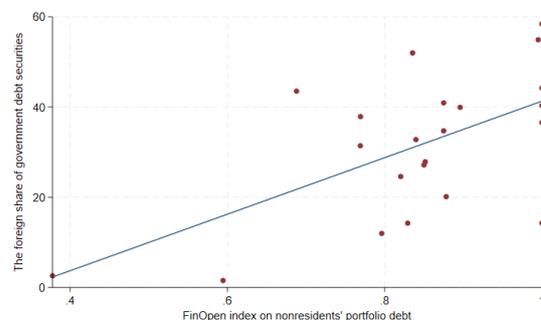
A key contribution of this paper is the use of a new, granular indicator of capital account openness – the *FinOpen* Index developed by Li (2026). This index covers 193 countries over the period 1996-2022 and takes values in the $[0,1]$ range, with higher values indicating a more liberalized capital account. It measures the intensity of capital liberalization by quantifying the degree of openness and updating it daily by incorporating changes in CFMs. Unlike traditional binary measures that simply record the presence or absence of controls, this index quantifies the intensity of capital flow openness and allows systematic

cross-country comparisons over time.³ This feature is crucial for assessing how the stance of capital account policies evolves and how it relates to external financing patterns. [Figure 2](#) illustrates two important advantages of this measure. Chart (a) presents selected countries for which the binary label is consistently 'yes' over 1995–2022, indicating that capital controls on FDI inflows were in place throughout. At first glance, it may seem puzzling that advanced economies (AEs) such as Canada appear to have a somewhat similar level of control as traditionally restrictive countries like China and India. The explanation is that in these AEs, controls mainly target the real estate sector and impose screening on sensitive sectors for national security concerns. By contrast, in India and China, reforms have gradually simplified or eliminated approval requirements for new foreign direct capital in most sectors, yet the overall intensity of control remains higher than in AEs. The *FinOpen* index captures these distinctions, moving beyond the limitations of binary measures (which would attach the same level of restrictiveness to all the countries shown). Chart (b) shows the correlation between openness to nonresidents' portfolio debt and the foreign share of government debt securities. While portfolio debt covers a broader range of instruments than government debt securities, the positive correlation highlights both the importance of measuring policy intensity and the effectiveness of the *FinOpen* index in capturing it.

Figure 2: FinOpen Index: Measuring Policy Intensity



(a) Openness on FDI inflows over 1995–2022



(b) Foreign share of government debt securities

Source: *FinOpen* index from [Li \(2026\)](#) and foreign share of government debt securities from [Arslanalp and Tsuda \(2014\)](#).

Moreover, to the best of our knowledge, the *FinOpen* index is the first measure that clearly distinguishes between controls on nonresidents' inflows and those on nonres-

³Similar to other de jure capital control indexes, the *FinOpen* Index cannot capture different degrees of de facto enforcement of restrictions across countries or over time, which may affect the estimates. However, to our knowledge, it is the first de jure index to quantify policy measures in a way that reflects different intensities of restrictions. More explanations about the methodology and comparisons with existing indices are available in [Li \(2026\)](#).

idents’ outflows.⁴ Consistent with BoP flow definitions, the *FinOpen* index also provides subindexes capturing controls on FDI, portfolio equity, portfolio debt, and other investments, which can be combined with data on external liabilities. This structure allows us to directly assess how a differentiated policy treatment of equity and debt inflows translates into differences in the structure of countries’ external liabilities. A notable recent contribution in this area is the work by [Bergant, Fernández, Teoh, and Uribe \(2026\)](#), who use large language models to extract detailed, high-frequency information on de jure restrictions from the IMF’s AREAER, providing a comprehensive daily dataset on BoP flow restrictions dating back to the Bretton Woods era. While their approach also quantifies the intensity of restrictions, their index does not map controls onto specific subcomponents of the financial account, making it less suited to our objective of linking capital flow policies to the composition of external liabilities.

Utilizing the structure of the *FinOpen* subindexes—which, for each flow category (FDI, portfolio equity, portfolio debt, and other investments), provide three components capturing controls on nonresidents’ inflows (*NRin*), nonresidents’ outflows (*NRout*), and residents’ outflows (*Rout*)—we construct two main explanatory variables: equity inflow openness and debt inflow openness. Two variables measure the degree of capital openness on nonresidents’ inflows within a range of [0, 1], where 0 indicates complete closure and 1 represents full openness.

$$\text{FinOpen}_{e, \text{NRin}} = \frac{\text{FinOpen}_{\text{FDI, NRin}} + \text{FinOpen}_{\text{PortEquity, NRin}}}{2} \quad (1)$$

$$\text{FinOpen}_{d, \text{NRin}} = \frac{\text{FinOpen}_{\text{PortDebt, NRin}} + \text{FinOpen}_{\text{Loans, NRin}}}{2} \quad (2)$$

The openness level to nonresidents’ outflows can also influence foreign capital movements and the composition of external liabilities. In addition to constructing the indices for nonresidents’ equity inflows and debt inflows, we similarly develop measures for nonresidents’ outflows. To capture the overall openness to foreign flows, we compute composite indices FinOpen_{e_NR} and FinOpen_{d_NR} defined as the average of the inflow and outflow subindexes.

⁴Existing indexes, such as [Fernández et al. \(2016\)](#), have attempted to differentiate inflows from outflows, but these efforts are based on residency. Under the BoP framework, inflows technically refer to nonresidents’ net flows (the difference between foreign gross inflows and gross outflows), while outflows refer to residents’ net flows.

3.2 Other Variables

The data on our dependent variable – external liabilities and their subcomponents – is drawn from the latest update of the “External Wealth of Nations” (EWN) database by [Lane and Milesi-Ferretti \(2018\)](#), which covers 212 economies for the period 1970-2023. External liabilities comprise foreign direct investment (FDI), portfolio equity, debt (consisting of portfolio debt, loans, currency, and deposits), and financial derivatives. In what follows, we define “total equity” as the sum of FDI and portfolio equity relative to total international liabilities.⁵⁶ An important limitation of the EWN dataset is that it does not distinguish between public and private liabilities. As a result, sovereign debt or foreign holdings of state-owned enterprises are aggregated with private-sector positions. While this distinction is conceptually relevant, especially for interpreting the channels through which capital flow management measures operate, sufficiently granular and internationally comparable data separating public and private external liabilities are not available for the broad cross-country and long-horizon panel studied here. Accordingly, our results should be interpreted as capturing the composition of countries’ aggregate external liability structures, rather than isolating purely private or sovereign balance sheets.

Building on [Faria and Mauro \(2004\)](#), [Faria and Mauro \(2009\)](#), and [Harms, Hoffmann, Kohl, and Krahnke \(2024\)](#), we consider a set of explanatory variables that have been identified as key determinants of a country’s external capital structure. These include the size of the economy (total GDP in trillions of USD, constant 2010 prices); the level of development (GDP per capita in thousands of USD, constant 2010 prices); trade openness (the sum of imports and exports relative to GDP); the importance of natural resources (exports of fuels, metals, and ores as a share of GDP); human capital (as measured by [Barro and Lee \(2013\)](#)); and financial development (based on the composite index from [Svirydzenka \(2016\)](#))⁷. We also include a proxy for institutional quality, calculated as the simple average of six governance indicators from [Kaufmann, Kraay, and Mastruzzi \(2010\)](#). Our contribution lies in augmenting this specification with several new measures of capital flow openness. Descriptive statistics for all variables are provided in [Table 1](#).

⁵For the reasons behind possible country-specific differences between official IIP statistics and the EWN data (e.g. India), see [Lane and Milesi-Ferretti \(2018\)](#).

⁶Our focus on equity shares reflects an interest in the composition of external liabilities rather than their overall scale, consistent with the view that the mix of equity versus debt is a key determinant of external vulnerability. While changes in shares may mechanically reflect movements in one component, inspection of the underlying data indicates that shifts in equity shares are typically accompanied by adjustments in both equity and debt positions, suggesting compositional rebalancing rather than a pure denominator effect.

⁷[Svirydzenka \(2016\)](#) construct nine subindices that capture the depth, access, and efficiency of financial institutions and markets, which are then aggregated into a composite index of overall financial development. The measure thus reflects the depth of countries’ equity markets – a factor shown to play a key role in attracting foreign capital to domestic equity markets ([Han, Oh, and Lee \(2026\)](#)).

Our baseline sample comprises 118 countries – 25 advanced and 93 emerging or developing economies, as listed in [Section A.1](#) – for which all key explanatory variables are available for at least one year between 1995 and 2022.⁸ Consistent with the literature, we exclude 28 offshore financial centers from the sample.⁹ This exclusion is motivated by the fact that much of the FDI surge since the mid-1990s has not reflected genuine risk-sharing or greenfield investment, but rather tax-driven flows to offshore centers ([Lane and Milesi-Ferretti \(2018\)](#)). More recently, [Damgaard, Elkjaer, and Johannesen \(2024\)](#) distinguish between real and so-called Phantom FDI, arguing that most economies have a structural limit to the volume of real FDI they can absorb. As a result, in countries where the FDI-to-GDP ratio is abnormally high, a large share of FDI is likely to be Phantom. Our final sample is unlikely to include major hosts of Phantom FDI: none of the countries commonly identified in the literature as typical destinations ([Casella \(2019\)](#)) are included, and the FDI-to-GDP ratios in our sample remain within a reasonable range.

⁸Following [Faria and Mauro \(2009\)](#) and [Harms et al. \(2024\)](#), we conduct our analysis on two samples: one including countries at all levels of economic development, and a subsample consisting solely of developing and emerging economies.

⁹In addition to excluding financial centers, the smaller size of our sample compared to that of [Lane and Milesi-Ferretti \(2018\)](#) primarily reflects more limited data availability, especially for human capital and, to a lesser extent, financial development.

Table 1: Descriptive statistics: averages 1995-2022.

Variable	Minimum	Maximum	Mean	Median	Standard deviation
<i>Whole sample</i>					
Total equity	0.09	0.84	0.40	0.39	0.14
Institutional quality index	-1.56	1.81	-0.05	-0.26	0.83
GDP (constant US\$ trillions)	0.00	16.44	0.49	0.05	1.75
GDP p.c. (constant US\$ thousands)	0.29	72.18	11.70	4.89	15.70
Financial development index	0.05	0.89	0.31	0.23	0.22
Natural resources	0.00	0.98	0.26	0.14	0.27
Trade openness	0.23	2.02	0.76	0.70	0.34
Human capital	0.23	7.00	2.84	2.69	1.66
Equity inflow openness (non-residents)	0.34	1.00	0.84	0.88	0.14
Debt inflow openness (non-residents)	0.28	1.00	0.81	0.85	0.18
Equity openness wedge	-0.30	0.37	0.03	0.00	0.12
<i>Non-high income countries</i>					
Total equity	0.09	0.84	0.40	0.39	0.15
Institutional quality index	-1.56	1.02	-0.38	-0.40	0.54
GDP (constant US\$ trillions)	0.00	8.02	0.23	0.04	0.87
GDP p.c. (constant US\$ thousands)	0.29	61.05	5.89	3.01	9.33
Financial development index	0.05	0.62	0.23	0.18	0.14
Natural resources	0.00	0.98	0.30	0.17	0.29
Trade openness	0.23	2.02	0.75	0.70	0.34
Human capital	0.23	6.96	2.34	2.16	1.45
Equity inflow openness (non-residents)	0.34	1.00	0.81	0.83	0.14
Debt inflow openness (non-residents)	0.28	1.00	0.77	0.79	0.18
Equity openness wedge	-0.30	0.37	0.05	0.03	0.12

Notes: The whole sample consists of 118 observations and the non-high income countries sample consists of 93 observations. Variables are time-series means for the available years during the period 1995-2022. [Section A.1](#) provides details on sources and variable definitions.

4 Empirical Analysis

The theoretical model developed by [Ma and Wei \(2020\)](#) which aims at understanding the cross-country variations in the composition of capital flows (and hence the stock of foreign liabilities) provides an excellent framework that guides our empirical analysis. While their model puts the main focus on countries' institutional quality, the authors also investigate the optimal structure of capital controls. In particular, they show that poor domestic institutional quality hampers a country's ability to issue equity-like securities, increasing financial vulnerability, and in such cases, capital controls may serve as a second-best policy tool to mitigate these inefficiencies and externalities. While [Ma and Wei \(2020\)](#) derive a number of testable propositions, empirical validation has so far been limited by the lack of appropriate data on capital controls. In what follows, we highlight the hypotheses most relevant to our research questions, outline our empirical identification strategy, and present the corresponding results.

Proposition 1. By restricting certain types of capital inflows, a country can reduce external leverage and raise the equity share in its stock of foreign liabilities.

Proposition 2. This outcome is best achieved through a differentiated capital control regime that imposes tighter restrictions on debt than on equity inflows. Accordingly, the increase in the equity share should be particularly pronounced when such an asymmetry in restrictions exists.

Proposition 3. Since stronger institutional quality enhances a country's appeal to foreign equity investors, the impact of asymmetric capital controls (favoring equity over debt) should be more pronounced in countries with higher institutional quality.

To test these hypotheses, our empirical strategy begins by following the established approach in the literature of regressing time-series averages of the dependent variable on the corresponding averages of explanatory variables. This baseline regression is equivalent to a between-estimator, which aligns well to our focus on the composition of liability stocks and the fundamental, slow-moving determinants of cross-country differences (see also [Faria and Mauro \(2009\)](#)). These cross-sectional estimates should be interpreted as conditional long-run associations rather than short-run causal effects. In the second step, we exploit within-country variation over time using a local projection approach. This dynamic specification captures higher-frequency (short-run) effects that may be obscured in the between-estimator approach. In both cases, our choice of control variables largely

follows previous studies such as [Faria and Mauro \(2004\)](#), [Faria and Mauro \(2009\)](#), and [Harms et al. \(2024\)](#), which examine a broad set of potential determinants of external capital structure. While our main focus is on the total equity share of countries’ external liabilities, we also analyze disaggregated components, such as the shares of FDI and portfolio equity relative to total external liabilities. This empirical approach reflects the nature of our outcomes and policies: the composition of external liabilities evolves slowly, and many capital flow restrictions only change infrequently. As a result, within-country identification is limited, and some policy effects (notably those tied to asymmetric regimes) are identified primarily from cross-sectional differences. To mitigate this constraint and probe adjustment channels at higher frequency, we complement the macro evidence with a large cross-country panel of firm-level data. We document that firms tend to respond to asymmetric liberalization that favors equity inflows by issuing relatively more equity, thereby corroborating the aggregate results and clarifying the short-run mechanisms.

4.1 Results

4.1.1 Cross-Sectional Estimates

As shown in [Table 2](#), lower restrictions on equity-based capital flows (and higher restrictions on debt-based flows) are associated with a higher equity share in foreign liabilities (column 1), even after controlling for a variety of other determinants of the external capital structure. The estimated relationship is primarily driven by capital flow measures targeting inflows by non-residents (column 2). As [Ma and Wei \(2020\)](#) highlight, countries that impose controls on debt flows often also restrict equity flows, resulting in multicollinearity when both variables are included in the regression. Combined with the limited number of observations, this multicollinearity reduces the likelihood of obtaining precise estimates for both coefficients. This helps explain why only one coefficient is statistically significant, even though both exhibit the expected sign. Next, we compute the difference between the openness of equity and debt inflow controls, which we refer to as the *equity openness wedge*. This measure allows us to test whether an asymmetric treatment of equity versus debt inflows – favoring equity – can increase the equity share in foreign liabilities. As shown in column (3), the results support this hypothesis: the more favorable the treatment of equity inflows relative to debt inflows, the higher the equity share. The theoretical model developed by [Ma and Wei \(2020\)](#) posits that the optimal “tax” – their way of modeling capital controls on inflows – should be strictly higher for debt than for equity which leads to a lower external leverage. To empirically test this prediction, we introduce a dummy variable that equals one if equity inflow controls are less restrictive than those on debt (i.e. if the equity openness wedge is positive). As shown

in column (4), countries with relatively higher restrictions on debt than equity tend to have, on average, a 7-percentage-point higher equity share in their foreign liabilities. Finally, we test the model’s prediction that the positive effect of a capital account regime favoring equity inflows is stronger in countries with higher institutional quality, which are more attractive to foreign equity investors. As shown in column (5), the interaction term between the equity openness wedge and institutional quality is both positive and highly significant, consistent with the model and the broader literature emphasizing the role of governance in attracting stable foreign investment.

In [Table 3](#), we restrict the sample to non-high-income countries (i.e. developing and low-income economies). The point estimates of the key coefficients remain remarkably stable, suggesting that the main relationships are mainly driven by non-high-income countries. However, the smaller sample size reduces statistical precision, rendering most coefficients marginally insignificant. When we exclude the human capital variable – which is both statistically insignificant and the most data-constrained – we recover the baseline result (see [Table 4](#)). This indicates that the effect is primarily driven by non-high-income countries, in line with the theoretical predictions.

Finally, we corroborate these findings using a more disaggregated measure of capital inflow openness, and by distinguishing between different components of external finance – namely FDI, portfolio equity and debt, and loans. Given our focus on long-run averages, and thus structural relationships, one would expect that FDI liberalization is the main driver of the previously observed increase in the equity share of foreign liabilities. This expectation aligns with the strategies of many countries that deliberately opened their capital accounts primarily to more stable forms of external finance, particularly FDI (e.g. India, as illustrated in [Figure 1](#)). As shown in [Table 5](#), the positive effect on the equity share appears to be driven primarily by fewer restrictions on FDI inflows and greater restrictions on foreign loans (column (1)). Consistent with this interpretation, columns (2) and (3) estimate the effects of capital flow restrictions on the FDI and portfolio equity shares in total foreign liabilities, respectively. The results indicate that lower restrictions on FDI inflows are associated with a higher FDI share, further supporting the idea that more liberal FDI regimes foster a more stable composition of external liabilities. A possible concern potentially affecting some of our findings is that asymmetric capital account restrictions may incentivize the relabeling of financial flows – for instance, when debt inflows are classified as FDI to avoid constraints (see, for instance, [De Gregorio, Edwards, and Valdés \(2000\)](#)). However, since our analysis relies on long-run averages of external liability *stocks* rather than contemporaneous flow data, this issue is less problematic. Stock measures are periodically revised and reclassified in BoP statistics as new information becomes available, which mitigates the risk of persistent misclassification.

Table 2: Baseline results between-estimator (*whole sample*)

	(1)	(2)	(3)	(4)	(5)
	<i>Equity Liability Share</i>				
FinOpen(e,NR)	0.326* (0.168)				
FinOpen(d,NR)	-0.463** (0.217)				
FinOpen(e,NRin)		0.170 (0.142)			
FinOpen(d,NRin)		-0.223* (0.116)			
Equity openness wedge			0.214* (0.111)		0.009 (0.138)
$\mathcal{I}(\text{Equity openness wedge} > 0)$				0.075*** (0.027)	
Inst.Quality x Equity openness wedge					0.445** (0.195)
Institutional Quality	0.103*** (0.028)	0.102*** (0.029)	0.096*** (0.027)	0.103*** (0.027)	0.081*** (0.027)
GDP (constant 2010 USD)	0.014** (0.006)	0.013** (0.006)	0.013** (0.007)	0.013** (0.006)	0.013* (0.007)
GDP per capita	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.006*** (0.001)
Financial Development	0.284*** (0.091)	0.297*** (0.094)	0.310*** (0.090)	0.280*** (0.092)	0.311*** (0.088)
Natural Resources	0.203*** (0.061)	0.202*** (0.063)	0.205*** (0.061)	0.199*** (0.060)	0.207*** (0.060)
Trade openness	0.131*** (0.035)	0.131*** (0.035)	0.133*** (0.036)	0.119*** (0.034)	0.142*** (0.036)
Human Capital (Barro-Lee)	-0.010 (0.009)	-0.010 (0.009)	-0.010 (0.009)	-0.009 (0.009)	-0.011 (0.009)
Constant	0.386*** (0.126)	0.300*** (0.113)	0.250*** (0.041)	0.241*** (0.041)	0.243*** (0.041)
Observations	118	118	118	118	118
R-squared	0.354	0.349	0.348	0.363	0.374

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Baseline results between-estimator (*non-high income sample*)

	(1)	(2)	(3)	(4)	(5)
	<i>Equity Liability Share</i>				
FinOpen(e,NR)	0.278 (0.182)				
FinOpen(d,NR)	-0.351 (0.231)				
FinOpen(e,NRin)		0.204 (0.146)			
FinOpen(d,NRin)		-0.181 (0.122)			
Equity openness wedge			0.185 (0.119)		0.033 (0.147)
$\mathcal{I}(\text{Equity openness wedge} > 0)$				0.049* (0.028)	
Inst.Quality x Equity openness wedge					0.347* (0.208)
Institutional Quality	0.128*** (0.031)	0.122*** (0.032)	0.125*** (0.031)	0.128*** (0.031)	0.110*** (0.031)
GDP (constant 2010 USD)	0.037*** (0.009)	0.037*** (0.009)	0.036*** (0.008)	0.034*** (0.008)	0.036*** (0.007)
GDP per capita	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.005** (0.002)
Financial Development	0.314*** (0.114)	0.350*** (0.116)	0.344*** (0.113)	0.318*** (0.114)	0.340*** (0.113)
Natural Resources	0.184*** (0.055)	0.181*** (0.056)	0.180*** (0.054)	0.184*** (0.053)	0.183*** (0.053)
Trade openness	0.111*** (0.040)	0.110*** (0.040)	0.110*** (0.040)	0.102*** (0.037)	0.117*** (0.041)
Human Capital (Barro-Lee)	-0.007 (0.009)	-0.006 (0.009)	-0.006 (0.009)	-0.007 (0.009)	-0.007 (0.009)
Constant	0.347** (0.133)	0.246** (0.113)	0.268*** (0.045)	0.267*** (0.046)	0.261*** (0.045)
Observations	93	93	93	93	93
R-squared	0.472	0.472	0.472	0.469	0.489

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Baseline results between-estimator (*non-high income sample*) - expanding sample size

	(1)	(2)	(3)	(4)	(5)
	<i>Equity Liability Share</i>				
FinOpen(e,NR)	0.412*				
	(0.225)				
FinOpen(d,NR)	-0.513**				
	(0.228)				
FinOpen(e,NRin)		0.267*			
		(0.150)			
FinOpen(d,NRin)		-0.277**			
		(0.112)			
Equity openness wedge			0.274**		0.035
			(0.114)		(0.131)
$\mathcal{I}(\text{Equity openness wedge} > 0)$				0.052*	
				(0.028)	
Inst.Quality x Equity openness wedge					0.548**
					(0.217)
Institutional Quality	0.097***	0.093***	0.092***	0.093***	0.081***
	(0.032)	(0.033)	(0.032)	(0.034)	(0.030)
GDP (constant 2010 USD)	0.033***	0.031***	0.031***	0.030***	0.031***
	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)
GDP per capita	-0.004*	-0.004*	-0.004*	-0.005*	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Financial Development	0.332***	0.377***	0.376***	0.348***	0.351***
	(0.105)	(0.106)	(0.108)	(0.111)	(0.106)
Natural Resources	0.181***	0.177***	0.177***	0.172***	0.179***
	(0.052)	(0.054)	(0.054)	(0.055)	(0.051)
Trade openness	0.089**	0.089**	0.089**	0.083**	0.090**
	(0.037)	(0.037)	(0.037)	(0.034)	(0.040)
Constant	0.345***	0.245**	0.237***	0.237***	0.241***
	(0.112)	(0.109)	(0.046)	(0.047)	(0.044)
Observations	121	121	121	121	121
R-squared	0.378	0.382	0.382	0.360	0.421

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Baseline results between-estimator (*whole sample*) - sub-indices

	(1) <i>Equity Liability Share</i>	(2) <i>FDI Liability Share</i>	(3) <i>Portfolio Equity Liability Share</i>
FinOpen(FDI,NRin)	0.209* (0.107)	0.226** (0.108)	-0.017 (0.024)
FinOpen(Portequity,NRin)	-0.026 (0.157)	-0.036 (0.157)	0.010 (0.040)
FinOpen(Portdebt,NRin)	-0.071 (0.134)	-0.086 (0.136)	0.015 (0.036)
FinOpen(loans,NRin)	-0.152** (0.069)	-0.134* (0.071)	-0.018 (0.017)
Institutional Quality	0.090*** (0.033)	0.097*** (0.032)	-0.007 (0.008)
GDP (constant 2010 USD)	0.010* (0.006)	0.009* (0.005)	0.001 (0.002)
GDP per capita	-0.006*** (0.001)	-0.005*** (0.001)	-0.001* (0.001)
Financial Development	0.296*** (0.091)	-0.030 (0.090)	0.326*** (0.048)
Natural Resources	0.206*** (0.056)	0.213*** (0.056)	-0.007 (0.014)
Trade openness	0.115*** (0.040)	0.133*** (0.044)	-0.019** (0.008)
Constant	0.266** (0.114)	0.279** (0.115)	-0.014 (0.016)
Observations	146	146	146
R-squared	0.302	0.292	0.626

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.1.2 Estimating Dynamic Effects

Our focus on the composition of a slow-moving stock variable – namely, a country’s external liability structure – poses challenges for exploiting time variation to identify the effects of policy interventions at higher frequencies. This difficulty is amplified by the fact that capital account restrictions tend to be highly persistent and adjust only infrequently. One example is the aforementioned equity openness wedge. As illustrated in [Figure A1](#), there is considerable cross-country heterogeneity. While the median country does not exhibit an asymmetric stance between equity and debt inflows, roughly two-thirds of the sample maintain a more restrictive policy toward one or the other, with a slight tilt toward favoring equity. However, as shown in [Figure A2](#), these policy stances remain remarkably stable over time. Large or frequent shifts in the equity openness wedge are rare, limiting the scope for identification based solely on within-country variation.

To address these limitations, we re-estimate our baseline specification using the full panel dimension of the data and apply a local projection (LP) approach following [Jordà \(2005\)](#). We estimate impulse responses of countries’ equity share in total foreign liabilities to changes in capital flow management measures. This method allows us to trace the dynamic adjustment of external liability structures to policy shocks in a flexible manner, without imposing a specific dynamic structure as in VAR models. The LP framework is particularly well suited for heterogeneous cross-country panels, as it does not require a common autoregressive lag structure and accommodates differences in financial development, openness, and exposure to global shocks.

For each forecast horizon $h = 0, 1, \dots, H$, we begin by estimating the following regression:

$$\Delta^{(h)}\text{EquityLiabShare}_{i,t+h} = \alpha_i + \gamma_t + \beta^{(h)} \Delta\text{EquityOpenWedge}_{i,t} + \boldsymbol{\theta}^{(h)}\mathbf{Z}_{i,t} + \varepsilon_{i,t}^{(h)}, \quad (3a)$$

$$\Delta\text{EquityOpenWedge}_{i,t} := \Delta\text{FinOpen}(e,\text{NRin})_{i,t} - \Delta\text{FinOpen}(d,\text{NRin})_{i,t}, \quad (3b)$$

where $\Delta^{(h)}\text{EquityLiabShare}_{i,t+h} = \text{EquityLiabShare}_{i,t+h} - \text{EquityLiabShare}_{i,t}$ is the cumulative change in the equity-to-liability share of country i between t and $t+h$. The terms $\Delta\text{FinOpen}(e,\text{NRin})_{i,t}$ and $\Delta\text{FinOpen}(d,\text{NRin})_{i,t}$ denote changes in capital flow management measures on equity and debt inflows, respectively. $\mathbf{Z}_{i,t}$ includes lagged dependent variables, lagged capital flow changes, and the same set of control variables used for our cross-sectional estimates in [Section 4.1.1](#).¹⁰ We include country fixed effects α_i and year-fixed effects γ_t to absorb unobserved heterogeneity and common shocks. Standard errors

¹⁰Hence, we control for institutional quality, GDP (in constant 2010 USD), GDP per capita, financial development, the importance of natural resources, and trade openness.

are clustered at the country level. The sequence of coefficients $\{\beta^{(h)}\}_{h=0}^H$ traces out the dynamic response of countries' external liability structures to shifts in their relative openness to equity versus debt inflows. A positive (negative) $\beta^{(h)}$ indicates that a relative liberalization of equity inflows is associated with a higher (lower) share of equity in total foreign liabilities over time. The specification controls for two lags of the dependent variable, the policy variables, and the full set of cross-sectional controls consistent with Table 4.

We then decompose the $\Delta\text{EquityOpenWedge}_{i,t}$ into its underlying components (and later subcomponents) to examine potential asymmetries and transmission channels. Specifically, we re-estimate the following specification:

$$\begin{aligned} \Delta^{(h)}\text{EquityLiabShare}_{i,t+h} = & \alpha_i + \gamma_t + \beta_1^{(h)}\Delta\text{FinOpen}(e,\text{NRin})_{i,t} + \beta_2^{(h)}\Delta\text{FinOpen}(d,\text{NRin})_{i,t} \\ & + \theta^{(h)}\mathbf{Z}_{i,t} + \varepsilon_{i,t}^{(h)}. \end{aligned} \tag{4}$$

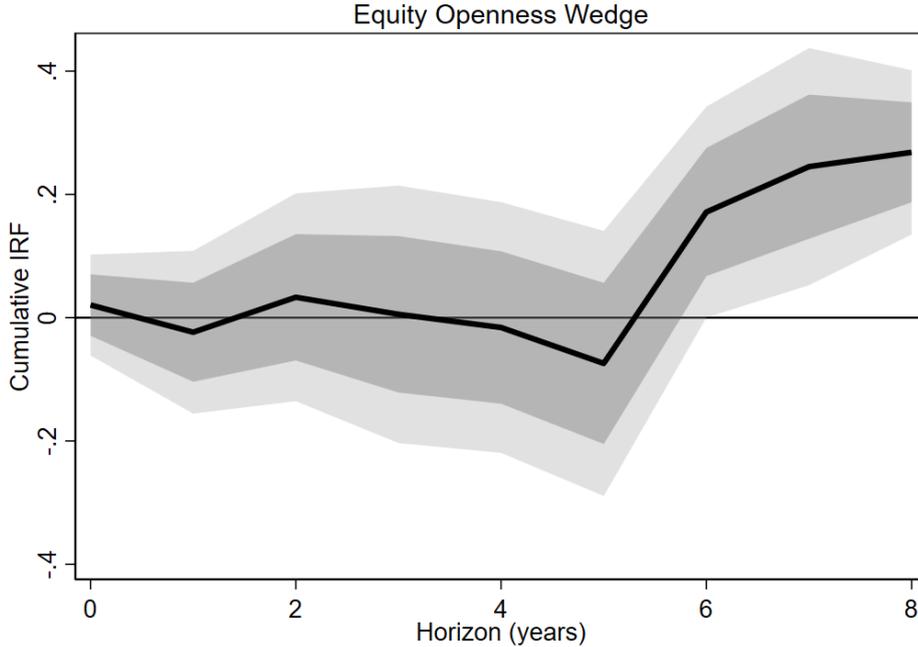
The coefficients $\{\beta_1^{(h)}, \beta_2^{(h)}\}_{h=0}^H$ identify the dynamic responses to changes in equity and debt inflow openness separately. A positive $\beta_1^{(h)}$ indicates that greater openness to non-resident equity inflows raises the equity share of foreign liabilities after h years, while a negative $\beta_2^{(h)}$ implies that tighter debt inflow restrictions are associated with a compositional shift toward equity.

Figure 3 presents the cumulative impulse response of countries' equity share in total foreign liabilities to changes in the *equity openness wedge*. The response captures how a relative liberalization of equity inflows – compared to debt inflows – affects the composition of external liabilities over subsequent years. The estimated impulse response shows that the short-run effect of changes in the wedge is modest, but the impact builds gradually over time. After an initial period of adjustment, a sustained easing of equity inflow restrictions relative to debt inflows is associated with a significant increase in the share of equity in total foreign liabilities. This cumulative effect peaks after roughly six to eight years, consistent with the slow-moving nature of countries' external balance sheets.¹¹

To understand which component of the wedge drives this adjustment, Figure 4 decomposes the response into the separate effects of changes in equity and debt inflow openness (Equation 4). Panel (a) plots the response to changes in restrictions on equity inflows, while panel (b) shows the response to changes in debt inflow restrictions. The results in-

¹¹After controlling for macroprudential policies and foreign exchange interventions, along with two lags of each policy variable, the estimated effects of the *equity openness wedge* remain robust, indicating that our main findings are not explained by concurrent changes in other macro-financial policy tools (Figure A3).

Figure 3: Cumulative IRF of Equity Share to Capital Openness



Note: Shaded areas denote 68 percent (dark) and 90 percent (light) confidence intervals, based on country-clustered standard errors.

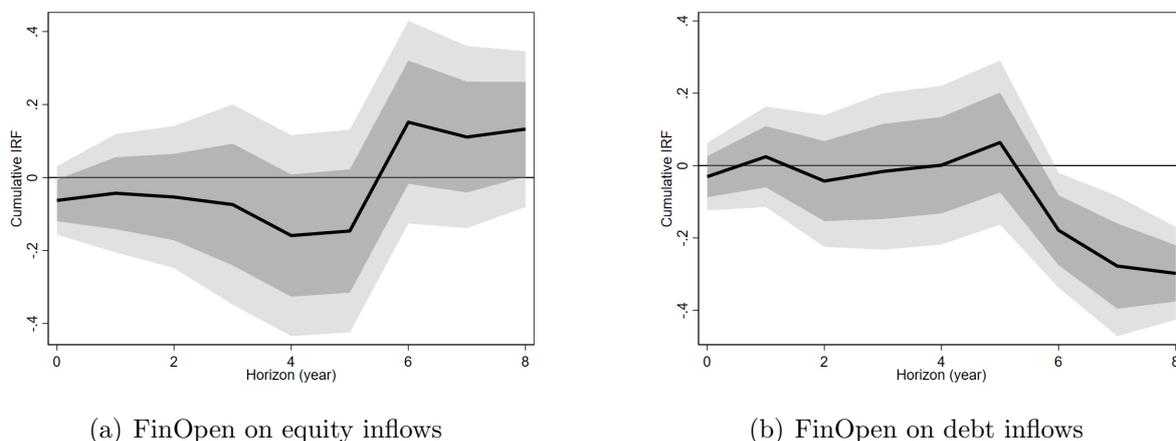
indicate that the positive response to the overall wedge appears primarily driven by tighter restrictions on debt inflows. In contrast, loosening equity inflow restrictions shows a weaker and less precisely estimated effect. This pattern suggests that, in the short to medium run, compositional adjustments toward equity are mainly the result of policies that selectively constrain debt-based capital rather than broad liberalizations of equity inflows. This finding is consistent with recent firm-level evidence showing that capital inflow controls targeting debt instruments can trigger compositional shifts in financing toward equity. In particular, [Fabiani, Fernández, and Gupta \(2025\)](#) document that tightening restrictions on nonresident purchases of domestic corporate bonds significantly reduces subsequent bond issuance, especially among riskier firms, while more productive firms maintain investment by substituting toward alternative sources of funding. Their results suggest a prudential channel through which debt inflow controls curb leverage, alongside a substitution channel favoring equity financing. These mechanisms align closely with the aggregate patterns observed in our estimates.

The timing and persistence of these effects highlight two features of external balance sheet adjustment. First, the gradual rise in the equity share underscores the stock nature of cross-border positions, i.e. policy-induced changes in the composition of liabilities materialize only slowly over time. Second, the divergence between equity and debt responses

supports the interpretation of the equity openness wedge as a meaningful policy stance. It captures systematic differences in how countries regulate the composition of external financing rather than symmetric capital flow restrictions.

These dynamic results also resonate with our cross-sectional findings, which pointed to FDI and equity inflow restrictions as the main policy levers associated with higher equity shares. This distinction aligns with the idea that FDI decisions reflect long-term strategic commitments and may require more time for their effects to materialize, whereas portfolio flows are more sensitive to short-term policy changes and are thus better captured by a dynamic panel framework. The LP results therefore complement the cross-sectional evidence, revealing how differences in the timing and persistence of adjustment across flow types can potentially shape the evolution of countries' external liability structures over time.¹²

Figure 4: Cumulative IRF of Equity Share to Capital Openness



Note: Shaded areas denote 68 percent (dark) and 90 percent (light) confidence intervals, based on country-clustered standard errors.

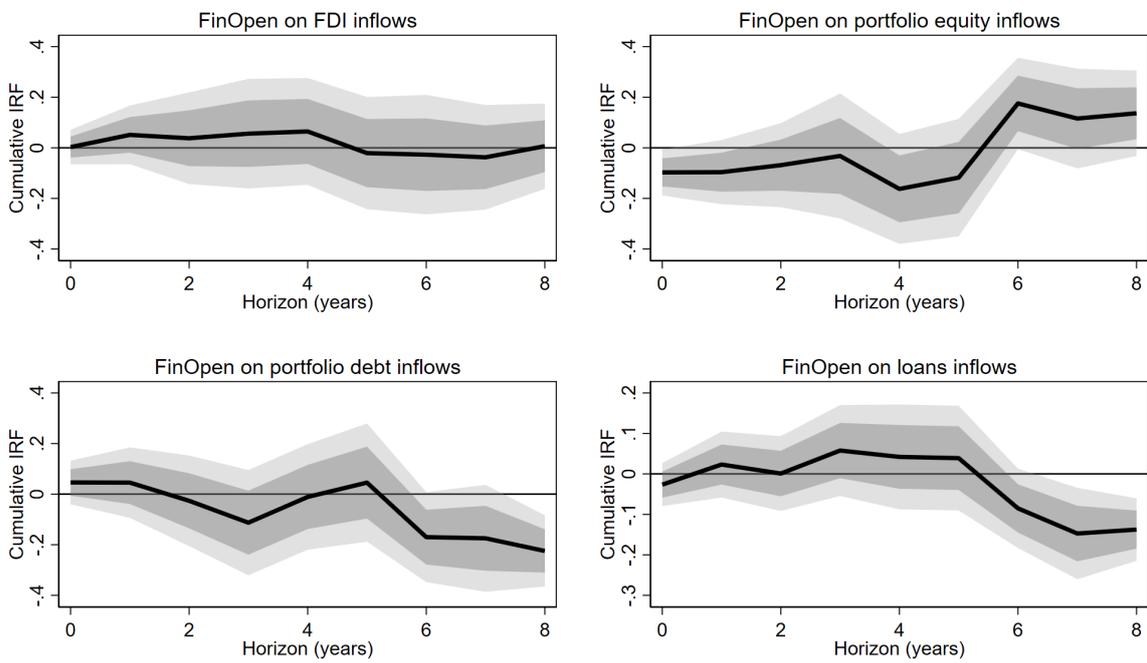
In a next step, we explore these underlying mechanisms further by decomposing the policy measures into their constituent subcomponents – FDI, portfolio equity, portfolio debt, and loan inflows – to identify which types of inflows are most responsive to capital flow management measures. [Figure 5](#) plots the cumulative impulse responses of the equity share in total foreign liabilities to changes in capital inflow restrictions by type of inflow. The four panels show, clockwise from the upper left, the responses to restrictions on (i) FDI inflows, (ii) portfolio equity inflows, (iii) portfolio debt inflows, and (iv) other investment inflows (mainly bank loans).

¹²Using an alternative measure of the foreign equity share constructed from BoP flows to abstract from valuation effects yields almost identical dynamic responses; see [Section 4.3](#) for details on the construction and discussion.

The results confirm and refine the aggregate patterns discussed above. A tightening of restrictions on debt-type inflows (both portfolio debt and other investment) tends to raise the share of equity in countries' external liabilities, consistent with the earlier finding that the positive response to the overall equity openness wedge is driven largely by constraints on debt-based capital. These effects appear gradual but persistent, suggesting that policies curbing debt inflows contribute to a compositional shift in the stock of external liabilities toward equity over time. In contrast, changes in equity-type inflow restrictions (FDI and portfolio equity) exhibit smaller and more delayed responses. The muted short-run impact of FDI inflow restrictions likely reflects the long-term and strategic nature of FDI commitments, which adjust more slowly to changes in capital flow management policies. As such, it takes some time for loosened FDI restrictions to meaningfully translate into changes in stock compositions. This interpretation aligns with our cross-sectional evidence showing that countries with more liberal FDI and equity inflow regimes tend to have higher steady-state equity shares. Portfolio equity inflows, while more volatile, display a medium-term response that is directionally consistent with the aggregate wedge estimates but not statistically significant at conventional levels.

Taken together, the results reinforce the interpretation that capital flow management measures influence the composition of external financing. Restrictions on debt inflows reduce leverage and the prevalence of debt-based external financing, while equity-related liberalizations influence the composition of external liabilities over a longer horizon. The relative magnitudes and timing of these effects underscore the slow-moving nature of countries' external balance sheets and the asymmetric responsiveness of different capital inflow categories to policy changes.

Figure 5: Cumulative IRF of Equity Share to Capital Openness



Note: Shaded areas denote 68 percent (dark) and 90 percent (light) confidence intervals, based on country-clustered standard errors.

4.1.3 Firm-Level Evidence and Possible Channels

To shed light on the mechanisms underlying these more slow-moving stock adjustments, we turn to micro data and ask whether asymmetric liberalization of capital inflows affects the financing decisions that ultimately cumulate into changes in countries' external balance sheets. By examining how firm-level financing patterns respond to shifts in capital flow restrictions, we assess whether a more favorable stance toward equity inflows translates into corporate balance-sheet adjustments consistent with higher foreign equity participation. The empirical analysis draws on the cross-country firm-level dataset compiled and cleaned by [Díez, Fan, and Villegas-Sánchez \(2021\)](#), based on the *Orbis Historical Financial Database* (August 2022 release). The data provide harmonized balance-sheet and income-statement information for firms, along with variables such as incorporation date, legal status, and industry classification. Starting from this database, we construct a large unbalanced panel covering approximately 12 million firm-year observations across 30 emerging economies, spanning the period from the mid-1980s to 2022.¹³ This rich micro-level variation allows us to exploit the limited time-series variation in capital account restrictions at the country-level while controlling for firm fixed effects, thereby linking macro-level reforms to firm-level financial behavior.

Since the Orbis balance sheet data does not allow to distinguish between firms' domestic and foreign liabilities,¹⁴ we follow [McLean and Zhao \(2014\)](#) and construct a proxy for equity issuance using changes in book equity net of retained earnings:

$$\text{EquityIssuanceRatio}_{it} = \frac{\Delta \text{Shareholders'Funds}_{it} - \text{ProfitAfterTax}_{it}}{\text{Shareholders'Funds}_{i,t-1}}. \quad (5)$$

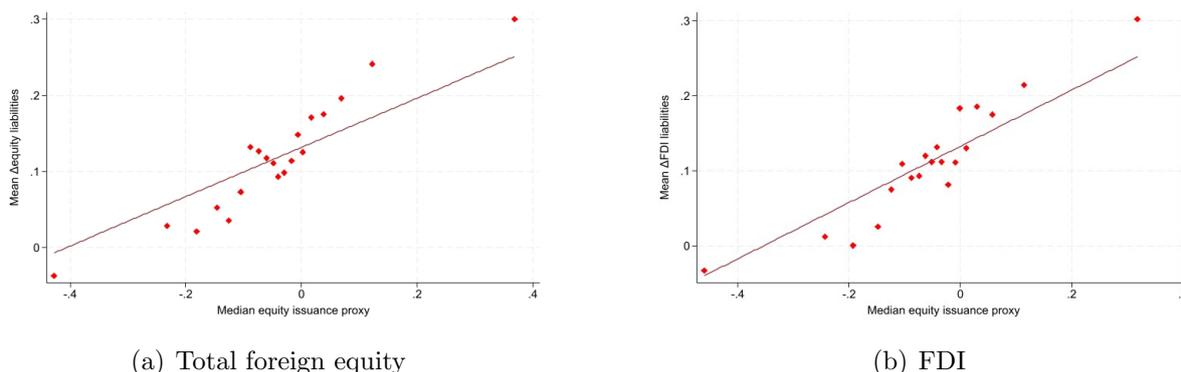
This proxy captures the extent to which firms raise new equity net of internally generated funds and could thereby potentially approximate external equity financing at the firm level. Conceptually, it distinguishes between equity growth stemming from retained earnings and that stemming from injections of new capital. To assess its macro-level relevance, we aggregate the firm-level measure to the country-year level using the median rather than the asset-weighted mean, thereby reducing the influence of extremely large

¹³See [Section A.2](#) for details on data sources, variable definitions, and the list of countries included in the sample.

¹⁴Ideally, firm-level data would distinguish between domestic and foreign balance-sheet positions. A rare example is the supervisory-level dataset used for Slovenia in [Herman and Krahnke \(2026\)](#), where firms operating abroad report separate balance sheets and income statements for their foreign subsidiaries. This granular information – part of the data underlying Slovenia's BoP statistics – allows the computation of the foreign equity share in total liabilities, closely resembling measures used in macroeconomic studies of external financing composition. However, such detailed reporting is usually not available, especially not for the broad cross-country panels required for this type of analysis.

firms on country aggregates.¹⁵ As shown in Figure 6, for most countries in our sample, this measure correlates with changes in equity liabilities (panel (a)) and FDI (panel (b)), indicating that it captures meaningful variation in net equity inflows. The firm-level proxy thus traces the flow adjustments that gradually cumulate into the stock changes documented in our macro-level panel results. This makes it a credible firm-level proxy for the financing margin most relevant for understanding how capital account reforms translate into gradual changes in countries' external liability composition.

Figure 6: Correlation of firm-level equity issuance and the change in equity liabilities



Note: Binned scatterplots of median firm-level equity issuance and the change in equity liabilities (FDI), by country-year.

An important advantage of this approach is that it can be applied consistently across listed and non-listed firms, allowing for a broad representation of corporate financing patterns in emerging economies where listed firms often account for only a small fraction of aggregate investment. While for listed companies part of the variation may reflect market equity issuance (i.e. portfolio flows), changes in equity among non-listed firms are more plausibly linked to direct investor participation, including FDI. This distinction is particularly useful in our setting as the firm-level response among non-listed entities offers a close analog to the FDI component of the BoP, while still capturing the same underlying capital-account policy variation that affects all types of firms. Although the data does not reveal whether new equity originates from domestic or foreign investors, the strong cross-country co-movement with external flows suggests that the proxy captures the relevant financing margin and can help to identify its response to changes in the availability of external equity following capital account liberalization. Moreover, because the Orbis dataset offers consistent accounting definitions, long time coverage, and broad

¹⁵Asset-weighted averages are often dominated by a few very large firms, obscuring the correlation between firm-level equity issuance and aggregate equity/ FDI inflows. The median provides a more robust summary of the typical firm response within each country-year. Note that this aggregation is *not* used in the regression analysis, which relies on the underlying firm-level data.

cross-country representation, it provides an unusually suitable basis for tracing within-firm balance-sheet adjustments to policy reforms.

We quantify the relationship between capital account reforms and firms' financing behavior by estimating within-firm regressions of the form¹⁶

$$\text{EquityIssuance}_{ict} = \mu_i + \beta \Delta\text{CFM}_{ct} + \gamma' \mathbf{X}_{ict} + \varepsilon_{ict}, \quad (6)$$

where μ_i denotes firm fixed effects and X_{ict} includes size, leverage, profitability, and age.¹⁷ Standard errors are clustered at the country level. As mentioned before, our baseline sample focuses on non-listed firms, which are more likely to rely on FDI-type equity financing.¹⁸ Reverse causality concerns are limited because individual firms are unlikely to influence country-level policy changes. Moreover, the use of firm fixed effects ensures that identification relies on within-firm changes over time, further mitigating potential endogeneity arising from time-invariant firm characteristics.

Table 6 reports the main results. Column (1) focuses on the change in the equity-inflow restriction wedge, defined as the difference between liberalization of equity inflows and debt inflows by non-residents. The coefficient is positive and statistically significant, implying that easing equity inflow restrictions relative to debt inflows increases firms' propensity to issue equity. Column (3) decomposes the wedge into its components: liberalization of debt inflows reduces equity issuance, whereas equity inflow liberalization has a positive offsetting effect. This pattern is consistent with a possible substitution mechanism, whereby tighter controls on debt inflows or greater openness to equity inflows shift firms' financing mix toward equity. The results remain robust when controlling for institutional quality (columns (2) and (4)), mitigating concerns that the observed effects might instead reflect contemporaneous structural reforms such as improvements in rule of law or investor protection. The overall pattern supports the view that capital account liberalization affects not only the overall volume of external financing but also its composition. The stronger and more precisely estimated response to debt inflow restric-

¹⁶The decision to issue equity or debt reflects a complex optimization problem shaped by asymmetric information, agency costs, and market frictions – well established in the corporate finance literature since the seminal contributions of Myers (1977) and Leland and Pyle (1977). More recent work, such as Machado and Pereira (2022), incorporates informational feedback effects from financial markets into firms' capital-structure choices, further underscoring that issuance behavior depends on both firm-specific and market-wide factors. Our results should therefore not be interpreted as implying that firms mechanically shift toward equity whenever external financing becomes "easier". Instead, the evidence we present is consistent with reforms tipping the relative cost or accessibility of equity versus debt for firms where the margin is binding, nudging their optimal capital structure toward greater use of equity.

¹⁷Results are robust to augmenting X_{ict} with additional country-level macro controls, including domestic credit growth, real GDP growth, and global financial conditions (VIX). Sector fixed effects are not feasible due to limited sector coverage in the cross-country firm-level data.

¹⁸Results are robust to including listed firms. As shown in Table A1, the coefficients remain virtually unchanged, consistent with portfolio-equity channels complementing the FDI response.

tions is not inconsistent with this interpretation. [Figure A4](#) shows that variation in the debt inflow subindex is both more frequent and larger in magnitude than in the equity inflow component, reflecting that debt-related controls were more actively used as countercyclical instruments during the sample period. Consequently, most of the identifying variation in the firm-level panel arises from episodes involving adjustments in debt inflow restrictions, while the equity component moves in the expected direction but with less statistical precision. The final columns (5) and (6) replace the *FinOpen* index with the overall openness indicators from [Fernández et al. \(2016\)](#), as well as their subindices on equity and bond inflows.¹⁹ This provides a direct comparison across alternative measures of capital account liberalization.²⁰ As shown, the estimated coefficients are insignificant even in our large micro panel, underscoring the importance of continuous, intensity-based indices that can better capture the short-run dynamics of policy reforms. Coarser indicators of capital account openness, based on binary classifications of regulatory status, provide too little time variation to detect short-run firm-level balance-sheet responses – even in a dataset with more than ten million observations. By contrast, the richer time variation of the *FinOpen* index, which quantifies the intensity of capital flow management measures across both debt and equity instruments, allows us to identify how specific dimensions of liberalization, particularly those favoring equity over debt, translate into concrete financing decisions at the micro level, reinforcing the conclusion that a balanced liberalization strategy can foster more stable and resilient forms of external finance. [Figure A5](#) illustrates this difference in time variation relative to the [Fernández et al. \(2016\)](#) index. Relatedly, [Fabiani et al. \(2025\)](#) use the specific bond-inflow restriction component of the [Fernández et al. \(2016\)](#) dataset in combination with granular quarterly firm-level bond issuance data. Their event-study design enables identification of short-term issuance responses to discrete tightening and loosening episodes in bond inflow controls,²¹ complementing our longer-horizon analysis based on a continuous, intensity-based measure of capital account openness. Consistent with our findings of a higher equity share when equity financing becomes relatively more accessible, they document that tightening bond inflow restrictions leads firms to reduce domestic bond issuance.

¹⁹The FKRSU index reflects the intensity of capital restrictions, but in this paper it is inverted to measure capital openness, ensuring consistency with the *FinOpen* index. Unlike *FinOpen*, the FKRSU index does not differentiate between nonresidents’ inflows and outflows. Specifically, FKRSU(e, NR) represents the average level of capital controls of nonresidents’ equity flows (FDI and portfolio equity), while FKRSU(d, NR) captures the average controls on nonresidents’ debt flows (bonds, money market instruments, collective investments, commercial credits, and financial credits).

²⁰The number of observations in columns (5) and (6) is smaller because the openness indicators from [Fernández et al. \(2016\)](#) are available only from 1995 onward and end before 2022. By contrast, the *FinOpen* index provides broader temporal coverage, actually extending back to 1960 for several emerging markets in our sample, which allows us to exploit longer time-series variation.

²¹The authors identify a total of 20 switches in capital controls on the purchase of locally issued bonds by nonresidents across 11 emerging economies.

Table 6: Firm-level regressions (sample period: 1983–2022)

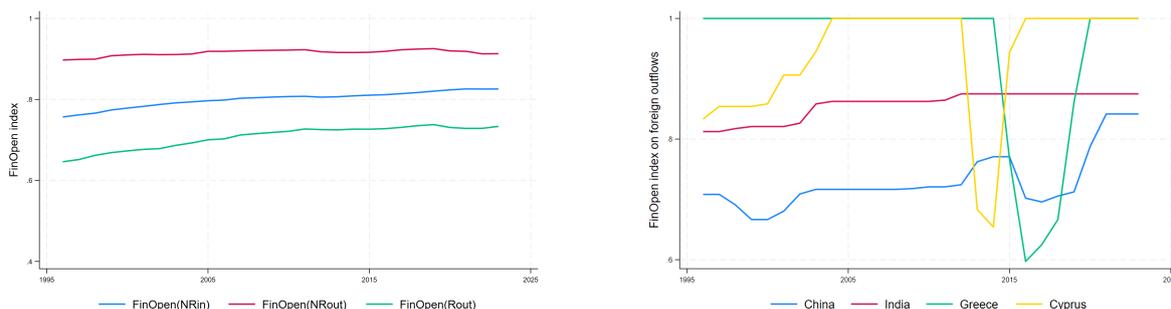
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>
Δ Equity openness wedge	0.421** (0.197)	0.426** (0.202)				
Δ FinOpen(e, NRin)			0.045 (0.273)	0.054 (0.289)		
Δ FinOpen(d, NRin)			-0.511* (0.253)	-0.519* (0.266)		
Δ FKRSU openness wedge					0.022 (0.033)	
Δ FKRSU(e, NRin)						0.075 (0.045)
Δ FKRSU(d, NRin)						0.055 (0.046)
Institutional Quality		0.123 (0.121)		0.111 (0.117)		
Size	0.063*** (0.007)	0.073*** (0.005)	0.062*** (0.008)	0.072*** (0.006)	0.072*** (0.009)	0.073*** (0.008)
Leverage	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.006** (0.003)	-0.006** (0.003)
Profitability	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.004** (0.002)	-0.004** (0.002)
Age	-0.002 (0.004)	-0.007*** (0.002)	-0.002 (0.004)	-0.006*** (0.002)	0.000 (0.006)	0.001 (0.006)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,894,738	12,712,997	12,894,738	12,712,997	9,894,837	9,894,837
Number of Countries	30	30	30	30	30	30
R-squared	0.409	0.415	0.410	0.416	0.406	0.406

Notes: Robust standard errors in parentheses (clustered at country-level). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2 The Role of Capital Outflow Measures

This section examines whether capital outflow measures influence the structure of external liabilities, complementing our baseline findings on inflow controls. Figure 7 shows that, across countries and over time, foreign outflow controls have been substantially more liberalized than foreign inflow controls, while domestic outflow controls remain the most restrictive category. Since the mid-1990s, most economies have removed restrictions on nonresident capital repatriation, leaving foreign outflows largely unrestricted. A few countries, such as China and India, maintain foreign outflow controls on a relatively permanent basis. By contrast, in most other countries, tightening of foreign outflows tends to be temporary and is typically introduced in response to crisis episodes, such as Greek and Cyprus. These patterns suggest that foreign outflow measures are rarely used as a systematic policy tool and instead serve primarily as short-term crisis-management instruments. Because such measures are infrequent and short-lived, they are unlikely to generate persistent effects on the overall composition of external liabilities.

Figure 7: Openness on foreign outflows



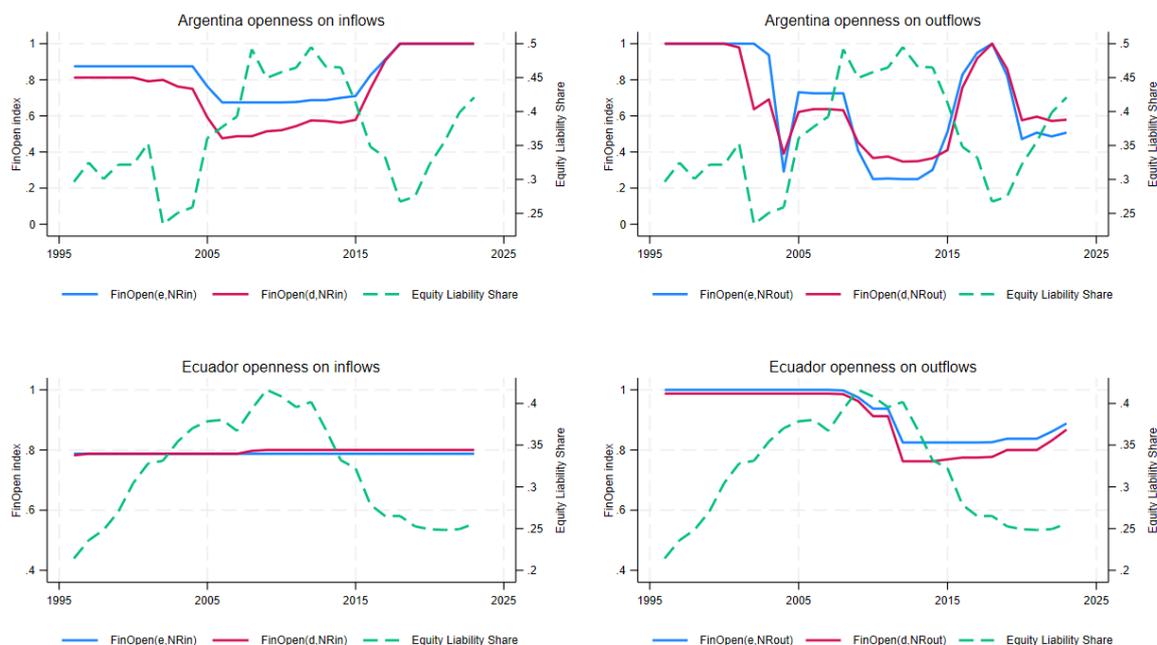
(a) Compare with openness on other flows

(b) Country examples

Nevertheless, it is important to distinguish between normal and stress episodes when interpreting the potential effects of outflow controls. During tranquil periods, restrictions – such as holding-period requirements or administrative approvals – may discourage new equity investment, as foreign investors perceive a higher risk of delayed or restricted repatriation. In contrast, crisis-driven controls are likely to have more ambiguous effects on countries' equity structure. Figure 8 presents two country cases. In Argentina, the introduction of tight outflow restrictions during the early-2000s crisis was accompanied by a sharp increase in the share of equity liabilities, likely because foreign direct investors found it harder to liquidate positions or repatriate capital despite a sharp tightening of outflow restrictions. Similarly, after 2018 where the observed increase in the equity share was to a large extent driven by a decline in debt liabilities despite a tightening of outflow controls. In Ecuador, however, the introduction of a tax on outflows in the

2010s coincided with a decline in the equity share, suggesting that such measures have deterred new foreign equity investment. These two examples highlight that the effects of outflow controls might depend on their design and the circumstances under which they are introduced – they can either trap existing equity inflows or discourage new ones.

Figure 8: Capital Outflow Openness during stress episodes



The regression results in [Table 7](#) reinforce these observations. When measures of outflow openness are included in our baseline specifications ([Table 2](#)), their estimated coefficients have the expected sign but are generally statistically insignificant, whereas the effects of inflow controls remain strong and robust. An exception arises in column (2), where total outflow openness (averaging residents' and nonresidents' categories) shows a positive and statistically significant coefficient. This result likely reflects limitations in the underlying source data from the IMF's AREAER report. While the *FinOpen* index distinguishes between residents' and nonresidents' capital transactions, the AREAER reports tend to provide greater detail on regulations affecting foreign inflows than on foreign outflows. As a result, the outflow component for nonresidents may capture this dimension less precisely. In this context, residents' outflow controls – often governed by similar administrative approval processes – may partly proxy for restrictions on nonresidents' outflows, which could explain the stronger statistical relationship in the aggregate measure.

We also include the number of large outflow tightening episodes in all specifications. Following [Chang, Fernández, and Martínez \(2024\)](#), we define the episodes of large tightening on nonresidents' outflows as a change of tightening larger than 2.5 standard deviations relative to the entire distribution of changes across countries and years in our sample. The idea is that a history of severe outflow tightening could discourage future equity investment, leading to a negative coefficient. However, the estimated coefficient on tightening episodes is statistically insignificant and does not exhibit the expected sign. This likely reflects the fact that investors' portfolio decisions are shaped primarily by current market and policy conditions, while past tightening episodes exert only limited and short-lived reputational effects.

Overall, outflow liberalization appears to have, if anything, a modest positive association with the equity share, possibly reflecting greater investor confidence in predictable and transparent capital account management. During stress episodes, however, the effects of outflow policies can be heterogeneous – sometimes locking in existing equity positions, sometimes discouraging new ones – rendering their aggregate impact ambiguous. Taken together, the results suggest that the baseline conclusions remain robust once outflow openness is accounted for, with inflow-related measures continuing to drive most of the variation in countries' external liability composition.

Table 7: Results between-estimator controlling outflow openness (*whole sample*)

	(1)			(2)			(3)			(4)			(5)			(6)		
	Equity	Liability	Share															
FinOpen(e,NRin)	0.153			0.071			0.164			0.056								
	(0.157)			(0.147)			(0.157)			(0.154)								
FinOpen(d,NRin)	-0.225*			-0.286***			-0.233**			-0.264**								
	(0.116)			(0.104)			(0.116)			(0.105)								
FinOpen(tot,NRout)	0.039																	
	(0.154)																	
FinOpen(tot,out)				0.222**														
				(0.091)														
FinOpen(e,NRout)							0.210											
							(0.237)											
FinOpen(d,NRout)							-0.323											
							(0.430)											
FinOpen(e,out)										0.137								
										(0.131)								
FinOpen(d,out)										-0.054								
										(0.155)								
Equity inflow openness wedge													0.214*			0.199*		
													(0.110)			(0.108)		
Equity NR outflow openness wedge													0.069					
													(0.141)					
Equity outflow openness wedge																0.150		
																(0.116)		
Num of large NR outflow tightenings	0.004						-0.019						0.000					
	(0.031)						(0.040)						(0.032)					
Num of large outflow tightenings				-0.004						-0.012								-0.020
				(0.043)						(0.045)								(0.046)
Institutional Quality	0.103***			0.103***			0.103***			0.105***			0.095***			0.094***		
	(0.029)			(0.029)			(0.029)			(0.029)			(0.027)			(0.027)		
GDP (constant 2010 USD)	0.013**			0.013**			0.013**			0.013**			0.014**			0.014*		
	(0.006)			(0.006)			(0.006)			(0.006)			(0.007)			(0.007)		
GDP per capita	-0.007***			-0.007***			-0.007***			-0.007***			-0.007***			-0.007***		
	(0.001)			(0.001)			(0.001)			(0.001)			(0.001)			(0.001)		
Financial Development	0.290***			0.258***			0.280***			0.242**			0.304***			0.283***		
	(0.096)			(0.094)			(0.100)			(0.098)			(0.093)			(0.090)		
Natural Resources	0.201***			0.185***			0.203***			0.182***			0.205***			0.198***		
	(0.063)			(0.061)			(0.063)			(0.062)			(0.061)			(0.060)		
Trade openness	0.129***			0.117***			0.130***			0.112***			0.132***			0.122***		
	(0.037)			(0.034)			(0.037)			(0.035)			(0.037)			(0.038)		
Human Capital (Barro-Lee)	-0.010			-0.011			-0.010			-0.010			-0.010			-0.009		
	(0.009)			(0.009)			(0.009)			(0.009)			(0.009)			(0.009)		
Constant	0.281**			0.283**			0.433*			0.328**			0.254***			0.265***		
	(0.140)			(0.119)			(0.257)			(0.139)			(0.043)			(0.042)		
Observations	118			118			118			118			118			118		
R-squared	0.350			0.378			0.355			0.379			0.349			0.359		

Notes: Robust standard errors in parentheses (clustered at country-level). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3 Robustness Checks

This section assesses the robustness of the baseline results presented in [Table 2](#). First, we address the potential concern that our results are driven primarily by valuation effects rather than changes in quantities, especially since equity – and to a lesser extent debt – liabilities are sensitive to asset price and exchange rate fluctuations. To abstract from these effects, we reconstruct foreign liability positions by anchoring to the first year in which a complete breakdown of liabilities into FDI, portfolio equity, portfolio debt, and other investment is observed. From this anchor year onward, positions are updated using BoP *flow* data only. [Figure A6](#) shows that equity liability shares including valuation effects tend to exceed their flow-based counterparts. This pattern is consistent with the fact that equity liabilities are typically marked to market and therefore revalue with asset prices and exchange rates, whereas debt liabilities are largely fixed in nominal terms. In addition, the comparison pools annual observations over a long sample period characterized, on average, by rising equity valuations punctuated by relatively short-lived downturns. As a result, valuation effects on equity liabilities tend to accumulate over time, mechanically shifting observed equity shares above the flow-based benchmark, particularly at intermediate levels where revaluation operates on a sizable equity base. Importantly, the two measures remain highly correlated ([Figure A7](#)), and our baseline results are robust to this alternative measure of the foreign equity share ([Table A2](#)).

Second, [Table A3](#) replicates the regressions using the FKRSU capital control index instead of the FinOpen index. While the signs of key coefficients remain consistent with the baseline, their statistical significance weakens. This attenuation may reflect differences in index construction or a reduced country coverage.

Third, [Table A4](#) decomposes institutional quality into its six subcomponents. Among them, only control of corruption, political stability, and voice and accountability exhibit significant interactions with the equity-debt openness wedge. This suggests that the compositional impact of capital account liberalization depends primarily on the credibility and predictability of the policy environment. In countries where political risks and corruption are contained, liberalizing equity inflows relative to debt is more likely to attract stable, equity-type financing. In contrast, other governance dimensions, such as government effectiveness and regulatory quality, while relevant for overall administrative performance, do not appear to condition the effect of openness on the structure of external liabilities. These results imply that the effectiveness of capital controls in influencing the composition of external financing may hinge more on political credibility and stability than on bureaucratic efficiency. The findings are consistent with a large body of evidence highlighting that political and governance risks are critical determinants of capital flow composition. Earlier studies show that corruption and political instability discourage long-term, risk-sharing

flows such as FDI and portfolio equity, while encouraging short-term or collateralized debt flows (Wei (2000), Alfaro, Kalemli-Ozcan, and Volosovych (2008b), Papaioannou (2009)). In particular, higher corruption increases transaction costs and policy uncertainty, reducing investors' confidence in the enforceability of contracts and the protection of property rights. Likewise, political instability raises the risk of expropriation and abrupt policy reversals, leading investors to prefer liquid, reversible debt instruments (Ma and Wei (2020)). Table A5 further confirms the robustness of our baseline results when replacing the index of institutional quality with the ICRG measure of political risk.

Finally, Table A6 and Table A7 re-estimate our baseline regressions for different sub-periods. Splitting the sample into pre- and post-global financial crisis (GFC) periods shows that the positive effect of greater openness to foreign equity over debt persists after the GFC. This suggests that even in a generally more financially liberalized global environment, capital controls continue to play a meaningful role in shaping the composition of external liabilities.

5 Conclusion

A growing consensus in the literature holds that the composition of a country's external capital structure plays a crucial role in its resilience to financial crises, with a higher share of external debt – relative to equity – being associated with worse outcomes during global financial turmoil (see Forbes and Warnock (2012) and Tong and Wei (2010)). This raises an important question: what determines the composition of external liabilities? Prior studies have highlighted the role of financial development and institutional quality, both of which are associated with a greater share of equity in foreign liabilities. As a result, policy recommendations have traditionally emphasized the need to strengthen institutions and deepen financial systems in order to attract more equity-based inflows, thereby enhancing resilience to external shocks. However, such improvements take time to materialize – especially in countries undergoing economic or institutional transitions. This has renewed interest in whether capital flow management measures can be used to actively steer capital inflows toward equity and away from debt during the interim.

In this paper, we provide novel empirical evidence that capital flow restrictions can be effective in tilting the composition of foreign liabilities toward more stable forms of funding. Using newly developed granular indicators of capital flow policies, we show that a more favorable stance toward equity inflows relative to debt inflows is associated with a higher equity share in countries' external liabilities. Consistent with theoretical predictions, these effects are stronger in countries with better institutional quality, highlighting the role of governance in attracting stable, long-term foreign investment. We also

document important dynamics. The compositional effects of asymmetric capital account liberalization unfold gradually, accumulating over several years, with tighter restrictions on debt inflows playing a more prominent role in the medium term. Complementary firm-level evidence reinforces this pattern: increasing the wedge in favor of equity inflows – primarily through tighter restrictions on foreign debt financing rather than eased restrictions on equity inflows – raises the likelihood that firms increase equity issuance.

Taken together, our results suggest that CFMs can influence the composition of external capital structures, and that an asymmetric approach to liberalization — favoring equity over debt — can help countries build a more resilient external balance sheet. While strengthening institutions and financial development remain important prerequisites for attracting equity inflows, our findings indicate that policy instruments available during the transition can meaningfully support this objective. For completeness, we also examine outflow-based measures. Consistent with the episodic and crisis-management nature of outflow controls, their effects on external capital composition are modest once inflow policies are accounted for, underscoring the dominant role of inflow-side measures.

Our study therefore contributes new empirical evidence to inform policy debates on managing external vulnerabilities through targeted capital flow regulations. Our contribution lies in documenting robust and systematic patterns in the data that are consistent with existing theoretical predictions, while recognizing the inherent limitations of causal inference in our setting. Moreover, our analysis takes a partial perspective and focuses on compositional outcomes rather than broader welfare implications, efficiency costs, or potential trade-offs associated with CFMs. Although our findings do support the established view that the timing and sequencing of capital account liberalization should be aligned with countries’ fundamentals, they do not imply that these policies are optimal, nor that their benefits necessarily outweigh their risks — a caution also emphasized in the IMF’s Institutional View on capital flows. Our results should thus be interpreted as complementary to, rather than substitutive of, broader structural reform agendas. Future research could explore how the interaction between capital flow measures and domestic macroprudential frameworks shapes capital structure outcomes, or whether similar compositional effects arise as financial innovation alters the channels and instruments through which international capital moves. Moreover, potential spillover effects of CFMs – as for instance documented in [Fan, Gou, Peng, and Xie \(2020\)](#) – suggest that the benefits and costs of these measures should not be evaluated solely through a domestic lens, but also in light of cross-border externalities with broader welfare implications.

A Appendix

A.1 Sources and Description of the Variables

Dependent variables

The source for countries' total external liabilities and their components in the baseline regressions (FDI, portfolio equity and debt) is the data set developed by Lane and Milesi-Ferretti (2018). All variables are in millions of U.S. dollars. Data are available at <https://www.brookings.edu/articles/external-wealth-of-nations-complete-update-2023/>.

The dependent variables are expressed as ratios to total liabilities. The dependent variables used in the baseline regressions and in most specifications are, unless otherwise noted, a time-series mean of the variables of interest between 1995 and 2023, whenever available.

Independent variables

Capital account openness

FinOpen index and its different subcomponents as developed by Li (2026). The various indexes provide a measure of capital account restrictions for different types of flows (i.e. (non-)residents' inflows and outflows) distinguishing between equity- and debt-flows. Within the range of $[0, 1]$, the *FinOpen* index quantifies granular policy intensity and allows comparisons between countries (with higher values indicating greater capital openness). Source: Li (2026).

In each flow category (FDI, portfolio equity, portfolio debt, and other investment), three subindexes are constructed to measure capital openness with respect to nonresidents' inflows (*NR_in*), nonresidents' outflows (*NR_out*), and residents' outflows (*R_out*). No subindex is constructed for residents' inflows, as authorities generally do not impose restrictions on the repatriation of domestic capital held abroad.

Institutional quality index

Following Faria and Mauro (2009) and Ma and Wei (2020), the institutional quality index is constructed as the average of six institutional indicators (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption), drawn from Kaufmann et al. (2010), for all available

years between 1996 and 2023 (available for 1996, 1998, 2000, and annually from 2002 on). The institutional quality index in a given year is formed only for countries that have information for all governance indicators in that year. Source: Worldwide Governance Indicators, www.govindicators.org.

Gross domestic product

Constant 2010 U.S. dollars for all available years between 1995 and 2023. Rescaled to trillions in the regressions to make results more legible. Source: World Development Indicators, World Bank, <https://data.worldbank.org/>.

GDP per capita

GDP per capita in constant 2010 U.S. dollars for all available years between 1995 and 2023. Rescaled to thousands in the regressions to make results more legible. Source: World Development Indicators, World Bank, <https://data.worldbank.org/>.

Financial development

Overall index of financial development for all available years between 1995 and 2021 drawn from [Svirydzenka \(2016\)](#). The index summarizes how developed financial institutions and financial markets are in terms of their depth, access, and efficiency.

Source: Financial Development Index Database, IMF, <https://legacydata.imf.org/?sk=f8032e80-b36c-43b1-ac26-493c5b1cd33b>.

Natural resources

Percentage of ore, metals and fuels in total exports for all available years between 1995 and 2023. Source: World Development Indicators, World Bank, <https://data.worldbank.org/>.

Openness

Sum of imports and exports divided by total GDP for all available years between 1995 and 2023. Source: World Development Indicators, World Bank, <https://data.worldbank.org/>.

Human capital

Human capital is proxied by the average years of secondary schooling attained for the population aged 15-64 for all available years between 1995 and 2015, available at a 5-year interval. The years in between are calculated by using linear interpolation.

Source: [Barro and Lee \(2013\)](#) available from the 2021 September Update, <http://barrolee.com/>.

Countries

The baseline sample used in the regressions consists of the following 118 countries: Albania, Algeria, Argentina, Armenia, Australia*, Austria*, Bangladesh, Belize, Benin, Bolivia, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burundi, Cambodia, Cameroon, Canada*, Central African Rep., Chile, China, Colombia, Congo, Costa Rica, Côte d'Ivoire, Croatia, Czech Republic*, Denmark*, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia*, Eswatini, Fiji, Finland*, France*, Gabon, Gambia, Germany*, Ghana, Greece*, Guatemala, Guyana, Haiti, Honduras, Hungary, Iceland*, India, Indonesia, Iran, Israel*, Italy*, Jamaica, Japan*, Jordan, Kazakhstan, Kenya, Korea*, Kuwait, Kyrgyz Republic, Lao People's Dem.Rep, Latvia*, Lesotho, Libya, Lithuania*, Malaysia, Maldives, Mali, Mauritania, Mexico, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, New Zealand*, Nicaragua, Niger, Norway*, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal*, Qatar, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Slovak Republic*, Slovenia*, South Africa, Spain*, Sri Lanka, Sudan, Sweden*, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Togo, Tonga, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United States*, Uruguay, Vietnam, Yemen, Zambia.

Countries marked with * are excluded from the non-high income sample. The classification of countries according to the income level follows from Appendix 1 in [Lane and Milesi-Ferretti \(2018\)](#).

We exclude from the sample all countries considered offshore financial centers (as listed in [Lane and Milesi-Ferretti \(2018\)](#)): Andorra, Bahamas, Bahrain, Barbados, Belgium, Bermuda, British Virgin Islands, Cayman Islands, Macao (S.A.R. of China), Curacao, Cyprus, Gibraltar, Guernsey, Hong Kong (S.A.R. of China), Ireland, Isle of Man, Jersey, Luxembourg, Malta, Mauritius, Netherlands, Netherlands Antilles, Panama, San Marino, Singapore, Switzerland, Turks and Caicos, United Kingdom.

A.2 Description of Firm-Level Data

Firm-level balance-sheet and income-statement data stem from the Orbis database (Bureau van Dijk), covering the period from the mid-1980s to 2022. The firm-level datasets for various countries was compiled and cleaned by [Díez et al. \(2021\)](#), based on the *Orbis Historical Financial Database* (August 2022 release). Our final sample includes around 12 million firm-year observations across 30 emerging economies.

Dependent variable

Equity issuance ratio

Following [McLean and Zhao \(2014\)](#) this variable is constructed as the change in book equity net of retained earnings, scaled by lagged equity:

$$\text{EquityIssuanceRatio}_{it} = \frac{\Delta \text{Shareholders' Funds}_{it} - \text{ProfitAfterTax}_{it}}{\text{Shareholders' Funds}_{i,t-1}}.$$

This proxy captures new equity injections net of internally generated funds and approximates external equity financing at the firm level. Observations are winsorized at the 1st and 99th percentiles, and extreme values exceeding ± 2 are excluded.

Independent variables

Capital flow management (CFM) indices

Country-year measures of capital account restrictions are drawn from the *FinOpen* database by [Li \(2026\)](#), distinguishing between inflow and outflow controls for residents and nonresidents, and between equity and debt instruments. The main explanatory variable is the change in the *equity openness wedge*, defined as the difference between liberalization of equity and debt inflows by nonresidents:

$$\Delta \text{EquityOpennessWedge}_{ct} = \Delta \text{CFM}_{\text{equity, NR-in, ct}} - \Delta \text{CFM}_{\text{debt, NR-in, ct}}.$$

Positive values indicate relatively greater liberalization of equity inflows. For robustness, we also use subcomponent indicators from [Fernández et al. \(2016\)](#), which are available for 1995–2019, to construct measures of equity (using `eqi` and `dii`) and debt inflow (using `boi`, `mmi`, `cii`, `cci`, and `fci`) openness.

Institutional quality index

Following [Faria and Mauro \(2009\)](#) and [Ma and Wei \(2020\)](#), the institutional quality index is constructed as the average of six institutional indicators (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption), drawn from [Kaufmann et al. \(2010\)](#), for all available years between 1996 and 2023 (available for 1996, 1998, 2000, and annually from 2002 on). The institutional quality index in a given year is formed only for countries that have information for all governance indicators in that year. Source: Worldwide Governance Indicators, www.govindicators.org.

Firm-level controls

Following standard practice in the corporate finance literature, all regressions include firm fixed effects and a set of time-varying firm characteristics: firm size (log of total assets), leverage (the ratio of total liabilities to total assets), profitability (net income over total assets), and firm age (years since incorporation).

Outlier treatment and additional data cleaning

To minimize the influence of reporting errors and extreme values, all firm-level ratios are winsorized at the 1st and 99th percentiles within each country-year. Observations with implausible leverage or profitability values (outside the range $[0, 1]$) are dropped. Furthermore, the dependent variable is restricted to the range $[-2, 2]$ to exclude unrealistic jumps in reported equity. Firms with missing lagged equity are omitted from the analysis. After these filters, the final estimation sample comprises approximately 12 million firm-year observations.

Countries

The baseline sample used in the firm-level regressions consists of the following 30 emerging economies: Algeria, Argentina, Azerbaijan, Brazil, Bulgaria, Cambodia, Chile, China, Colombia, Egypt, Georgia, Ghana, India, Indonesia, Iran, Kazakhstan, Kenya, Malaysia, Mexico, Namibia, Nigeria, Philippines, Poland, Romania, Saudi Arabia, Thailand, Turkey, United Arab Emirates, Vietnam, and South Africa.

A.3 Additional Figures

Figure A1: Distribution of the equity inflow openness wedge

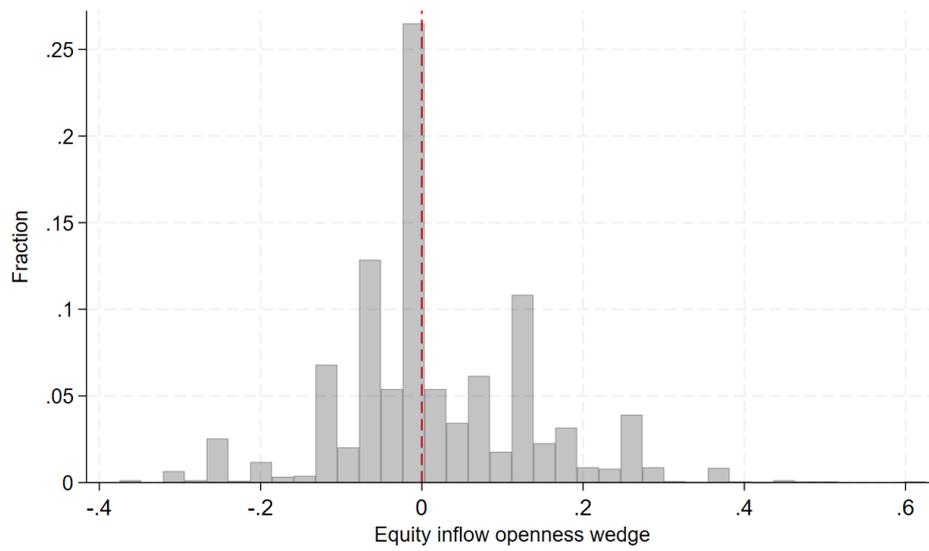


Figure A2: Distribution of the *change* in the equity inflow openness wedge

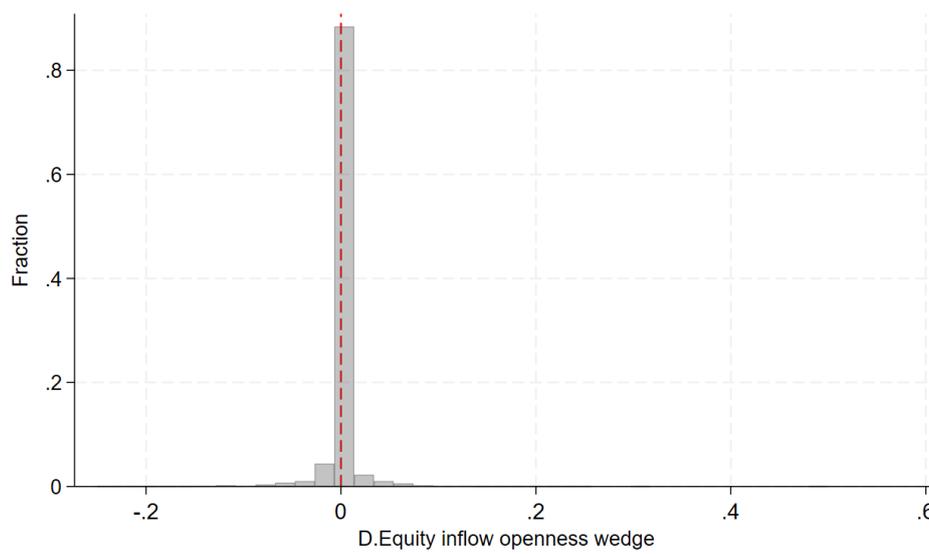
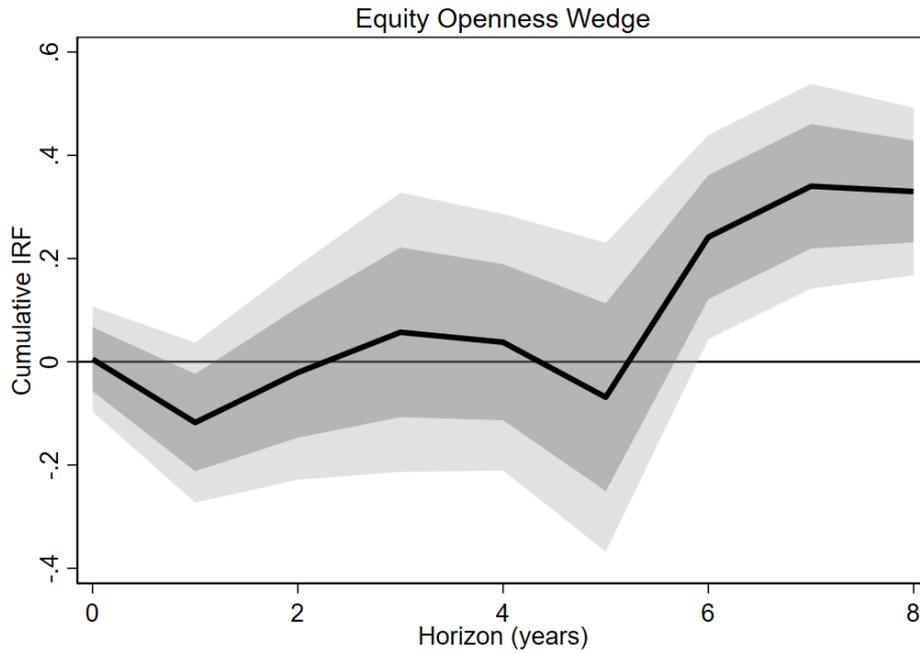


Figure A3: Cumulative IRF of Equity Share to Capital Openness



Note: Shaded areas denote 68 percent (dark) and 90 percent (light) confidence intervals, based on country-clustered standard errors. Macroprudential policies and foreign exchange interventions (FXI), along with two lags of each policy variable, are included as controls. Macroprudential policies are proxied by the sum of policy action indicators of all 17 instruments from [Alam et al. \(2025\)](#). FXI is the variable "Total FXI proxied in percentage points of 3-year MA GDP" from [Adler et al. \(2025\)](#).

Figure A4: Distribution of reforms - equity vs. debt inflow restrictions

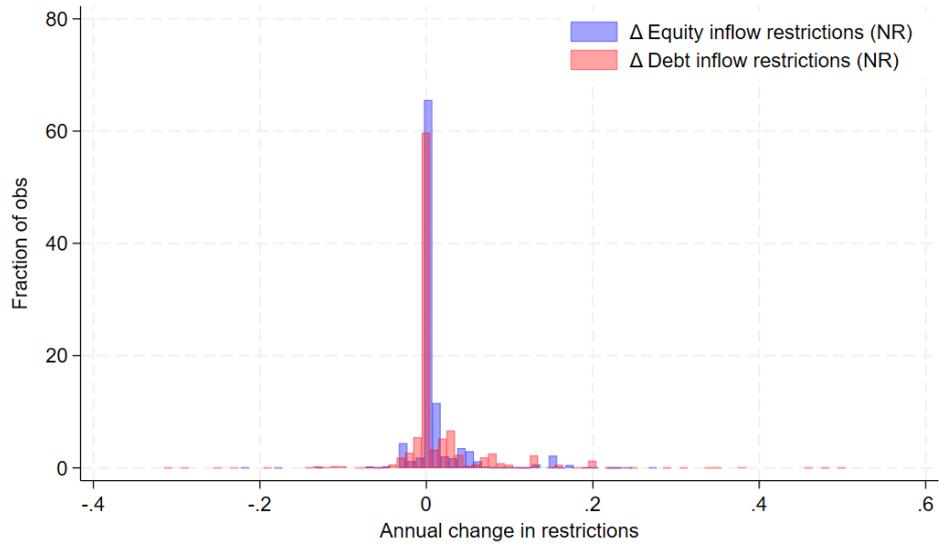


Figure A5: Distribution of reforms - FinOpen vs. FKRSU

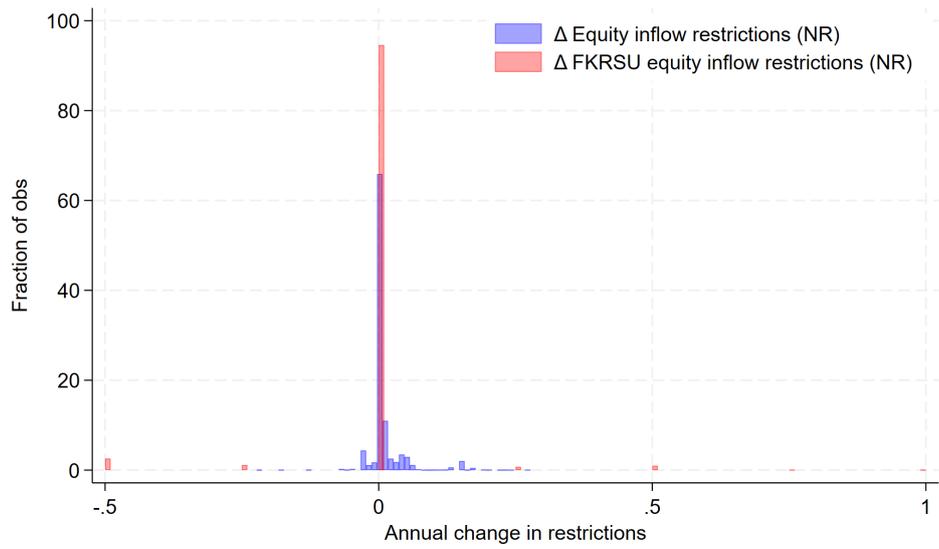


Figure A6: Equity liability share - with and without valuation effects

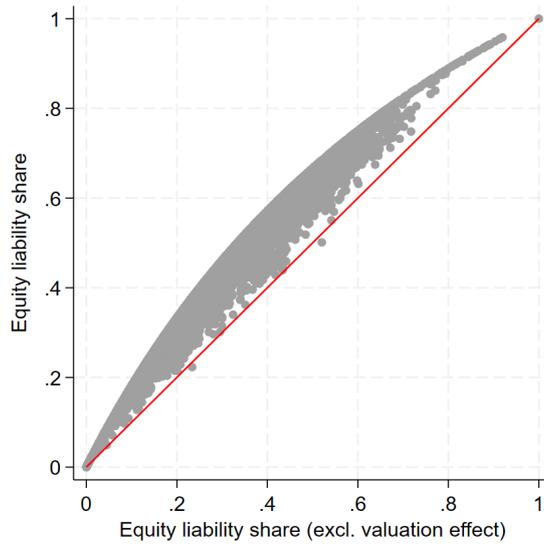


Figure A7: Equity liability share across countries - with and without valuation effects



A.4 Additional Tables

Table A1: Firm-level regressions (sample period: 1983–2022) - incl. listed firms

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>	<i>Equity Issuance</i>
Δ Equity openness wedge	0.396** (0.190)	0.400** (0.194)				
Δ CFMe_NRin			0.035 (0.265)	0.043 (0.279)		
Δ CFMd_NRin			-0.481* (0.244)	-0.489* (0.254)		
Δ FKRSU openness wedge					0.022 (0.032)	
Δ FKRSUe_NRin						0.074 (0.045)
Δ FKRSUd_NRin						0.053 (0.046)
Institutional Quality		0.119 (0.119)		0.108 (0.114)		
Size	0.063*** (0.007)	0.072*** (0.005)	0.062*** (0.008)	0.071*** (0.006)	0.071*** (0.008)	0.072*** (0.008)
Leverage	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.006** (0.003)	-0.006** (0.003)
Profitability	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.004** (0.002)	-0.004** (0.002)
Age	-0.003 (0.004)	-0.007*** (0.002)	-0.002 (0.004)	-0.006*** (0.002)	0.000 (0.006)	0.000 (0.006)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,116,290	12,930,792	13,116,290	12,930,792	10,062,681	10,062,681
Number of Countries	30	30	30	30	30	30
R-squared	0.407	0.413	0.408	0.414	0.404	0.404

Notes: Robust standard errors in parentheses (clustered at the country level). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A2: Robustness results between-estimator (*excluding valuation effects*)

	(1)	(2)	(3)	(4)	(5)
	<i>Equity Liability Share</i>				
FinOpen(e,NR)	0.122* (0.073)				
FinOpen(d,NR)	-0.202** (0.097)				
FinOpen(e,NRin)		0.045 (0.056)			
FinOpen(d,NRin)		-0.097* (0.050)			
Equity openness wedge			0.085* (0.047)		-0.011 (0.056)
$\mathcal{I}(\text{Equity openness wedge} > 0)$				0.061** (0.024)	
Inst.Quality x Equity openness wedge					0.210** (0.085)
Institutional Quality	0.098*** (0.025)	0.101*** (0.025)	0.089*** (0.024)	0.094*** (0.024)	0.076*** (0.024)
GDP (constant 2010 USD)	0.012** (0.005)	0.011** (0.005)	0.012** (0.006)	0.011** (0.005)	0.011** (0.006)
GDP per capita	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.005*** (0.001)
Financial Development	0.284*** (0.085)	0.284*** (0.089)	0.310*** (0.085)	0.294*** (0.086)	0.314*** (0.083)
Natural Resources	0.188*** (0.056)	0.185*** (0.057)	0.191*** (0.055)	0.186*** (0.055)	0.194*** (0.054)
Trade openness	0.094*** (0.031)	0.092*** (0.030)	0.096*** (0.031)	0.085*** (0.031)	0.103*** (0.032)
Human Capital (Barro-Lee)	-0.009 (0.008)	-0.008 (0.008)	-0.009 (0.008)	-0.009 (0.008)	-0.010 (0.008)
Constant	0.318*** (0.109)	0.260*** (0.088)	0.164*** (0.035)	0.156*** (0.035)	0.158*** (0.035)
Observations	118	118	118	118	118
R-squared	0.365	0.363	0.354	0.367	0.383

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A3: Robustness results between-estimator (*FKRSU index*)

	(1)	(2)	(3)	(4)
	<i>Equity Liability Share</i>	<i>Equity Liability Share</i>	<i>Equity Liability Share</i>	<i>Equity Liability Share</i>
FKRSU(e,NR)	0.037 (0.058)			
FKRSU(d,NR)	-0.066 (0.075)			
FKRSU equity openness wedge		0.049 (0.056)		0.039 (0.077)
$\mathcal{I}(\text{FKRSU equity openness wedge} > 0)$			0.014 (0.053)	
Inst.Quality x FKRSU equity openness wedge				0.017 (0.115)
Institutional Quality	0.121*** (0.036)	0.116*** (0.035)	0.112*** (0.035)	0.116*** (0.035)
GDP (constant 2010 USD)	0.015** (0.007)	0.015* (0.007)	0.014* (0.007)	0.015* (0.007)
GDP per capita	-0.008*** (0.002)	-0.008*** (0.001)	-0.008*** (0.001)	-0.008*** (0.002)
Financial Development	0.240** (0.109)	0.261** (0.104)	0.281*** (0.103)	0.262** (0.104)
Natural Resources	0.268*** (0.079)	0.269*** (0.078)	0.276*** (0.077)	0.268*** (0.078)
Trade openness	0.085* (0.044)	0.089** (0.043)	0.093** (0.042)	0.089** (0.044)
Human Capital (Barro-Lee)	-0.012 (0.012)	-0.013 (0.012)	-0.014 (0.011)	-0.013 (0.013)
Constant	0.321*** (0.047)	0.327*** (0.044)	0.341*** (0.043)	0.328*** (0.044)
Observations	78	78	78	78
R-squared	0.323	0.323	0.331	0.323

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A4: Robustness results (*institutional quality decomposition*)

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Equity Liability Share</i>					
Equity openness wedge	-0.011 (0.128)	0.042 (0.162)	0.084 (0.123)	0.097 (0.140)	0.103 (0.132)	0.085 (0.146)
Control corruption x wedge	0.395* (0.216)					
Control corruption	0.067** (0.026)					
Government effectiveness x wedge		0.245 (0.221)				
Government effectiveness		0.118*** (0.034)				
Political stability x wedge			0.391* (0.217)			
Political stability			0.053** (0.026)			
Rule of law x wedge				0.236 (0.229)		
Rule of law				0.057** (0.026)		
Regulatory quality x wedge					0.230 (0.214)	
Regulatory quality					0.112*** (0.028)	
Voice Accountability x wedge						0.356* (0.185)
Voice Accountability						0.006 (0.020)
GDP (constant 2010 USD)	0.012** (0.006)	0.013** (0.005)	0.010* (0.006)	0.011* (0.006)	0.015** (0.007)	0.008 (0.006)
GDP per capita	-0.007*** (0.002)	-0.007*** (0.001)	-0.005*** (0.002)	-0.006*** (0.001)	-0.007*** (0.001)	-0.004*** (0.001)
Financial Development	0.347*** (0.089)	0.194* (0.111)	0.398*** (0.084)	0.335*** (0.095)	0.266*** (0.093)	0.411*** (0.083)
Natural Resources	0.200*** (0.057)	0.206*** (0.057)	0.166*** (0.055)	0.179*** (0.059)	0.226*** (0.059)	0.129** (0.056)
Trade openness	0.149*** (0.035)	0.119*** (0.039)	0.121*** (0.036)	0.150*** (0.037)	0.142*** (0.035)	0.149*** (0.040)
Human Capital (Barro-Lee)	-0.006 (0.009)	-0.012 (0.009)	-0.008 (0.008)	-0.008 (0.009)	-0.016* (0.008)	-0.003 (0.009)
Constant	0.221*** (0.044)	0.304*** (0.052)	0.225*** (0.039)	0.222*** (0.043)	0.258*** (0.040)	0.171*** (0.039)
Observations	118	118	118	118	118	118
R-squared	0.364	0.378	0.365	0.324	0.400	0.311

Notes: Robust standard errors in parentheses (clustered at country-level). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Robustness results between-estimator (*ICRG political risk*)

	(1)	(2)	(3)	(4)	(5)
	<i>Equity Liability Share</i>				
FinOpen(e,NR)	0.203 (0.176)				
FinOpen(d,NR)	-0.338 (0.216)				
FinOpen(e,NRin)		0.159 (0.132)			
FinOpen(d,NRin)		-0.206* (0.113)			
Equity openness wedge			0.200* (0.109)		-0.117 (0.117)
$\mathcal{I}(\text{Equity openness wedge} > 0)$				0.059** (0.028)	
Inst.Quality x Equity openness wedge					0.648*** (0.177)
ICRG political risk	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.006*** (0.002)	0.005** (0.002)
GDP (constant 2010 USD)	0.009* (0.005)	0.009 (0.005)	0.009 (0.006)	0.009 (0.005)	0.008 (0.006)
GDP per capita	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.006*** (0.001)
Financial Development	0.288*** (0.084)	0.301*** (0.087)	0.312*** (0.081)	0.288*** (0.085)	0.340*** (0.076)
Natural Resources	0.144*** (0.052)	0.147*** (0.052)	0.155*** (0.050)	0.144*** (0.050)	0.170*** (0.043)
Trade openness	0.065** (0.029)	0.064** (0.029)	0.065** (0.029)	0.060** (0.029)	0.059* (0.035)
Human Capital (Barro-Lee)	-0.004 (0.011)	-0.003 (0.011)	-0.004 (0.011)	-0.001 (0.011)	-0.002 (0.010)
Constant	-0.045 (0.156)	-0.128 (0.139)	-0.151 (0.127)	-0.146 (0.127)	-0.059 (0.122)
Observations	102	102	102	102	102
R-squared	0.395	0.401	0.399	0.405	0.463

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Robustness results between-estimator (*sample period: 1995-2007*)

	(1)	(2)	(3)	(4)	(5)
	<i>Equity Liability Share</i>				
FinOpen(e,NR)	0.454** (0.195)				
FinOpen(d,NR)	-0.519** (0.225)				
FinOpen(e,NRin)		0.215 (0.141)			
FinOpen(d,NRin)		-0.239* (0.122)			
Equity openness wedge			0.231** (0.116)		-0.142 (0.152)
$\mathcal{I}(\text{Equity openness wedge} > 0)$				0.061* (0.031)	
Inst.Quality x Equity openness wedge					0.744*** (0.199)
Institutional Quality	0.093*** (0.027)	0.092*** (0.028)	0.090*** (0.027)	0.095*** (0.028)	0.070*** (0.027)
GDP (constant 2010 USD)	0.009 (0.006)	0.008 (0.006)	0.008 (0.006)	0.008 (0.006)	0.005 (0.006)
GDP per capita	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.005*** (0.002)
Financial Development	0.372*** (0.105)	0.395*** (0.105)	0.398*** (0.103)	0.370*** (0.106)	0.428*** (0.099)
Natural Resources	0.183*** (0.064)	0.175*** (0.065)	0.178*** (0.063)	0.170*** (0.062)	0.178*** (0.059)
Trade openness	0.120*** (0.041)	0.122*** (0.040)	0.122*** (0.040)	0.113*** (0.039)	0.125*** (0.040)
Constant	0.193* (0.116)	0.143 (0.106)	0.122*** (0.042)	0.119*** (0.043)	0.116*** (0.041)
Observations	137	137	137	137	137
R-squared	0.315	0.304	0.303	0.301	0.361

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Robustness results between-estimator (*sample period: 2009-2021*)

	(1)	(2)	(3)	(4)	(5)
	<i>Equity Liability Share</i>				
FinOpen(e,NR)	0.433*				
	(0.247)				
FinOpen(d,NR)	-0.610***				
	(0.232)				
FinOpen(e,NRin)		0.284*			
		(0.168)			
FinOpen(d,NRin)		-0.342***			
		(0.111)			
Equity openness wedge			0.330***		0.046
			(0.113)		(0.125)
$\mathcal{I}(\text{Equity openness wedge} > 0)$				0.088***	
				(0.028)	
Inst.Quality x Equity openness wedge					0.686***
					(0.194)
Institutional Quality	0.034	0.032	0.030	0.035	0.018
	(0.036)	(0.038)	(0.034)	(0.035)	(0.033)
GDP (constant 2010 USD)	0.010**	0.009*	0.010*	0.009**	0.010*
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
GDP per capita	-0.005***	-0.005***	-0.005***	-0.005***	-0.004**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Financial Development	0.226**	0.245**	0.239**	0.211**	0.220**
	(0.096)	(0.096)	(0.100)	(0.102)	(0.096)
Natural Resources	0.186***	0.185***	0.188***	0.177***	0.193***
	(0.055)	(0.055)	(0.055)	(0.057)	(0.052)
Trade openness	0.126***	0.129***	0.128***	0.118***	0.136***
	(0.042)	(0.043)	(0.044)	(0.039)	(0.047)
Constant	0.461***	0.336**	0.290***	0.278***	0.286***
	(0.127)	(0.130)	(0.055)	(0.053)	(0.055)
Observations	140	140	140	140	140
R-squared	0.228	0.237	0.234	0.236	0.291

Notes: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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