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Abstract: This paper examines how the 1990s capital account liberalization policy trend affected international capital flows, and tests a new hypothesis that the depth and efficiency of the domestic financial system impacts the efficacy of capital account policy. The paper exploits a recently published IMF database on financial development that spans the period 1980-2014 and includes both developing and developed countries. The results confirm that policy on average does not have a significant effect on gross capital flows, when controlling for other factors. I also find no effect on flows disaggregated by type and direction. However, interacting capital account policy and financial development, I do find that for financially developed countries, policy has the expected effect --policy openness leads to capital flows. The implication is that the effectiveness of capital account liberalization requires developing the domestic financial system.
Keywords: financial globalization, financial integration, financial development, capital flows, capital control measures
JEL Classification: F3, F4

Resumen: Este documento examina cómo la tendencia a liberalizar la cuenta de capital de los noventa afectó los flujos internacionales de capital. Explotando una nueva base de datos del FMI para países desarrollados y en desarrollo para el periodo 1980-2014, se prueba la hipótesis de que la eficacia de la política de liberalización se vio afectada por la profundidad y eficiencia del sistema financiero doméstico. Los resultados revelan que, en promedio, la política no tiene un efecto significativo en los flujos de capital brutos al controlar por otros factores, ni en los flujos desagregados por tipo y dirección. Sin embargo, se observa que la mayor apertura de la cuenta de capital induce flujos de capital hacia los países desarrollados financieramente. Esto implica que la efectividad de las políticas de liberalización requiere del desarrollo del sistema financiero doméstico.
Palabras Clave: globalización financiera, integración financiera, desarrollo financiero, flujos de capital, controles de capital

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1 Introduction

From the 1980s till recently, the US and international multilateral institutions such as the IMF encouraged many countries to abandon capital controls and pursue financial liberalization, opening their economies to global financial flows to various degrees. Nevertheless restrictions on international financial transactions remain and capital controls continue to be deployed, while academics and policymakers views vary on their desirability and impact. Neoclassical theory predicts a win-win outcome from opening the economy to international markets. Savers, or the owners of capital earn higher returns investing abroad alleviating firms' financial constraints in the recipient economies, and workers in the recipient economy gain better job opportunities and achieve higher incomes. The direct channel is via the cost of capital. Countries with relatively high interest rates (capital scarce), benefit from opening because their higher interest rate attracts capital inflows, and domestic interest rates are predicted to move towards a lower world interest rate. The lower domestic interest rate stimulates investment and thus growth. Residents of countries with relatively low interest rates can in turn invest in the capital-scarce country and earn higher returns on those foreign assets than they would on domestic assets. Thus for a country opening its capital account, theory suggests this policy will lead to realized flows and financial globalization. Motivated by this theory, the so-called Washington Consensus promoted privatization, trade liberalization and opening to financial flows during the 1980s and 1990s.

However, financial crises in developing countries and the onset and aftermath of the global financial crisis in 2008, have prompted an adjustment to the view that full capital mobility is a panacea. Two strands of argument have evolved. The first strand focuses on the cost of crises and sudden stops, mostly with reference to developing economy experiences. More recently, since the global financial crisis, the focus has shifted to a broader discussion of macroprudential policy, with some participants repositioning capital controls as a tool for policymakers concerned with systemic risks, particularly surges in capital inflows. Using theoretical models, researchers have shown that imposing capital controls is one way to address externalities that lead to a country over borrowing.[1] And, empirical research from the IMF has suggested capital controls can affect flows (Binici et al. (2010)), and has prompted policy discussions on Capital Flow Management. However, other research suggests policy has little impact. And with regards to macroprudential motives, Fernandez et al. (2013) show that in general capital controls have not been counter-cyclical, and argue they are not being used as prudential tools.

Given the mix of country experiences with capital account opening, and the variety of empirical results in the literature on the efficacy of capital controls, this paper aims to further the discussion of the efficacy of capital account policy. As a country pursues a pro-globalization policy, increasingly reducing restrictions on cross border financial flows, does the market

[1] See Bianchi (2011), Korinek (2014).

respond? And if so is the response symmetric across asset classes (debt and equity) and direction (inwards versus outwards)? If the answer is "it depends", then what factors lead to a strong connection between capital account policy and realized international financial integration? Do developed economies have a different experience than emerging, and if so what in particular about being under-developed alters the connection?

Using an empirical approach to address these questions, this paper analyzes the impact of capital account policy on realized financial globalization, and in particular, the role of financial sector development and overall institutional quality. Financial flows are channeled through the international financial system, comprised of networks of financial centers and domestic jurisdictions. It would be surprising if domestic financial markets and institutions did not play a key role in the process of financial globalization for most countries. Conditional on the presence of the Neoclassical economic motivations for international capital flows, an operational network is necessary to implement these financial transactions. Thus countries with well-developed financial systems would be better placed to take advantage of the trend towards capital account liberalization. I expect to find that financial development amplifies the impact of capital account policy, whether reducing overall restrictions or enforcing targeted controls to alter portfolio composition. Furthermore, quality institutions provide the context for successful financial intermediation and capital market functioning.

The policy shift towards financial globalization since the 1980s, as well as historical experiences during the earlier era of globalization, have motivated extensive research on the impact of loosening restrictions on capital mobility as well as the drivers of capital flows. When the outcome of interest is a macroeconomic variable, multiple measures of financial openness are used which can be categorized as either *de jure* or *de facto*. Because this paper's focus is the effect of policy, the variable of interest is a *de jure* measure of financial openness, and the outcome variable is a measure of *de facto* financial openness.

Earlier researchers have looked at the relationship between *de jure* and *de facto*. Some papers have done this in the context of the debate on how to measure financial openness in order to gauge its macroeconomic effects.[2] Other papers are more similar to this one in their focus on the effect of policy on realized financial openness, and they use regression analysis on panel data sets. Lane and Milesi-Ferretti (2003), use regression techniques on data from 18 OECD member countries with six 4-year averages, to identify determinants of these countries' foreign asset and liability positions. In a later paper, Lane and Milesi-Ferretti (2008) study drivers of financial globalization and implement a regression using end-2006 data for a broader set of countries using the Chinn-Ito index[3] as the policy measure, and foreign assets to GDP and foreign liabilities to GDP as their dependent financial globalization variables. They

[2]See for example Eichengreen (2001), Kose et al. (2006), and the appendix of Quinn and Toyoda (2008).

[3]The Chinn-Ito index is a *de jure* measure constructed based on the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER).

include a measure of financial development (stock market capitalization plus bank deposits as a share of GDP) which they find is positively correlated with their measure of financial globalization. They also include GDP per capita which is also statistically significant in their regression. They argue this variable may be capturing other aspects of financial development that are not in their financial development measure. They note their analysis suggests that once other factors are controlled for, policy has little impact. However the interaction of domestic financial development with capital account policy is not considered.

Binici et al. (2010) exploit the finer reporting in AREAER from 1995 onwards to examine the effect of capital controls. Their full sample consists of 74 countries over a 10-year period, 1995-2005.[4] Their *de jure* measures are from Schindler (2009) which constructs an index using AREAER reported controls on individual transaction types. They thus match capital control type to capital flow type in their analysis, with the motivation of assessing the effectiveness of targeted capital controls.[5] They find that the efficacy of capital controls vary across asset types and direction, and also across countries' income levels. For some capital flows, only high-income countries' policies showed an effect and the authors hypothesize these countries may have better enforcement capabilities.

Other researchers have pointed to the importance of a country's domestic development level in the process of capital account liberalization. Kose et al. (2009, 2006) argue that countries must surpass a development threshold in order to attain any benefits from capital-account opening. Alfaro et al. (2004), Kose et al. (2006), Prasad et al. (2007) find better financial intermediation and more channels for capital flows increases the absorptive capacity of a country. Antras and Caballero (2009) use a theoretical model to argue financial development determines whether trade and capital mobility are substitutes or complements. Heterogeneous financial development with trade integration increases the return to capital and thus incentivizes capital flows from capital rich to capital scarce countries. Financial development as characterized in Antras-Caballero model could encompass a broad set of country attributes, anything that causes financial trade to be inefficient.

In contrast to earlier contributions, this paper addresses the endogeneity of capital account policy in the econometric estimation, and exploits data from a new comprehensive financial development index that spans the 30+ years sample period and includes a large group of developing and developed countries. I exploit the financial development database and indexes constructed in Svirydzenka (2016) to test the hypothesis that domestic financial development alters the impact of capital account policy.

I find that on average the relation between capital account policy and realized international financial openness is weak. Consistent with results in Lane and Milesi-Ferretti (2003, 2008), the estimated policy effect is statistically insignificant using the longer time span and greater

[4]The authors of Fernandez et al. (2006) have further developed the *de jure* index in Schindler (2009).

[5]The endogeneity issues of this approach are not addressed in the paper.

number of countries, as well as an estimation method addressing endogeneity.[6] However, this average relationship hides heterogeneity. When taking into account interactions between financial development with a country's capital account policy, the results show policy is more effective for financially developed countries. This result holds when controlling for other country factors. If a country is relatively highly financially developed, reducing restrictions on capital flows does increase cross-border financial flows. However, for a country that is not at that higher level of development, it will not. There is also evidence that quality institutions provide policy amplifying effects, however this result is not as robust.

The rest of the paper is organized as follows. Section 2 describes the data, including the variables of primary interest. Section 3 presents the econometric approach. Section 4 reports results examining the relationship between the policy stance and *de facto* financial openness in the following order: section 4.1 panel regressions, financial transactions disaggregated by type and direction, 4.2 panel regressions analyzing the interactions between policy and financial development and institutional quality. Section 5 concludes.

2 Data

2.1 Domestic financial development and financial globalization

A large literature has examined the effects of financial development on outcomes such as macroeconomic growth, stability, and poverty.[7] Two standard variables have been used to proxy for financial development: private credit to GDP and stock market capitalization or turnover. Private credit creation is meant to measure the role of private sector banking intermediaries and financial deepening. Stock market turnover is a measure of the degree of activity in a country's equity capital markets, without the valuation issues of market capitalization measures. These variables measure the degree of financial sector activity in an economy and are used as proxies for financial development. However on their own they have several disadvantages. They do not measure the efficiency of the financial sector in allocating capital (i.e. the "quality" of the country's financial sector), nor do they capture access to financial services across the population. Furthermore, private credit may be growing for many reasons that are not associated with structural credit deepening. Perhaps most problematic for the research question at hand, an increase in capital inflows may increase domestic private credit to GDP, which induces a reverse causality problem in a regression with realized inflows as the dependent variable.

To attempt to address these issues, I exploit the new financial development database in Svirydzenka (2016) and the broad financial development indeces therein. The World Bank's

[6] All reported results use country fixed effects, year time dummies, and errors clustered at the country level.
[7] For example King and Levine (1993), Levine (1997), Levine et al. (2000).

Financial Structure Database collected private credit to GDP and stockmarket capitalization and turnover, as well as other variables to assess countries' financial sectors and was first presented in Beck et al. (2000). In 2012, these data were used to benchmark financial development in Cihak et al. (2012). Svirydzenka (2016) takes advantage of this database, as well as using data from the IMF's Financial Access Survey, Dealogic, and the Bank for International Settlements to construct a broad-based index of financial development that captures the depth, access, and efficiency of the country's domestic financial system. The overall index is constructed from two sub-indices: Financial Institutions (banks, insurance companies, mutual funds, and pension funds) and Financial Markets (stock and bond markets).The key components are Depth (size and liquidity), Access (ability of individuals and companies to access financial services), and Efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets). Private credit to GDP is one input of many. The index covers 183 countries from 1980-2013, and the index value is [0,1], 1 being the most developed. In this paper, this new database is used to test the hypothesis that the state of a country's domestic financial system is important for the efficacy of capital account policy.

To measure the policy stance on international financial transactions, I turn to *de jure* or legal measures of financial openness. These measures are based on the IMFs AREAER, which has been published since 1950, providing a long history and consistent qualitative assessment of each country's restrictions on exchange payments (imports of goods, imports of invisibles (services) and capital) and receipts (exports of goods, exports of invisibles (services), and capital).[8] I will use the Chinn-Ito index (Chinn and Ito (2007), updated in 2016) for this analysis. This *de jure* measure attempts to capture the magnitude of capital controls, and also some intensity. The authors construct a measure based on principal component analysis of four binary AREAER indicators: the presence of multiple exchange rates (k_1), restrictions on current-account transactions (k_2) and/or on capital-account transactions (k_3), and requirement of the surrender of export proceeds (k_4). These four variables are extended after 1995 following Mody and Murshid (2005) to adapt to the more finely disaggregated reports in the AREAER from 1995 onwards. The variables are "reversed" so that positive numbers reflect more openness. Also, for capital-account transactions, they use the share of a 5-year window that restrictions were not in effect (*share*$_{k_3}$) thus capturing some of the intensity of capital-account restrictions: $share_{k_{3,t}} = \frac{(k_{3,t}+k_{3,t-1}+k_{3,t-2}+k_{3,t-3}+k_{3,t-4})}{5}$.

The Chinn Ito index measure is the first standardized principal component of $k_{1,t}$, $k_{2,t}$, $sharek_{3,t}$, and $k_{4,t}$. Higher values represent more openness. By construction the series has a mean of zero, or alternatively one can use the series which is normalized to $[0, 1]$. The first

[8]The IMF report since 1967 also includes a table summarizing a country's exchange and trade system. A binary variable records the absence or presence of restrictions. Alesina et al. (1993) and other political economy and growth researchers use this measure. The drawback of a binary variable is the lack of any information on the intensity of restrictions if they are present. In particular, this measure does not capture policy transitions.

eigenvector of this measure was found to be $(share_{k_3}, k_1, k_2, k_4) = (0.57, 0.25, 0.52, 0.58)$, indicating that the $share_{k_{3,t}}$ series is not the only driver of its variability. In particular, significant weight is put on k_2 restrictions on the current account[9] and k_4, the requirement that export proceeds be surrendered. Including these other variables captures the full range of restrictions on international financial transactions, measuring what Chinn and Ito call the *extensity* of capital controls. I use the Chinn-Ito index to measure capital account policy because it is publicly available, and is the most extensive across both country and time dimensions. The Chinn-Ito index goes back to 1980 and for any given year comprises a maximum of 178 countries and a minimum of 119.

When looking at the impact of policy on disaggregated flows, I also use the Chinn-Ito aggregate policy measure rather than disaggregated capital control measures. I do this not only because it provides a longer data series, but also because the overall policy stance could be functioning as a signal of reform commitment.[10] During the time period under consideration, there was a general trend of moving away from capital controls to liberalized open capital accounts. Long-standing capital control regimes, to quote Klein (2012) "are like walls that attempt to erect a more or less permanent barrier against the vicissitudes of international capital markets." Dismantling these walls could be interpreted as a signal that the country is committed to a broad set of liberalization policies, including trade and privatization.[11] One could thus expect foreign multinationals and investors to respond to this signal not only because of the exact feasibility of a given cross-border financial flow, but also because of the opportunities in the real economy arising from a country's commitment to a broad set of liberalization policies.

Realized financial openness can be measured in many ways. The External Wealth of Nations database was first published as Lane and Milesi-Ferretti (2003), and has since been updated and extended to 2011. The authors use Balance of Payments data from the IMF's International Financial Statistics and estimates of a country's International Investment Position to back out asset and liability positions for previous years. Importantly, they take into account valuation changes due to capital gains and losses. A standard *de facto* measure uses the sum of the absolute value of the country's assets and liabilities, scaled by the country's gross domestic product.[12] I will use the standard gross measure described above, and measures of subcategories of assets and liabilities defined by type and direction in Lane and Milesi-Ferretti (2006).

The evolution of the *de jure* policy measure, averaged across countries, is plotted in Figure 1a for the full sample. The policy trend towards reducing restrictions on capital flows,

[9]The current account includes transactions involved in payment for international trade in goods and services.

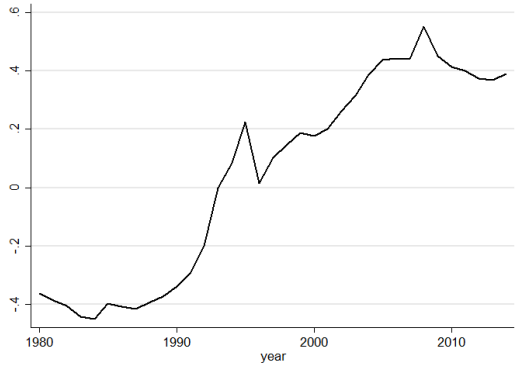
[10]The *de jure* index, constructed by Schindler (2009) is more granular, but only goes back to 1995 and includes 74 countries.

[11]The authors of Bartolini and Drazen (1997) argue that capital account liberalization is a signal.

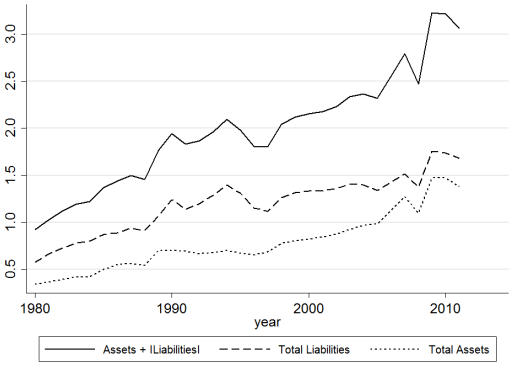
[12]For example see Kose et al. (2006).

Figure 1: Evolution of policy and realized financial openness

(a) *De Jure* measure



(b) *De Facto* measures



Values averaged across countries for each year. Panel a, Chinn-Ito index. Panel b, External Wealth of Nations database.

interrupted briefly during the Asia crisis of 1997 and more so recently, is mirrored by a general rise in realized financial globalization, with liabilities about twice as large as assets (as a share of GDP). (See Figure 1b.)

The analysis uses various measures of realized financial transactions (scaled by GDP) disaggregated by asset type and direction, because different asset types have different characteristics and functions and thus different mechanisms may be at work. For example direct investments, which are equity flows where the investor owns at least a 10% stake in the targetted firm, are a longer-term commitment, in contrast to arms-length portfolio equity. Often direct investments are joint-ventures where the foreign investor has management influence and shares distribution or other business functions with the target firm. From a foreign investor's perspective, the targeted firm may provide access to that local market, or act as an important link in a manufacturing supply chain. From the recipient firm's perspective, they receive a capital infusion, and the relationship has potential for knowledge spillovers. This type of investment is lauded as most desirable for liberalizing economies, both because of the potential for spillovers in the real economy, and the longer-term commitment. Contrast equity direct investments with debt: domestic households with high savings and a limited set of domestic savings opportunities to choose from, may want to diversify and access opportunities via accumulating foreign debt assets. Conversely, countries with advanced financial sectors may expect debt inflows because of the liquidity and diversity of their domestic financial system.[13]

The primary hypothesis of this paper concerns financial development, however the overall institutional environment is likely to influence the impact of capital-account policy. Effective law enforcement and low levels of corruption facilitate capital flows by reducing the risk of

[13]The global savings glut literature discusses this, suggesting the US has a comparative advantage in producing safe assets for global demand.

expropriation and unequal legal treatment. In general, better institutions ameliorate problems arising from asymmetric information and ensure contract enforcement. Empirically, institutional quality has been shown to be important for capital inflows.[14] The analysis includes this development attribute and how it may interact with capital account policy. To capture the quality of domestic institutions other researchers have used scores from indeces produced by ICRG. In order to include institutional quality in my analysis, I normalize and combine two datasets to span the full time period: the ICRG indicators[15] and the Worldwide Governance Indicators from Kaufmann and Kray (2017) which cover 1996-2015 and are publicly available.

Plotting data from the sample, we can see differences in the impact of policy. Sorting countries by institutional quality or financial development, plots of period average data suggest it matters whether a country is in the top 10th percentile versus the bottom 10th. Figures 2 and 3 plot the period average policy measure against Gross Stocks. Figure 2 shows that for the Top 10th percentile of financially developed countries, those that are more open legally seem to mostly have higher Gross Stocks, which is not the case for countries in the bottom decile of financial development.[16] Sorted by the institutional quality measure, the top 10th percentile have a positive relation between policy openness and realized openness. Figure 3 shows the stark contrast between the top and bottom deciles.[17]

2.2 Other factors

In the benchmark regression analysis, other control variables are included that have been shown to influence the pattern of international capital movements. Natural resources, when they account for a large fraction of a country's export trade, earn relatively substantial foreign exchange that must then be spent or invested abroad. Empirically, Faria and Mauro (2005) find a positive relationship between natural resource endowment and the external capital structure of emerging economies. Following Faria and Mauro (2005), the sum of fuels, ores and minerals exports as a percent of GDP, computed using the World Bank's Development Indicators dataset, is included.

International trade requires international capital flows directly through the current-account. In addition, indirect effects on capital flows may be important. Portes et al. (2001) find that a gravity model often used to explain trade, explains the pattern of capital flows comparatively well. They argue capital flows may be facilitated by cultural or informational proximity. This informational closeness may come about because of existing trade relations. Thus openness

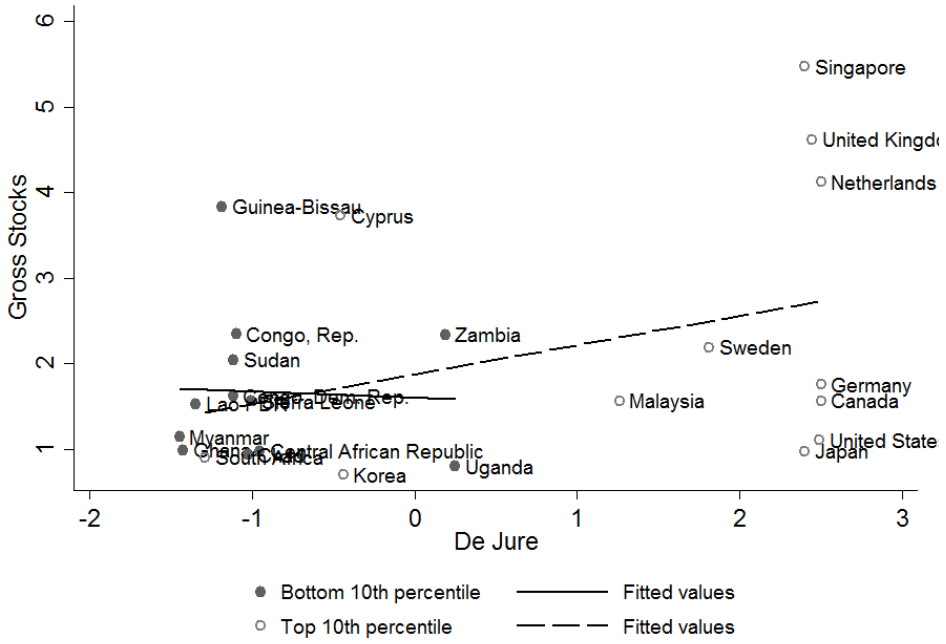
[14] See Okada (2013).

[15] See Appendix for descriptions of ICRG law and order, and corruption indices. (ICRG Data kindly provided by Hali Edison.)

[16] Hong Kong was dropped from the graph as an outlier with high financial development, and much higher *de jure* and *de facto* financial openness.

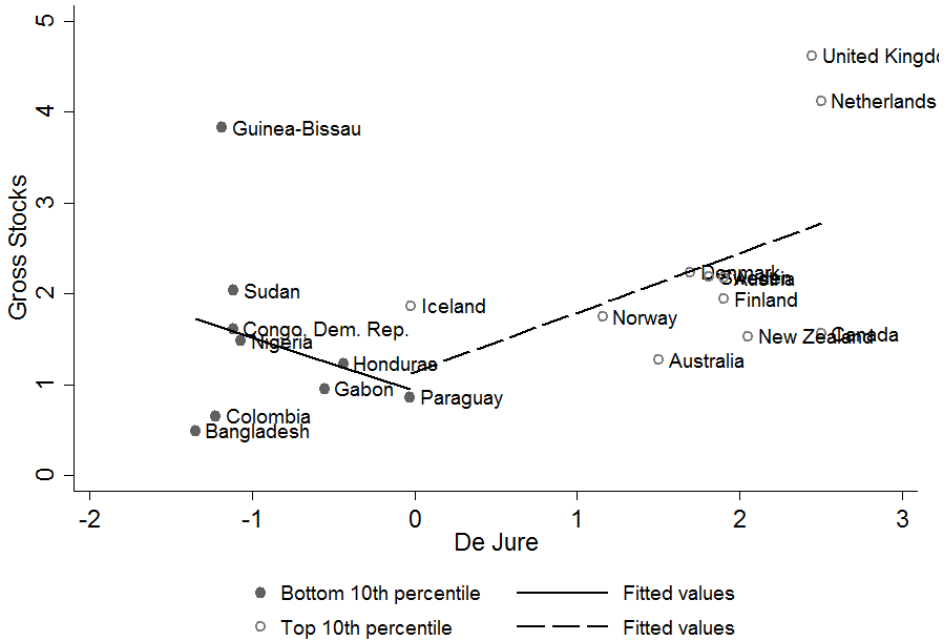
[17] Liberia was dropped from the plot as an outlier in the bottom decile of institutional quality.

Figure 2: Sorted by period average financial development measure



Policy vs. outcomes for bottom and top decile based on country's financial development level.

Figure 3: Sorted by period average Institutional Quality scores



Policy vs. outcomes for bottom and top decile based on country's Institutional Quality measure.

to trade leads to familiarity with trading partners which are then more likely to engage in financial trade. Network analysis of international banking relationships also suggests that despite the intangibility of financial flows, border effects and other geographic distance mea-

sures do matter.[18] It may also be the case that trade liberalization acts as a signal of general reform momentum and boosts investment inflows. A formal model of trade and financial flows presented in Antras and Caballero (2009) argues that in a world with heterogeneous financial development, for less financially developed countries, capital account opening without trade liberalization could in fact lead to outflows. They argue trade mobility complements capital flow mobility.[19] Deepening trade integration increases the return to capital and thus raises net capital inflows. If capital scarce countries are also financially underdeveloped, this model theorizes trade openness explains why capital may or may not flow to those countries. The country's trade to GDP ratio is included.

In addition, Log of real per capita GDP was included to control for general development levels and address the issue that the financial development measures may be picking up the effect of general development attributes. Financial development did not lose its statistical significance when per capita GDP was controlled for (Table 1, column 5 and 6).[20] Log of GDP was included as a measure of the size of the economy. Similar to arguments made in trade, a large economy is likely to have developed a larger set of financial assets and liabilities to satisfy its domestic market. Thus the size of the economy would influence international financial transactions. The coefficient estimates on the log of GDP were statistically significant. A measure of government policy quality and reputation were included. High and sustained periods of inflation could deter inward investment and perhaps prompt capital flight.[21] Two policy variables, log of government balance for fiscal policy and log of inflation for monetary policy, were tested but had no substantial impact on the other regressor coefficient estimates. The Governmnet balance variable reduced the number of usable observations substantially. The inflation measure was significant in models with country fixed effects (Table 1, column 4 and 6), but lost significance when other controls were added.

Global push factors have also been shown to be important for capital flows during periods of financial stress.[22] However, global volatility measure and various measures of long term interest rates in developed economies did not significantly alter the results or improve the basic model. The effects of these global factors may have been captured in the year fixed effects, or their influence may be less significant in normal times.

[18] See Arribas et al. (2011).

[19] Martin and Rey (2006) also argue that trade openness complements financial openness in that trade channels can ameliorate the effects of a financial crisis.

[20] Including initial GDP per capita also did not reduce the statistical significance of the financial development variable, and as this is a time-invariant country variable, the effect is captured in the country fixed effect.

[21] See Montiel and Reinhart (1999) for a discussion of macroeconomic policy and capital controls.

[22] See Fratzscher (2012) and Forbes and Warnock (2012).

Table 1: Panel data model specification (2SLS)
Dependent variable: Gross Stocks to GDP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DeJure	1.154*	0.295	1.221*	0.673	1.280*	0.534	1.417**	0.666
	(0.538)	(0.630)	(0.503)	(0.624)	(0.515)	(0.608)	(0.546)	(0.617)
Natural Resources	0.780	-0.826	0.819	-0.660	0.929	-0.199	1.098	-0.214
	(0.791)	(0.756)	(0.749)	(0.750)	(0.721)	(0.799)	(0.727)	(0.763)
Trade to GDP	3.137***	2.201	3.039***	2.288*	3.079***	2.119*	2.725***	1.532
	(0.544)	(1.125)	(0.538)	(0.943)	(0.545)	(0.899)	(0.610)	(1.063)
Inst.Qual	1.116	2.444*	1.212	2.210*	2.020**	2.462**	1.468*	2.387**
	(0.757)	(1.182)	(0.753)	(1.030)	(0.749)	(0.920)	(0.707)	(0.923)
(0.758)	(1.027)							
FD	2.694*	4.644***	2.813*	5.089***	3.705**	4.964***	5.686***	4.776***
	(1.196)	(1.010)	(1.150)	(0.873)	(1.420)	(1.046)	(1.381)	(1.019)
log of Infltn			0.142	0.205*	0.167	0.214*	0.201	0.145
			(0.105)	(0.088)	(0.109)	(0.085)	(0.108)	(0.086)
log R.P.C. GDP					-0.283	0.539	-0.227	2.815
					(0.152)	(1.133)	(0.156)	(1.522)
log GDP							-0.264*	-1.998*
							(0.119)	(0.801)
Constant	-1.976*	-4.008***	-2.280**	-4.751***	-0.686	-10.566	1.469	-1.136
	(0.847)	(1.162)	(0.772)	(1.234)	(1.236)	(12.308)	(1.679)	(13.067)
Observations	2925	2925	2736	2736	2699	2699	2699	2699
Adjusted R^2	0.285	0.564	0.275	0.561	0.278	0.563	0.286	0.571
Country FEs	No	Yes	No	Yes	No	Yes	No	Yes

Standard errors in parentheses, clustered by country.
dummies included in all regressions. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3 Methodology

Taken as a linear approximation, the basic econometric model to assess the effect of policy on international financial integration is:

$$DeFacto_{it} = \alpha_0 + \beta_1 DeJure_{it} + \beta_2 FD_{it} + \beta_3 Controls_{it} + Y_t + C_i + u_{it} \quad (1)$$

where FD_{it} is the financial development measure, and errors are assumed to be heteroskedastic and auto-correlated.

To control for unobserved effects of global dynamics on international financial transactions in a given year (such as the Asia Crisis in 1997), time dummies Y_t are included, removing correlation between observations in the same year.

Capital flows could also be driven by unobserved country attributes. Then for a given country the model errors are likely to be correlated over time. If we think of $\epsilon_{it} = C_i + u_{it}$, (ie a time-invariant country effect), and omitted country factors affect the other regressors, then the OLS assumption that the model errors are not correlated with the regressors would be violated. When country fixed effects are included to remove time-invariant country factors the estimated models all have higher measures of overall fit (Table 1). There may also be country effects that vary over time, or are correlated across country groups, which could affect inference. Table 1 specifications standard errors are clustered by country. The number of clusters is large (close to the number of countries) and the standard errors are more conservative.[23]

3.1 Policy interaction

To test the hypothesis that development attributes affect the impact of capital account policy, I use two approaches. First, the basic model is estimated with an additional term representing the interaction between the *de jure* policy measure and domestic financial development FD_{it}.

$$DeFacto_{it} = \alpha_0 + \beta_1 DeJure_{it} + \beta_2 FD_{it} + \beta_2 DeJure_{it} * FD_{it} + \beta_4 Controls_{it} + Y_t + C_i + u_{it} \quad (2)$$

The model above assumes a continuous relationship, a one-point improvement in financial development for example, will amplify the impact of a change in policy to the same degree for both a highly advanced economy and an undeveloped country. It may be the case that below

[23] In the Annex, Table 8 columns 5-12 compare standard errors with and without clustering at the country level (but robust to heteroskedasticity and auto-correlation) and the standard errors are larger. Robustness checks estimate the model allowing for cross-sectional dependence.

a certain level of development, steady improvement has little amplifying effect.[24] Kose et al. (2009, 2006) suggest certain pre-requisite threshold levels of institutional development may determine whether opening the capital-account leads to growth benefits or crises. To analyze this, the basic model is then estimated on sub-samples based on financial development or institutional quality (eg. Top 10pct and Bottom 10pct of countries sorted by development attribute). Discretizing the development attribute, dummy variable T_i and an interaction term T_i x $deJure_{it}$ are included in the regression, where T_i is a dummy for being in the sub-sample specified by the sorting variable. For example for domestic financial development, if the country is in the bottom 10th percentile, and the rest is the benchmark, then $T_i = 1$ for that less-developed country and the coefficient on the interaction term is interpreted as the distinct slope effect of being in the bottom decile of financial development.[25]

3.2 Estimation

A primary concern in the estimation approach is the endogeneity of the policy stance. It may be the case that capital account policy is driven by a country's experience with capital flows, for instance a sudden inflow. In which case the basic model would suffer from reverse causality problems. In the panel setting, it may also be the case that policy is simultaneously determined depending on our assumptions about the lead and lag effects of policy implementation and the other variables in the model. Even with year dummies, controls for country fixed effects, and allowing for errors to be clustered at the country level, the endogeneity of the policy stance remains a concern.[26] Some researchers have addressed the endogeneity (and simultaneity) issue by lagging the endogenous variable.[27] However as Reed (2015) points out lagging the policy variable does not necessarily effectively address the problem.

As an alternative approach, I use the lagged policy variable as an instrument for the contemporaneous policy stance, using a two stage least squares regression. Following Reed (2015), in order for the lagged endogenous variable to be a good instrument, it must be highly correlated with the contemporaneous endogenous variable, but also not belong in the

[24] This type of dynamic has been discussed in the growth literature. For example, Deidda and Fattouh (2002) model non-linearity in the finance and growth relationship and find empirical evidence: in high-income countries financial development was positively linked to growth, but no such relation emerges for low-income countries.

[25] An alternative approach draws on the heterogeneous slope models discussed in Pesaran and Smith (1995), Haque et al. (1999), Eberhardt and Teal (2011). For example, Hernandez (2015) estimates a model assuming heterogeneous slope coefficients applied to country-level quarterly capital flow data for emerging economies. In this paper, the economic question is how levels of domestic financial development affect the efficiency of capital account policy, thus country slope coefficients are not the goal of the estimation. The econometric model is estimated using two-stage instrumental variables, with interactions between policy and financial development to assess whether financial development in general amplifies or alters the impact of policy.

[26] The lack of consensus of earlier studies on capital flows may be not only from measurement issues, but also from methodological differences.

[27] For several examples in a range of journals from AER to Journal of Finance, please refer to Reed (2015).

structural equation itself. In this sample, the lags that are most highly correlated with contemporaneous policy are the first and second lags, even up to the fifth lag, the unconditional correlation is 0.86.

Table 8 in the Appendix reports the baseline regression equation estimated including the potential instruments (the lags of the policy variable) to assess whether the lagged policy variable satisfies the exclusion restriction. Results in Table 8 columns 1-8 show none of the lags are statistically significant in the main equation. Using a different model where the errors are not clustered by country, but are robust to heteroskedasticity and auto correlation, the first lag is not statistically significant (columns 9-12). In the benchmark model the first lag is selected.[28]

In sum, the results reported in the paper are from specifications that include as controls natural resources exports to GDP, trade to GDP, Institutional Quality, log of real per capita GDP, log of GDP, and both year and country fixed effects. In addition, errors are HAC robust and clustered at the country level. The dependent variables are various measures of realized financial openness. The variables of interest are the policy measure ($DeJure$), the domestic financial development measure (FD), institutional quality, and the interaction of these indicators with the policy measure. The estimation approach addresses endogeneity by using an IV 2SLS approach where the lagged policy variable instruments for the contemporaneous policy stance.

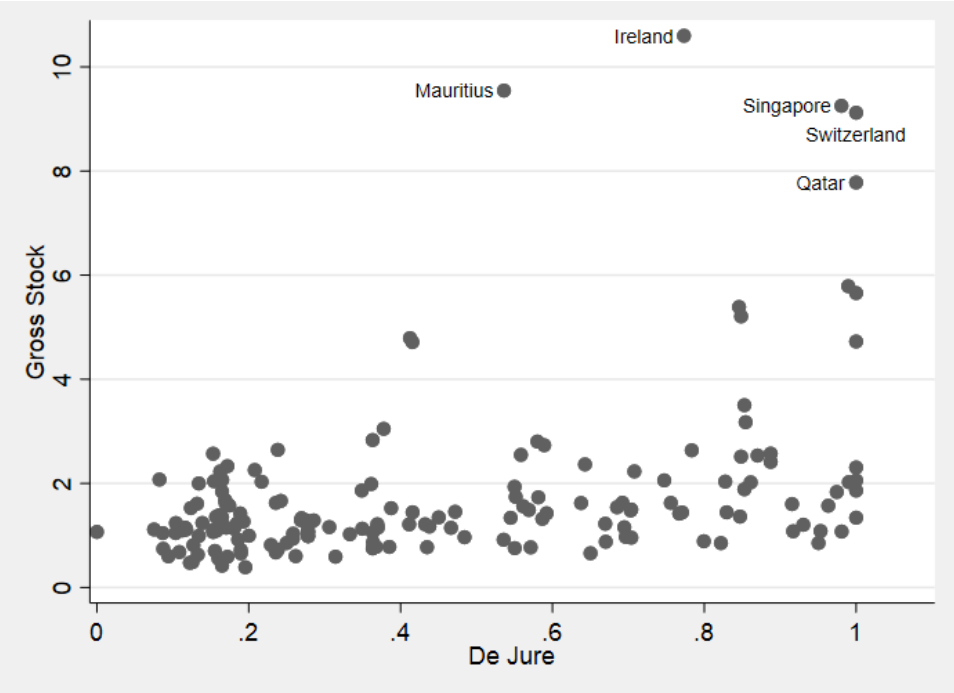
4 Results and analysis

Using the policy proxy and financial integration measures averaged over the period, policy is positively correlated with realized financial openness for all the *de facto* measures. For the period average, Gross Stocks showed correlation to $DeJure$ of 0.437. Total Assets showed the highest correlation with $DeJure$ at 0.467, and total Assets are more correlated with the policy measure than total Liabilities. Outward debt also showed one of the higher correlations at 0.447. This basic data analysis does not contradict the hypothesis that outflows are more responsive to restrictions than inflows.

Figure 4 shows a plot of countries' period average policy measure against their gross asset and liability to GDP position (Gross Stocks). While some countries are in the upper right quadrant, the majority are clumped at lower levels of international financial integration and a wide range of policy openness.

[28] Results are robust to the selection of other lags and combination of lags.

Figure 4: Policy vs. outcomes



Each country's period average level of Chinn Ito index plotted against combined value of Assets and Liabilities from External Wealth of Nations database.

4.1 Panel data model

The panel regression results imply the impact of capital account policy on average is weak, unless interacted with financial development measures. Using the two stage instrumental variable estimation approach, the first stage regressions all had R-squares higher than 80%. And, the regressions passed endogeneity tests. With the null hypothesis of exogeneity, p-values ranged from 0.28 to 0.89 and thus none rejected the null.[29]

Looking at the regression results in Table 2 with the dependent variable the aggregate stock measure of international financial integration (Gross Stocks to GDP), the estimated effect of policy is not statistically different from zero. The estimate for the coefficient on $DeJure$ is 0.375 with a standard error of 0.629 (Table 2, column 1) Disaggregating by direction, neither Liabilities (inward) nor Assets (outward) show a significant influence from the policy measure. Nor does any particular asset class when disaggregating by type. Neither Gross Debt nor Gross Equity seem affected by the degree of policy openness (Tables 2, columns 2 and 3). The estimated coefficients on the $DeJure$ measure vary in magnitude and statistical significance, however when accounting for endogeneity and country clusters, none pass the 5% significance level threshold.

Using a model with heteroskedastic and autocorrelation robust errors, but without clustering at the country level, the standard errors are smaller, and the policy measure is statistically

[29]Test results reported in the Appendix in Table 7.

significant for Gross Stocks, Assets (outflows), Foreign Direct Investment and Portfolio Equity transactions in both directions. But this latter specification performs less well on tests of endogeneity.[30]

Analysis in Lane and Milesi-Ferretti (2003, 2008) show similarly weak evidence of policy effects. Binici et al. (2010) find capital controls can sometimes be effective. Their measure of capital controls affected FDI plus Equity[31], but not Debt. However, their regression specification is different than the approach used here and does not address the endogeneity of policy. Both Binici et al. (2010) and Lane and Milesi-Ferretti (2003, 2008) use real GDP per capita as a control variable for general economic development, but do not explicitly include financial development measures.[32]

4.2 Interaction between policy and development level

4.2.1 Amplification

Table 4 reports the estimation results from the regression models that include an interaction term between policy and domestic development attributes. Financial sector development seems to significantly amplify the effect of policy. The coefficient on the interaction between policy and domestic financial development, is statistically significant at the 1% level. The interaction term coefficient is estimated to be 13.21 in column (2) and 12.02 in column (3). Institutional quality also interacts positively with policy, however not as significantly as when compared to the financial development variable. Using estimates from the model in column (2), 0.32 is the calculated level of financial development where the policy impact changes from negative to positive,[33] using estimates from column (3), the value is 0.42.[34] Applying these critical values of financial development to the sample of countries, for the 1980-2014

[30] An additional concern is the presence of an influential degree of cross-sectional dependence. Using the test statistic in Pesaran (2012), residuals were tested for cross-sectional dependence. The test results could not reject the null of weak cross-sectional dependence. As a robustness check, all of the regressions were re-estimated using standard errors robust to cross-sectional dependence (Driscoll Kray). Results were not substantially different and discussed in the relevant sections of the text, and are available from the author upon request.

[31] The authors argue FDI should not be separated out from portfolio equity transactions. However there are theoretical reasons to distinguish the two. For example, Ostry et al. (2010) discuss how FDI is distinct from portfolio equity, and may be more debt-like if the FDI is in the form of transfers from parent foreign banks to local branches. Long-term flows, such as FDI, are less susceptible to sudden reversals in international liquidity (See Chang and Velasco (2001) for a theoretical discussion.) in the sense that short-term liabilities must be rolled over or replaced by fresh liquidity. In addition, FDI in the form of a foreign joint venture or greenfield investment theoretically brings positive spillover effects such as technological transfer. For example, Kose et al. (2006) discuss the hypothetically positive effects of foreign bank ownership.

[32] Because in Binici et al. (2010), their dependent variable (capital flows) are per capita as well, this is equivalent to including real GDP.

[33] This amplification effect is robust to estimations allowing cross-sectional dependence among countries. The estimated threshold levels of financial development are slightly lower (0.29, and 0.34) with smaller standard errors.

[34] Calculated setting $dy/dx = 0$, with y = Gross Stocks, and $x = DeJure$.

Table 2: Panel data model results, disaggregated by direction and type

	Gross (Assets + |Liabilities|) to GDP			Liabilities to GDP			Assets to GDP		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	Debt	Equity	All	Debt	Equity	All	Debt	Equity
DeJure	0.375	0.249	0.104	0.140	-0.008	0.171	0.235	0.257	0.064
	(0.629)	(0.482)	(0.136)	(0.336)	(0.271)	(0.109)	(0.321)	(0.242)	(0.142)
Natural Resources	-0.404	-0.153	-0.072	-0.128	-0.008	-0.107	-0.276	-0.146	-0.080
	(0.760)	(0.581)	(0.163)	(0.420)	(0.378)	(0.178)	(0.392)	(0.260)	(0.266)
Trade to GDP	1.383	0.057	0.437	0.651	-0.070	0.706	0.732	0.127	0.424
	(1.211)	(0.831)	(0.349)	(0.557)	(0.411)	(0.420)	(0.677)	(0.435)	(0.520)
Inst.Qual	2.698*	1.837*	0.331	1.470*	0.983*	0.449*	1.228*	0.853*	0.355
	(1.057)	(0.849)	(0.224)	(0.574)	(0.463)	(0.189)	(0.518)	(0.427)	(0.189)
FD	4.273***	2.114*	0.718*	2.478***	1.609***	0.725*	1.795**	0.505	1.199***
	(1.235)	(0.905)	(0.327)	(0.663)	(0.467)	(0.326)	(0.605)	(0.477)	(0.255)
log R.P.C. GDP	3.092*	2.103*	0.508	1.698*	1.265*	0.409	1.394	0.838	0.513
	(1.443)	(0.844)	(0.373)	(0.739)	(0.511)	(0.371)	(0.786)	(0.439)	(0.513)
log GDP	-2.062**	-1.414**	-0.191	-1.338**	-1.086**	-0.201	-0.723	-0.328	-0.358
	(0.736)	(0.460)	(0.176)	(0.448)	(0.395)	(0.176)	(0.407)	(0.168)	(0.308)
Constant	-2.499	-1.351	-2.981	2.023	3.143	-1.722	-4.522	-4.495	-0.312
	(13.105)	(9.067)	(3.410)	(6.701)	(4.282)	(2.725)	(6.647)	(5.146)	(1.765)
Observations	2882	2882	2854	2882	2882	2872	2882	2882	2862
Adjusted R^2	0.574	0.644	0.589	0.525	0.573	0.397	0.613	0.691	0.485

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

IV regression, with HAC robust standard errors in parentheses, clustered by country.

Year dummies, and country fixed effects included.

Table 3: Panel data model results, Equity disaggregated

	Equity Liabilities to GDP			Equity Assets to GDP		
	(1)	(2)	(3)	(4)	(5)	(6)
	Total	Direct	Portfolio	Total	Direct	Portfolio
DeJure	0.171	0.128	0.039	0.064	0.003	0.065
	(0.109)	(0.072)	(0.064)	(0.142)	(0.056)	(0.096)
Natural Resources	-0.107	-0.058	-0.052	-0.080	-0.058	-0.016
	(0.178)	(0.152)	(0.057)	(0.266)	(0.145)	(0.123)
Trade to GDP	0.706	0.400	0.302	0.424	0.289	0.134
	(0.420)	(0.320)	(0.170)	(0.520)	(0.307)	(0.219)
Inst.Qual	0.449*	0.267*	0.174	0.355	0.202*	0.148
	(0.189)	(0.109)	(0.138)	(0.189)	(0.101)	(0.096)
FD	0.725*	0.421	0.306	1.199***	0.787***	0.413**
	(0.326)	(0.219)	(0.223)	(0.255)	(0.173)	(0.127)
log R.P.C. GDP	0.409	0.212	0.203	0.513	0.207	0.305
	(0.371)	(0.274)	(0.181)	(0.513)	(0.280)	(0.242)
log GDP	-0.201	-0.192	-0.009	-0.358	-0.176	-0.181
	(0.176)	(0.154)	(0.036)	(0.308)	(0.159)	(0.152)
Constant	-1.722	0.616	-2.386	-0.312	0.282	-0.591
	(2.725)	(0.993)	(2.230)	(1.765)	(0.706)	(1.270)
Observations	2872	2882	2872	2862	2882	2862
Adjusted R^2	0.397	0.346	0.528	0.485	0.283	0.599

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
IV regression, with HAC robust standard errors in parentheses, clustered by country.
Year dummies, and country fixed effects included.

average, only 53 countries (both emerging and developed) are above the 0.32 cutoff. (See Appendix for a complete list).

This result highlights that domestic financial development may be crucial to the success of capital account opening leading to increased financial integration. Once a country departs from financial autarky, a more proficient financial sector is likely to raise the absorptive capacity of the economy and once the flows have arrived reduce distortions in the domestic capital allocation process. My results also suggest that capital account opening successfully attracts investors when combined with a well-functioning perhaps recently liberalized domestic financal sector.[35] Thus financial development acts both as a channel for greater financial flows and a promoter of financial integration itself.

In conclusion, my result that financial development interacted with policy generates a positive effect on realized financial openness, supports the view that the success of capital account opening depends on domestic financial development. Changing the policy stance alone does not necessarily induce changes in international financial integration. Thus countries that are well developed financially are better placed to gain from financial globalization.

To my knowledge, only Okada (2013) have included interactions of this kind (i.e. factors interacted with a capital account policy measure). Okada (2013) examines the interaction of institutions and capital account policy on only capital inflows and finds that alone neither

[35] See Bartolini and Drazen (1997) for a discussion of capital account opening as a signal of policy reform.

Table 4: Policy interactions
Dependent variable Gross Stocks to GDP

	(1)	(2)	(3)
DeJure	0.375	-4.172**	-5.049**
	(0.629)	(1.430)	(1.913)
Natural Resources	-0.404	-0.329	-0.320
	(0.760)	(0.765)	(0.770)
Trade to GDP	1.383	1.292	1.284
	(1.211)	(1.061)	(1.063)
log R.P.C. GDP	3.092*	3.556*	3.495*
	(1.443)	(1.390)	(1.375)
log GDP	-2.062**	-1.765*	-1.782*
	(0.736)	(0.735)	(0.736)
Inst.Qual	2.698*	2.598*	1.831
	(1.057)	(1.014)	(0.977)
FD	4.273***	-8.194	-7.469
	(1.235)	(5.029)	(4.802)
FD*DeJure		13.206**	12.023**
		(4.497)	(4.254)
Inst.Qual*DeJure			2.142
			(2.146)
Constant	-2.499	-8.232	-7.261
	(13.105)	(12.393)	(12.220)
Observations	2882	2882	2882
Adjusted R^2	0.574	0.586	0.584

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

IV regression, with HAC robust standard errors, clustered by country.
Year dummies, and country fixed effects included.

institutions nor policy affect inflows, but the interaction of the two does have a significant impact on inflows. This paper extends and complements the earlier analysis in Okada (2013) to a broader set of international financial measures, and finds that in fact, financial development has a more powerful general impact on the efficacy of policy.

4.2.2 Subgroups

The regression specifications using subsamples, reported in Table 5 and 6, reaffirm the results from the interaction specification. The coefficient estimates for $DeJure$ show that capital account policy has the opposite effect for countries that are less developed financially, than for those in the top decile. The estimates for countries in the bottom 10th and below the median groups imply a negative marginal effect of increased *de jure* openness on *de facto* financial openness. The coefficient estimates on the interaction between policy and being in the bottom 10th or 25th percentile of domestic financial development are both negative, and for below the median, the estimate is -1.95 which is statistically significant at the 1% level. For countries with the highest relative domestic financial development (top 10th percentile), the estimated total marginal effect of increased legal openness on Gross Stocks is positive, but statistically insignificant in the conservative benchmark model.[36] In contrast, for countries below the median level, policy has a negative effect on international financial integration. Estimates of the coefficient on the interaction term from different subgroups are plotted in Figure 5.

For levels of institutional quality (Table 6), institutionally advanced countries (in the top 10th percentile) experience an estimated additional positive effect of 1.89 compared to the rest of the sample although these estimates are not statistically significant. Using a subsample of countries in the bottom quartile, or below the median, the interaction term coefficient is negative.[37]

Both Lane and Milesi-Ferretti (2008) and Binici et al. (2010) implement their regressions on subgroups. Lane and Milesi-Ferretti (2008), for end-2006 data, estimate their model on Advanced Economies and Emerging Markets as well as the full sample and differences in significance and coefficient magnitudes do arise. In Binici et al. (2010) extensions section, they estimate their model using High Income countries (including Hong Kong, South Korea and Singapore) and then on Low/Middle Income countries. The High Income sample gives similar results to the full sample: targetted controls affect outflows but not inflows, and debt outflows more than gross equity outflows. However for Middle and Low Income countries, legal restrictions only seem to affect gross equity outflows.

[36] The Driscoll-Kraay standard errors model generates similar results. But the positive amplification effect of financial development for the top decile becomes statistically significant at the 1% level.

[37] The Driscoll-Kraay standard errors model generates similar results.

Table 5: Subgroups by financial development
Dependent variable Gross Stocks to GDP

	(1)	(2)	(3)	(4)
DeJure	0.437	0.575	1.135	-0.068
	(0.648)	(0.662)	(0.743)	(0.552)
Natural Resources	-0.171	-0.296	-0.302	-0.226
	(0.775)	(0.796)	(0.796)	(0.738)
Trade to GDP	1.628	1.565	1.550	1.403
	(1.212)	(1.204)	(1.182)	(1.040)
log R.P.C. GDP	3.646*	3.730*	3.695*	3.382*
	(1.430)	(1.481)	(1.458)	(1.326)
log GDP	-2.075**	-2.050**	-2.078**	-1.886*
	(0.747)	(0.727)	(0.729)	(0.750)
Inst.Qual	2.714*	2.575*	2.678*	3.044**
	(1.078)	(1.056)	(1.050)	(1.069)
Bottom10pct	0.811*			
	(0.350)			
Bottom10pct*DeJ	-0.965			
	(1.059)			
Bottom25pct		1.037*		
		(0.496)		
Bottom25pct*DeJ		-1.461*		
		(0.693)		
Bottom50pct			1.633**	
			(0.500)	
Bottom50pct*DeJ			-1.954**	
			(0.640)	
Top10pct				-4.070
				(2.973)
Top10pct*DeJ				6.121
				(3.221)
Constant	-5.075	-6.420	-6.132	-6.545
	(13.199)	(13.578)	(13.253)	(11.207)
Observations	2882	2882	2882	2882
Adjusted R^2	0.570	0.571	0.574	0.584

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

IV regression, with HAC robust standard errors, clustered by country.

Year dummies, and country fixed effects included.

Table 6: Subgroups by institutional quality
Dependent variable Gross Stocks to GDP

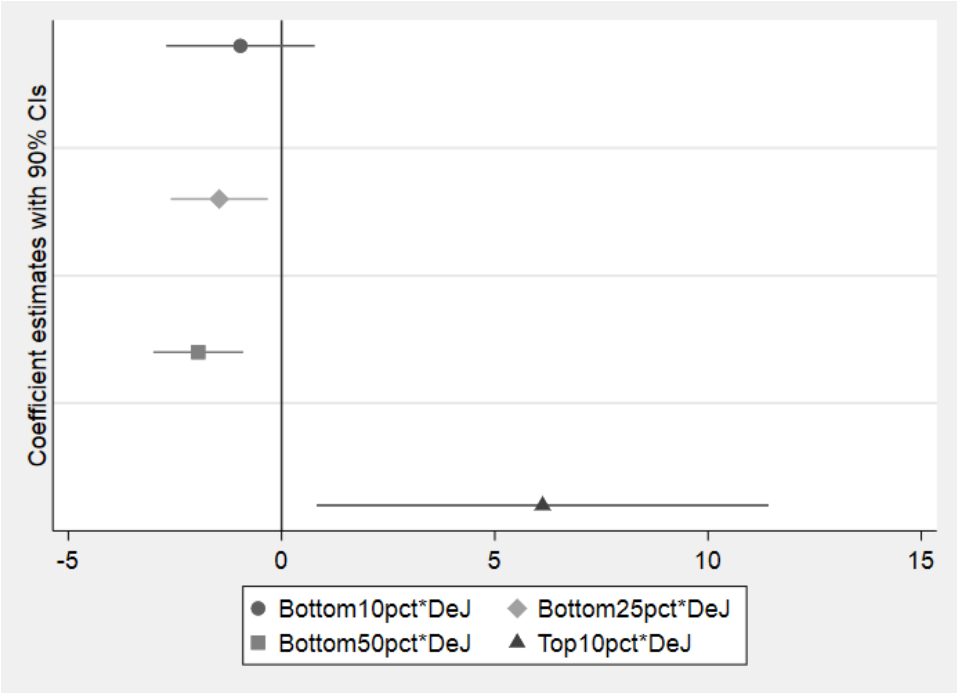
	(1)	(2)	(3)	(4)
DeJure	0.216	0.298	0.814	0.167
	(0.623)	(0.656)	(0.773)	(0.581)
Natural Resources	-0.429	-0.314	-0.194	-0.490
	(0.720)	(0.704)	(0.707)	(0.720)
Trade to GDP	1.873	1.886	1.880	1.553
	(1.073)	(1.076)	(1.060)	(0.905)
log R.P.C. GDP	3.046*	3.020*	3.007*	3.000*
	(1.360)	(1.332)	(1.321)	(1.325)
log GDP	-1.884**	-1.886**	-1.922**	-1.938***
	(0.586)	(0.584)	(0.590)	(0.581)
FD	4.230**	4.166**	3.548*	4.460***
	(1.330)	(1.378)	(1.457)	(1.173)
Bottom10pct	0.128			
	(0.263)			
Bottom10pct*DeJ	0.791			
	(0.598)			
Bottom25pct		0.212		
		(0.232)		
Bottom25pct*DeJ		-0.286		
		(0.752)		
Bottom50pct			-0.046	
			(0.211)	
Bottom50pct*DeJ			-1.158	
			(0.595)	
Top10pct				0.553
				(0.773)
Top10pct*DeJ				1.716
				(1.008)
Constant	-2.853	-2.600	-1.817	-2.458
	(13.449)	(13.359)	(13.036)	(13.255)
Observations	2742	2742	2742	2742
Adjusted R^2	0.638	0.638	0.640	0.644

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

IV regression, with HAC robust standard errors, clustered by country.

Year dummies, and country fixed effects included.

Figure 5: Policy impact for different financial development subgroups



Estimated affect of policy for countries in different quantiles of financial development.

5 Conclusion

In conclusion, the development level of the domestic financial system and institutions has a significant impact on the efficacy of capital account policy on international financial integration. Liberalizing capital account policy does not necessarily induce realized financial openness. The impact of policy depends on the level of financial development of the country that is liberalizing. Thus finding evidence for benefits of capital account opening will depend on the country context. In particular, the panel analysis results suggest that for financially and institutionally underdeveloped countries, opening the capital account does not on its own generate significant increases in international capital flows. Given this, for these countries, capital account liberalization may not have induced the investment and growth benefits predicted by Neoclassical theory. Financial development in particular seem to be prerequisites for capital account opening to have measurable positive effects. The implications are that the gains from financial globalization may have been captured by the more financially developed countries able to channel international financial flows more effectively than countries with less developed financial systems. Future policies aimed at affecting international financial transactions should first consider the characteristics of the domestic financial system. Future work could examine more closely the financial sector channels, and the relative roles of financial intermediaries versus capital markets in the financial globalization process.

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A Tables

Table 7: Durbin test for endogeneity

Y	F-statistic	p-value
For Table 2		
Gross	0.4367	0.5097
Debt total	0.0407	0.8404
Equity total	0.5735	0.4500
Liabilities total	0.0176	0.8946
Liabilities Debt	1.169	0.2812
Liabilities Equity	0.5580	0.4562
Assets total	0.6408	0.4246
Assets Debt	0.2024	0.6534
Assets Equity	0.9123	0.3410
For Table 3, Equity disaggregated		
Total Equity Liabilities	0.9123	0.3410
Foreign Direct Investment	0.7807	0.3782
Portfolio Equity liabilities	0.4265	0.5146
Total Equity Assets	0.5580	0.4562
Outward Direct Investment	0.5569	0.4566
Portfolio Equity assets	0.4917	0.4842

Null hypothesis of exogeneity. All Y scaled by GDP.

Table 8: Lagged policy variable satisfying exclusion restriction (OLS regression)
Dependent variable: Gross Stocks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DeJure	1.053*	-0.122	-0.285	-0.220	0.211	-0.105	-0.621	-0.460	0.211	-0.105	-0.621	-0.460
	(0.477)	(0.680)	(0.639)	(0.538)	(0.564)	(0.674)	(0.846)	(0.710)	(0.236)	(0.539)	(0.486)	(0.399)
L.DeJure		1.229				0.352				0.352		
		(1.010)				(0.713)				(0.558)		
L2.DeJure			1.456				1.033				1.033*	
			(0.960)				(0.948)				(0.509)	
L3.DeJure				1.467				0.971				0.971*
				(0.860)				(0.820)				(0.418)
Constant	-2.719***	-2.743***	-2.757***	-2.796***	-4.799***	-4.904***	-5.048***	-5.204***	-4.799***	-4.904***	-5.048***	-5.204***
	(0.766)	(0.779)	(0.782)	(0.791)	(1.288)	(1.329)	(1.366)	(1.407)	(0.599)	(0.612)	(0.621)	(0.629)
Observations	2942	2925	2915	2894	2942	2925	2915	2894	2942	2925	2915	2894
Adjusted R^2	0.286	0.286	0.287	0.288	0.564	0.564	0.565	0.564	0.564	0.564	0.565	0.564
Country FEs	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard errors	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered	Robust	Robust	Robust	Robust

HAC robust standard errors in parentheses, unless otherwise noted. Year dummies included in all regressions. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

B Financial development critical value

List of countries, which for the 1980-2014 period, averaged above the financial development critical value (ie where policy had the expected impact: looser capital controls associated with higher levels of international financial integration.):

United States, United Kingdom, Austria, Belgium, Denmark, France, Germany, San Marino, Italy, Netherlands, Norway, Sweden, Switzerland, Canada, Japan, Finland, Greece, Iceland, Ireland, Malta , Portugal, Spain, Turkey, Australia, New Zealand, South Africa, Brazil, Chile, Bahamas, Barbados, Cyprus, Israel, Jordan, Kuwait, Qatar, United Arab Emirates, Hong Kong, India, Korea, Malaysia, Singapore, Thailand, Mauritius, Zimbabwe, Somalia, Russian Federation, China, Czech Republic, Estonia, Hungary, Croatia, Slovenia, Poland.

C Financial Development measure

Broad-based Index of Financial Development: (directly quoted)

To overcome the shortcomings of single indicators as proxies for financial development, we create a number of indices that summarize how developed financial institutions and financial markets are in terms of their depth, access, and efficiency, culminating in the final index of financial development. The sub-indices and the final overall index are constructed for 183 countries on annual frequency between 1980 and 2013. Financial institutions include banks, insurance companies, mutual funds, and pension funds. Financial markets include stock and bond markets. Financial development is defined as a combination of depth (size and liquidity of markets), access (ability of individuals and companies to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets).

https://www.imf.org/external/pubs/ft/wp/2016/wp1605.pdf

D Institutional Quality measures

Worldwide Governance Indicators (WGI): (directly quoted)

The World Bank's Worldwide Governance Indicators project reports aggregate and individual governance indicators for over 200 countries and territories over the period 19962015, for six dimensions of governance. The aggregate indicators combine the views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. They are based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms.

http://info.worldbank.org/governance/wgi/index.aspxhome

International Country Risk Guide (ICRG): (directly quoted)

Corruption

This is an assessment of corruption within the political system. Such corruption is a threat to foreign investment for several reasons: it distorts the economic and financial environment; it reduces the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability; and, last but not least, introduces an inherent instability into the political process.

The most common form of corruption met directly by business is financial corruption in the form of demands for special payments and bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans. Such corruption can make it difficult to conduct business effectively, and in some cases my force the withdrawal or withholding of an investment.

Although our measure takes such corruption into account, it is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, favor-

for-favors, secret party funding, and suspiciously close ties between politics and business. In our view these insidious sorts of corruption are potentially of much greater risk to foreign business in that they can lead to popular discontent, unrealistic and inefficient controls on the state economy, and encourage the development of the black market.

The greatest risk in such corruption is that at some time it will become so overweening, or some major scandal will be suddenly revealed, as to provoke a popular backlash, resulting in a fall or overthrow of the government, a major reorganizing or restructuring of the country's political institutions, or, at worst, a breakdown in law and order, rendering the country ungovernable

Law and Order

Law and Order are assessed separately, with each sub-component comprising zero to three points. The Law sub-component is an assessment of the strength and impartiality of the legal system, while the Order sub-component is an assessment of popular observance of the law. Thus, a country can enjoy a high rating 3 in terms of its judicial system, but a low rating 1 if it suffers from a very high crime rate of if the law is routinely ignored without effective sanction (for example, widespread illegal strikes)