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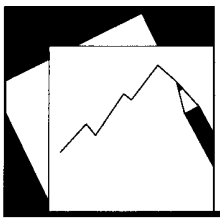

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International Capital Flows and Development: Financial Openness Matters

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International Capital Flows and Development: Financial Openness Matters

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Abstract

Does capital flow from rich to poor countries? We revisit the Lucas paradox and explore the role of capital account restrictions in shaping capital flows at various stages of economic development. We find that, when accounting for the degree of capital account openness, the prediction of the neoclassical theory is confirmed: less developed countries tend to experience net capital inflows and more developed countries tend to experience net capital outflows, conditional of various countries' characteristics. The findings are driven by foreign direct investment, portfolio equity investment, and to some extent by loans to the private sector.

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I. INTRODUCTION

This paper revisits the Lucas paradox by quantifying empirically the relevance of a specific set of policies—restrictions on international capital flows—in shaping the patterns of capital movements at various stages of economic development. The determinants of the direction and composition of capital flows, and the relationship with economic development constitute an important topic in open economy macroeconomics. This study is particularly relevant in the current context, where the size and direction of capital flows have been at the epicenter of the debate on global imbalances and remain relevant in the aftermath of the global financial crisis. Indeed, it remains unclear, empirically, whether (and which) policies can result in a flow of "uphill" capital.

The premise is the classic paper in which Lucas (1990) remarked that too little capital flows from rich to poor countries, relative to the prediction of the standard neoclassical model ("Lucas' paradox"). With similar technologies across countries producing the same goods, new investment—and therefore international net capital inflows—should take place only in poorer countries with lower stocks of capital per capita and therefore a higher marginal product of capital.

A large theoretical and empirical literature has flourished to provide solutions to the "Lucas paradox", by extending the basic neoclassical model to encompass additional factors. A first group of factors include differences in technologies, factors of production (including human capital, or the importance of land in production), and government policies (such as taxation of profits, financial repression, or restrictions on capital flows). A second group of factors relate to the role of institutions and uncertainty, encompassing capital market imperfections, the quality of enforcement of private contracts, asymmetric information and moral hazard, risks of expropriation, and sovereign default.

In contrast to the recent literature that has sometimes emphasized long-term determinants of cross-sectional differences in capital flows, we mainly focus on the impact over time of capital account liberalization on capital flows in countries at different levels of income per capita. This approach is, first, the consequence of a simple observation: policies related to capital account openness have dramatically evolved during the past thirty years. As the paper shows, this liberalization process was associated with significant changes in the patterns of capital flows across countries. Second, there is a policy interest in identifying policies that may affect capital inflows in countries over time.

Figure 1 illustrates the process of capital account liberalization that has taken place during the past 30 years.[2] At the time Robert Lucas was writing his paper, many developing countries still had significant capital account restrictions in place. However, since then, countries across all income groups have progressively liberalized capital movements. High income countries (those that still had restrictions in place) initiated the process in the 1980s; by the early 2000s,

[2] The measure of capital account openness is an updated index from Quinn (1997). See appendix for more details.

cross-border capital was flowing freely among advanced economies. Emerging markets followed the same process of liberalization, but with a lag. Many restrictions were removed in the early 1990s, sometimes to prepare entry in the OECD (as was the case for Korea and Mexico), or under the auspice of the International Monetary Fund. Liberalization of capital movements started at a later stage in lower income countries, mostly in the second half of the 1990s (some moderate restrictions have remained in place until now). These simple facts suggest that the time series properties of the data will be crucial when exploring the role of capital account openness in shaping capital flows across countries at different income levels.

To provide an overview of our results, we find that the prediction of the standard model is not verified in the cross-section of countries during the 1980s when many countries had capital account restrictions still in place. But we do observe the "correct" patterns of capital flows after the early 1990s, as in this period poorer (respectively richer) countries with open capital accounts tended to experience net capital inflows (respectively outflows), conditional on a set of fundamentals.

More generally, we find that the prediction of the standard neoclassical theory holds when taking into account the degree of capital account openness across the whole sample. Among countries with an open capital account, richer countries tend to experience net capital outflows, while poorer countries tend to experience net capital inflows. In contrast, in countries with closed capital account, there appears to be no systematic relationship between the level of economic development and net capital flows. The results imply that capital account restrictions must have been effective in constraining capital flows when they were in place: rich countries liberalizing their capital account will tend to experience net capital outflows and poor countries net capital inflows.

The paper then investigates which components of capital flow "downhill" when countries open their capital accounts. Generally, the evidence is consistent with the hypothesis that capital flows more responsive to the marginal product of physical capital flow from rich to poor countries when the capital account is open. Foreign direct investment and portfolio equity investment respond to capital account openness according to the prediction of the neoclassical model. Other private investments (e.g. loans) in the private sector also tend to flow downhill in absence of capital account restrictions. In contrast, portfolio debt and other investments vis-à-vis the public sector bear no relation to income levels even in countries with open capital accounts.

The paper proceeds as follows. Section II provides an overview of the related literature.
Section III presents the data and simple stylized facts, and outlines our empirical strategy.
Empirical results are in section IV, and section V concludes.

II. LITERATURE

While a large literature has provided elements of answers to the Lucas paradox, there are, to date, few empirical studies assessing the role of capital account restrictions in shaping capital flows from an economic development point of view.

Empirical studies of the Lucas paradox typically show how relaxing one (or several) assumptions of the basic neoclassical model helps explain capital flows from rich to poor countries. Differences in human capital (Lucas, 1990), in the risk of sovereign default (Reinhart and Rogoff, 2004), in capacity to use technologies (Eichengreen, 2003), and in institutional quality (Alfaro et al., 2008) seem to be relevant for the direction of cross-border net capital flows.[3] The emphasis on institutional quality is the natural consequence of a body of work showing that social infrastructure, which includes government policies and institutional structure (Hall and Jones, 1999), and some specific institutional characteristics, such as the protection against the risks of expropriation (Acemoglu and Johnson, 2005), have first order effects on long-run economic performance by affecting investment and total factor productivity. Obstfeld and Taylor (2005) showed that during the 1990s, net capital flows to poor countries remained relatively small, while gross capital flows, in general, were large, in particular among advanced economies. This, they argued, was evidence that portfolio diversification, not development finance, was the main factor driving financial integration.

In a recent paper, Kalemli-Ozcan et al. (2008) suggest that frictions in national borders may explain the failure of the neoclassical model in accounting for the direction of capital flows. To make this point, they focus on interstate capital flows within the US (where there are no restrictions to capital flows, and no differences in institutions), and show that the standard model explains capital flows between US states well.

A novel perspective on the paradox of capital flows was provided by Caselli and Feyrer (2007) who raised the issue of measurement problems and showed that, when properly measuring the share of income accruing to physical capital, the marginal product of capital (MPK) is quite similar across countries. Still, there remains some skepticism regarding evidence suggesting equalization of aggregate MPK, given the microeconomic evidence that there are, within countries, substantial differences in productivity and MPK between firms (Hsieh and Klenow, 2009; Restuccia and Rogerson, 2008; Alfaro et al., 2007). Indeed, Chirinko and Malik (2008) argue that, when adjustment costs are taken into account and parameterized, the MPK remains higher in poor countries.

The importance of financial frictions in international capital flows was recently highlighted by Gourinchas and Jeanne (2009) who showed that, among developing countries, capital flows

[3] Alfaro et al. (2008) include a measure of capital account restrictions (based on the IMF Annual Report on Exchange Arrangements and Exchange Restrictions) among the set of control variables. They find that restrictions have a significant and negative bearing on gross capital inflows.

more to countries that do invest and grow less.[4] By calibrating a neoclassical model, they find that a wedge affecting saving decision may explain this "allocation puzzle". Verdier (2008) shows that, in presence of an international borrowing constraint and complementarity between domestic and foreign capital in production, foreign debt rises with domestic savings, a prediction consistent with data on capital flows. Some papers, motivated by China's experience and global imbalances, have emphasized the interaction of borrowing constraints with precautionary savings, with a process of reform, or with a shortage of financial assets in order to generate fast economic growth and a current account surplus (Sandri, 2010; Song et al., 2009; Buera and Shin, 2010; Caballero, Fahri and Gourinchas, 2008; Mendoza Quadrini Rios-Rull, 2008).

Our paper is also related to one of the major puzzles of international finance, such as the high correlation between savings and investment (The Feldstein-Horioka puzzle). In line with out results, recent contributions showed that the process of economic integration (in particular monetary and financial liberalization) among European countries resulted in greater financial integration among European countries, as capital flew towards relatively poorer countries, resulting in a declining correlation of savings with investment (Coeurdacier and Martin, 2009; Lane and Milesi-Ferretti, 2008; and Blanchard and Giavazzi, 2002).

There exists, to date, no strong consensus on the effectiveness of capital controls (See Edwards, 1999, for a survey; see also Edwards and Rigobon, 2009; Forbes, 2007; Edison and Reinhart, 2001). While they seem effective when extensive restrictions are in place, re-imposing some restrictions seem to affect mainly the composition of inflows rather than the aggregate volume of inflows (see Ostry et al., 2010, for a recent study). For example, in the case of Chile and Colombia, capital controls seem to have tilted the composition of capital flows towards less volatile types of flows (De Gregorio et al., 2000; Cardenas and Barrera, 1997). Our paper contributes to this body of research by showing that, during the past three decades, the removal of capital controls affected the global allocation of capital.

Finally, our paper is also related to papers analyzing the medium-term determinants of current accounts across countries. This literature typically follows a macroeconomic approach to characterize net capital inflows. For instance, Chinn and Prasad (2003) show that medium-term fundamentals such as fiscal policy, demographics, initial net foreign assets and relative income per capita are relevant determinants of current accounts in a large sample of countries. However, they find limited evidence that capital controls affect the current account, perhaps because of measurement problems. Other papers have stressed the role of financial development, financial crisis or institutional variables (Chinn and Ito, 2007; Gruber and Kamin, 2007, 2008), or have restricted the analysis to low income countries (Christiansen et al., 2009).

[4] Reinhardt (2010) provides a sectoral approach to the "allocation puzzle" and shows that FDI flows behave according to the standard neoclassical theory.

III. DATA AND EMPIRICAL APPROACH

Data and Descriptive Statistics

We construct a dataset containing information on the current account balance, relative income, financial openness data and various control variables for 109 countries with populations above one million over the period 1980-2006. A description of all variables, data sources and a list of all countries are provided in the Appendix. Most of our analysis is based on a panel of non-overlapping five-year averages over the period 1982-2006.[5] Summary statistics are provided in Table A1. Correlations between the main variables are in Table A2.

Table A1 decomposes the variances across countries and over time. The importance of the time dimension varies considerably across variables. Among our three main variables, the time variation is smallest for (log) initial income as most of the variation is across countries. On the contrary, for financial openness and the current account roughly 30% of the variance is across time, and the remainder is within country time variation. There is also considerable time variation for most of the other variables. Hence, both the cross-country and the within country time variation are likely to contain valuable information.

The dependent variable in most of the analysis is the current account balance relative to GDP. This treats errors and omissions as unreported capital flows and includes changes in reserve assets. To distinguish official from private capital flows, we also considered alternative measures of total net outflows. First, we add concessional loans to the current account balance. Second, we subtract reserves from the current account balance. Furthermore, we use data on various types of capital flows from the balance of payment (FDI, portfolio equity, portfolio debt, other official investment, and other private investment).

Our main measure of capital account openness is the index of capital account liberalization constructed by Quinn (1997) updated to 2006. This is a de jure index measuring capital account restrictions, and normalized between 0 and 1 (representing fully closed and fully open regime, respectively). It is constructed from information contained in the IMF's Annual Report on Exchange Arrangement and Exchange Restrictions (AREAER).

A First Look at Data

Figure 2 displays average current account to GDP by income groups during 1980-2006. For each five year period, countries are grouped into a closed capital account group (respectively an open capital account group) if the degree of capital account openness during the period is below (respectively above) the median openness for the complete period. There is a clear difference between the two groups of observations.

[5] We take averages of the dependent variable and all the controls except for relative income and net foreign assets, for which we employ the initial value (i.e. the value for the year preceding the 5-year average). If the first or the last year is missing within the 5-year time frame, we replace the 5-year average with the corresponding 4-year average.

Among countries with a relatively open capital account, the cross-section of current accounts seem, on average, consistent with the hypothesis that capital flows from rich to poor countries. Advanced countries seem to have experienced net capital outflows, on average. All other groups of countries experienced net capital inflows on average. The difference in annual net capital flows between upper middle income countries and high income countries was about 3 percentage points of GDP; the difference in annual net flows between lower middle income countries and upper middle income countries was about 2 percentage points of GDP.

In contrast, among countries with a relatively closed capital account, the patterns of current accounts do not match the direction of net capital flows predicted by the theory. In particular upper middle income countries seem to have experienced small net capital outflows on average, while advanced countries seem to have experienced net capital inflows.

Low income countries do not exhibit stark differences in average current accounts, whether they had relatively closed or open capital accounts. However, low income countries receive substantial amounts of foreign aid which may create a large discrepancy between the current account and net capital inflows.[6]

We have shown in Figure 1 that there has been a generalized trend of capital account liberalization during the past decades. If capital account restrictions had an impact on capital flows, we should therefore observe capital outflows growing over time in advanced countries, and capital inflows growing over time in other countries.

Figure 3a presents net capital inflows averaged over five year periods, by income groups and types of capital. We consider three groups: FDI and portfolio equity (PE) investments; other investments vis-à-vis the private sector; portfolio debt and other investments vis-à-vis the public sector.[7] In each group of countries, the evolutions over time in FDI and PE investment net inflows are consistent with the prediction of the theory. Rich countries had declining net inflows turning into outflows in the second half of the 1990s when many countries have dismantled capital account restrictions. All other groups of countries experienced growing net inflows of FDI and PE during the past decades. The change in average annual net inflows between the beginning of the 1980s and the mid-2000s reached between 2 and 3 percent of GDP.

Patterns were less clear for other flows. The observed changes for OI to the private sector seemed consistent with the prediction of theory for high income and upper middle income

[6] Adding concessional loans to the current account results in smaller estimated capital inflows for low income countries with open capital accounts (-1.8 percent of GDP) than for middle income countries.

[7] FDI and portfolio equity investments are the most likely to be determined by the rate of return on capital. Other investments vis-à-vis the private sector (including banks and non-banks) should also to some extent be driven by profitability of capital. In contrast, public sector loans or bonds are also affected by factors independent of the return on capital.

countries (with high income countries experiencing a reduction in inflows and upper middle income countries experiencing higher inflows over time). Moreover, by the end of the 1990s, the cross-sectional prediction of net outflows of OI to the private sectors in advanced countries and net inflows in upper-middle income countries was also verified – although the size of the net flows were on average smaller than for FDI and PE. But the expected changes in flows were not observed in lower middle income countries and in low income countries. While net inflows of OI to the private sector were indeed growing in upper middle income countries until the mid 1990s, they started to decline by the end of the 1990s.[8] Finally, OI in the public sector did not seem to follow any clear trend in each income group.

Since our interest is on long-term development finance, we have so far presented stylized facts on net capital flows. However, looking at gross capital inflows can also be informative on the drivers of net capital flows. In Figure 3b, we present gross capital inflows by type and income groups. Two main facts emerge from this figure. First, among rich countries, gross inflows – in contrast to net inflows – have risen over time and are significantly larger than net flows (which implies that gross outflows have also been large). A possible reason for the much larger size of gross flows is that, with the removal of various financial restrictions and development of financial markets, portfolio diversification has developed enormously during the past decades among rich countries (see for instance Obstfeld and Taylor, 2005; Lane and Milesi-Ferretti, 2008). Second, among other groups of countries, gross inflows have generally exhibited similar trend, order of magnitude, and direction as net inflows. This is in particular the case for FDI and PE investment. This suggests that gross inflows in non-high income countries have been the main drivers of net capital inflows.

Empirical Approach

We examine the impact of financial openness on the relation between net capital outflows (proxied by the current account balance in most specifications) and relative income using both a cross-section and panel framework. Specifically, we estimate the following equation:

$$\left(\frac{Outflows}{GDP}\right)_{it} = \alpha + \beta_1 GDPPC_{it} + \beta_2 CAL_{it} + \beta_3 CAL_{it} \cdot GDPPC_{it} + \alpha_x X_{it} + \varepsilon_{it}$$

where the dependent variable $\left(\frac{Outflows}{GDP}\right)_{it}$ is net capital outflows (relative to GDP), $GDPPC_{it}$ refers to the log of GDP per capita relative to the U.S. (in PPP), CAL_{it} captures the level of capital account openness and ε_{it} is the error term. The cross-section specification is estimated via full sample averages. For the panel specification, the index *t* refers to non-overlapping five year averages. Both $GDPPC_{it}$ and CAL_{it} are in initial terms, where "initial" indicates values of the variable for the first year of available data (cross-section) or the year preceding the 5-year average (panel framework). β_1 and β_3 are our main coefficients of interest. If β_3 is significantly positive, richer (respectively poorer) countries experience less (respectively more) capital inflows if they are financially open; if their sum is significantly bigger than

[8] This decline could have been a direct or indirect consequence of the Asian crisis.

zero, countries with a fully open capital account display the positive relation between income and capital outflows that is predicted by the neoclassical model.

The vector of controls X_{it} is included in the conditional specifications (we also show unconditional results) and contains control variables which were found to be important in the literature (see for example Chinn and Prasad, 2003, and Chinn and Ito, 2007), such as the fiscal balance, demographic variables (the old age dependency ratio, population growth), the initial net foreign asset position, the oil trade balance, and real per capita GDP growth. We add an index for the terms of trades in goods and services as a control to the panel regressions including fixed effects, because the terms of trade are an important current account determinant for low income countries (see Christiansen et. al (2009)). Throughout the paper we refer to this set of variables as "standard" controls.

First, we explore the relations in a pure cross-section using OLS regressions. Second, as a first attempt to account for the time variation, we split the cross-section in an earlier (1980-1992) and a later period (1993-2006) and examine whether the key relations of interest differ between the two periods.[9] This is especially relevant as the split coincides with big shifts in the average level of financial openness. Third, we move to our preferred specification and estimate a panel of non-overlapping five-year averages over the period 1982-2006; there are 5 time observations for most countries. This procedure exploits both the cross-sectional and the time-dimension of the data and limits the impact of short-run fluctuations (see Chinn and Prasad, 2003).

Our preferred panel results include country fixed effects as it is likely that slow-moving unobservable variables have an impact on the main coefficients of interest. However, following many studies in the literature on medium-term determinants of the current account (e.g. Chinn and Prasad, 2003, and Gruber and Kamin, 2007), we also present results from OLS regressions on the pooled data that are based on both the time- and the cross-sectional dimension of the data.

We also present results for a panel specification where we split the countries into a financially open and closed group. For this purpose, we define a dummy variable that is one if a country's level of financial openness is above a certain percentile of the whole-sample distribution of financial openness. We chose to employ a spline search procedure to find the optimal percentile – i.e. the one that maximizes the within R^2 of the regression including fixed effects. The dummy is then used to replace CAL_{it} in the specification above. Further details are given in the Appendix; in the results section below we refer to this specification as the "spline specification".

[9] To maintain consistency in the observations included in the repeated cross-section and the panel specification we exclude observations in the cross section for which we have less than 5 years of data. This correction is only relevant for the earlier period (1980-1992). No countries have less than 5 years of data for the whole period (1980-2006) or the later part of the sample (1993-2006).

IV. RESULTS

Current Account and Financial Openness in the Cross-Section of Countries

Table 1 presents cross-sectional regressions. First, we regress the current account to GDP ratio averaged over the sample period 1980-2006 on the log of the initial GDP per capita relative to the US. We find a strongly positive and significant unconditional correlation between the initial GDP per capita and the average current account to GDP of the following decades. Hence, on average, countries that were initially poorer experienced larger net capital inflows. This term becomes insignificant when we add a control for the degree of capital account openness, and an interaction term with the initial level of GDP. The rationale for including an interaction term is that the neoclassical theory predicts that the effect of removing capital account restrictions depends on the level of development. However, the effect of income for countries with open capital account (offered by the sum of the first and third coefficient, whose p-value is reported at the bottom of the table) is positive and significant. This suggests that the prediction of the standard neoclassical theory may be confirmed only for countries with open capital account.

A more cogent approach is to control for standard determinants of the current account identified in the existing literature (Chinn and Prasad, 2003; Gruber and Kamin, 2007; Christiansen et al., 2009). We obtain a positive conditional correlation between the average current account to GDP ratio and the initial level of development—a finding, again, consistent with the standard neoclassical theory. The coefficient becomes again insignificant when controlling for the index of capital account openness and an interaction term with the initial level of development, but the total effect of the initial level of development (including the interaction term) is positive for countries with an open capital account. Moreover, we obtain that, conditionally on standard determinants of the current account, the degree of capital account openness is negatively correlated with the current account to GDP ratio in poorer countries. Taken together with the interaction term, the coefficient estimates imply that the removal of capital account restrictions results in capital inflows (respectively outflows) for countries with real income per capita below (respectively above) 65 percent of the US income per capita. This suggests that capital account restrictions do restrain net capital inflows in capital importing countries, even when averaged over the long-term.

Table 2 presents cross-sectional regressions splitting the sample in two periods. The first period 1980-1992 corresponds to a period during which many countries had relatively high restrictions on capital movements. The second period, 1993-2006, encompasses the time span of capital account liberalization of the developing world and of transition countries; it also includes the completion of financial integration in advanced economies (in particular in the European Union).

Figure 4 displays the conditional correlations between the current account and the initial level of development in each sub-sample. During 1980-1992, there was no clear relationship between the current account and the initial level of development, both among closed countries and among opened countries. But a clear positive relationship between the initial level of

development and the current account is visible during the period 1993-2006, in particular for countries with an open capital account.

The regression results confirm the visual impression from the charts. What emerges from these repeated cross-sections is that, during 1980-1992, there was no evidence of a correlation between the initial level of development and subsequent current accounts. The coefficient on the interaction term is also insignificant, with a sign opposite to the prediction of theory. Furthermore, the coefficient of the index of capital account restriction has a sign opposite to the theoretical prediction, suggesting that countries with more open capital accounts had, on average, higher current accounts. During this period, many countries, in particular in the developing world, maintained strong restrictions on capital movements.[10] For example, many emerging markets, including Korea, Mexico or Thailand still had large restrictions on private capital flows during this period, and liberalized their capital account in the early 1990s.[11] Low income countries had even less liberalized capital accounts. As a result, capital flows from advanced countries to developing countries are likely to have been impeded by these restrictions, even when the former had open capital accounts.

In contrast, results become consistent with the predictions of the neoclassical model in the cross-section of countries during the period 1993-2006. We obtain a robust positive correlation between the current account to GDP and the initial level of development, after controlling for standard determinants of the current account. Furthermore, the relationship between the initial level of development and the current account depends on the degree of openness of the capital account (columns 6-8), as predicted by theory, as it is more positive for countries with opened capital accounts. An F-test of the sum of the coefficient on the log initial GDP per capita and the coefficient on the interaction term strongly reject the null of no correlation with the current account for the countries with fully opened capital account.[12] In contrast, in countries with strong restrictions on the capital account, there is no robust correlation between the level of development and net capital inflows.

In the period 1993-2006, the estimated coefficients of the capital account index and interaction terms (in column 8) imply that the removal of capital account restrictions leads to capital inflows (respectively outflows) for countries with income per capita below (respectively above) 41 percent of the US level. Moreover, for a lower middle income country with a PPP adjusted income per capita at 10 percent of the US level (such as China, Thailand or Indonesia in 2000) and with a capital account initially closed, a complete removal of capital account restrictions would result in an annual net capital inflow of 4.5 percent of GDP. Conversely, a high income country with income per capita at 90 percent of the US level would

[10] In the regression sample of column (1) of Table 2, 51 countries had an index of capital account openness below the full sample median during the period 1980-1992.

[11] Korea and Mexico initiated their capital account liberalization in 1992-1993, to prepare for OECD membership (IMF, 2003).

[12] The F test is the following: coefficient (log GDP per capita) + coefficient (log Initial GDP per capita * Capital account index)=0 for capital account index=1.

experience a net capital outflow of 2.5 percent of GDP after completely opening up the capital account.

We performed the following robustness tests. A number of countries experienced financial crisis during the sample period, which may bias the estimated coefficient. We find that this is not the case, and that countries experiencing financial crisis had, on average, a higher trade balance over the period, perhaps because of sharp current account reversals after the crisis (columns 4, 7 and 8). Next, many low-income countries received large official aid flows during periods of financial reforms. This may bias the coefficient of the capital account openness index downward. On the other hand, as countries develop and liberalize their capital account, they also experience declining aid inflows, which may introduce an upward bias of the coefficient of the capital account openness index, and an upward bias on the GDP per capita coefficient. We show that our results are not biased by aid inflows in low income countries, by adding a control for concessional loans to GDP (columns 5 and 8).[13]

Current Accounts and Financial Openness in a Panel of Countries

We have shown that the relationship between net capital inflows and the level of development is consistent with the neoclassical model during the second half of sample when many countries had liberalized or started to liberalize their capital account.

To gain more insight about the effect of capital account liberalization on net capital inflows during the process of development, we now turn to panel regression analysis. By exploiting the information contained in the time series of current accounts and of capital account openness, we are able to better identify the role of capital account restrictions in shaping capital flows. Indeed, by including country fixed effects in the regressions, we account for all possible unobserved sources of slow-moving heterogeneity that may affect the current account or its determinants. To continue focusing on medium-term characteristics of the current account, we follow Chinn and Prasad (2003) and consider periods of five year averages during 1982-2006.

We present pooled and fixed effect regressions in Table 3. We find evidence that, when controlling for standard determinants of the current account, there exists a negative correlation between the current account and the degree of capital account openness for poorer countries. This suggests that capital account restrictions tend to reduce on average the volume of net capital inflows. Moreover, the constraining effect on the volume of net capital inflows becomes weaker in more developed countries, as shown by the interaction term between the degree of capital account openness and the initial level of development. The effects are of the same order of magnitude as in the cross-sectional regression of Table 2. Based on the within country coefficient of column 8, a middle income country with income per capita at 10 percent of the US level would experience net capital inflows of about 2.1 percent of GDP annually following a complete opening of the capital account. At the other end of the

[13] This is the component of aid inflows accounted for in the financial account of the balance of payment. Controlling for grants (accounted for in the current account) does not modify our results.

development spectrum, an advanced country with income per capita at 90 percent of the US level would experience capital outflows of 5 percent of GDP after a complete opening up of the capital account.

Turning to the prediction of the neoclassical model that capital should flow from more developed to less developed countries, we find that the correlation between the current account and the level of development depends strongly on the degree of capital account openness. In countries with strong capital account restrictions (for which the capital account index is close to zero), there is no significant positive correlation between the initial level of development and the current account, as the coefficient on the income per capita variable is not significantly different from zero. But in countries with few capital account restrictions (index close to one), the correlation is very strongly positive and significant (F-test of 24 if no country fixed effects are included, or 11 if country fixed effects are included). The estimated coefficients imply that, a lower middle income country at 10 percent of the US income level with an open capital account runs a current account that is 5.2 percentage points of GDP lower than a country with an income level at 50 percent of the US level, after controlling for various determinants of the current account.[14] Figure 5 illustrates the relationship between the level of development and net capital inflows for various degrees of capital account openness. Our quantification implies that the relationship becomes significantly positive for an index of financial openness above 0.6.

Robustness

In Table 4, we check that our findings are robust to adding various control variables. As already mentioned, in low income countries, a large proportion of capital flows are official flows. These capital flows are not determined by the private rate of return on capital, but by other considerations such as social needs and humanitarian assistance. Hence we may observe lower current account balances in low income countries as they open their capital account, not because private capital flows in, but because they receive aid inflows.[15] We control for grants and concessional loans, and find that our results are not affected (column 1). Domestic financial development and financial liberalization may also affect the current account. The effect, however, is theoretically ambiguous: a deeper and more efficient financial system may stimulate savings and therefore raise the current account, but it may also boost investment and therefore worsen the current account. We consider two controls. First, the ratio of private credit to GDP (column 2), a standard measure of financial development appears to negatively affect the current account. Second, a de jure index of domestic financial reforms from Abiad et al. (2009), which is associated with a higher current account (column 3). We also checked that the result remains when controlling for domestic credit growth (column (4)).

[14] Portugal or Slovenia had PPP adjusted income levels at 50 percent of US level in 2000.

[15] This argument does not apply to all forms of foreign aid. For instance, grants are accounted for in the current account, not in the financial account of the BoP. Hence, if all official grants are spent on imports, we should find no correlation between the current account and grants. If however part of grants are not spent on imports and are saved instead, we should observe a positive correlation between the current account and grants (Christiansen et al., 2009).

A recent literature has argued that institutions have first order effects on the development process. In particular, the quality of property rights affects economic growth and financial development (Acemoglu and Johnson, 2005), and capital flows (Alfaro et al., 2008; Mauro and Faria, 2009). We consider a standard proxy of property rights (a *de facto* measure of the perception of the quality of institutions from the International Country Risk Guide (ICRG)), and find that better institutions (a higher value of the index) are indeed associated with a lower current account. However, our findings remain unchanged.

Human capital is an important determinant of the rate of return on capital, and therefore affects capital flows. We control for a standard measure of human capital (years of schooling) and find that it has no significant bearing on our main results.

The (heated) debate on global imbalances has highlighted the potential role of reserve accumulation by the central bank as a policy instrument to maintain an undervalued real exchange rate (Blanchard and Milesi-Ferretti, 2009). In presence of capital market imperfections, the argument goes, reserve accumulation lowers aggregate demand and therefore tends to raise the current account and to depreciate the real exchange rate. We find that reserve accumulation is indeed positively associated with the current account (column 7), but somewhat less so in countries with an opened capital account (column 8). While this result is consistent with the argument that reserve accumulation depreciates the real exchange rate, the estimated coefficient could be biased by reverse causality, and therefore should be interpreted with caution.

After controlling for reserve accumulation, our coefficients of interest remain of the same magnitude, and significant at the 10 percent or 5 percent levels. Moreover, the F-test continues to reject the null that the effect of initial development on the current account is insignificantly different from zero in countries with opened capital accounts. Finally, in the last column of Table 4, we show our results are robust when adding all these additional controls together.

So far, we have followed the existing literature and considered the current account as a proxy for private net capital inflows. The current account is, however, likely be an imperfect measure, for several reasons. First, as discussed, poor countries often receive a lot of official development assistance—part in the form of concessional loans, part in the form of grants—which aid to finance imports. Second, according to the balance of payment identity, the current account is the counterpart of the financial account and of reserve accumulation.[16] Hence, net capital inflows may be better measured by netting out reserve accumulation from the current account. Third, we have scaled the current account by GDP. An alternative approach would be to scale it by population (as done for instance by Alfaro et al., 2008). As shown in Table 5, none of these alternative approaches modify our main findings.[17]

[16] CA+FA=change in reserves.

[17] We checked that our main conclusions, and robustness tests, are broadly unaffected if we use any of these alternative measures of net capital inflows.

Moreover, our findings are not driven by the experience of transition economies, and dropping these countries from the sample does not affect the results (column 5 & 6 of Table 5.[18] Also, to account for the rising dispersion of current accounts over the past decades, we check that adding time fixed effects does not modify the size and significance of the coefficients of interest (columns 7 and 8). Finally, our results are robust to using the Chinn-Ito index of capital account liberalization instead of the Quinn index (columns 11 and 12).

As a final set of robustness tests, we ensure that our conclusion on the role of capital account openness in shaping the impact of the level of development on capital flows is not driven by the assumed functional form. So far, we have considered a linear interaction term between the capital account openness index and the level of development. It may be possible, though, that capital inflows are undistorted only if the capital account is sufficiently free of restrictions. To capture possible threshold effects, we create a dummy variable for "fully opened capital accounts" and interact it with the initial level of development (see appendix for a description of the spline procedure used to create this dummy variable). The results reported in Tables A3 and A4 of the Appendix show that relying on this alternative approach does not alter our findings.

Which Type of Capital Flows from Rich to Poor Countries?

To answer this question, we consider a breakdown of capital flows based on the standard balance of payment classification of the IMF International Financial Statistics: net foreign direct investment, net portfolio equity investment, net debt portfolio investment, and net other investment (which include loans and trade finance). The last type of flows is further broken down into 3 categories of residents: depository financial institutions, government and monetary authorities, and other (private) sectors. For each type of capital flows, the net concept is based on the following definition: outward net flows abroad by non-residents minus inward net flows in the reporting country by non-residents. Hence a negative value means a net inflow of capital.

In Table 6, we present cross-sectional regressions based on the same specification as the cross-sectional regressions of Table 1. In the cross-section of countries, over a long period 1980-2006, net direct foreign investment, net portfolio equity investments, and net other investment vis-à-vis the private sector (defined as the total of other investments vis-à-vis banks and vis-à-vis non-bank private sectors) on average flow from richer to poorer countries as predicted by the neo-classical model. Indeed, for these categories of flows, the sum of the coefficient on initial GDP per capita and on the interaction term is significantly positive for countries with open capital accounts, and the F-test strongly rejects the null of zero effect of initial development for countries with open capital accounts. To give a sense of the economic importance of the effect of the initial level of development on FDI, we perform the size

[18] Abiad et al. (2007) show that transition countries had strong capital inflows consistent with the neoclassical theory.

exercise as we did on the current account: we compare the predicted effect of initial income per capita for a country at 10 percent of the US level and a country at 50 percent of the US level. The estimates imply that, if the capital account is fully opened, the former will experience net FDI inflows that are 4.5 percent of GDP higher than the latter. The estimates are of a similar order of magnitude for portfolio equity investments and other investments in the private sector.

As discussed earlier, another way to look at these results is that capital account liberalization has a significant positive effect on private net capital inflows for direct foreign investment, portfolio equity investment, and other investments (the coefficient on the capital account openness index is strongly significant and negative, while the coefficient on the interaction term is significant and positive). However, the effect becomes weaker in richer economies, suggesting that opening up the capital account results in outflows in these countries. As an illustration, these estimates imply that, after opening up its capital account, a lower middle income country with an income level at 10 percent of the US level will experience net inflows of FDI, PE investments, and other investments vis-à-vis the private sector, of respectively 5 percent of GDP, 0.03 percent of GDP and 2 percent of GDP. A high income country at 90 percent of the US income level will experience outflows of FDI, PE investments, and other investments vis-à-vis the private sector of respectively 0.9 percent of GDP, 1.6 percent of GDP and 4.2 percent of GDP.

In contrast, portfolio debt investments and net other investments vis-à-vis the government or the central bank does not flow in a systematic way according to the income level. This may not be so surprising as these flows include all forms of lending to governments (bonds, loans). The rate of return on public debt is not necessarily higher in developing countries once one takes into account the higher likelihood of default or possible concessional terms. Once more, a corollary of these results is that these capital flows are not significantly affected by controls on capital movements. This is consistent with the hypothesis that foreign financing of the sovereign or outflows by the sovereign or the central bank are more lightly restricted in many countries.

Finally, Table 7 reports panel fixed effects regressions over periods of five year average. Again, we find that net direct foreign investment, net portfolio equity investments, and net other investments in the private sector seem to behave according to the neoclassical model when the capital account is opened. The finding is particularly significant for the two first categories. In contrast, the evidence is more mixed for other investments. Hence, capital account restrictions tend to constrain FDI, portfolio equity investment and other investments, and the effect is larger for poor countries than for rich countries. The panel estimates also confirm the cross-sectional regressions that portfolio debt investments and other investments in the public sector do not flow from richer to poorer countries – irrespective of the extent of capital account openness.

V. CONCLUSION

In this paper, we investigate how capital account frictions influence the relationship between net capital flows and the level of development. We find that, when accounting for the degree of capital account openness, the prediction of the neoclassical theory is confirmed. For countries with open capital accounts, less developed countries tend to experience net capital inflows and more developed countries tend to experience net capital outflows, conditional of various countries' characteristics. But in countries with a closed capital account, net capital inflows are not systematically correlated with the level of economic development. Our findings are driven by foreign direct investment, portfolio equity investment, and to some extent, loans to the private sector. In contrast, portfolio debt investment and loans to the public sector are not systematically correlated with the level of development in countries with open capital accounts.

Our paper is the first empirical analysis providing evidence on the importance of (policy induced) capital account restrictions in affecting global capital flows between richer and poorer countries. It complements previous studies that have emphasized other factors affecting the external balance of countries at various stages of development, such as institutional quality, human capital, domestic financial imperfections, or the risk of sovereign default, among others. Controlling for many of these factors, we find a statistically and economically large effect of capital account restrictions on the patterns of capital flows. Incidentally, it suggests that the ongoing debate about global imbalances should take this dimension into consideration.

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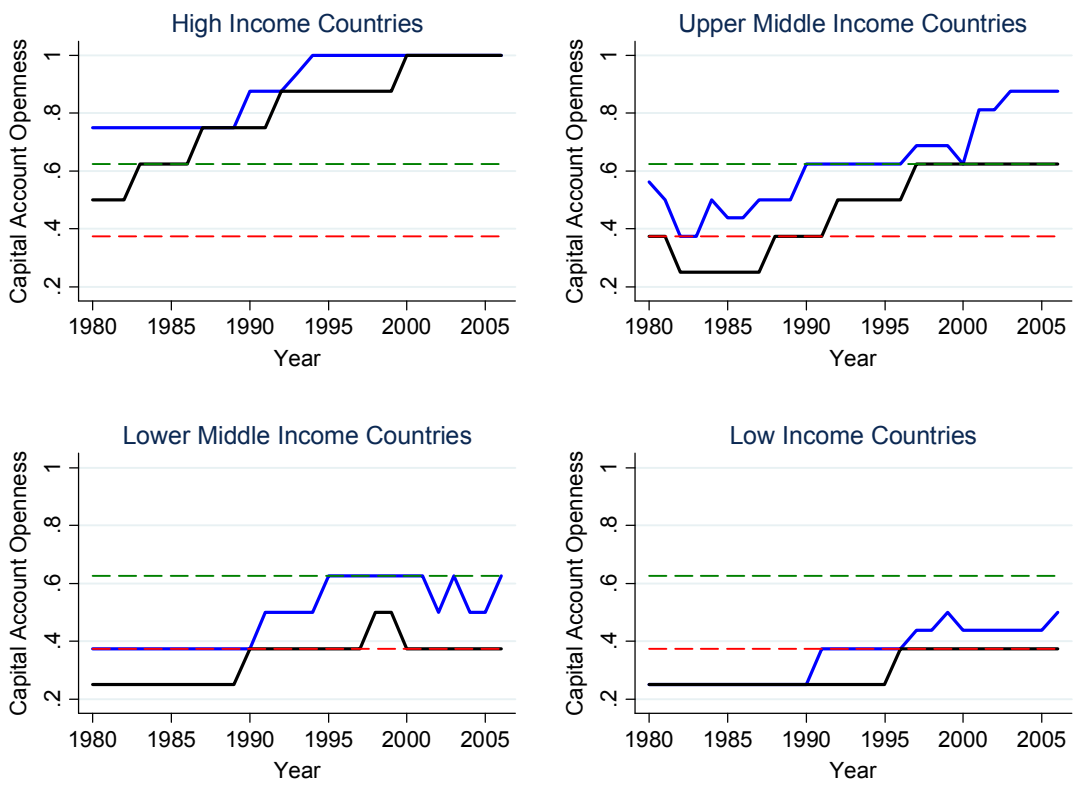
Figure 1: Evolution of Capital Account Openness by Income Group



Note: The figures show the development of the median (blue) and the lower 30th Percentile (black) of the index of capital account openness for four income groups (classified using the World Bank classification of income groups as of 2006). The lower dashed line refers to the median of the index of capital account openness across all countries for 1980-1989. The higher dashed line plots median openness across all countries for the full sample period (1980-2006).

Figure 2. Current Account to GDP and Capital Account Openness

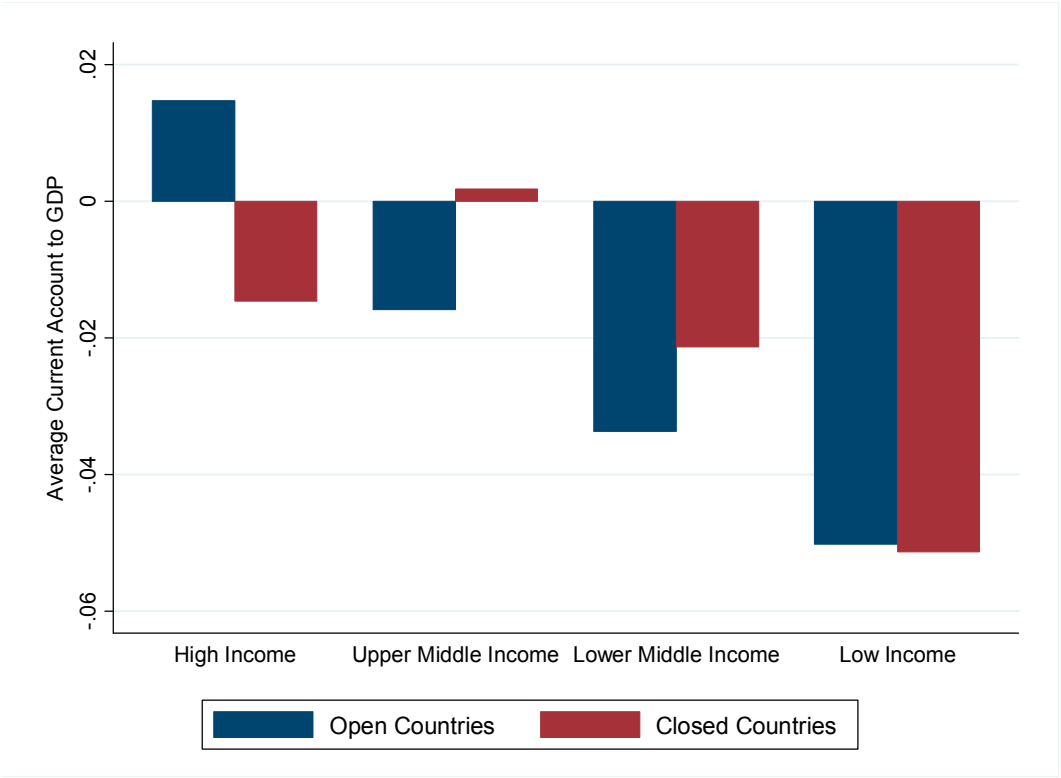


Figure 3a. Net Capital Inflows by Type of Flows and by Income Groups, 1980-2006

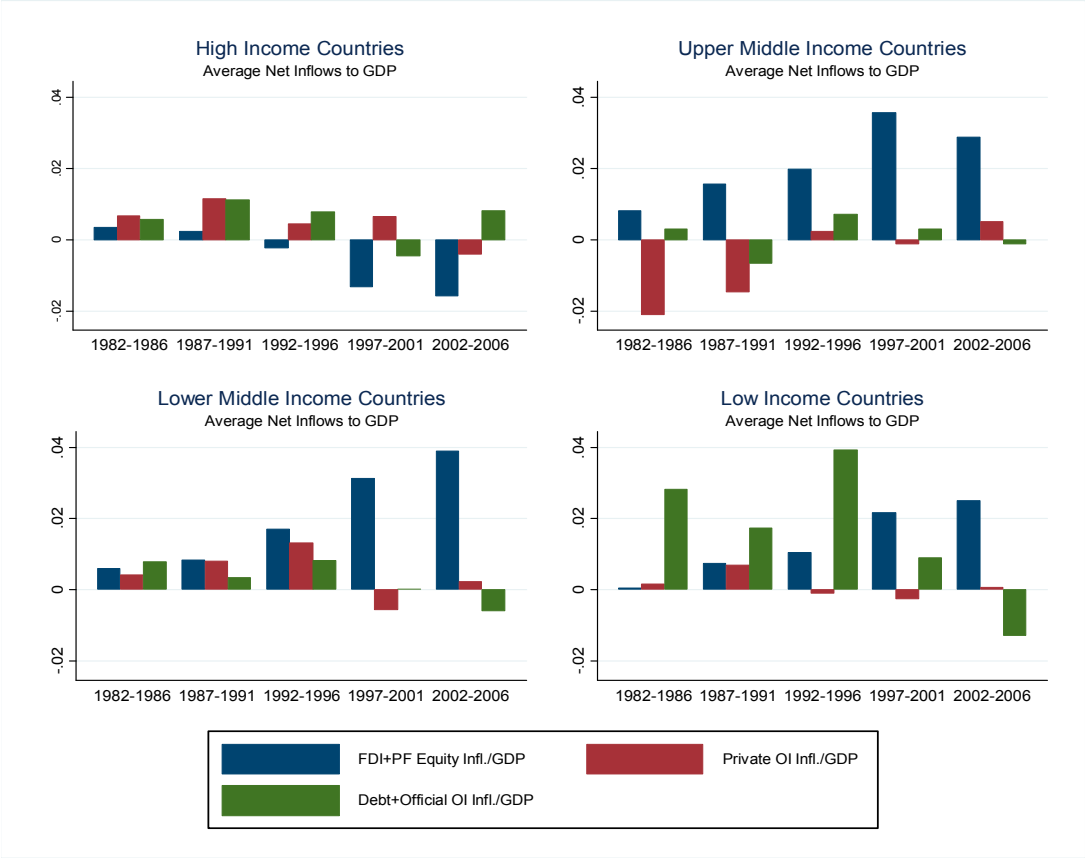


Figure 3b. Gross Capital Inflows by Type of Flows and by Income Groups, 1980-2006

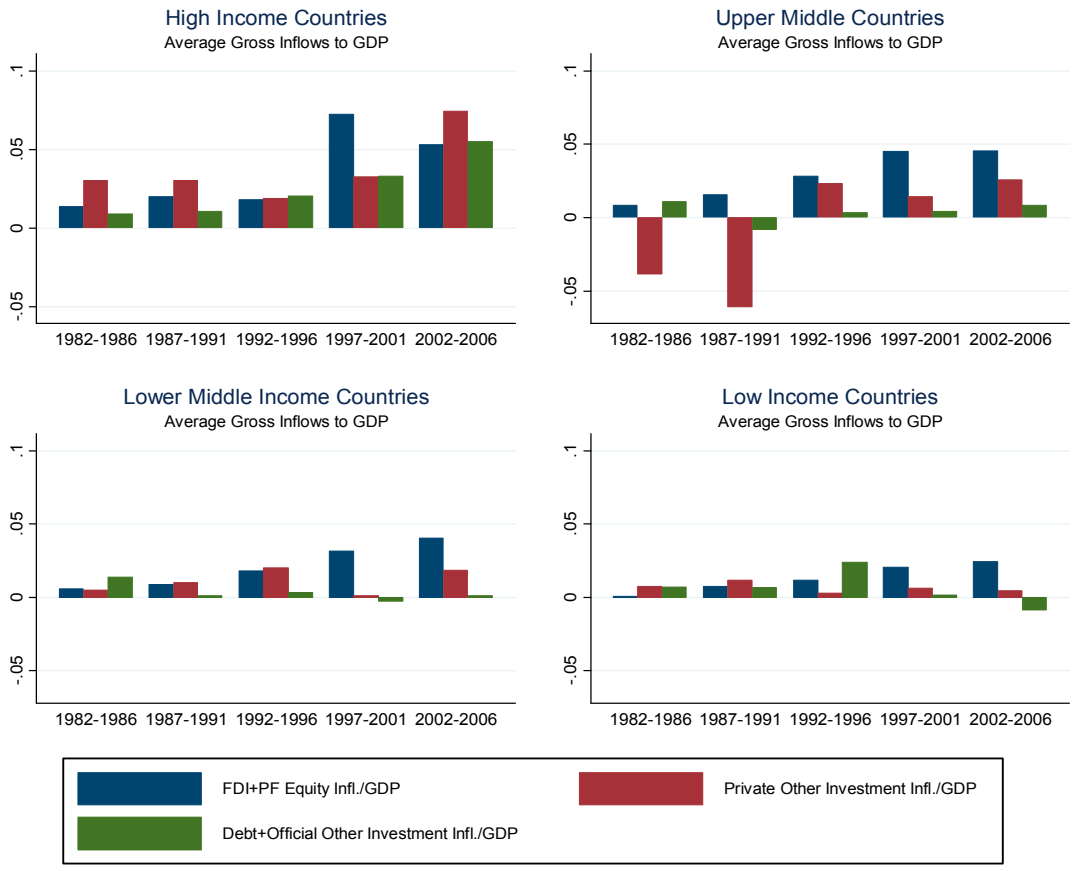
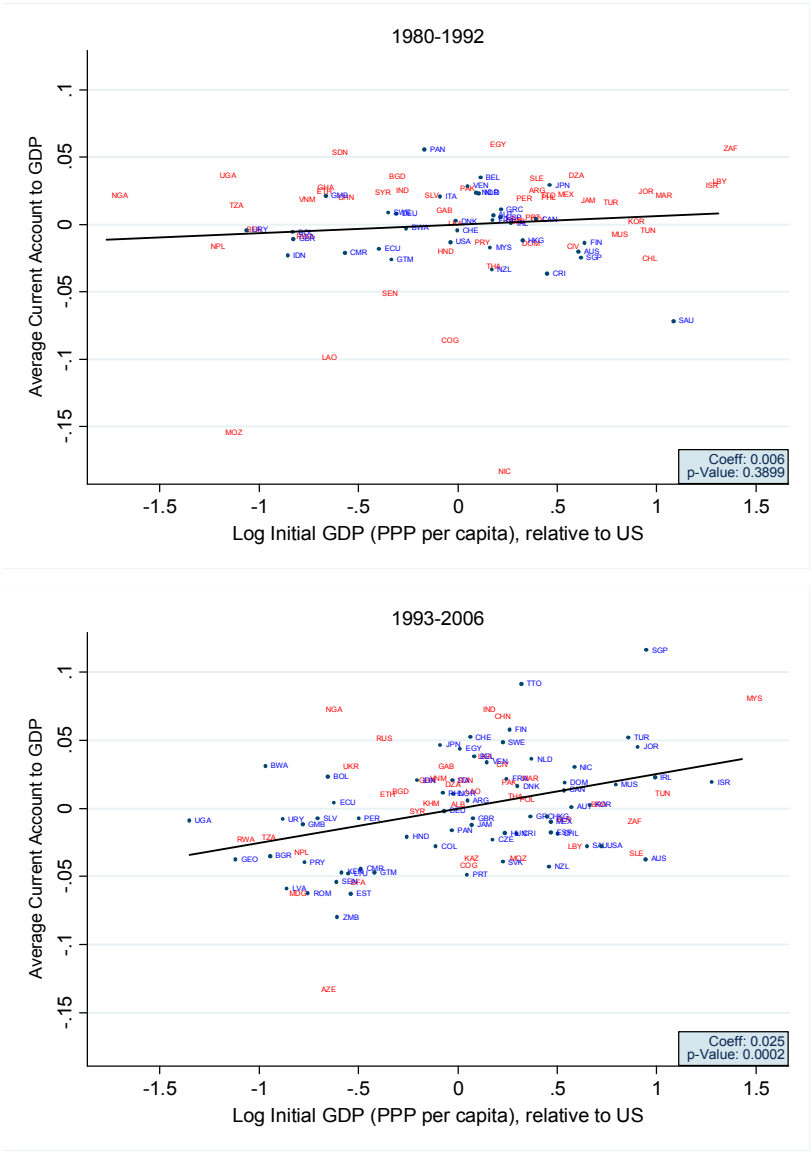
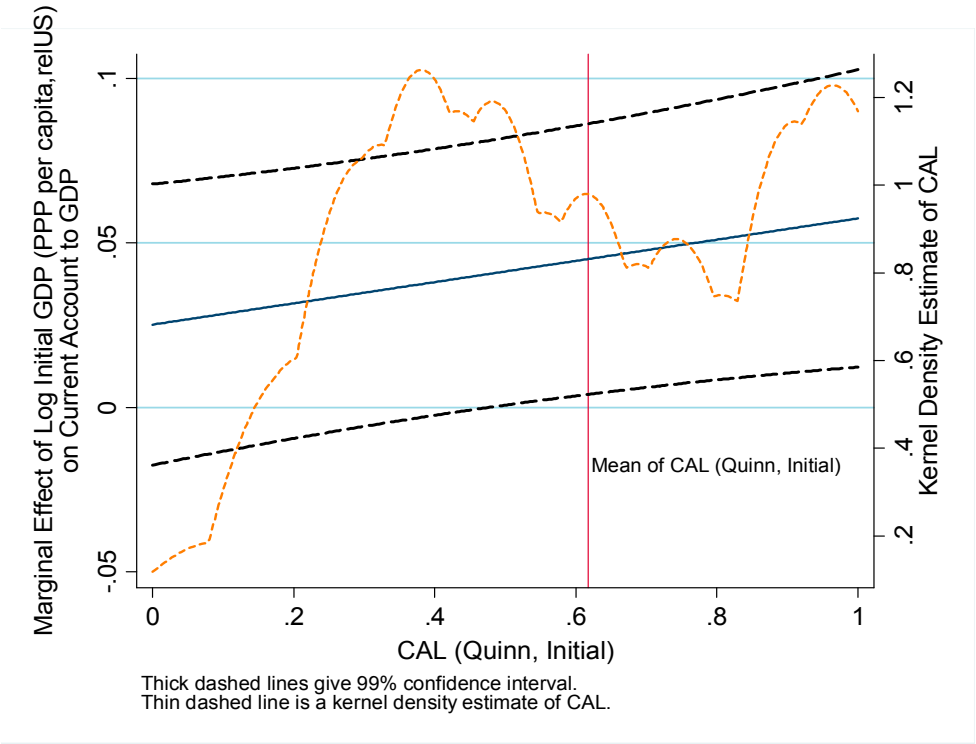


Figure 4: Conditional Correlation Plot from Regression of Current Account on Initial Income and Controls: 2 Periods



Note: The Current Account to GDP ratio is averaged over the period considered (1980-1992 or 1993-2006). Log initial GDP is for the first year of available data in the respective period. Observations in blue (with a marker) refer to countries that have an index value of capital account openness above the median of openness for the whole sample period (1980-2006)—i.e the countries for which the index of capital account openness takes a value bigger than .58796. The graph plots the residuals of a regression of the average current account to GDP ratio on the standard control variables versus the residuals from the regression of Log Initial GDP on the standard control variables. The coefficient of this regression is exactly the same as the coefficient on Log Initial GDP in a regression of Current Account/GDP on Log Initial GDP and the standard controls.

Figure 5: Effect of Openness on the Marginal Effect of Income



Note: The solid black line plots the marginal effect of Log Initial GDP on the Current Account to GDP ratio as a function of the index of initial capital account openness (CAL). The dashed black lines are the corresponding 99% confidence intervals. The red dashed line shows the distribution of the index of capital account openness using a kernel density estimator.

Table 1. Current Account and Capital Account Openness (1980-2006)

	(1)	(2)	(3)	(4)	(5)
Log Initial GDP (PPP per capita), relative to US	**0.0230*** (0.0040)**	**0.0143 (0.0111)**	**0.0189*** (0.0063)**	**0.0229*** (0.0062)**	**0.0080 (0.0097)**
Index of Capital Account Openness		**-0.1240** (0.0618)**		**-0.0349 (0.0261)**	**-0.1140* (0.0573)**
Log Initial GDP (PPP per capita) * Index of Capital Account Openness		**0.0253 (0.0179)**			**0.0273* (0.0160)**
Fiscal balance to GDP			0.685***	0.718***	0.730***
			(0.181)	(0.194)	(0.197)
Old age dependency ratio			-0.109	-0.0389	-0.132
			(0.095)	(0.117)	(0.125)
Population growth			0.356	0.567	0.193
			(0.782)	(0.764)	(0.751)
Initial NFA to GDP			0.0322**	0.0289*	0.0243*
			(0.014)	(0.015)	(0.014)
Oil trade balance to GDP			-0.00048	-0.0211	-0.0144
			(0.065)	(0.069)	(0.069)
Per capita real GDP growth			0.0191	0.0686	0.0245
			(0.378)	(0.359)	(0.353)
Constant	-0.0973***	-0.0455	-0.0876***	-0.0764**	-0.0413
	(0.014)	(0.034)	(0.031)	(0.035)	(0.040)
Observations/Countries	109	109	105	105	105
R-squared	0.215	0.259	0.403	0.414	0.425
F-Test:	33.25	19.04	9.178	13.66	11.5
p-value	0.000	0.000	0.003	0.000	0.001

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is the Current Account to GDP ratio. The dependent and explanatory variables are averaged over 1980-2006 (except when stated otherwise). Initial refers to the first year of available data. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP]=0 (columns 1, 3 and 4) or for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xCapital Account Openness]= 0 conditional on the capital account openness index equal to one (columns 2 and 5).

Table 2. Current Account and Capital Account Openness in Repeated Cross-Sections

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Period considered:	1980-1992	1980-1992	1993-2006	1993-2006	1993-2006	1993-2006	1993-2006	1993-2006
Log Initial GDP (PPP per capita), relative to US	**0.0064**	**0.0118**	**0.0253*** **	**0.0256*** **	**0.0182*** **	**0.0072**	**0.0045**	**-0.0035**
	(0.00772)	**(0.0110)**	**(0.00672)**	**(0.00641)**	**(0.00683)**	**(0.0132)**	**(0.0126)**	**(0.0121)**
Index of Capital Account Openness	**0.0521** **	**0.0962**	**-0.0376***	**-0.0381***	**-0.0415** **	**-0.0985** **	**-0.1090** **	**-0.1180*** **
	(0.0218)	**(0.0625)**	**(0.0205)**	**(0.0202)**	**(0.0189)**	**(0.0427)**	**(0.0421)**	**(0.0403)**
Log Initial GDP (PPP per capita) * Index of Capital Account Openness		**-0.0139**				**0.0253**	**0.0296***	**0.0317***
		(0.0165)				**(0.0169)**	**(0.0166)**	**(0.0163)**
Banking Crisis				0.0366**			0.0398**	0.0337**
				(0.0156)			(0.0157)	(0.0160)
Aid (Concessional Loans to GDP)					-0.822***			-0.774***
					(0.225)			(0.211)
Standard Control variables	YES	YES	YES	YES	YES	YES	YES	YES
Observations/Countries	86	86	105	105	104	105	105	104
R-squared	0.373	0.376	0.635	0.652	0.662	0.643	0.663	0.686
F-Test:	0.685	1.159	14.17	15.93	7.102	13.20	15.04	9.591
p-value	0.411	0.285	0.000	0.000	0.009	0.000	0.000	0.003

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is the Current Account to GDP ratio. The dependent and the explanatory variables are (except when stated otherwise) averaged over the period considered (1980-1992 or 1993-2006). Initial refers to the first year of available data. Each regression includes the following control variables (defined in the appendix): the fiscal balance to GDP, the old age dependency ratio, population growth, the initial NFA to GDP ratio, the oil trade balance to GDP ratio, and per capita real GDP growth. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP]=0 (columns 1, 3, 4 and 5) or for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xCapital Account Openness]= 0 conditional on the capital account openness index equal to one(columns 2, 6, 7 and 8).

Table 3. Current Account and Openness in a Panel of Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Initial GDP (PPP per capita), relative to US	**0.0201*** (0.0023)**	**0.0199 (0.0178)**	**0.0087 (0.0062)**	**0.0095 (0.0195)**	**0.0145*** (0.0039)**	**0.0432** (0.0170)**	**-0.0019 (0.0059)**	**0.0252 (0.0162)**
Index of Initial Capital Account Openness			**-0.0638* (0.0330)**	**-0.0372 (0.0426)**	**-0.0023 (0.0097)**	**-0.0048 (0.0134)**	**-0.0822*** (0.0278)**	**-0.0955** (0.0384)**
Log Initial GDP (PPP per capita) * Index of Initial Capital Account Openness			**0.0198** (0.0100)**	**0.0230 (0.0143)**			**0.0289*** (0.0086)**	**0.0323** (0.0128)**
Fiscal balance to GDP					0.3381***	0.1311*	0.3402***	0.1281*
					(0.0911)	(0.0685)	(0.0894)	(0.0661)
Old age dependency ratio					-0.2482***	-0.5496**	-0.3272***	-0.5787***
					(0.0652)	(0.2212)	(0.0695)	(0.2117)
Population growth					-0.7148*	-2.5595***	-0.9570**	-2.7705***
					(0.3946)	(0.5570)	(0.3974)	(0.5674)
Initial NFA to GDP					0.0381***	0.0154	0.0355***	0.0147
					(0.0064)	(0.0106)	(0.0060)	(0.0103)
Oil trade balance to GDP					0.1075**	0.1861	0.1116***	0.1784
					(0.0440)	(0.1322)	(0.0429)	(0.1194)
Per capita real GDP growth					0.0415	0.1718	0.0222	0.1686
					(0.1095)	(0.1562)	(0.1082)	(0.1488)
Terms of Trade						0.0379**		0.0357**
						(0.0152)		(0.0157)
Observations	462	462	462	462	427	427	427	427
Countries	109	109	109	109	105	105	105	105
Country Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES
R-squared (overall)	0.161	0.161	0.172	0.157	0.416	0.316	0.434	0.330
R-squared (within)		0.009		0.040		0.235		0.261
F-Test:	78.59	1.249	31.47	2.995	31.47	6.420	23.77	11.18
p-value	0.000	0.266	0.000	0.086	0.000	0.013	0.000	0.001

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is the Current Account to GDP ratio. The dependent and explanatory variables are averaged over 5 year periods covering 1982-2006 (except when stated otherwise). "Initial" refers to the year before the respective 5 year period. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP]=0 (columns 1, 2, 5 and 6) or for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xCapital Account Openness]= 0 conditional on the capital account openness index equal to one (columns 3,4, 7 and 8).

Table 4. Robustness: Adding Control Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log Initial GDP (PPP per capita), relative to US	**0.0244**	**0.0343***	**0.0205**	**0.0180**	**0.0149**	**0.0371**	**0.0202**	**0.0221**	**0.0358**	**0.0134**
	(0.0159)	**(0.0204)**	**(0.0155)**	**(0.0180)**	**(0.0147)**	**(0.0232)**	**(0.0176)**	**(0.0176)**	**(0.0254)**	**(0.0190)**
Index of Initial Capital Account Openness	**-0.0990*****	**-0.0913****	**-0.0551**	**-0.0950****	**-0.0963****	**-0.1362*****	**-0.0990*****	**-0.0824****	**-0.0666***	**-0.1038*****
	(0.0336)	**(0.0367)**	**(0.0349)**	**(0.0373)**	**(0.0373)**	**(0.0333)**	**(0.0373)**	**(0.0400)**	**(0.0342)**	**(0.0349)**
Log Initial GDP (PPP per capita) * Index of Initial Capital Account Openness	**0.0331*****	**0.0338*****	**0.0156**	**0.0331*****	**0.0365*****	**0.0440*****	**0.0339*****	**0.0313****	**0.0217***	**0.0397*****
	(0.0117)	**(0.0124)**	**(0.0127)**	**(0.0120)**	**(0.0121)**	**(0.0112)**	**(0.0124)**	**(0.0128)**	**(0.0127)**	**(0.0115)**
Net Grants to GDP	0.3336***								-0.2284	0.1892
	(0.1115)								(0.1668)	(0.1380)
Concessional Loans to GDP	-0.6202***								-0.2521	-0.4771***
	(0.1638)								(0.2268)	(0.1393)
Private Credit to GDP ratio		-0.0245**							-0.0185	-0.0156
		(0.0108)							(0.0115)	(0.0110)
Financial Reform Index			0.0191						0.0438**	
			(0.0136)						(0.0168)	
Growth in Private Credit to GDP				-0.1002***					-0.0865***	-0.0753***
				(0.0230)					(0.0234)	(0.0244)
Institutions (ICRG)					-0.0827**				-0.0900***	-0.0383
					(0.0334)				(0.0299)	(0.0333)
Years of Schooling						0.0032				
						(0.0061)				
Reserve Accummulation to GDP							0.3794***	0.8490***	0.2704	0.3323**
							(0.1317)	(0.3081)	(0.1775)	(0.1502)
Reserve Accummulation to GDP * Index of Capital Account Openness								-0.9411*		
								(0.5587)		
Standard Control Variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	421	385	361	381	403	288	425	425	319	360
Countries	102	99	87	99	99	83	105	105	80	92
Country Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R-squared (overall)	0.346	0.323	0.341	0.387	0.350	0.283	0.363	0.350	0.382	0.406
R-squared (within)	0.291	0.285	0.275	0.332	0.285	0.212	0.281	0.292	0.385	0.370
F-Test:	12.29	9.028	3.423	5.897	8.015	15.88	9.819	9.047	4.517	6.010
p-value	0.001	0.003	0.068	0.017	0.006	0.000	0.002	0.003	0.037	0.016

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is the Current Account to GDP ratio. The dependent and explanatory variables are averaged over 5 year periods covering 1982-2006 (except when stated otherwise). "Initial" refers to the year before the respective 5 year period. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xCapital Account Openness]= 0 for a country with an open capital account (capital account index equal to one).

Table 5. Additional Robustness Tests

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Log Initial GDP (PPP per capita), relative to US	-0.0174***	0.0119	-0.0055	0.0106	-0.0031	0.0292*	-0.0003	0.0275	-0.1413**	-0.2036	0.0082**	0.0395**
	(0.0058)	(0.0167)	(0.0059)	(0.0193)	(0.0059)	(0.0174)	(0.0061)	(0.0174)	(0.0597)	(0.1770)	(0.0042)	(0.0169)
Index of Initial Capital Account Openness	-0.1093***	-0.1195***	-0.1015***	-0.1043***	-0.0624**	-0.0985**	-0.0872***	-0.0989**	-0.6651***	-1.0161*	-0.0526**	-0.0583*
	(0.0274)	(0.0363)	(0.0281)	(0.0360)	(0.0287)	(0.0381)	(0.0276)	(0.0392)	(0.2482)	(0.5133)	(0.0248)	(0.0320)
Log Initial GDP (PPP per capita) * Index of Initial Capital Account Openness	0.0392***	0.0386***	0.0349***	0.0366***	0.0247***	0.0337**	0.0280***	0.0284**	0.2826**	0.4096*	0.0164**	0.0175*
	(0.0085)	(0.0124)	(0.0085)	(0.0120)	(0.0087)	(0.0128)	(0.0085)	(0.0135)	(0.1120)	(0.2346)	(0.0069)	(0.0097)
Standard Control Variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	421	421	426	425	398	397	428	427	436	435	422	421
Countries	102	102	105	105	89	89	105	105	105	105	105	105
Country Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
R-squared (overall)	0.306	0.169	0.412	0.333	0.486	0.373	0.448	0.333	0.354	0.180	0.419	0.315
R-squared (within)		0.223		0.174		0.276		0.293		0.219		0.243
F-Test:	15.39	9.275	31.38	7.003	13.39	12.41	26.39	10.08	4.365	1.059	15.29	8.748
p-value	0.000	0.003	0.000	0.009	0.000	0.001	0.000	0.002	0.037	0.306	0.000	0.004

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: In column (1) and (2) the dependent variable is the sum of concessional loans to GDP and the Current Account to GDP ratio. In columns (3) and (4) we subtract Reserve Accumulation to GDP from the Current Account to GDP ratio. In columns (5) and (6) we exclude transition economies. In columns (7) and (8) we include time fixed effects. In columns (9) and (10), the dependent variable is the Current Account to Population ratio. Finally, in columns (11) and (12) we use the Chinn and Ito index instead of the Quinn index as a proxy for capital account openness. The dependent and explanatory variables are averaged over 5 year periods covering 1982-2006 (except when stated otherwise). "Initial" refers to the year before the respective 5 year period. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xCapital Account Openness]= 0 for countries with a fully opened capital account (Index equal to one).

Table 6. Capital Account Openness and Types of Capital Flows

Dependent Variable:	(1) FDI	(2) Portfolio Equity	(3) Portfolio Debt	(4) Other Inv. Private	(5) Other Inv. Other	(6) Other Inv. Banks	(7) Other Inv. Official
Log Initial GDP (PPP per capita), relative to US	-0.0071	-0.0029	-0.0027	-0.0160***	-0.0070**	-0.0081**	0.0016
	(0.0056)	(0.0018)	(0.0032)	(0.0051)	(0.0034)	(0.0035)	(0.0061)
Index of Capital Account Openness	-0.1162***	-0.0165**	-0.0048	-0.0879***	-0.0368**	-0.0407	0.0173
	(0.0253)	(0.0080)	(0.0170)	(0.0315)	(0.0159)	(0.0255)	(0.0326)
Log Initial GDP (PPP per capita) * Index of Capital Account Openness	0.0279***	0.0073**	0.0047	0.0289***	0.0121**	0.0137*	-0.0061
	(0.0086)	(0.0032)	(0.0060)	(0.0095)	(0.0060)	(0.0071)	(0.0092)
Standard Control variables	YES	YES	YES	YES	YES	YES	YES
Observations/Countries	105	101	101	104	104	104	79
R-squared	0.497	0.405	0.228	0.212	0.153	0.195	0.368
F-Test:	16.02	5.998	0.350	5.019	1.615	1.804	0.636
p-value	0.000	0.016	0.556	0.027	0.207	0.182	0.428

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: In column (1), the dependent variable is the ratio of FDI Outflows to GDP; in column (2), the ratio of Portfolio Equity Outflows to GDP; in column (3), the ratio of Debt Outflows to GDP; in column (4), the ratio to GDP of Private Other Investment Outflows (Other Sectors and Banks); in column (5), the ratio to GDP of Other Investment Outflows for Other Sectors; in column (6), the ratio to GDP of Other Investment Outflows for Banks; in column (7), the ratio to GDP of Official Other Investment Outflows. The dependent and explanatory variables are averaged over 1980-2006 (except when state otherwise). Initial refers to the first year of available data. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xCapital Account Openness]= 0 for countries with a fully opened capital account (Index equal to one).

Table 7. Capital Account Openness and Types of Capital Flows: Panel Estimates

Dependent Variable:	(1) FDI	(2) Portfolio Equity	(3) Portfolio Debt	(4) Other Inv. Private	(5) Other Inv. Other Sectors	(6) Other Inv. Banks	(7) Other Inv. Official
Log Initial GDP (PPP per capita),	-0.0061	-0.0036	-0.0016	-0.0011	0.0052	-0.0047	0.0235
relative to US	(0.0088)	(0.0059)	(0.0056)	(0.0122)	(0.0099)	(0.0059)	(0.0215)
Index of Initial Capital Account Openness	-0.0416***	-0.0220**	-0.0091	-0.0280	-0.0433**	0.0116	0.0028
	(0.0153)	(0.0087)	(0.0141)	(0.0245)	(0.0208)	(0.0114)	(0.0418)
Log Initial GDP (PPP per capita)	0.0083*	0.0105***	0.0033	0.0084	0.0146**	-0.0049	-0.0035
* Index of Initial Capital Account Openness	(0.0048)	(0.0035)	(0.0066)	(0.0086)	(0.0068)	(0.0049)	(0.0111)
Standard Control variables	YES	YES	YES	YES	YES	YES	YES
Observations	376	336	345	362	374	380	166
Countries	103	99	98	102	102	104	77
Country Fixed Effects	YES	YES	YES	YES	YES	YES	YES
R-squared (overall)	0.173	0.083	0.01	0.005	0.047	0.003	0.002
R-squared (within)	0.222	0.083	0.041	0.088	0.122	0.107	0.335

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: In column (1) and (2), the dependent variable is the ratio of FDI Outflows to GDP; in column (3) and (4), the ratio of Portfolio Equity Outflows to GDP; in column (5) and (6), the ratio of Debt Outflows to GDP; in column (7) and (8), the ratio to GDP of Private Other Investment Outflows (Other Sectors and Banks); in column (9) and (10), the ratio to GDP of Other Investment Outflows for Other Sectors; in column (11) and (12), the ratio to GDP of Other Investment Outflows for Banks; in column (13) and (14), the ratio to GDP of Official Other Investment Outflows. The dependent and explanatory variables are averaged over 5 year periods covering 1982-2006 (except when stated otherwise). "Initial" refers to the year before the respective 5 year period. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xCapital Account Openness]= 0 for countries with a fully opened capital account (Index equal to one).

VI. APPENDIX

A. Data

The database includes data since 1980 for all countries with a population larger than one million. 146 countries are included in the database. There is no data for our preferred index of financial openness (Quinn index) for 37 countries. Hence, the biggest sample used in this paper is 109 countries. For the sake of comparability we exclude countries without data for the Quinn index even in the (few) specifications where financial openness is not included.

As a preliminary screen on the panel data we exclude observations for which the dependent variable and our baseline controls deviate by more than 3 standard deviations from the sample mean. This makes sure that no extreme observation has an undue impact on the results. We do not pre-screen the data with regard to extreme observations for the cross-sectional specification, because it is easy to spot the (muted) impact of these observations directly from the conditional correlation plots presented in this paper. As no country is dropped entirely due to the pre-screening for the panel dataset, the country samples remain consistent across the cross-section and the panel-specification.

To maintain consistency in the observations included in the repeated cross-section and the panel specification we exclude observations in the cross section for which we have less than 5 years of data.

Table A1 would indicate if a variable is constructed relative to trading partners: the weights used are those employed by the Information Notice System (INS) system of the IMF to calculate real effective exchange rates.

Current Account/Capital Flows

Current Account/GDP: The current account to GDP ratio is based on IFS spliced with data from WEO.

Capital Flows/GDP: Net and gross outflows of Foreign Direct Investment (FDI), Portfolio Equity, Portfolio Debt and Other Investment are taken from IFS (BoP statistics).

Reserve Accumulation/GDP: Reserve accumulation is measured by the negative of reserve flows taken from IFS (BOP statistics).

Financial Openness/Capital Account Liberalization (CAL)

Index of Initial Capital Account Openness (Quinn): Our preferred measure of financial openness is from the Research Department's structural reform database. The index, which is normalized between 0 and 1 (1 for fully open countries), is based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). It is computed by Dennis Quinn (1997, updated to 2006) and measures restrictions on capital account transactions.

Index of Initial Capital Account Openness (Chinn and Ito): An alternative measure of capital account liberalization is taken from Chinn and Ito (2008); we use the data updated in July 2010. The index, which we normalize between 0 and 1, is also based on the IMF's AREAER.

Initial GDP (PPP per capita)

Relative GDP per capita: Relative Income per capita is PPP income per capita relative to the U.S, both in constant 2005 international Dollars. The index has a value of 100 for the U.S. The data are from PWT 6.3.

Demographics

Old-age dependency ratio: The old-age dependency ratio captures the share of people older than 64, relative to the working age population, defined as the age group 15-64. The data are based on UN data, annualized by the World Bank.
Population growth: The population growth data are computed from World Bank data, extended with UN projections.

Education

Years of Schooling: Average years of schooling in the population aged 25 and over is taken from Barro and Lee (2000).

External

Net foreign assets/GDP: Net foreign assets (NFA) are from Lane and Milesi-Ferretti (2007). If there is no NFA data for a given country we use the cumulative current account.
Aid (net grants/GDP and concessional loans/GDP): Roodman (2006) computes a measure of foreign aid based on Official Development Assistance (ODA) data as total net aid minus debt forgiveness plus offsetting entries for debt relief. Concessional loans are constructed as foreign aid minus net grants. The loans are constructed as foreign aid minus net grants, and the latter is constructed as total grants (also from ODA) minus debt forgiveness grants. The data are in millions of U.S. dollars and are computed relative to WEO nominal GDP.
Oil trade balance/GDP: The oil trade balance to GDP ratio is from WEO.

Fiscal
General Government Balance (GGB)/GDP: The general government balance relative to GDP, using the central government balance for countries where the general balance is not available. The data are from WEO.

Income related variables

Real per capita GDP growth: The growth rate of GDP per capita (in PPP) is taken from PWT 6.3.
Income Groups: We aggregate countries into income groups based on the World Bank income group classification (as of 2006).

Terms of Trade

Terms of Trade: The natural logarithm of terms of trade of goods and services. Data are from WEO.

Financial Development

Financial Reform Index: The domestic financial reform measure is an index, coded between 0 an 1. It is taken from Abiad et. al (2008).
Private Credit/GDP: Private Credit by Deposit Money Banks and Other Financial Institutions relative to GDP is taken from the World Bank.
Growth in Private Credit/GDP: Growth rate of Private Credit/GDP.

Banking Crisis

Banking Crisis: Our measure for banking crises is based on an updated version of the dummy variable constructed by Demirgüç-Kunt and Detragiache (1998). It takes a value of 1 for years in which a country experienced a banking crisis (0 otherwise).

Institutions

Institutions (ICRG): To measure institutional quality we use a composite index measuring political risk compiled by the International Country Risk Guide (ICRG). The index is a weighted average of the following sub-components: Government Stability, Socioeconomic Conditions, Investment Profile, Internal Conflict, External Conflict, Corruption, Military Involvement in Politics, Religious Tensions, Law and Order, Ethnic tensions, Democratic Accountability, Quality of Bureaucracy.

Notation
INS: Information Notice System
WEO: World Economic Outlook
IFS: International Financial Statistics
BOP: Balance of Payment
PWT 6.3.: PENN World tables Version 6.3.

B. Sample

Biggest Sample for Unconditional Regressions – 109 Countries

Albania (ALB), Algeria (DZA), Argentina (ARG), Australia (AUS), Austria (AUT), Azerbaijan (AZE), Bangladesh (BGD), Belarus (BLR), Belgium (BEL), Bolivia (BOL), Botswana (BWA), Brazil (BRA), Bulgaria (BGR), Burkina Faso (BFA), Cambodia (KHM), Cameroon (CMR), Canada (CAN), Chile (CHL), China (CHN), Colombia (COL), Congo (Rep.) (COG), Costa Rica (CRI), Cote d'Ivoire (CIV), Czech Republic (CZE), Denmark (DNK), Dominican Republic (DOM), Ecuador (ECU), Egypt (EGY), El Salvador (SLV), Estonia (EST), Ethiopia (ETH), Finland (FIN), France (FRA), Gabon (GAB), The Gambia

(GMB), Georgia (GEO), Germany (DEU), Ghana (GHA), Greece (GRC), Guatemala (GTM), Haiti (HTI), Honduras (HND), Hong Kong (China) (HKG), Hungary (HUN), India (IND), Indonesia (IDN), Iran (Islamic Rep.) (IRN), Ireland (IRL), Israel (ISR), Italy (ITA), Jamaica (JAM), Japan (JPN), Jordan (JOR), Kazakhstan (KAZ), Kenya (KEN), Korea (Rep.) (KOR), Kyrgyz Republic (KGZ), Lao PDR (LAO), Latvia (LVA), Libya (LBY), Lithuania (LTU), Madagascar (MDG), Malaysia (MYS), Mauritius (MUS), Mexico (MEX), Morocco (MAR), Mozambique (MOZ), Nepal (NPL), Netherlands (NLD), New Zealand (NZL), Nicaragua (NIC), Nigeria (NGA), Norway (NOR), Pakistan (PAK), Panama (PAN), Paraguay (PRY), Peru (PER), Philippines (PHL), Poland (POL), Portugal (PRT), Romania (ROM), Russian Federation (RUS), Rwanda (RWA), Saudi Arabia (SAU, Senegal (SEN), Sierra Leone (SLE), Singapore (SGP), Slovak Republic (SVK), South Africa (ZAF), Spain (ESP), Sri Lanka (LKA), Sudan (SDN), Sweden (SWE), Switzerland (CHE), Syrian Arab Republic (SYR), Tanzania (TZA), Thailand (THA), Trinidad and Tobago (TTO), Tunisia (TUN), Turkey (TUR), Uganda (UGA), Ukraine (UKR), United Kingdom (GBR), United States (USA), Uruguay (URY), Venezuela (VEN), Vietnam (VNM), Zambia (ZMB), Zimbabwe (ZWE).

C. Spline Search

This section describes how we split countries in a financially open and in a financially closed group using a spline search procedure. The spline search method aims at maximizing the explanatory power of our baseline regression – i.e. the regression of the current account balance relative to GDP on the standard controls X_{it}, $CALP\#$, and an interaction term between this dummy and (initial) income:

$$\left(\frac{CA}{GDP}\right)_{it} = \alpha + \beta_1 GDPPC_{it} + \beta_2 CALP\#_{it} + \beta_3 CALP\#_{it} \cdot GDPPC_{it} + \alpha_x X_{it} + \varepsilon_{it}$$

We set $CALP\#_{it}$ equal to 1 if a country's level of openness is above or equal to the #th Percentile of openness across all countries for a given panel window (and to 0 otherwise). We choose # such that the within R^2 of the regression is maximized. To obtain two groups that are large enough, we restrict # to be between 20 and 80.

The method yields the 72th percentile for our baseline specifications – i.e. 5 year averages with financial openness in initial terms – regardless of whether we include fixed effects or not. The 72th percentile corresponds to an index value of financial openness of 0.8125. Figure 5 shows that this threshold splits observations in a closed and an open group for which the effect of initial income on the current account balance differs markedly.

Appendix Tables

Table A1. Summary Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
Current Account to GDP	overall	-0.0222	0.0531	-0.2423	0.2061	N = 462
	between		0.0494	-0.1874	0.1037	n = 109
	within		0.0306	-0.1505	0.1197	T = 4.23853
Log Initial GDP (PPP per capita), relative to US	overall	2.9393	1.0534	0.6462	4.6948	N = 468
	between		1.0353	0.7616	4.6060	n = 109
	within		0.1452	2.2589	3.4753	T = 4.29358
Index of Initial Capital Account Openness	overall	0.5991	0.2841	0.0000	1.0000	N = 468
	between		0.2431	0.1750	1.0000	n = 109
	within		0.1568	0.1491	1.2854	T = 4.29358
Fiscal balance to GDP #	overall	-0.0013	0.0351	-0.1286	0.1144	N = 444
	between		0.0260	-0.0597	0.0859	n = 106
	within		0.0240	-0.0936	0.0803	T = 4.18868
Old age dependency ratio #	overall	-0.0732	0.0583	-0.1910	0.0732	N = 448
	between		0.0577	-0.1627	0.0550	n = 106
	within		0.0104	-0.1106	-0.0237	T = 4.22642
Population growth #	overall	0.0083	0.0101	-0.0174	0.0436	N = 448
	between		0.0101	-0.0163	0.0288	n = 106
	within		0.0037	-0.0125	0.0267	T = 4.22642
Initial NFA to GDP	overall	-0.3933	0.5266	-3.5789	1.6825	N = 454
	between		0.4955	-2.2570	0.9833	n = 109
	within		0.2524	-1.7153	1.0761	T = 4.16514
Oil trade balance to GDP	overall	0.0035	0.0813	-0.1367	0.3891	N = 452
	between		0.0905	-0.0916	0.3481	n = 108
	within		0.0194	-0.0786	0.1434	T = 4.18519
Per capita real GDP growth	overall	0.0203	0.0286	-0.0864	0.1122	N = 468
	between		0.0231	-0.0296	0.1004	n = 109
	within		0.0207	-0.0801	0.0938	T = 4.29358
Terms of Trade	overall	4.6118	0.1646	3.9912	5.2514	N = 463
	between		0.1261	4.1101	5.0489	n = 108
	within		0.1263	4.1706	5.1676	T = 4.28704
Net Grants to GDP	overall	0.0228	0.0410	0.0000	0.3243	N = 460
	between		0.0388	0.0000	0.2142	n = 106
	within		0.0173	-0.0582	0.1330	T = 4.33962
Concessional Loans to GDP	overall	0.0099	0.0196	-0.0062	0.1479	N = 460
	between		0.0180	-0.0008	0.0846	n = 106
	within		0.0102	-0.0378	0.0837	T = 4.33962
Private Credit to GDP ratio	overall	0.4687	0.4183	0.0000	2.0996	N = 410
	between		0.3831	0.0321	1.6609	n = 103
	within		0.1515	-0.1307	1.3309	T = 3.98058
Growth in Private Credit to GDP	overall	0.0281	0.0908	-0.2670	0.4439	N = 405
	between		0.0582	-0.0670	0.2664	n = 103
	within		0.0777	-0.2200	0.3602	T = 3.93204
Political Constraints	overall	4.9620	2.0862	0.0000	7.0000	N = 463
	between		1.9317	1.0000	7.0000	n = 108
	within		0.9488	0.6020	7.9620	T = 4.28704
Reserve Accummulation to GDP	overall	0.0120	0.0197	-0.0835	0.1468	N = 459
	between		0.0139	-0.0069	0.0718	n = 109
	within		0.0147	-0.0729	0.1078	T = 4.21101
Financial Reform (DF)	overall	0.5885	0.2706	0.0000	1.0000	N = 384
	between		0.1952	0.1956	0.9611	n = 89
	within		0.1879	0.1085	1.0085	T = 4.31461
Institutions (ICRG)	overall	0.6511	0.1500	0.2028	0.9542	N = 439
	between		0.1282	0.3099	0.9061	n = 102
	within		0.0698	0.4405	0.8451	T = 4.30392

Note: # indicates deviation from trading partners. "Initial" refers to the year before the respective 5 year period.

Table A2. Pairwise correlations

	Log Initial GDP (PPP per capita), relative to US	Index of Initial Capital Account Openess	Fiscal balance to GDP	Old age dependency ratio	Population growth	Initial NFA to GDP	Oil trade balance to GDP	Per capita real GDP growth	Terms of Trade
Log Initial GDP (PPP per capita), relative to US	1								
Index of Initial Capital Account Openness	0.5176 (0)	1							
Fiscal balance to GDP	0.2006 (0)	0.1949 (0)	1						
Old age dependency ratio	0.7062 (0)	0.5119 (0)	0.0877 (0.0649)	1					
Population growth	-0.5729 (0)	-0.4093 (0)	-0.1065 (0.0249)	-0.7119 (0)	1				
Initial NFA to GDP	0.4821 (0)	0.2571 (0)	0.1697 (0.0004)	0.3662 (0)	-0.3148 (0)	1			
Oil trade balance to GDP	0.0704 (0.1351)	-0.1306 (0.0054)	0.2021 (0)	-0.2079 (0)	0.1689 (0.0004)	0.0789 (0.097)	1		
Per capita real GDP growth	0.0526 (0.2557)	0.123 (0.0077)	0.1858 (0.0001)	0.1653 (0.0004)	-0.3503 (0)	0.1021 (0.0296)	-0.0258 (0.5849)	1	
Terms of Trade	-0.0895 (0.0544)	-0.0297 (0.5244)	-0.0037 (0.938)	-0.0224 (0.6365)	0.0575 (0.2254)	-0.1766 (0.0002)	-0.1422 (0.0025)	-0.0235 (0.6139)	1

Note: P values in parenthesis

Table A3. Robustness: Spline Specification

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Initial GDP (PPP per capita), relative to US	**0.0201*** (0.0023)**	**0.0199 (0.0178)**	**0.0142*** (0.0039)**	**0.0429** (0.0171)**	**0.0145*** (0.0025)**	**0.0150 (0.0180)**	**0.0100** (0.0040)**	**0.0355** (0.0157)**
Dummy for Open Countries			**0.0016 (0.0050)**	**0.0002 (0.0058)**	**-0.0791*** (0.0229)**	**-0.0414** (0.0193)**	**-0.0594*** (0.0189)**	**-0.0672*** (0.0193)**
Log Initial GDP (PPP per capita) * Dummy for Open Countries					**0.0229*** (0.0063)**	**0.0149*** (0.0057)**	**0.0184*** (0.0051)**	**0.0200*** (0.0055)**
Standard Control Variables	NO	NO	YES	YES	NO	NO	YES	YES
Observations	462	462	427	427	462	462	427	427
Countries	109	109	105	105	109	109	105	105
Country Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES
R-squared (overall)	0.161	0.161	0.416	0.316	0.196	0.184	0.436	0.337
R-squared (within)		0.009		0.234		0.036		0.270
F-Test:	78.59	1.249	13.49	6.299	42.01	2.624	27.33	10.88
p-value	0.000	0.266	0.000	0.014	0.000	0.108	0.000	0.001

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is the Current Account to GDP ratio. The dependent and explanatory variables are averaged over 5 year periods covering 1982-2006 (except when stated otherwise). "Initial" refers to the year before the respective 5 year period. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP]=0 (columns 1, 2, 3 and 4) or for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xDummy for Open Countries]= 0 conditional on capital account openness index equal to one (columns 5, 6, 7 and 8). The Dummy for Open Countries takes the value of 1 (0 otherwise) if a country's level of initial openness (over a 5 year period) is above the 72th Percentile of openness across all countries for a given 5 year period (see the appendix for the derivation of the threshold using a spline search procedure).

Table A4. Robustness: Spline Specification (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log Initial GDP (PPP per capita), relative to US	**0.0346****	**0.0505****	**0.0246**	**0.0346***	**0.0287***	**0.0573****	**0.0318***	**0.0322***	**0.0465***	**0.0343**
	(0.0154)	**(0.0208)**	**(0.0161)**	**(0.0190)**	**(0.0164)**	**(0.0218)**	**(0.0165)**	**(0.0167)**	**(0.0259)**	**(0.0212)**
Dummy for Open Countries	**-0.0660*****	**-0.0538*****	**-0.0350***	**-0.0536*****	**-0.0571*****	**-0.0629****	**-0.0672*****	**-0.0638*****	**-0.0325**	**-0.0516*****
	(0.0180)	**(0.0186)**	**(0.0204)**	**(0.0187)**	**(0.0199)**	**(0.0242)**	**(0.0179)**	**(0.0201)**	**(0.0205)**	**(0.0193)**
Log Initial GDP (PPP per capita) * Dummy for Open Countries	**0.0197*****	**0.0176*****	**0.0102***	**0.0164*****	**0.0180*****	**0.0184*****	**0.0205*****	**0.0198*****	**0.0099***	**0.0174*****
	(0.0052)	**(0.0053)**	**(0.0057)**	**(0.0052)**	**(0.0057)**	**(0.0067)**	**(0.0052)**	**(0.0055)**	**(0.0058)**	**(0.0056)**
Net Grants to GDP	0.2783***								-0.2651*	0.1715
	(0.1035)								(0.1501)	(0.1363)
Concessional Loans to GDP	-0.5897***								-0.1700	-0.4583***
	(0.1562)								(0.2182)	(0.1291)
Private Credit to GDP ratio		-0.0249**							-0.0185	-0.0155
		(0.0103)							(0.0113)	(0.0107)
Financial Reform Index			0.0147						0.0425**	
			(0.0111)						(0.0167)	
Growth in Private Credit to GDP				-0.0970***					-0.0860***	-0.0739***
				(0.0231)					(0.0235)	(0.0248)
Institutions (ICRG)					-0.0689**				-0.0894***	-0.0290
					(0.0325)				(0.0317)	(0.0324)
Years of Schooling						0.0036				
						(0.0057)				
Reserve Accummulation to GDP							0.3784***	0.3959***	0.2656	0.3475**
							(0.1360)	(0.1358)	(0.1807)	(0.1552)
Reserve Accummulation to GDP * Dummy for Open Countries								-0.1204		
								(0.3402)		
Standard Control Variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	421	385	361	381	403	288	425	425	319	360
Countries	102	99	87	99	99	83	105	105	80	92
Country Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R-squared (overall)	0.355	0.317	0.335	0.378	0.337	0.271	0.370	0.367	0.368	0.392
R-squared (within)	0.296	0.287	0.276	0.330	0.281	0.185	0.290	0.290	0.383	0.362
F-Test:	11.09	8.859	3.647	5.754	6.689	12.08	9.162	8.731	4.274	4.998
p-value	0.001	0.004	0.060	0.018	0.011	0.001	0.003	0.004	0.042	0.028

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is the Current Account to GDP ratio. The dependent and explanatory variables are averaged over 5 year periods covering 1982-2006 (except when stated otherwise). "Initial" refers to the year before the respective 5 year period. See the appendix for the precise definition of each variable. Standard errors are robust to heteroskedasticity. The test statistic given in the last two lines refers to a F test for coeff[Log Initial GDP] + coeff[Log(InitialGDP)xDummy for Open Countries]= 0 for countries with a fully opened capital account (Index equal to one).The Dummy for Open Countries takes the value of 1 (0 otherwise) if a country's level of initial openness (over a 5 year period) is above the 72th Percentile of openness across all countries for a given 5 year period (see appendix for the derivation of the threshold using a spline search procedure).