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Olivier Jeanne and Marcus Noland and Arvind Subramanian and John Williamson

Peterson Institute for International Economics

January 2013

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I.   Background

A little over a decade ago, just before the Asian financial crisis of 1997–1998, there was a view expressed by some leading macroeconomists that it was time for developing economies to liberalize their capital accounts. In a famous speech during the International Monetary Fund's (IMF's) 1997 Annual Meeting, Stanley Fischer, the IMF's First Deputy Managing Director, stated the case for financial globalization. In this speech, he advocated an amendment to the IMF's *Articles of Agreement,* the purpose of which "would be to enable the Fund to promote the orderly liberalization of capital movements." Yes, there were risks associated with opening-up to capital flows, but Fischer was convinced that these were more than offset by the potential benefits. Rudiger Dornbusch, having written eloquently and convincingly on the usefulness of financial transactions taxes just a short while earlier (Dornbusch 1996), now characterized capital controls as "an idea whose time is past." He wrote, "The correct answer to the question of capital mobility is that it ought to be unrestricted" (Dornbusch 1998, 20).

In what has now become a classic paper, Jagdish Bhagwati (1998) used the Asian financial crisis to make the case why trade in capital should be treated differently from trade in goods. Reflecting this, the IMF's approach to capital flows in the aftermath of the Asian crisis took a more nuanced turn: a liberal capital account was not unambiguously good at all times and in all places. Instead, countries should decide this for themselves, taking account of context and circumstance. But the tenor of the IMF's views remained in favor of capital account liberalization. The IMF never argued that countries should be cautious of foreign capital. Instead, the line was that foreign capital remained fundamentally beneficial, and that reaping the benefits of financial globalization required a series of complementary reforms such as macroeconomic stability and a sound and well-regulated financial system. Effective capital account liberalization was thus a question of proper sequencing.

Then in 2008 came the global financial crisis, which particularly affected, at least in the short run, a number of countries in eastern Europe that were large net importers of foreign capital. In 2009, the IMF again reassessed the issue, and for the first time shed its long-standing ideological stance that favored foreign capital: "For both macroeconomic and prudential reasons, therefore, there may be circumstances in which capital controls are a legitimate component of the policy response to surges in capital inflows." (Ostry et al. 2010, p. 15).This principle was elaborated further: "A key conclusion is that, if the economy is operating near potential, if the level of reserves is adequate, if the exchange rate is not undervalued, and if the flows are likely to be transitory, then use of capital controls—in addition to both prudential and macroeconomic policy—is justified as part of the policy toolkit to manage inflows. Such controls, moreover, can retain potency even if investors devise strategies to bypass them, provided such strategies are more costly than the expected return from the transaction: the cost of circumvention strategies acts as `sand in the wheels'." (Ostry et al, 2010, p. 5).)

Most recently, the IMF (2012) has gone one step further in embracing *as an institutional view*, that management of capital flows (a euphemism for restrictions on capital flows) are a legitimate part of the toolkit for managing capital inflows in certain circumstances.

In this chapter we examine the implications of financial globalization for Asia. After a brief review of Asian economies' experiences with capital controls, we conduct a meta-regression analysis of the relationship between financial globalization and economic growth, specifically examining the experiences of Asian economies. We find that the evidence for the positive linkage between financial globalization and growth is even weaker for Asia, East Asia,

and emerging Asia than for the world as a whole. Specifically, the results indicate that cross-border bank loans, on which several Asian economies have relied, are a particularly problematic form of capital flow. We conclude with some thoughts about advisable "rules of the road" for managing capital flows, and contrast these with existing IMF proposals.

II.   Asia's Situation

Figure 1 presents data on capital flows to selected Asian countries since 1970. It clearly shows the diversity of experience—across time, countries, and types of flows—within Asia. There are countries that to a great extent have relied on net capital flows for some periods, exceeding 10 percent of GDP prior to the Asian financial crisis (Malaysia, Singapore, and Thailand). There are also countries that have been virtually closed to inflows (the People's Republic of China [PRC] and India prior to the 1980s and 1990s respectively), countries that are exporting capital (Singapore and Thailand), countries that have relied to a great extent on foreign direct investment (PRC), and countries that have relied on portfolio and debt flows (the Republic of Korea and Japan).

In part, this reflects the underlying diversity of Asia's financial systems. Because of their histories as trading centers, including relatively liberal financial regimes under British colonialism, Hong Kong, China; Malaysia; and Singapore have traditionally had relatively well developed financial sectors. All of these jurisdictions accepted Article VIII of the IMF's *Articles of Agreement* in the 1960s, and had fully convertible currencies by the 1970s. There are no significant capital or investment controls in either Hong Kong, China or Singapore, although Singapore's vestigial restrictions were sufficient to enable the Monetary Authority of Singapore to prevent foreigners from acquiring Singapore dollars to speculate against the domestic currency in 1997. Through the 1980s, direct investment in Malaysia was subject to prior approval and local-participation requirements, although these restrictions were subsequently relaxed.

In contrast, the modern financial sectors of both Taipei,China and the Republic of Korea have their origins in the more highly regulated bank-centric financial order bequeathed by Japanese colonial rule. Traditionally, capital markets were relatively undeveloped, and finance was centered on state-owned or dominated banks. Domestic financial institutions were generally under considerable direct or indirect government control, and the role of foreign financial institutions was circumscribed. External transactions were similarly regulated. Beginning in the 1980s, both of these jurisdictions undertook gradual reforms to improve financial intermediation and promote greater integration into world capital markets. As part of this liberalization effort, the Republic of Korea accepted Article VIII in 1988. That liberalization plan was greatly accelerated when the country applied for membership in the Organisation for Economic Co-operation and Development in the 1990s. However, the Republic of Korea liberalized short-term bank capital before it liberalized long-term investments.

Reform efforts were also undertaken in Indonesia and Thailand. Indonesia accepted Article VIII in 1988 and significantly deregulated its financial services sector, though implementation appeared to have significant aspects of "crony capitalism" centering on the longtime ruler then in power and his family. Direct investment was still subject to local-participation rules and required the approval of the president upon the recommendation of the Investment Coordination Board. There were also some remaining restrictions on the repatriation of funds. Similarly, Thailand announced its acceptance of Article VIII in May 1990, and began a process of dismantling existing capital controls. It subsequently established an offshore market for funneling bank funds to Thailand.

The Philippines alone maintained transitional arrangements under IMF Article XIV up to the time of the Asian crisis. These permit a country to impose restrictions on current payments and transfers until it is satisfied that its balance of payments is strong enough to remove the restrictions. Historically, the Philippines had a relatively repressed and inefficient financial system, characterized by rampant favoritism and inefficient state regulation. (This is, after all, the country that gave us the term "crony capitalism.") There were a number of attempts to change the financial system, but it was not until the early 1990s that significant reform was achieved. Entry barriers were modestly relaxed, the central bank was rehabilitated, commercial banks were forced to increase their capitalization ratios, new foreign and domestic entrants were allowed to enter the market, and the quality of prudential regulation was strengthened. The result was an increase in competition that eroded some oligopoly profits, promoted the mobilization of saving, and encouraged financial deepening. As a result, the amount and quality of finance increased. When the Asian crisis hit, the Philippines had not had time to build up debt. As a consequence, the economy hardly contracted at all.

Although the PRC achieved full current account convertibility in late 1996, its progress in capital account convertibility has proceeded slowly and cautiously.[2] During the decade following reform and opening, the PRC began loosening constraints on foreign direct investment (FDI) beginning in the early 1990s. Inward FDI in manufacturing is now almost completely liberalized, with the exception of restrictions in some "strategic" sectors, and in some cases, limits on the extent and form of foreign ownership. However, there are more restrictions on FDI in the PRC's service sector, particularly telecommunications and financial services including banking, insurance, and securities.

In contrast, measures for liberalizing portfolio flows came slower and later. The PRC's Qualified Foreign Institutional Investor (QFII) program which was adopted in 2002 allows a limited number of foreign institutional investors to invest in a specified range of domestic financial assets. This program sets quotas on inbound portfolio investment for each participating foreign institution, as well as a quota on the overall size of the QFII program. These quotas have been progressively expanded, and were recently increased fourfold to Rmb 270 billion ($43 billion). The PRC's Qualified Domestic Institutional Investor (QDII) program introduced in 2006 allows domestic financial institutions to invest abroad using a structure similar to that of the QFIIs.

Liberalization in the PRC has taken the form of promoting internationalization of the renminbi. In 2004, residents of Hong Kong, China could open renminbi deposit accounts in banks within that jurisdiction. In July 2009, the PRC introduced (geographically) limited crossborder trade settlement in renminbi, which was subsequently widened to include more cities and transactions. Since 2007 the PRC authorities have gradually approved expanded issuance of renminbi-denominated bonds in Hong Kong, China. Initially, issuance was limited to the Ministry of Finance and domestic financial institutions. But in 2010, foreign companies were authorized to issue renminbi-denominated bonds in Hong Kong, China. Increasing the availability of higher-yielding renminbi-denominated financial assets is critical to increasing the international use of the renminbi.

In short, beginning from quite different initial positions and reflecting the idiosyncrasies of local political economy, most East Asian countries gradually liberalized their financial systems, including external flows.

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[2] This description of the PRC's regime draws heavily on Lardy and Douglas (2011).

Until the crisis of 1997, East Asia (excluding the PRC) was an enthusiastic participant in the global capital market. These countries pursued export-led growth in the sense that they relied on exports to propel their economic advance. But their success in exporting led financiers in Europe, Japan, and the United States (US) to be prepared to lend them money, which they used to finance their imports and investment, with the result that they normally ran current account deficits. The world as a whole benefited from this "downhill" flow of capital.

The major regional crisis of 1997 was the product of several factors. One was Japan's reaction to the growth stagnation of the 1990s, which involved easy monetary policy that spread to both Taipei,China and the Republic of Korea, and subsequently to Southeast Asia. A second factor was enthusiastic borrowing in Southeast Asia, which—encouraged by the development of a bubble—soon went beyond the initial FDI to consist primarily of bank loans that generated massive currency and term-structure mismatches. The bubble began to deflate in 1996 as export prices weakened. Stock markets began falling well before the subsequent currency crises, and declining asset markets encouraged net capital outflow (including outflows initiated by domestic residents). Eventually, there was a forced abandonment of the currency peg in Thailand, which was also running a major current account deficit. Contagion then spread to other currencies.

The crisis of 1997 had profound ramifications. After discovering that capital inflows could in fact become outflows for no particular reason other than a routine balance-of-payments problem in Thailand, the region's economies resolved that reserves based on borrowing were useless for the purpose for which reserves are held, and hence that in the future they would base their build-up of reserves on current account surpluses. The Asian crisis proved particularly damaging because the East Asian economies (with the possible exception of Malaysia, and in striking contrast to India) had overwhelmingly imported debt rather than equity capital. When the "sudden stop" of capital inflows occurred, there was no elasticity in the system (i.e., no means of allowing debt-service obligations to automatically fall). Hence, there was no way of maintaining contractual obligations other than to initiate fierce deflation. (Even this did not suffice in the case of Indonesia, because the large stock of capital owned by ethnic Chinese was peremptorily withdrawn when political confidence fell.)

Since then, the region's economies have made a fundamental change in terms of running current account surpluses rather than deficits. While this involves accumulation of large amounts of reserves, they have not made a parallel change in the nature of their domestic financial systems. These continue to be bank-based, with no switch toward the more prudent possibility of obtaining equity finance from the rest of the world. (While there have been efforts to develop domestic bond markets, these do not address the particular source of weakness noted here.) When private-sector capital inflows occur (as they have), they are added to reserves rather than prompting current-account adjustment. This gives the region a greater role in the international capital market while at the same time limiting the role that the global capital market plays in their economies.

III. Testing the Impact of Financial Globalization: The Meta-Regression Approach

We would argue that the revision of the IMF view, although long overdue, is nevertheless not ambitious enough in a number of respects (Jeanne, Subramanian, and Williamson 2012, [henceforth JSW]). But it is not inconsistent with the emerging academic literature on the long-run impact of capital flows on growth.

In JSW, and building on Rodrik and Subramanian (2010), we reviewed the academic literature on the relationship between capital flows and growth. But instead of focusing on any one study in particular, we undertook a meta-regression analysis.

JSW identified all of the various ways in which the econometric relationship between economic growth and financial globalization (FG) can be estimated. It then examined the results for all combinations of these seven sources of difference in current studies of the financial globalization-growth relationship. We identified seven essential ways in which existing studies differ.

A. Measuring Financial Globalization

Current studies use various proxies for capital flows, which we refer to as financial globalization. First, there are *de jure* measures, which capture government policies toward financial globalization. The source for identifying such policies is typically the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER) database. These policies are combined in different ways to create a measure or index of financial globalization. We use three widely used *de jure* measures taken from Menzie Chinn and Hiro Ito (2008), Dennis Quinn and Maria Toyoda (2008), and Abdul Abiad, Enrica Detragiache, and Thierry Tressel (2008).

Second, there are *de facto* measures of financial globalization that are based on the stock of foreign capital in each economy. The most widely used measure is that of Gian-Maria Milesi-Ferretti and Philip Lane (2007), who compiled a database of actual financial flows, and then used these flows to derive stocks of foreign assets and liabilities in a given economy. Most of the current literature measures financial globalization using the total stock of assets plus liabilities as a share of GDP.

Third, there are *de facto* measures based on net flows instead of gross stocks (Prasad et al. 2007, and Gourinchas and Jeanne 2007). The argument for using net flows, as discussed by Henry (2007), is that the basic Solow growth model provides insights about financial globalization based on net flows (foreign savings) rather than gross flows. Moreover, net flows are important, since one of the channels through which capital affects growth is the exchange rate. Net flows are captured from the capital account, or alternatively, the current account deficit (net of aid flows).

In sum, there are a total of six different measures of financial globalization at the aggregate level: three *de jure* measures and three *de facto* measures

B. Levels or Changes in Financial Globalization

Having quantified financial globalization (using a *de facto* or *de jure* measure), it is necessary to consider what the underlying question is: Is long-run economic growth affected by the level of openness to financial globalization? Or is long-run economic growth affected by changes in openness? If it is the level that is important, should we specify globalization as the average level over which the analysis is conducted, or the level prevailing at the beginning of the period under examination? Using the former approach raises concerns about reverse causality: growth itself affects financial globalization; thus, specifying the average value biases the results.

In sum, we have three ways of specifying financial globalization: as a change, as an initial level, and as an average.

C. Disaggregating Financial Globalization

The literature on financial globalization suggests that in addition to the magnitude of flows and the policy measures that affect such overall flows, the type of foreign capital flow is also important. There are three key types of foreign capital: FDI, portfolio flows to domestic bond and equity markets, and debt. Our data allow us to distinguish the effects of capital flows in the following six categories: (i) portfolio debt (including bond) flows, (ii) portfolio equity flows, (iii) FDI, (iv) non-debt flows (an aggregation of portfolio equity flows and FDI), (v) net bank flows, and (vi) other investment flows (which comprise net bank flows and trade credits). Each of these six categories can be expressed as a stock or a flow.

In sum, there are 12 disaggregated measures of financial globalization consisting of either a stock or a flow for these six categories.

D. Time-Horizon/Estimation Methodology

Recent studies use various time horizons, including the 20-year period beginning in the mid-1980s (Edwards, 2001, and Arteta, Eichengreen, and Wyplosz, 2001), a 40-year period beginning in 1970 (Prasad, Rajan, and Subramanian, 2007), and shorter five-year periods within this longer horizon (Quinn and Toyoda 2008). For completeness, we include four time horizons: 1970–2007, 1985–2006, 1990–2006, and five-year intervals beginning in 1970.

Methodologically, there is an important difference between the first three time horizons and the sequence of five-year intervals. The first three lend themselves to cross-sectional analysis, through which the variation across economies is used to tease out the overall effects of financial globalization on growth. The five-year intervals lend themselves to panel data analysis, through which the variation within economies over time is used to examine the specific interrelationships between financial globalization and growth.

For the cross-sectional approach, the relevant question is: do countries with greater levels of financial globalization grow faster on average? For the panel data approach, the question is: does a country grow faster during periods of more rapid financial globalization than during periods of less rapid financial globalization? One advantage of using panel data is that at least in principle, the estimation procedure tries to correct for the endogeneity bias resulting from the fact that growth itself can have a positive impact on financial globalization, both by attracting foreign capital flows and by making policymakers more willing to liberalize policies toward foreign capital flows.

In sum, we have two estimation methodologies: cross-sectional and panel data analysis. The cross-sectional analysis can be conducted over three different time periods, and the panel data analysis can be conducted for five-year intervals within a 40-year time horizon.

It is worth pointing out that the early literature on finance focused on estimating cross-sectional relationships. Since the early 2000s, however, greater emphasis has been placed on panel estimation methodologies for the reasons noted above. Sala-i-Martin (2004) has tested the robustness of variables for the cross-sectional context, but there have not been any similar exercises for the panel estimation procedures. Therefore, one broader contribution of our work is to test the robustness of the relationship between financial globalization and growth in a panel

estimation context, which could have wider applicability for other uses of this approach in testing the impact of other variables on growth.

E. Threshold Effects

Some studies argue that the effects of financial globalization are not uniform. In particular, countries that implement supporting policies and institutions for improving their governance and financial institutions are more likely to benefit from financial globalization. We attempt to capture such threshold effects by comparing the financial globalization-growth relationship for different groups of economies: advanced economies, emerging-market economies, and the full sample of economies.

In sum, we have three different samples, two based on income level and one aggregate.

F. Conditioning Variables

A problem common to all econometric analysis is the omitted variables bias. How do we know that the effect that we are trying to capture is due to the variable under study (in this case, financial globalization), and not due to some other variable that is not included in the regression? There is a bewildering array of variables that can be used to condition the regression in order to address this problem.

We use two specifications. For the first, which is very sparse, we use just the initial level of income and the financial globalization variable of interest as explanatory variables. This specification implicitly sheds light on whether there is a simple and unconditional correlation between financial globalization and growth. In the second specification, we introduce three additional explanatory variables that are standard conditioning variables in the literature: levels of educational attainment, trade openness, and institutional quality.

In sum, we have two ways of specifying the conditioning variables.

G. Data Sources

It has recently been pointed out that growth measurements can vary substantially across the two main data sources: the Penn World tables and the World Bank's *World Development Indicators* (see Johnson et al. 2009). These variations can potentially impact the results of cross-country regressions.

In sum, there are two primary sources of data. To check the robustness of our results, we use both sources in analyzing each of the other six sources of difference in the current literature listed above.

IV. Implementing and Presenting the Meta-Analysis

We analyzed all of the combinations of the seven factors outlined above. This yielded a total of 2,340 regression results. We do not report the results for all of these combinations here, but instead summarize a few key statistics. First, we assess what percentage of these combinations yielded results showing a positive and statistically significant relationship between financial globalization and growth. Then we probed deeper to understand which combinations are more likely to yield such a relationship. Therefore, in addition to providing results for all

combinations, we also provided results for different sub-combinations that shed greater light on this relationship.

The spirit of this exercise is captured in the expression, "Look Ma, no hands!" That is, we start with no assumptions about the FG-growth relationship, but with a recognition that there are different ways of analyzing it. We then attempt to step back and mechanically allow the data to speak. Of course, this is not a completely mechanical process because our choices concerning the different combinations to study can introduce some biases. However, our choices were largely dictated by the literature under study and the choices these researchers made.

In presenting and interpreting the results, we show mainly the percentage of times that results yield a significant relationship, which we define at the 10 percent confidence level. How to interpret our results is not entirely obvious. On one hand, if the different combinations are interpreted simply as being different indications of a single underlying model, and if the results were statistically significant at the 10 percent level in only 10 percent of the regressions, then we could dismiss the significant results as spurious. That is, the share of results that are significant at the 10 percent level must be substantially larger than 10 percent to indicate that the relationship is truly significant.

On the other hand, there is no real justification for the above interpretation. The various outcomes need not all relate to one underlying model. This makes it less obvious how to interpret results that show the percentage of times the financial globalization variable is significant at the 10 percent level. What is undeniable is that the greater the percentage of times that the financial globalization variable is significant (the closer this comes to 100 percent), the more confident we are that there is a causal relationship between financial globalization and growth. The lower the percentage, the more skeptical we should be.

V. The Growth Impact of Financial Globalization in Asia

One deficiency of the JSW analysis is of course that it estimates the average impact of FG over all industrial and emerging market economies. Now, we have strong reason to believe that these effects will be heterogeneous because the underlying characteristics of the various economies are different. In particular, as discussed above, Asia has many unique characteristics including the fact that compared with other regions, it is on average more restrictive toward capital flows and is more open in terms of trade (and, as a result, is part of production chains). *Ex ante*, we do not know whether or how these characteristics will affect the transmission mechanism from capital flows to growth.

In order to understand the results we obtain for Asia, it is useful to have a benchmark. The benchmark we use is the results obtained for the sample as a whole, which we reproduce in Table 1. We can summarize the results for the larger sample as follows.

Financial globalization is significant and correctly signed (indicating a positive correlation) about 16 percent of the time, and significant and incorrectly signed (indicating a negative correlation) about 5 percent of the time (first line of Table 1). Even discounting the latter number, this is far from a ringing endorsement of the beneficial growth effects of financial globalization.

A second striking pattern is evident. Even for those cases in which the financial globalization variable is significant, there are four mitigating considerations:

• The financial globalization variable is nearly twice as likely to be significant for *de facto* financial globalization measured in stock terms as it is for *de jure* financial globalization. This is consistent with endogeneity driving the positive correlation.

• The financial globalization variable is three times as likely to be significant when it is specified as a period average or period change than when it is specified as a beginning-of-period value. This is also consistent with endogeneity driving the positive correlation.

• The financial globalization variable is nearly three times as likely to be significant when other correlates are not added. This suggests that omitted variables account for a large share of the significant results.

• The financial globalization variable is twice as likely to be significant for advanced economies than it is for emerging-market economies. This is consistent with a threshold effect for FG, namely, that positive effects can kick in at high levels of per capita income.

A third observation is that, in contrast to the claims of Quinn and Toyoda (2008), the panel results fail to provide convincing evidence of a positive FG-growth relationship. In replicating the generalized method of moments (GMM) results from the Quinn and Toyoda study, we take on board the critique of David Roodman (2008), who cautions against the use of too many instruments when using GMM estimators. We take this on board and report the significance of results both when the Roodman (2008) specification tests are applied and when they are not. In the latter case, the FG variable is significant 25 percent of the time. When other tests suggested by Roodman are also applied, the FG variable is significant only 7 percent of the time, which is below the value obtained in the cross-sectional estimations.

Finally, somewhat reassuringly, portfolio equity and FDI flows are more likely to generate positive and significant impacts on growth as compared with banking or portfolio debt flows. This is consistent with the results in the literature. For example, Ayhan Kose, Eswar Prasad, and Marco Terrones (2009) find evidence that FDI and portfolio equity liabilities boost productivity growth, whereas external debt is actually negatively correlated with productivity growth.

How do these results compare with those for Asia? We re-estimated all of the results by introducing an interaction between an Asia dummy and the capital flows variable. Thus, the equation we estimated (expressed for simplicity for the cross-sectional regressions) was:

$$Growth_j = \alpha + \beta * FG_j + \gamma * FG_j * Asiadum + \varphi Asiadum + \rho OTHR_j + \varepsilon_j$$

In this equation, FG represents the financial globalization variable, OTHR denotes the other conditioning variables, and Asiadum is the dummy for Asian countries.

The average impact of FG on growth for all countries is denoted by:

$$dGrowth/dFG = \beta$$

The impact of FG on growth in Asia is denoted by:

$$dGrowth/dFG = \beta + \gamma * FG_j$$

In the results we report for Asia, we ask whether this overall impact in Asia is positive or negative and statistically significant or insignificant. In Table 2, we report the results for all 17 Asian economies in our sample, in Table 3 for 10 economies in emerging Asia, and in Table 4 for 13 economies in East Asia. Table 5 shows the economies that comprise each of these categories.

The first finding to note is that compared with the overall sample, there are many more instances in which the impact of FG in Asia is negative and significant (see the first row in Tables 2-4). Thus, while in about 16 percent of the cases, this impact is positive and significant in Asia (similar to that for the whole sample), the impact is twice as negative in Asia and emerging Asia, and nearly three times as negative in East Asia (14 percent vs. 5 percent).

Second, in the cross-section regressions, the results for Asia are slightly better than for the world as a whole (Figures 2A and 2B). For the latter, the impact of FG is significant and positive 13 percent of the time, but for Asia, similar results are obtained about 16 percent to 18 percent of the time. However, the panel regressions are unfavorable for the impact of FG on growth in Asia. In the world sample, FG has a positive and statistically significant impact about 25 percent of the time (when the Roodman criterion is not applied), and 7 percent of the time (when it is applied). In Asia, the comparable numbers drop by about half (Figures 3A and 3B provide a sense of this difference because they plot changes in FG on growth, and the fitted line is more downward sloping for the Asian sample).

Third, perhaps the most striking difference between the results for Asia and for the larger sample of economies relates to the impact of debt financing. In the broader sample and in Asia, the positive impact of debt occurs at roughly the same frequency (about 15 percent). But there is a big jump in the instances in which bank debt has a negative impact in Asia. For example, Table 4 shows that external bank financing has a negative impact on long-run growth in nearly a quarter of all cases (24 percent). In the broader sample, this happens 3 percent of the time. Thus, bank financing has a negative impact that is eight times more frequent in Asia than in the world as a whole (see also Figures 4A and 4B).

Consistent with the theory and other evidence, we find that the impact of non-debt forms of financing on growth is high in Asia, as high in Asia as in the world as a whole, and substantially greater than the impact of debt financing. In nearly a quarter of all cases, non-debt external financing—portfolio and equity financing—register positive impacts on growth in Asia.

One finding, perhaps more of technical than policy interest, is that the impact of FG on growth is negative more often when the FG variable is specified in terms of changes rather than in terms of initial-period values. In the world sample, a negative coefficient for the FG variables when specified in terms of changes occurs 7 percent of the time, whereas in Asia, it is negative in three times as many cases.

A final finding of interest is that the negative impact of FG on growth is more pronounced in the East Asia sample than it is in the sample of all Asian economies or emerging Asian economies.

VI. Policy Implications

If the effects of FG on long-term growth in Asia are, if anything, less positive and more negative than for the average set of countries, what are the implications of this finding for policy? At the national level, countries should embrace greater openness to flows more

cautiously, especially those of the debt-creating sort. Further, in line with what has become the conventional wisdom, opening-up should be calibrated to the ability of domestic institutions to better regulate flows, and to their ability to maximize the benefits of such flows while minimizing their costs. The more interesting question relates to international policy.

To us, the results for Asia reinforce the conclusions of our recent book, which we summarize here, and which contrast with the most recent IMF guidelines on capital account management. The first question to be addressed is: why build a new cooperative apparatus when the status quo works well? After all, the status quo is permissive in providing individual economies the policy space to impose any kind of macroprudential capital account restrictions. Indeed, this freedom has recently been exploited by a number of countries including Brazil that have implemented such measures.

The case for international rules stems from the fact that the status quo is not permissive enough in some ways, and is too permissive in others. Because the overall international economic environment favors openness, there is a stigma attached to any policy measure that departs from such openness. Therefore, the status quo can be considered as placing *de facto* limits on the freedom of individual economies to effectively use capital controls. This is evident from the fact that in late 2009, Brazil imposed only very weak restrictions on capital inflows in order to avoid rattling the markets, and ended up incurring the stigma of being market-unfriendly without effectively addressing the inflow problem. Brazil arguably should have imposed higher taxes at the outset (as it eventually did) to stem the flood of capital. Enhanced cooperation and internationally agreed rules could sanction the use of the most appropriate and effective measures by individual economies. Both the Republic of Korea and Taipei,China have recently found themselves in situations of excess capital flows; measures for moderating these flows should have been a legitimate part of their policy arsenal.

The difference between our proposals and those recently advanced by the IMF are two-fold. First, when it comes to the need to impose capital account restrictions in response to excessive and volatile inflows, the IMF's proposals are not ambitious enough. Essentially, the IMF's arguments are still grounded in a first-best framework in which capital flows are viewed as beneficial, with weak institutional capability being the only impediment to extracting their full potential. As a result, the IMF still favors capital account measures as the weapon of last resort. In contrast, we argue that such measures need to be used with vigor and without apology in a number of cases because they serve to correct distortions.

We find that capital controls can be part of the menu of options to be deployed in the last resort against incipient asset price bubbles, a position that the IMF—long an opponent of the use of such controls—has recently endorsed. However, we also argue that properly designed capital controls may be warranted in other situations not related to capital booms and busts. One such situation would when be a country runs a structural current account deficit. In such a case, maintaining capital controls can be a precautionary measure for preventing overvaluation of a currency (and thus penalizing the tradable goods sector). India may be an example of this. Another situation in which capital controls may be warranted is when a country seeks to protect a fragile home banking sector from the destabilizing entry of foreign banks.

But we also argue that the "rules of the road" for managing capital flows should go even further. Any set of rules will fail to address the biggest challenge posed by capital controls if it is limited to blessing the controls deemed to be appropriate, but fails to discourage the use of restrictions that are harmful. The recent stand-off between the PRC and the US and the acrimonious discussions about the exchange value of the renminbi provide a good illustration of such a case.

They demonstrate that a country can use capital controls to sustain an undervalued exchange rate as an instrument of mercantilism that has beggar-thy-neighbor effects on its trading partners, and hence as a tool to prevent the exchange rate adjustments necessary for rebalancing the global economy. The PRC has used capital account restrictions combined with foreign-exchange market intervention to maintain a persistent real exchange rate undervaluation that is economically equivalent to a tariff on imports and a subsidy for exports. The trade effects of the PRC's policy highlight the close connections between capital flows and trade flows, and raise the question of whether these links should be considered in the design of any international rules that affect either.

In reality, there is an asymmetry between the international regulation of trade in goods and trade in financial assets and capital flows. Under the World Trade Organization (WTO), and its predecessor, the General Agreement on Tariffs and Trade (GATT), international rules were promulgated to promote free trade in goods. In contrast, trade in financial assets and capital flows has been largely left to the discretion of individual countries. This is reflected most saliently in the fact that the IMF has no jurisdiction over how its member countries manage their capital accounts. Any code of good practice for capital controls that is developed should thus also define by exclusion controls that are presumed to be distortive, and should therefore not be used.

This asymmetry between an extensive multilateral framework for international trade in goods and absence of rules for trade in assets makes no sense, since as outlined in our book, capital account policies (including the accumulation of reserves) can be used to achieve exactly the same trade effects as tariffs on imports and subsidies for exports. Thus, any conflict that concerns international trade has a natural tendency to spill over into capital flows, and vice versa.

The asymmetry between trade in goods and trade in assets referred to above will become increasingly problematic for the global economic system. It was not a fundamental problem under the Bretton Woods system when capital account restrictions were widespread, because global trade integration was much less advanced than it is today, and exchange rates were managed multilaterally. Nor was it a serious issue when global trade integration involved primarily advanced economies, because these economies were simultaneously opening themselves up to international capital flows. Finally, it was not perceived to be a pressing problem before the Great Recession when the global economy was near to full employment, even though growth was being achieved at the cost of large imbalances that were already becoming a concern. But looking forward, several factors—including especially a persistent global demand deficit and the rising share of the PRC in world trade—will lay bare the inconsistency inherent in having multilateral rules and institutions for trade in goods and no multilateral framework for trade in assets.

Asia is a region in which capital flows have been a mixed blessing, as experience and this chapter's findings demonstrate. It therefore has a deep stake in influencing the design of international rules in the manner we are advocating.

Table 1. Summary of Results on Financial Globalization (FG) for All Countries			
	% Positive and sig (10%)	% Negative and sig (10%)	No. of regressions
1. TOTAL (without Roodman)	16	5	**2340**
TOTAL (with Roodman criteria)	11	4	**2340**
2. Time horizon/ estimation methodology			
Cross-section regression	13	5	108 x 15 = 1620
of which			
1970-2007	12	3	36 x 15 = 540
1985-2007	13	6	36 x 15 = 540
1990-2007	13	7	36 x 15 = 540
Panel regression (without Roodman)	25	4	48 x 15 =720
Panel (FG variable is significant and regressions meet Roodman (2007) criteria for GMM estimation methodology)	7	2	48 x 15 =720
3. Specification of FG variable			
De jure 1/	12	6	156 x 3 = 468
De facto total 2/	18	5	156 x 12 = 1872
of which			
De facto net flows	15	4	156 x 7 = 1092
De facto stock	21	5	156 x 5 = 780
4. Timing of FG variable			
As initial period value	5	7	36 x 15 = 540
As average value	15	2	36 x 15 = 540
As change	17	7	36 x 15 = 540
5. Disaggregation of FG variable			
Portfolio debt	10	6	156 x 2 = 312
Other Investment (OI)	11	8	156 x 2 = 312
OI Bank 3/	16	3	156 x 1 = 156
Non-debt	28	3	156 x 4 = 624
Foreign direct investment (FDI)	24	3	156 x 2 = 312
Portfolio equity	32	3	156 x 2 = 312
6. Conditioning variables			
Convergence term and FG variable	24	5	78 x 15 = 1170
Convergence term, FG variable and education, openness, and institutional quality 4/	9	5	78 x 15 = 1170
7. Sample 5/			
All countries	16	6	52 x 15 = 780
Advanced countries	23	4	52 x 15 = 780
Emerging markets	11	5	52 x 15 = 780
8. Data source			
Penn World Tables (PWT)	17	5	78 x 15 = 1170
World Development Indicators (WDI)	16	5	78 x 15 = 1170

14

Table 2 Summary of Results on Financial Globalization (FG) For 17 Asian Countries			
	% Positive and sig (10%)	% Negative and sig (10%)	No. of regressions
1. TOTAL (without Roodman)	16	11	**2340**
TOTAL (with Roodman criteria)	13	11	**2340**
2. Time horizon/ estimation methodology			
Cross-section regression	17	16	108 x 15 = 1620
of which			
1970-2007	20	10	36 x 15 = 540
1985-2007	16	14	36 x 15 = 540
1990-2007	16	21	36 x 15 = 540
Panel regression (without Roodman)	14	1	48 x 15 =720
Panel (FG variable is significant and regressions meet Roodman (2007) criteria for GMM estimation methodology)	3	0	48 x 15 =720
3. Specification of FG variable			
De jure 1/	16	10	156 x 3 = 468
De facto total 2/	17	12	156 x 12 = 1872
of which	0	0	
De facto net flows	9	15	156 x 7 = 1092
De facto stock	27	6	156 x 5 = 780
4. Timing of FG variable			
As initial period value	15	14	36 x 15 = 540
As average value	21	7	36 x 15 = 540
As change	16	26	36 x 15 = 540
5. Disaggregation of FG variable			
Portfolio debt	10	15	156 x 2 = 312
Other Investment (OI)	8	19	156 x 2 = 312
OI Bank 3/	11	22	156 x 1 = 156
Non-debt	24	6	156 x 4 = 624
Foreign direct investment (FDI)	26	4	156 x 2 = 312
Portfolio equity	22	9	156 x 2 = 312
6. Conditioning variables			
Convergence term and FG variable	21	13	78 x 15 = 1170
Convergence term, FG variable and education, openness, and institutional quality 4/	11	10	78 x 15 = 1170
7. Sample 5/			
All countries	16	15	52 x 15 = 780
Advanced countries	23	13	52 x 15 = 780
Emerging markets	10	5	52 x 15 = 780
8. Data source			
Penn World Tables (PWT)	18	12	78 x 15 = 1170
World Development Indicators (WDI)	15	10	78 x 15 = 1170

Table 3. Summary of Results on Financial Globalization (FG) for 10 Emerging Asian Countries			
	% Positive and sig (10%)	% Negative and sig (10%)	No. of regressions
1. TOTAL (without Roodman)	17	8	**2340**
TOTAL (with Roodman criteria)	13	7	**2340**
2. Time horizon/ estimation methodology			
Cross-section regression	18	10	108 x 15 = 1620
of which			
1970-2007	18	9	36 x 15 = 540
1985-2007	20	10	36 x 15 = 540
1990-2007	14	11	36 x 15 = 540
Panel regression (without Roodman)	16	1	48 x 15 =720
Panel (FG variable is significant and regressions meet Roodman (2007) criteria for GMM estimation methodology)	3	0	48 x 15 =720
3. Specification of FG variable			
De jure 1/	16	3	156 x 3 = 468
De facto total 2/	18	9	156 x 12 = 1872
of which			
De facto net flows	11	11	156 x 7 = 1092
De facto stock	27	5	156 x 5 = 780
4. Timing of FG variable			
As initial period value	17	7	36 x 15 = 540
As average value	19	5	36 x 15 = 540
As change	17	18	36 x 15 = 540
5. Disaggregation of FG variable			
Portfolio debt	13	11	156 x 2 = 312
Other Investment (OI)	13	14	156 x 2 = 312
OI Bank 3/	18	9	156 x 1 = 156
Non-debt	21	6	156 x 4 = 624
Foreign direct investment (FDI)	22	4	156 x 2 = 312
Portfolio equity	21	8	156 x 2 = 312
6. Conditioning variables			
Convergence term and FG variable	23	9	78 x 15 = 1170
Convergence term, FG variable and education, openness, and institutional quality 4/	11	6	78 x 15 = 1170
7. Sample 5/			
All countries	16	9	52 x 15 = 780
Advanced countries	26	9	52 x 15 = 780
Emerging markets	10	5	52 x 15 = 780
8. Data source			
Penn World Tables (PWT)	17	8	78 x 15 = 1170
World Development Indicators (WDI)	17	8	78 x 15 = 1170

Table 4. Summary of Results on Financial Globalization (FG)for 13 East Asian Countries			
	% Positive and sig (10%)	% Negative and sig (10%)	No. of regressions
1. TOTAL (without Roodman)	16	14	**2340**
TOTAL (with Roodman criteria)	12	14	**2340**
2. Time horizon/ estimation methodology			
Cross-section regression	16	19	108 x 15 = 1620
of which			
1970-2007	16	12	36 x 15 = 540
1985-2007	16	20	36 x 15 = 540
1990-2007	17	24	36 x 15 = 540
Panel regression (without Roodman)	15	2	48 x 15 =720
Panel (FG variable is significant and regressions meet Roodman (2007) criteria for GMM estimation methodology)	3	1	48 x 15 =720
3. Specification of FG variable			
De jure 1/	15	16	156 x 3 = 468
De facto total 2/	16	13	156 x 12 = 1872
of which			
De facto net flows	9	17	156 x 7 = 1092
De facto stock	27	7	156 x 5 = 780
4. Timing of FG variable			
As initial period value	13	17	36 x 15 = 540
As average value	19	15	36 x 15 = 540
As change	16	26	36 x 15 = 540
5. Disaggregation of FG variable			
Portfolio debt	9	16	156 x 2 = 312
Other Investment (OI)	8	22	156 x 2 = 312
OI Bank 3/	9	24	156 x 1 = 156
Non-debt	24	6	156 x 4 = 624
Foreign direct investment (FDI)	26	3	156 x 2 = 312
Portfolio equity	23	9	156 x 2 = 312
6. Conditioning variables			
Convergence term and FG variable	20	16	78 x 15 = 1170
Convergence term, FG variable and education, openness, and institutional quality 4/	12	12	78 x 15 = 1170
7. Sample 5/			
All countries	16	18	52 x 15 = 780
Advanced countries	23	13	52 x 15 = 780
Emerging markets	9	10	52 x 15 = 780
8. Data source			
Penn World Tables (PWT)	17	15	78 x 15 = 1170
World Development Indicators (WDI)	14	13	78 x 15 = 1170

Notes to Tables 1-4 and all Figures:

1/ The *de jure* variables are due to Quinn (2010), Abiad et al (2008), and Chinn and Ito (2009) respectively.

2/ The *de facto* variables for stocks are: total foreign assets plus total foreign liabilities as a share of GDP, and similar variables for debt, equity portfolio, FDI, and other investments. The *de facto* flow variables are: total inflows and outflows (taken as a net flow) as a share of GDP, and similar variables for debt, portfolio, FDI flows and other investments. In addition, there is a *de facto* variable for the net CA flows (plus aid). In all, there are 15 FG variables, of which 3 are *de jure,* 5 are *de facto* stock, and 7 *de facto* flow variables. *De facto* data are from Lane and Milesi-Ferretti (2007). *De facto* financial globalization change (the stock of external financial assets and liabilities as a share of GDP x 100) is taken as the difference between (average for 1990:1992) and (average for 2005:2007).

3/ The subcomponent of OI, of which the domestic counterparty is a bank. OI banking flows data are taken from the International Monetary Fund's (IMF's) *International Financial Statistics* (IFS).
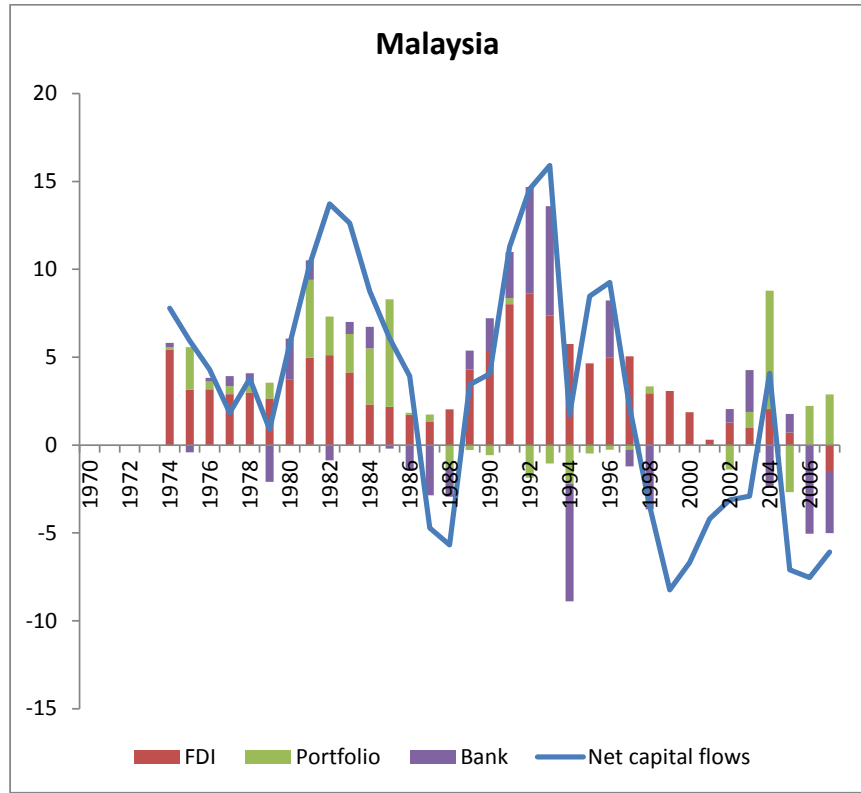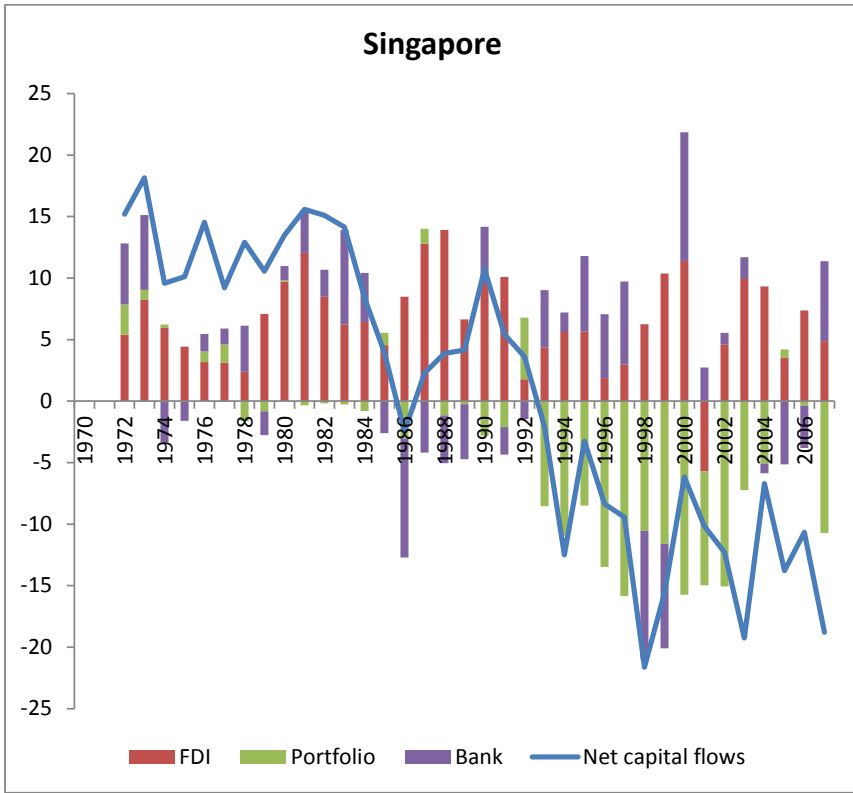
4/ Education is the average number of years of schooling (Barro and Lee 2010). Institutional quality is taken from the ICRG Risk Ratings.
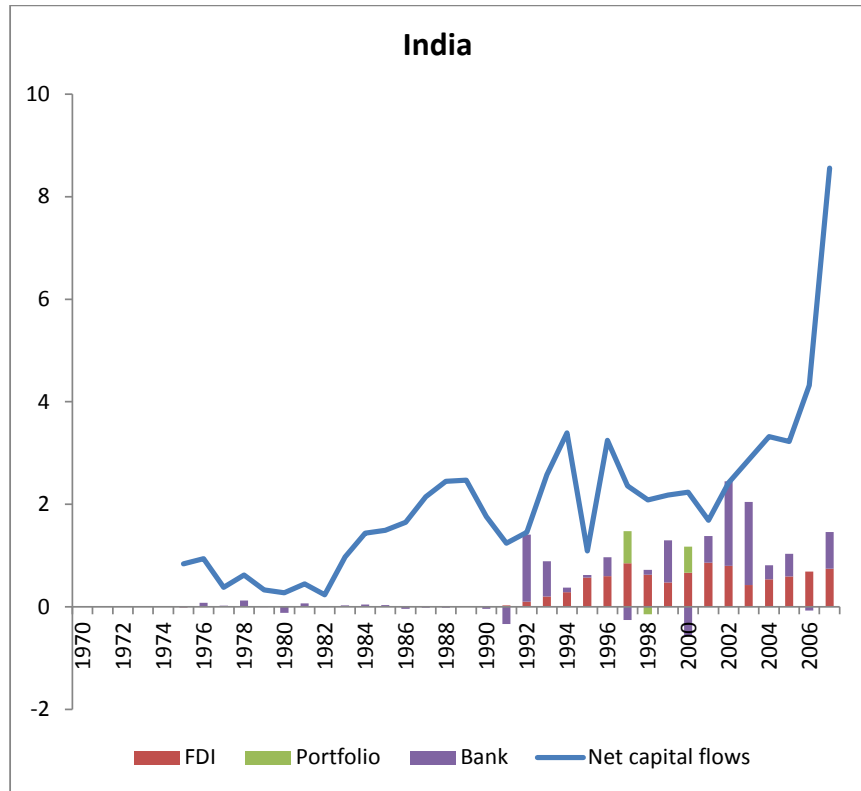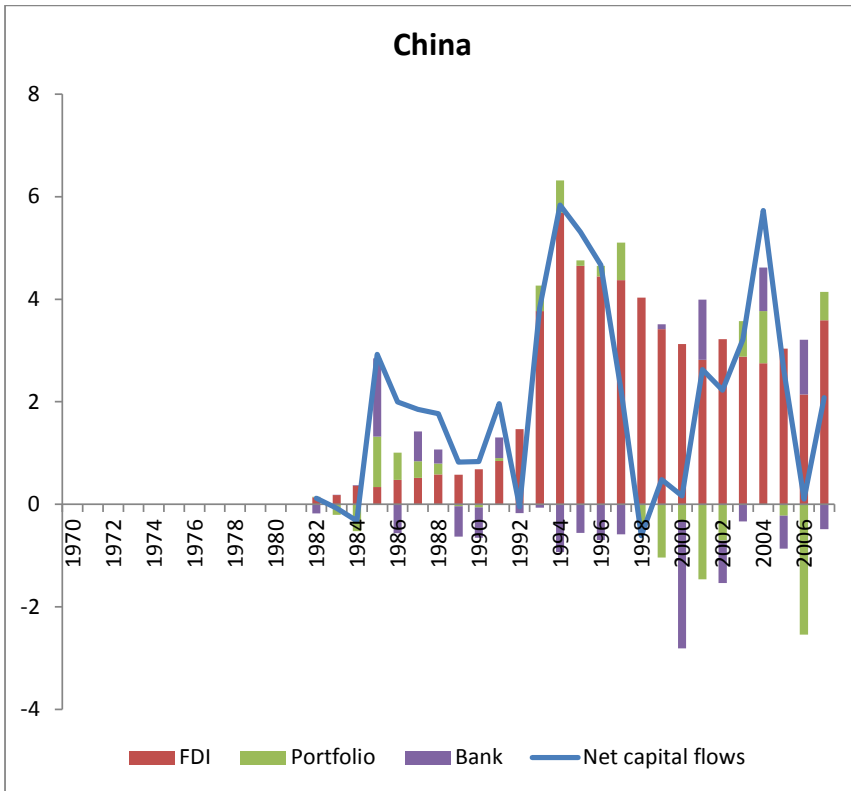
5/ The sample includes 148 economies, of which 24 are advanced economies and 32 are emerging markets.

Table 5: Countries Comprising the Asia, Emerging Asia, and East Asia Samples Used in the Analysis

Asia		Emerging Asia		East Asia
Japan				Japan
Singapore		Singapore		Singapore
China		China		China
India		India		Indonesia
Indonesia		Indonesia		Korea
Korea		Korea		Malaysia
Malaysia		Malaysia		Philippines
Pakistan		Pakistan		Thailand
Philippines		Philippines		Cambodia
Thailand		Thailand		Laos
				Mongolia
Bangladesh		Sri Lanka		Myanmar
Cambodia				
Laos				Vietnam
Mongolia				
Myanmar				
Sri Lanka				
Vietnam				

Note: Additional details concerning these samples can be found in Jeanne, Subramanian, and Williamson (2012).

Figure 1: Capital Flows to Selected Asian Countries, 1970-2007

(as a percentage of GDP)

Singapore

Malaysia

FDI   Portfolio   Bank   Net capital flows

China

India

FDI   Portfolio   Bank   Net capital flows
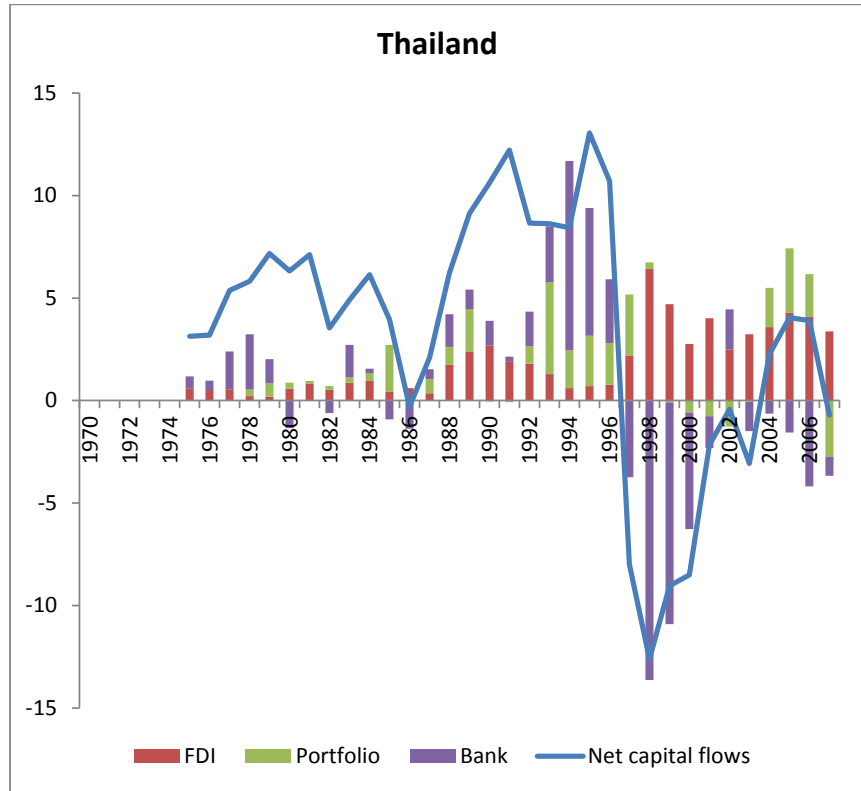
Indonesia

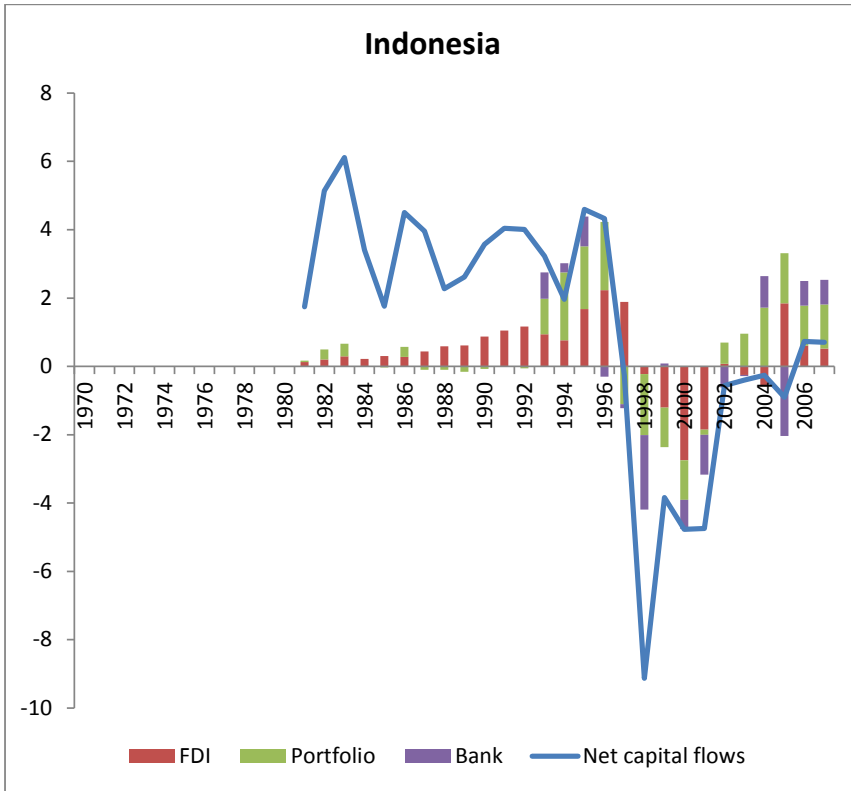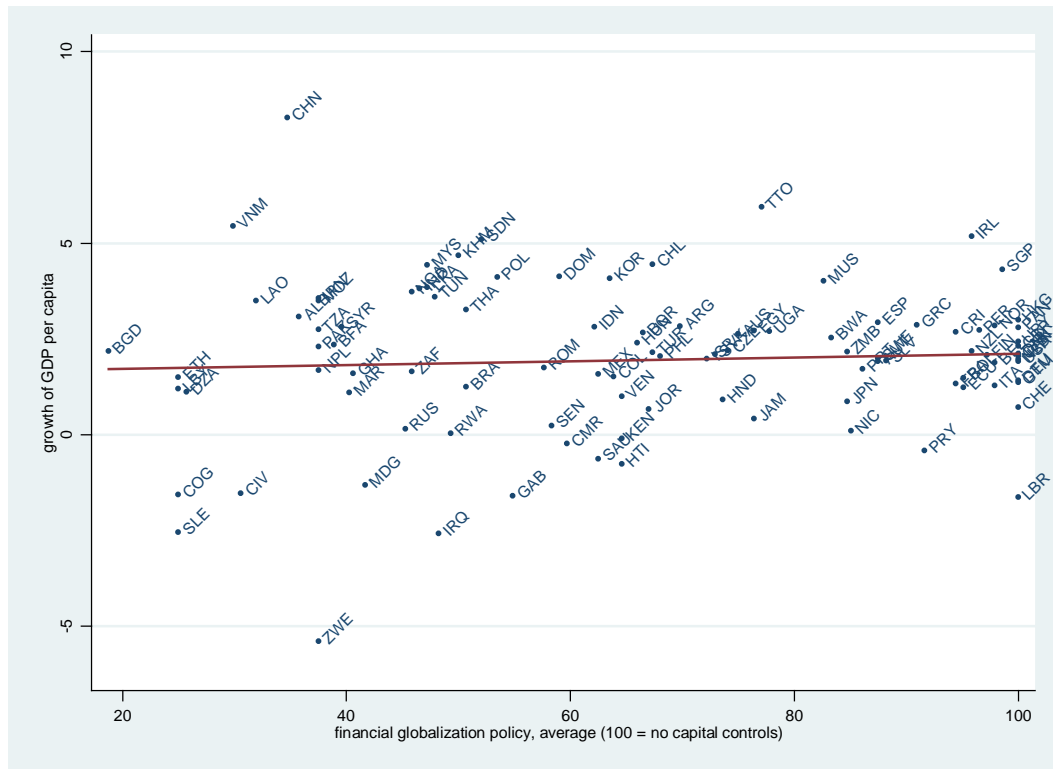Thailand

FDI   Portfolio   Bank   Net capital flows

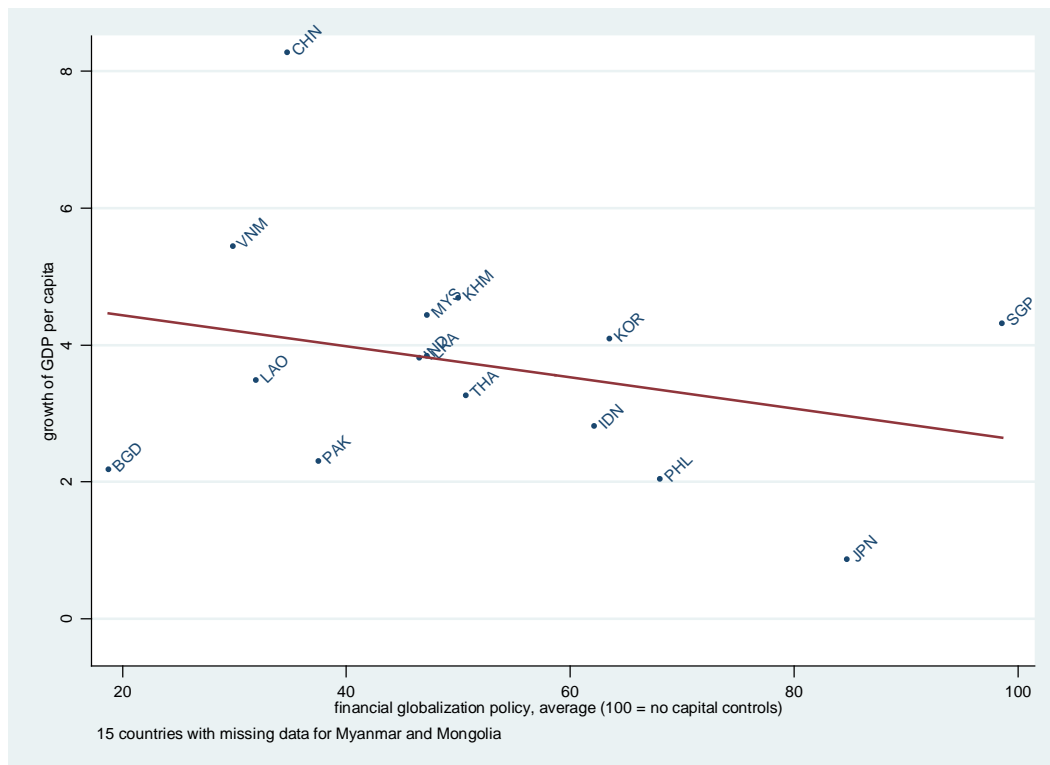**Figure 2A: Growth and De jure Globalization, All Countries, 1990-2007**

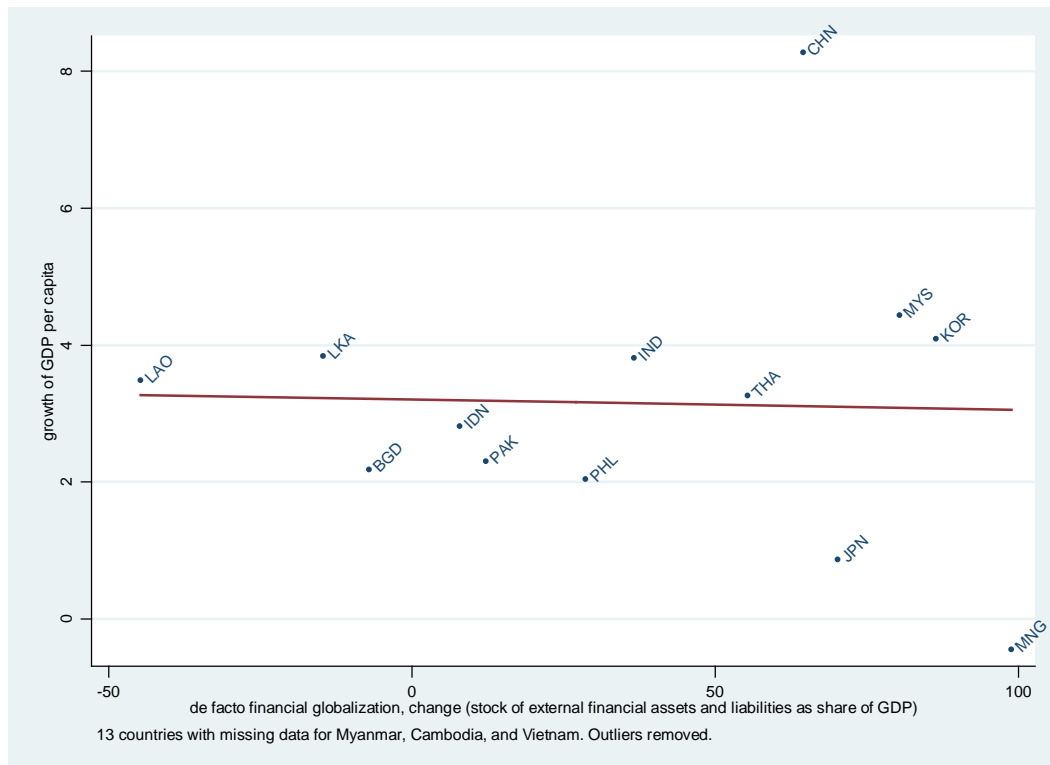**Figure 2B: Growth and De jure Globalization, Asian Countries, 1990-2007**

15 countries with missing data for Myanmar and Mongolia

Figure 3A: Growth and De facto Globalization, All Countries, 1990-2007

Outliers removed.

Figure 3B: Growth and De facto Globalization, Asian Countries, 1990-2007

13 countries with missing data for Myanmar, Cambodia, and Vietnam. Outliers removed.

Figure 4A: Growth and Net Debt (Bank) Flows, All Countries, 1990-2007
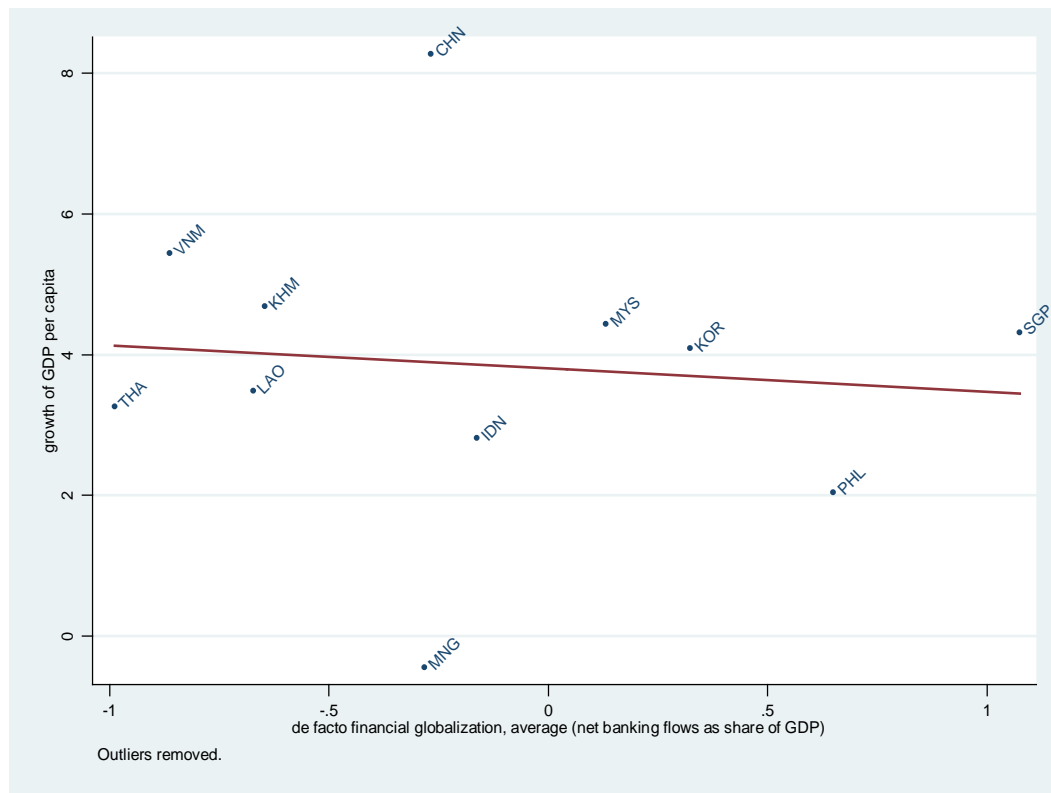

Outliers removed.
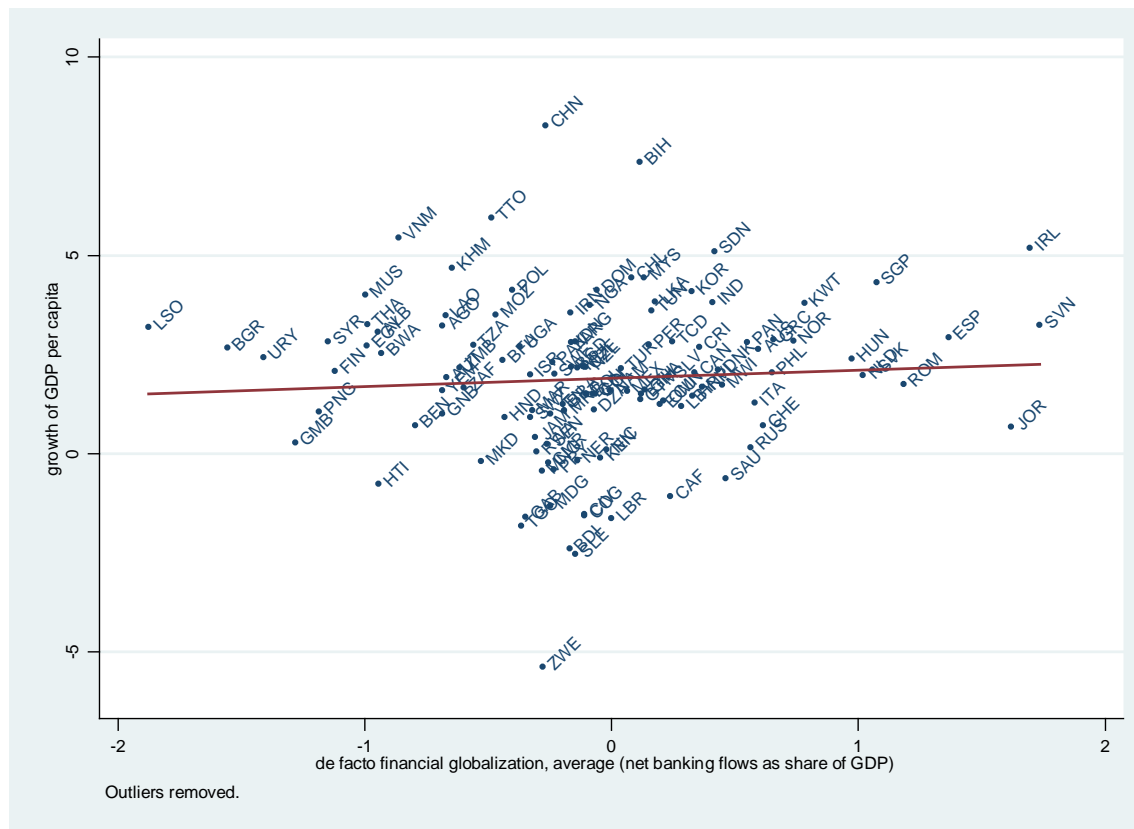
Figure 4b: Growth and Net Debt (Bank) Flows, Asian Countries, 1990-2007

Outliers removed.

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