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Financial Globalization in Emerging Economies: Much Ado about Nothing?

Financial globalization (FG), understood as the deepening of cross-border capital flows and asset holdings, has become increasingly relevant for the developing world for a number of reasons, including the consequences of its changing composition on countries' balance sheets, its role in the transmission of global financial shocks, its benefits in terms of financial development, international risk, and business cycle smoothing, and the implication of all of the above for macroeconomic and prudential policies. In this paper, we focus on these issues from an empirical perspective, building on, updating, and refocusing the existing literature to characterize the evolution and implications of financial globalization in emerging economies.

As conventional wisdom has it, the globalization process has been growing steadily since the mid-1980s, particularly in developing countries (Kose and others 2010) and has accelerated since the turn of this century, with a dramatic increase in cross-border portfolio flows as a fraction of global wealth (Gagnon and Karolyi 2010). However, this pattern depends on the measure of FG, usually proxied in the literature by the average of cross-border assets and liabilities over GDP (FG-to-GDP ratios). As we show in the first part of the paper, a more natural normalization of foreign holdings by host market size (to control for financial market deepening and spurious relative price

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effects) reveals a more stable FG pattern over this period.¹ In turn, normalizing foreign portfolio asset holdings by total portfolio holdings by residents shows that, despite the growing financial globalization ratios, international portfolio diversification in the emerging world is still remarkably low and has remained stable or declined.

The second part of the paper is devoted to the costs and benefits of FG in emerging economies, an elusive subject that has produced conflicting results in the literature. Financial globalization has been associated with the deepening of local markets (in terms of credit to the private sector and equity market capitalization) with varied success: the literature has found a positive influence from market depth to FG (Lane and Milesi-Ferretti, 2008; Kose and others 2010) and vice versa (Baltagi, Demetriades, and Law 2009). Identification of causality is further complicated by the choice of the time window: as Mishkin (2007) notes, while entry of foreign capital and institutions may improve domestic financial markets' conditions through greater competition and liquidity, financial crises could end up blurring this link. We revisit the existing evidence and analyze it through the lens of new proposed metrics that, in our view, are better suited to analyze the question. We find that there is indeed a positive effect that works through market-specific channels (for example, foreign equity liabilities, associated with foreign participation, help deepen local equity markets rather than local financial markets as a whole).

In turn, empirical evidence on the link between financial globalization and consumption smoothing has shown mixed results at best. On one hand, Giannone and Reichlin (2006) report an increase in risk sharing for European countries in the early 1990s, when FG advanced significantly (although their result may be dependent on the specific subsamples used), and Artis and Hoffmann (2006) argue that financial globalization improves risk sharing in the long term. On the other hand, Bai and Zhang (2012) analyze a two-period sample, 1973–85 and 1986–98, for advanced and developing economies and show that although according to their measure financial globalization doubles from period to period, there is no substantial improvement in international

1. Relative price effects arise from the fact that the standard ratio implicitly compares nominal output and outstanding financial holdings. Thus, for example, an equity market boom raises the equity ratio of FG to GDP regardless of changes in portfolio composition. This was the case, for instance, for emerging markets in the first decade of this century, when the ratio increased significantly in the precrisis rally to fall sharply during the 2007–08 financial crisis. To the extent that cross-border debt liabilities are denominated in hard currency, the same applies to debt FG ratios in the event of changes in the real exchange rate.

risk sharing. In the same vein, Kose, Prasad, and Terrones (2007) discuss the theoretical advantages of financial globalization in terms of international risk sharing as a way to hedge consumption against domestic income shocks, but they find that only advanced economies have reaped those benefits so far.

We examine the risk-sharing benefits of FG from a critical perspective. We test the evolution of risk sharing, based on the output sensitivity of consumption in emerging markets (“consumption betas,” where both output and consumption are computed relative to the world’s) and find neither improvement in nor link with conventional FG-to-GDP ratios. We argue that this negative result can be attributed to two main factors. First, FG-to-GDP ratios overstate the increase in international portfolio diversification by residents of emerging market countries. A revised measure of diversification, which exhibits the expected positive correlation with consumption betas, reveals that diversification in emerging markets is well below that in advanced economies and has not improved in recent years. Moreover, the rising “financial recoupling” in international securities markets (namely, the cross-market correlation of assets returns) has significantly reduced the scope for international diversification gains. Thus to the view that the literature has failed to find consistent evidence of the effect of financial globalization on international risk sharing in emerging markets despite the rapid deepening of financial globalization, our research would respond that both financial globalization and portfolio diversification have been overstated owing to measurement choices.

What Do We Talk about When We Talk about Financial Globalization?

How to measure financial globalization? Despite being the subject of a rich and growing literature, financial globalization, broadly understood as global linkages through cross-border financial flows, has been empirically approached in various, often uncorrelated ways in the academic work. As a result, assessing a country’s integration with international financial markets remains a complicated and controversial task. Indeed, there is a general consensus about the need to at least distinguish between *de jure* and *de facto* financial globalization. Whereas the former is based on regulations, restrictions, and controls over capital flows and asset ownership, the latter is related to the intensity of capital flows and cross-market correlation and arbitrage.

A succinct list of proxies for *de jure* globalization would include several measures used in the literature, such as those based on the International Monetary Fund’s Annual Report on Exchange Arrangements and Exchange

Restrictions (Kaminsky and Schmukler 1998; Quinn and Inclan 1997; Schindler 2009; Chinn and Ito 2008) or on the International Finance Corporation's equity globalization index, which computes the ratio of equity market capitalization that is investable for nonresidents (Bekaert and Harvey 1998). While all of these measures are predictably close to one another when applied to a particular financial market (for example, equities), they differ across markets in a way that would complicate the characterization of a financially globalized economy.² Here, we consider as our *de jure* measure Chinn and Ito's (2008) index of financial openness.³

It is reasonable to assume that the extent to which globalization affects asset prices and, more generally, economic performance is related to the actual intensity and sensitivity of the cross-border flows, namely, *de facto* globalization, regardless of existing controls and restrictions.⁴ For example, many tightly regulated economies are the recipients and sources of important capital flows (and are therefore financially globalized), whereas other control-free economies are shunned by international investors and, as a result, are isolated from global market swings and trends. This distinction has led most researchers to focus on *de facto* measures of financial globalization, typically proxied by the ratio of foreign assets and foreign liabilities over GDP, based on data on foreign positions compiled by Lane and Milesi-Ferretti (2007)—a measure that has become standard in the recent globalization literature.⁵

Findings are not independent from the way the sample is cut. In this paper, we focus on a set of thirty-four emerging markets and especially a Latin America subgroup within emerging markets. During the past two decades

2. For instance, one country may choose to restrict access to stocks but leave the fixed income markets (debt, currency derivatives) relatively untouched, leading to very different FG scores depending on the *de jure* measure of choice.

3. The measure is based on principal components extracted from disaggregated (qualitative) measures of capital and current account restrictions in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions, converted to numerical values by the authors.

4. Because of this, we use proxies for *de facto* FG for most of the paper, a choice that has become the norm in most of the literature on financial integration. We use the *de jure* measure only for comparison purposes in this section.

5. Kraay and others (2005) report a similar data set on countries' asset positions. An alternative approach to FG relies on price convergence, an application of the law of one price to financial markets. Measures within this group point at transaction costs and regulation that inhibit market arbitrage, and they usually compare prices of identical or similar assets trading in different markets. On this, see Levy Yeyati, Schmukler, and Van Horen (2009) and references therein.

that has been the region with more (and more-varied) financial liberalizations; because of this, we consider it a good benchmark for the rest of regions. Occasionally, we also split this group into Asian and other emerging markets to analyze regional differences. In addition, for the sake of comparison, we divide developed economies into two groups: a set of five peripheral core economies (PCEs: Australia, Canada, New Zealand, Norway, and Sweden) that, in our view, provide a reasonable mirror in which to look at the relative developments in Latin America, and a sample of more-advanced economies (the G5: France, Germany, Italy, Japan, and the United States).⁶ For a better comparison with existing results in the literature, in some cases we use a broader advanced market category, as well as a frontier market category, which comprises less financially developed economies that tend to be associated with limited financial integration.

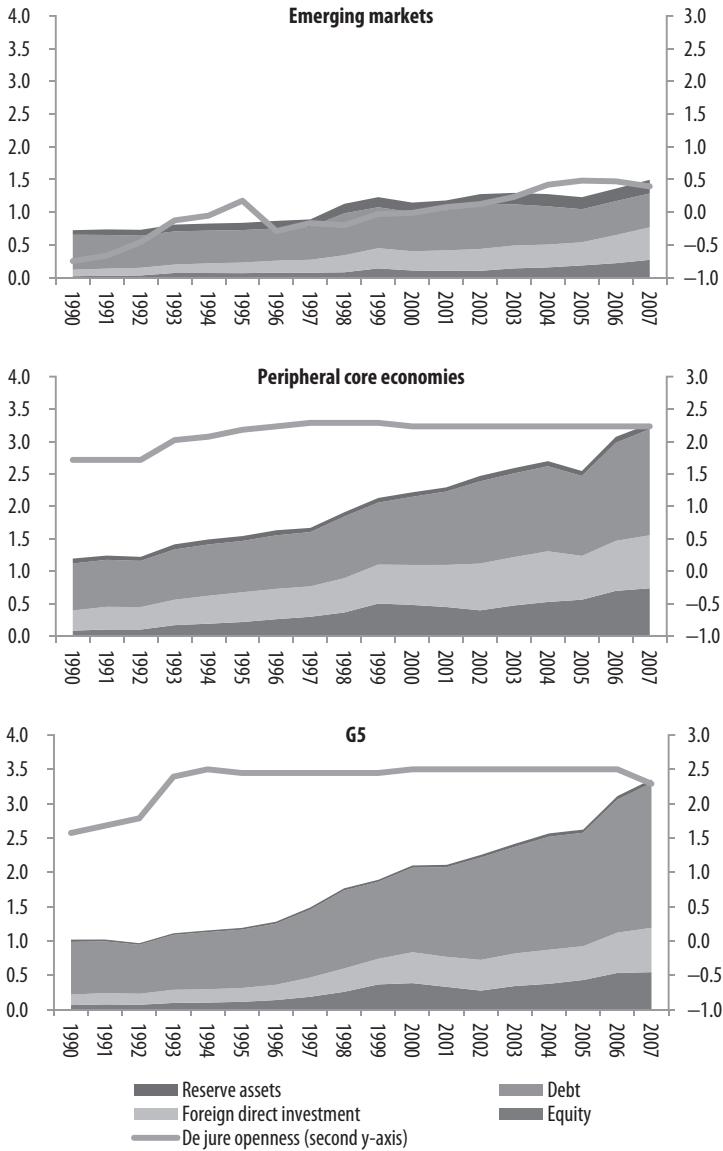
How Large Is Financial Globalization (and How Has It Evolved in the Past Decade)?

To have a first look at both the differences and the evolution of alternative financial globalization proxies over time, in figures 1 and 2 we plot the standard de facto measure (based on cross-border holdings compiled by Lane and Milesi-Ferretti (2007) normalized by the country's GDP) broken down into equity, debt, and foreign direct investment stocks, as well as Chinn and Ito's (2008) measure of de jure financial globalization.

We start by focusing on Latin America, which provides a broad overview of what is generally happening in emerging markets. As can be seen, the correlation between de jure and de facto measures of financial globalization is far from perfect. While it is positive for the complete sample, there are surges in the de jure measure in the early 1990s (coinciding with official waves of liberalizations in the region), which do not match perfectly the more stable pattern of FG-to-GDP ratio. Moreover, financial globalization is driven by the increasing role of foreign direct investment and, more recently, equity markets as the main vehicles for cross-border investments, at the expense of debt

6. Countries with emerging markets are customarily included in emerging markets indexes such as the Morgan Stanley Capital International or the Emerging Markets Bond Index, excluding financial centers (Singapore and Hong Kong), which tend to display disproportionately large gross cross-border positions. The G5 comprises countries in the G7 group minus Canada (already included in peripheral core economies) and the United Kingdom (because of its status as a financial center). Frontier markets are less financially developed markets that do not make it to the emerging category. See the appendix for a detailed list.

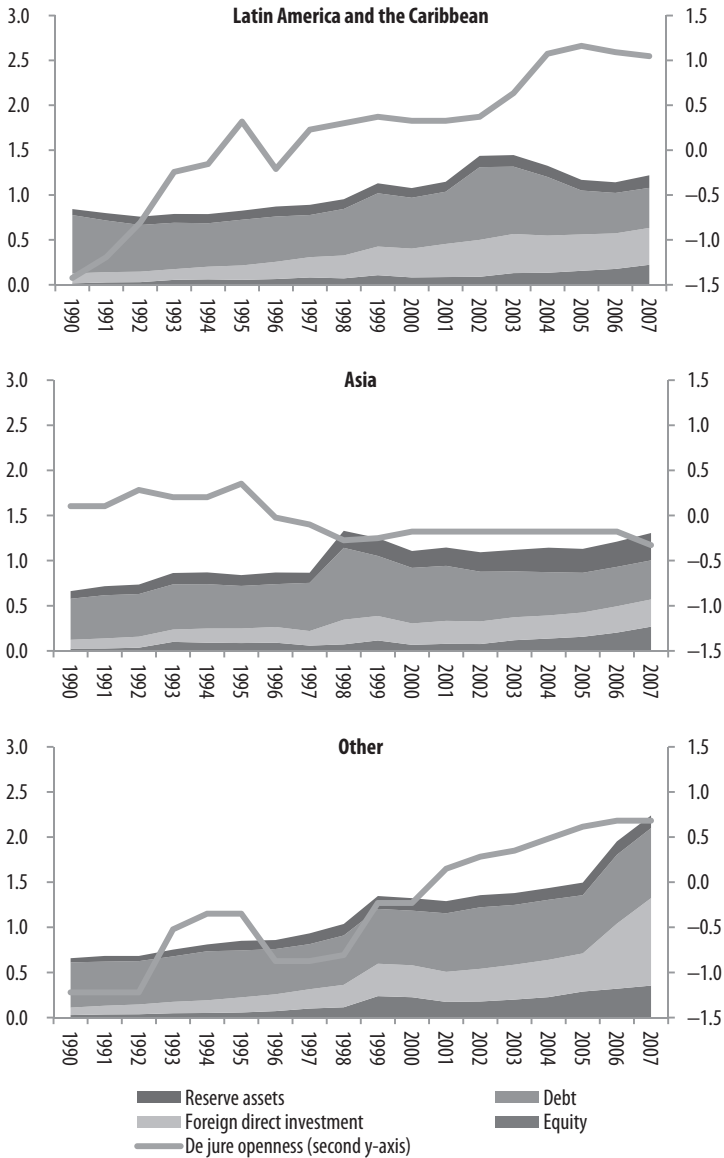
FIGURE 1. Financial Globalization Measures: Emerging Markets versus Other^a



Source: Lane and Milesi-Ferretti (2008); World Bank, World Development Indicators; Chinn and Ito (2008).

a. The figure shows country group averages of de facto FG over GDP and Chinn and Ito's (2008) measure of de jure financial globalization. Only countries with complete data from 1990 to 2007 were used.

FIGURE 2. Financial Globalization Measures: Within Emerging Markets^a



Source: Lane and Milesi-Ferretti (2008); World Bank, World Development Indicators; Chinn and Ito (2008).

a. The figure shows country group averages of de facto FG over GDP and Chinn and Ito's (2008) measure of de jure financial globalization. Only countries with complete data from 1990 to 2007 were used.

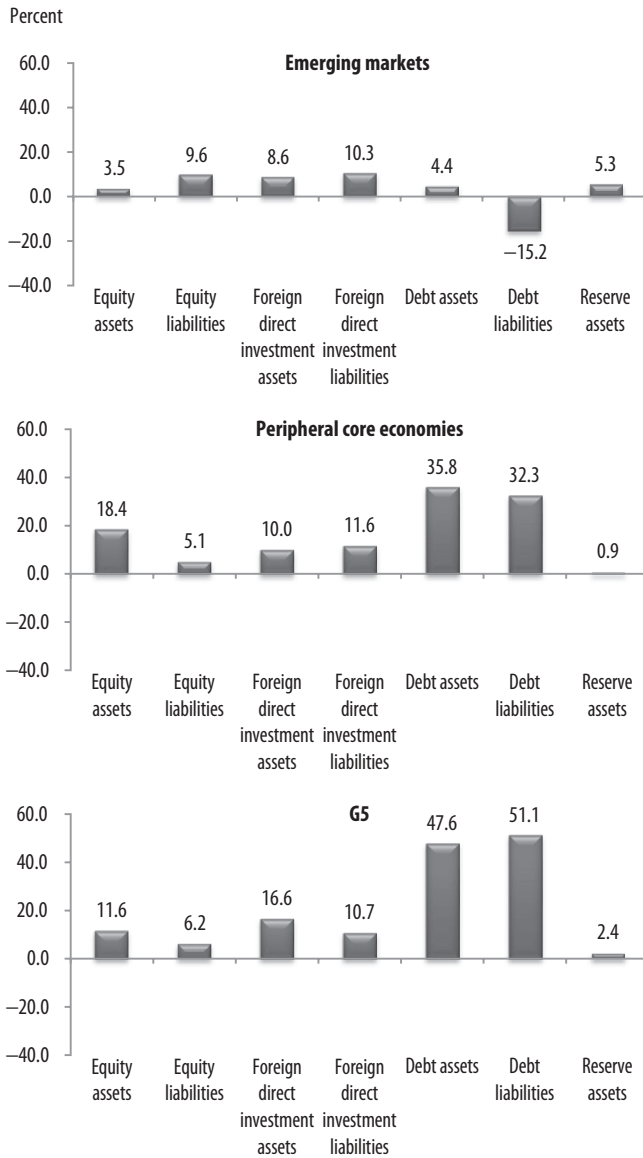
liabilities, a fact already documented in the literature.⁷ Also, the figure clearly shows that, for all the debate about growing financial integration in Latin America, financial globalization in Latin American and Caribbean countries (and other emerging markets) is much smaller and has been growing more slowly than in more advanced markets.

As for the rest of the sample, the *de jure* and *de facto* measures move hand in hand for emerging markets, but *de jure* financial globalization looks stable in more-developed countries (peripheral core economies and advanced economies), despite the upward trend in *de facto* financial globalization. Moreover, despite a relatively limited (and declining) *de jure* globalization in Asian markets, the pattern of *de facto* FG there looks similar to that in other emerging markets, both cross section and over time.

Finally, these charts document a difference in the composition of the FG-to-GDP pattern between emerging and advanced economies. This is more clearly seen when we compare changes in gross foreign positions for the three different instruments (equity, debt, and foreign direct investment) over the 2000–07 period, again using the traditional FG-over-GDP measure (figures 3 and 4). In Latin American and Caribbean emerging markets we observe a marked decline in the debt liability position owing to the rapid sovereign deleveraging process (coupled with growing reserve assets, and a growing equity and foreign direct investment net liability position), which contrast with the growing net debt of G5 countries.

While figures 1 to 4 indicate a growing FG-to-GDP pattern across the board, this simple ratio downplays a number of potentially crucial measurement issues that may bias the empirical diagnosis and lead to erroneous policy implications and that therefore deserve some careful consideration. In particular, rather than the standard normalization by the (U.S. dollar) GDP, normalization by the local market capitalization (*marcap*) seems to be more adequate when assessing cross-border flows as a source of international contagion and exogenous price volatility, the logic being that the impact of cross-border flows, presumably associated with foreign asset and liability holdings, will likely be

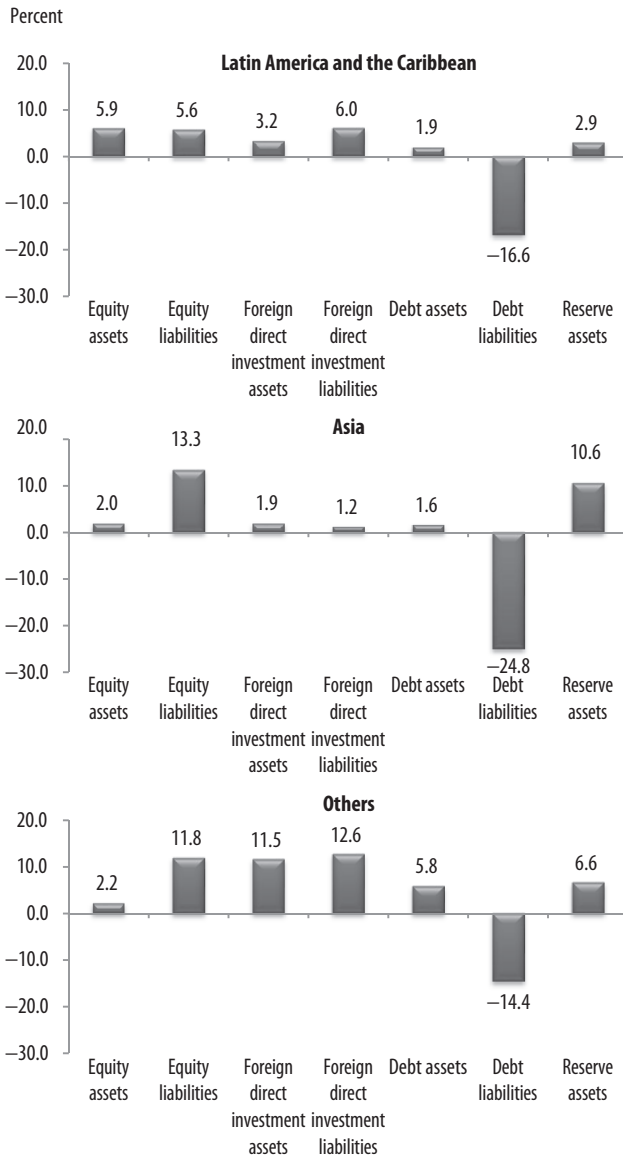
7. See, for example, Cowan and others (2006) and Borensztein, Levy Yeyati, and Panizza (2007). Note that this debt pattern is not so much the result of declining debt ratios but rather a consequence of a greater reliance on domestic markets at the expense of external debt, which was typically held by international investors. That said, to the extent that capital flight from emerging markets allocated to emerging bond funds domiciled abroad are recorded as foreign holdings, the pattern may be reflecting a methodological bias associated with capital repatriation in the present century.

FIGURE 3. From 1999 to 2007: Emerging Markets versus Others^a

Source: Lane and Milesi-Ferretti (2008); World Development Indicators; Chinn and Ito (2008).

a. The figure presents changes in de facto FG over GDP. The country sample is the same as in figure 1. Changes are from 1999 to 2007. FDI is foreign direct investment.

FIGURE 4. From 1999 to 2007: Within Emerging Markets



Source: Lane and Milesi-Ferretti (2008); World Bank, World Development Indicators.

a. The figure presents changes of de facto FG over GDP. The country sample is the same as in figure 2. Changes are from 1999 to 2007. FDI is foreign direct investment.

TABLE 1. Financial Globalization and Different Normalizations^a
Percent

Ratio	Year	Level				Difference			
		EM	PCE	G5	LAC	EM	PCE	G5	LAC
FEL/GDP	1999	10.2	24.6	20.3	6.5	9.7	9.7	5.3	5.7
	2007	19.9	29.8	26.6	12.2				
FEL/Marcap	1999	18.5	25.7	22.1	18.3	2.9	2.9	1.9	-0.9
	2007	21.4	27.7	30.9	17.3				
FDL/GDP	1999	8.8	39.7	25.9	9.6	2.4	2.4	13.1	0.7
	2007	11.2	52.8	55.2	10.3				
FDL/Debt	1999	23.7	39.3	21.2	30.1	-3.5	-3.5	6.5	-6.7
	2007	20.2	45.9	30.0	23.5				

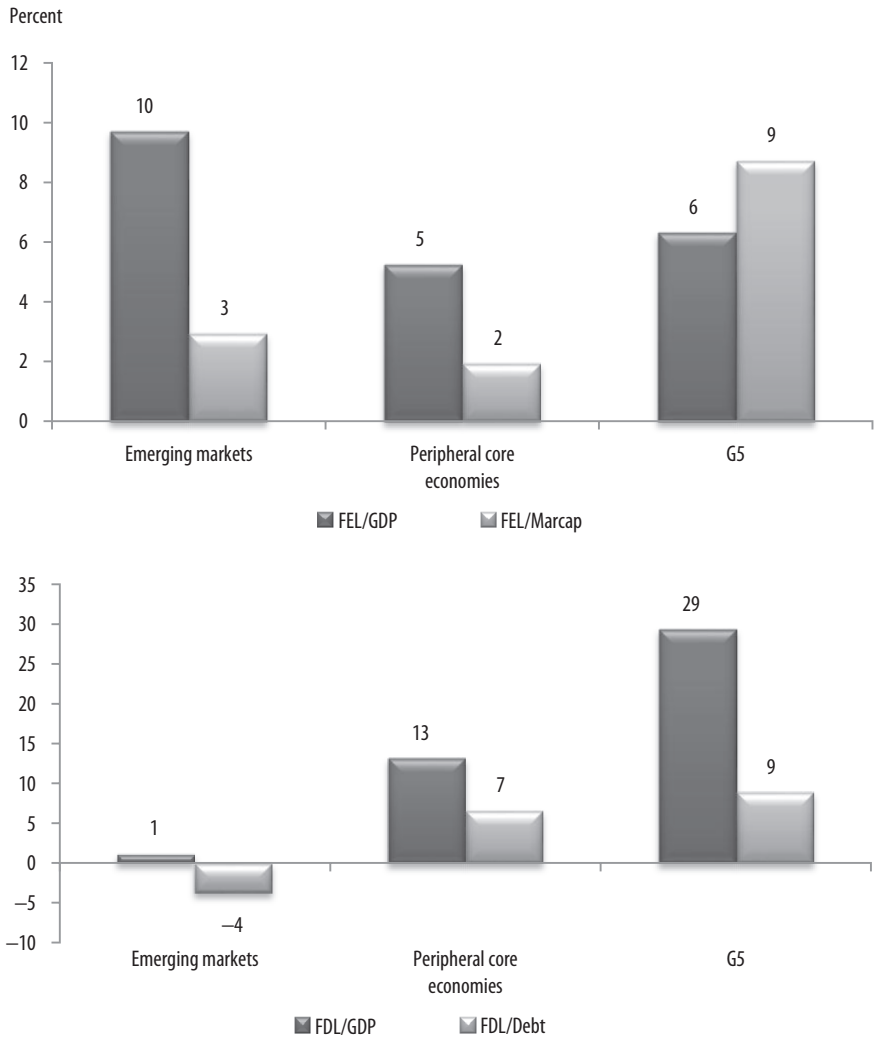
a. This table presents group averages for different financial globalization measures normalized by GDP, market capitalization, or total debt. EM is emerging markets, PCE is peripheral core economies, LAC is Latin America and the Caribbean. FEL is foreign equity liability, FDL is foreign debt liability, and Marcap is equity market capitalization.

a function of their size relative to the local market. Indeed, it can be shown that an increasing FG-over-GDP ratio, rather than a sign of growing globalization as it is typically interpreted, can be largely explained as the combination of a stable foreign participation and a deepening local market—itsself a reflection of equity valuation changes.

Indeed, for some specific purposes, we could refine this normalization further by making it asset-class specific, whereby market capitalization refers to the asset class defined in the numerator. More precisely, to proxy for foreign participation in local markets (for example, to analyze its influence on local market development), equity (alternatively, debt) liabilities should be normalized by local stock (alternatively, debt) market capitalization. Thus we normalize foreign equity liabilities by the total domestic equity market capitalization in U.S. dollars. In turn, we normalize foreign debt liabilities by the country's total debt stock (sourced from the Bank for International Settlements). Note that both measures are now ratios of stocks on stocks and are free from valuation effects associated with relative price changes, as in a stock market rally or a sudden change in the real exchange rate that affects the (largely dollarized) debt assets and liabilities of emerging economies.

Table 1 and figures 5 and 6 offer an alternative cut of FG data for 2000–07, looking at foreign equity and debt liabilities normalized by the host market capitalization to zoom in on the question about whether a growing FG (over GDP) is a sign (and possibly a consequence) of greater foreign participation or whether it just reflects (and responds to) the autonomous deepening of

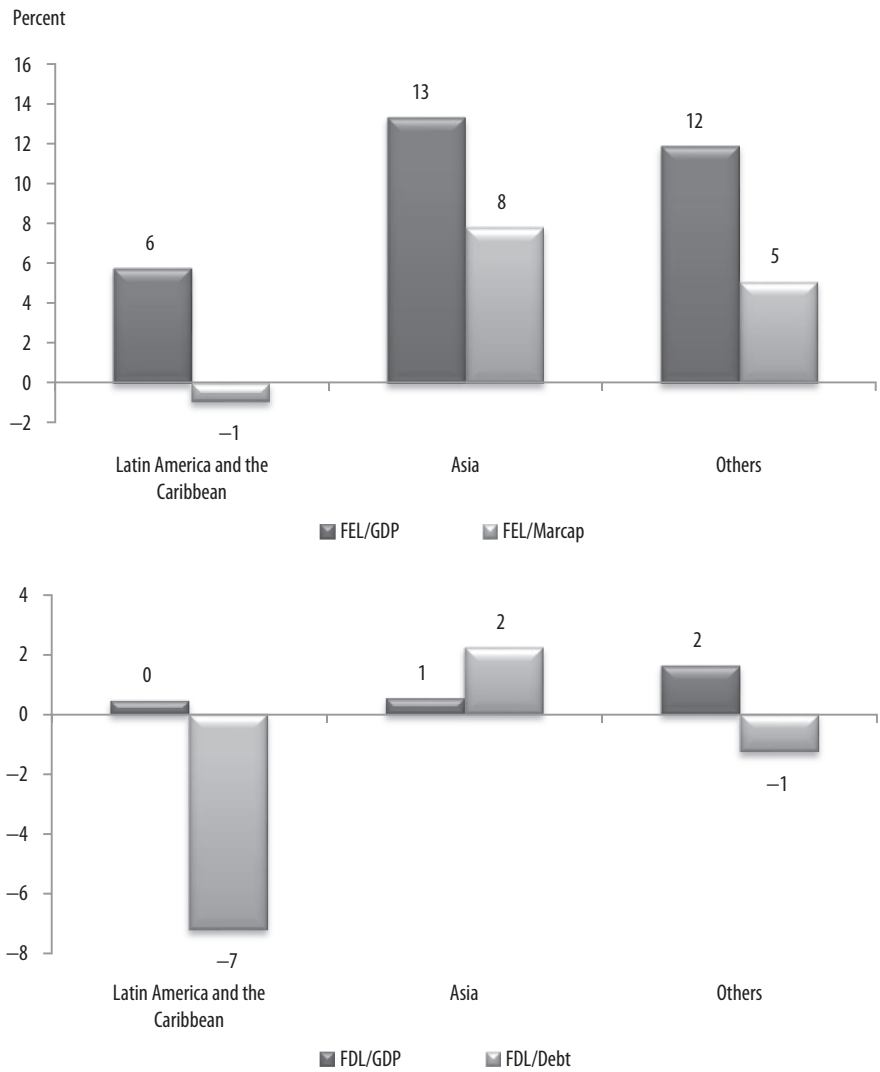
FIGURE 5. Financial Globalization and Different Normalizations: Emerging Markets versus Others^a



Source: Lane and Milesi-Ferretti (2008); World Bank, World Development Indicators; Bank for International Settlements database.

a. The figure presents changes in foreign equity and debt liabilities divided by GDP or the corresponding market capitalization. Changes are from 1999 to 2007. FEL is foreign equity liabilities. Marcap is equity market capitalization. FDL is foreign debt liabilities.

FIGURE 6. Financial Globalization and Different Normalizations: Within Emerging Markets^a



Source: Lane and Milesi-Ferretti (2008); World Bank, World Development Indicators; Bank for International Settlements.
 a. The figure presents changes in foreign equity and debt liabilities divided by GDP or the corresponding market capitalization. Changes are from 1999 to 2007. FEL is foreign equity liabilities. Marcap is equity market capitalization. FDL is foreign debt liabilities.

domestic markets, including through persistent price rallies. The renormalization shows that the deepening of domestic markets played a central role in explaining the increase in the FG-to-GDP ratio. This is particularly striking in Latin American emerging markets, where ratios of financial globalization to market capitalization in the latest period remained virtually unchanged for equity and contracted by 7 percent for debt securities, in stark contrast with rising FG-to-GDP ratios.

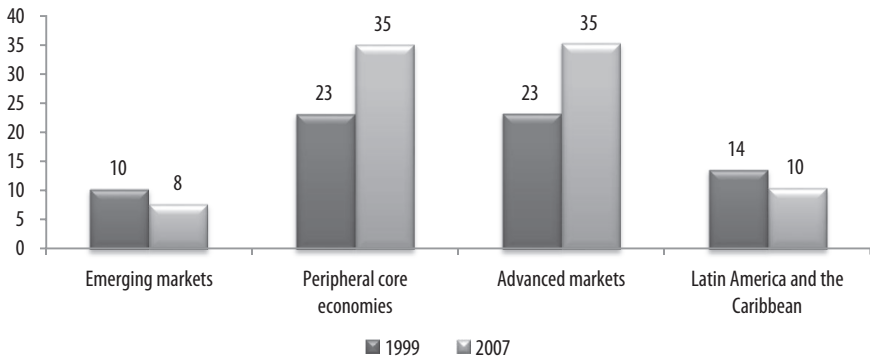
This evidence suggests that changes in FG-to-GDP ratios mask valuation effects owing to asset inflation. Specifically, if the perceived rise in financial globalization in equity markets is in part a response to an increase in local market capitalization in terms of the GDP, much of equity market “deepening” was mechanically driven by the equity price increases that preceded the 2008 crisis rather than to new issuance. If so, the narrative of the evolution of financial globalization based on GDP ratios would spuriously reflect equity markets’ booms and busts—another reason to use marcap ratios instead.⁸

Does Greater Financial Globalization Mean Greater International Portfolio Diversification?

The standard normalization by the U.S. dollar GDP suggests two caveats when looking at portfolio diversification and international risk sharing (that is, the decoupling of residents’ consumption from domestic income shocks): first, the GDP ratio ignores residents’ local portfolios (that is, their participation in local asset markets), and second, it suffers from the same valuation bias mentioned above.⁹ For example, a synchronized global equity price rally would automatically increase foreign and domestic equity holdings over GDP ratios, showing an increase in FG assets and liabilities over GDP regardless of the direction of the flows, indicating an increase in portfolio diversification even if the composition of equity portfolios remained the same.

8. Similarly, to the extent that foreign direct investment cross-border asset holdings are constructed from foreign direct investment flows, distributed according to trade patterns (in line with the tight empirical correlation between trade and foreign direct investment flows), and adjusted for valuation using real bilateral exchange rates, one could argue that changes in the net foreign direct investment position should reflect the significant real appreciation of emerging market currencies, as well as the steady foreign direct investment net inflows.

9. Note that, since debt holdings, unlike equity holdings, are computed at nominal rather than market values, price changes should not play a role. However, nominal values introduce a different bias: market discounts (typically substantial in emerging market debt) that modify the foreign-domestic composition of residents’ portfolios are not captured in the data and may lead to an overstatement of the portfolio share allocated to local debt instruments.

FIGURE 7. Portfolio Diversification^a

Source: Lane and Milesi-Ferretti (2008); World Bank, World Development Indicators; Bank for International Settlements.

a. The figure shows level of portfolio diversification (PD) in 1999 and 2007. PD is measured as $(FEA + FDA) / (NFEA + NFDA + \text{Marcap} + \text{Total debt})$, where FEA is foreign equity assets, FDA is foreign debt assets, NFEA is net foreign equity assets, and NFDA is net foreign debt assets.

Although the domestic-foreign composition of physical assets is hard to estimate (owing to the lack of reliable capital stock data for most developing countries), we could proxy portfolio diversification as the foreign share of the representative resident's equity and debt securities portfolio by combining Lane and Milesi-Ferretti's (2007) and marcap figures, such that $PD (\text{equities} + \text{debt securities}) = (FEA + FDA) / [(FEA + \text{equity market cap} - FEL) + (FDA + \text{total debt} - FDL)]$, where PD is portfolio diversification, FEA is foreign equity assets, FDA is foreign debt assets, FEL is foreign equity liabilities, and FDL is foreign debt liabilities.

This new measure has the advantage of tracking the evolution of the resident investor's portfolio diversification while filtering out time trends such as equity price cycles. Thus this metric, while still imperfect as it only normalizes by a proxy of financial income (leaving nonfinancial income out of the picture), is nonetheless a more accurate gauge of the portfolio diversification of a country's residents than the standard FG-to-GDP ratio used in the literature.

Figure 7 sheds light on the first aspect: note the stark contrast between emerging and advanced economies. Levels of portfolio diversification in the developed world appear to be growing, although they are still too low to have a decisive impact in risk sharing. By contrast, portfolio diversification in the emerging world is not only much lower (less than 10 percent for the

representative resident's portfolio) but has been falling over time (perhaps the reflection of local market development and the undoing of offshoring of domestic savings).¹⁰ At any rate, the international portfolio diversification of emerging market residents appears to be quite limited and declining over time—a critical aspect that we will come back to when we look at financial globalization and risk sharing.

Are Foreign Asset Holdings a Good Proxy for Capital Flows?

The stock size of cross-border holdings, while possibly a good indication of foreign participation or geographic portfolio diversification, may not be the best summary statistic of de facto financial globalization in the traditional sense of capital mobility and international arbitrage, since important gross flows in and out of a country over a given year are perfectly consistent with a relatively small net, as well as with small cumulative flows over longer periods. As a result, to the extent that foreign asset holdings largely reflect cumulative flows, intense flows could be consistent with limited geographic diversification of assets and liabilities. Conversely, the existence of large foreign asset holdings (for example, as a result of capital flight) does not necessarily imply frequent portfolio rebalancing and cross-market arbitrage.

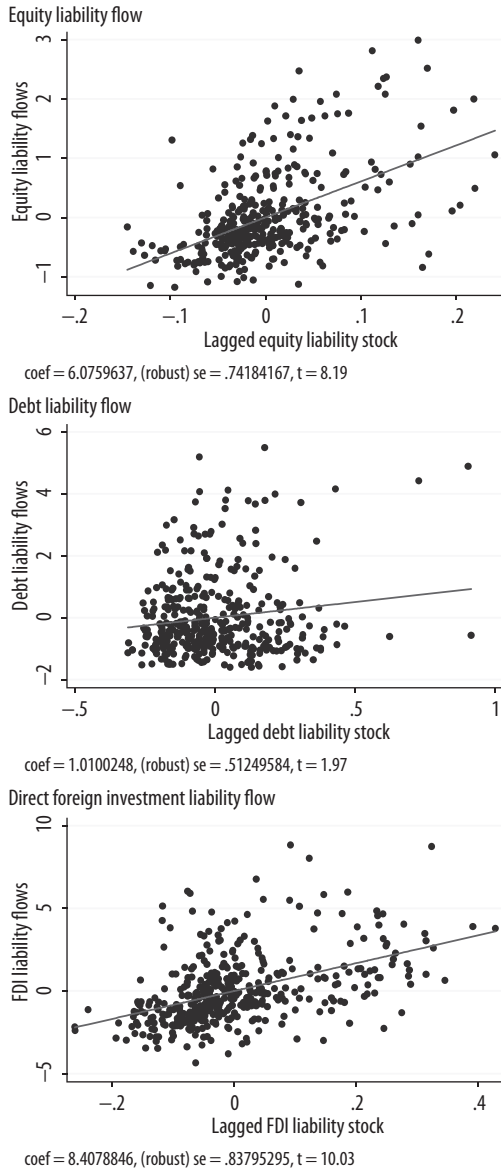
How correlated are financial globalization holdings and flows? In particular, are larger stocks of foreign assets and liabilities associated with larger flows of capital in and out of the country? The answer is yes, albeit to varying degrees depending on the country group and the type of instrument.

To illustrate, we run regressions on the size (the absolute value) of annual balance of payments flows on Lane and Milesi-Ferretti's (2007) beginning-of-the-period stock holdings, controlling for time effects to eliminate the spurious correlation associated with time-varying common factors such as price trends. The results, which we report separately for each asset and country group in figures 8 and 9, indicate that larger holdings are associated with larger flows, particularly in the case of foreign direct investment.¹¹ However, a look at the scatter plots of the partial regression residuals shows important

10. On the prevalence of financial offshoring in emerging countries, see Levy Yeyati (2007). Naturally, the methodological bias mentioned in note 7 also applies here, to the extent that part of the offshored savings were invested in emerging markets vehicles domiciled abroad.

11. Note that this correlation may reflect the fact that the balance of payments, which is recorded on an accrual basis, reports reinvested dividends of foreign companies as foreign direct investment flows.

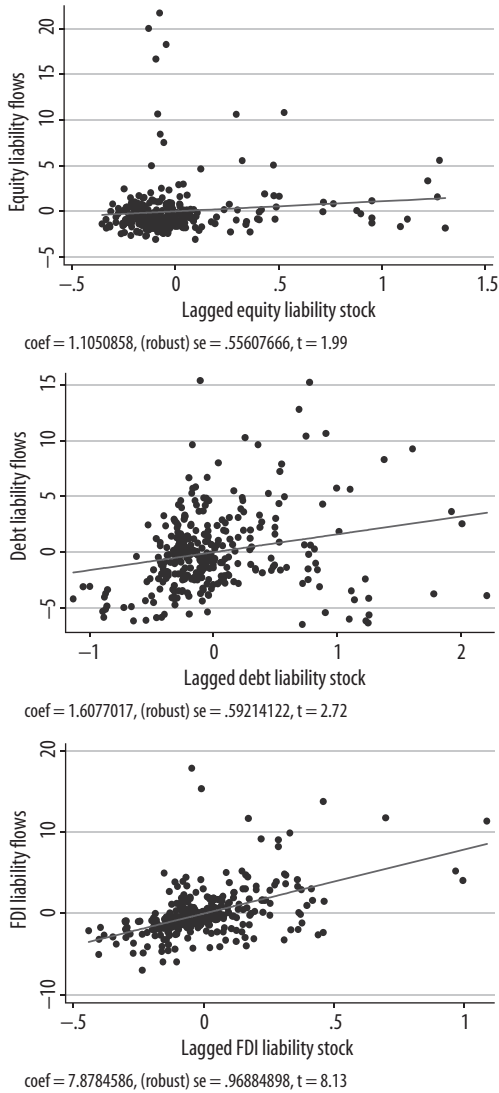
FIGURE 8. Initial Holdings and Flows, by Different Instruments: Emerging Markets^a



Source: Lane and Milesi-Ferretti (2008), Balance of Payments from the IMF International Financial Statistics, World Development Indicators, Chinn and Ito (2008).

a. The figures show partial regression plots from estimations of $\text{abs}(\text{flows})$ versus end-of-last-period financial globalization holdings for different instruments (equity, debt, foreign direct investment). Time dummies and de jure capital account openness were included in the regressions as additional controls.

FIGURE 9. Initial Holdings and Flows, by Different Instruments: Advanced Markets^a



Source: Lane and Milesi-Ferretti (2008), Balance of Payments from the IMF International Financial Statistics, World Development Indicators, Chinn and Ito (2008).

a. The figure shows partial regression plots from estimations of $\text{abs}(\text{flows})$ versus lagged financial globalization holdings for different instruments (equity, debt, foreign direct investment). Time dummies and de jure capital account openness were included as additional controls in the regressions.

differences when it comes to portfolio holdings, where the link with flows appears to be strong only for emerging market equity.

The diverse nature of the correlation between stocks, on one hand, and gross and net flows, on the other, is even more clear in the regressions of table 2, where we run a minimalist panel specification of flows (total and by asset type) on beginning-of-the-period holdings, plus additional controls. With the exception of debt securities, cross-border holdings have a positive correlation with the associated flow.

Financial Globalization at a Glance: Preliminary Score

From the previous discussion, it follows that the characterization of financial globalization is complex and prone to potentially misleading simplifications, and it cannot be summarized by the standard de facto measures. Because of that, the cross-country evolution of financial globalization and its implications is best characterized by comparing and discussing alternative proxies. Specifically, in this paper we look at three different sources: Lane and Milesi-Ferretti's (2007) yearly data set of cross-border asset and liability holdings (by country, based on adjusted balance of payments data); capital flows from the IMF's Balance of Payments Statistics; and Emerging Portfolio Fund Research's monthly data on global fund flows and assets under management (by issuing country).

In short, the first pass at the data provides a few preliminary findings:

—*There is much less financial globalization in emerging markets than is usually thought.* More precisely, FG-to-GDP ratios in emerging markets lag those in advanced economies. Moreover, when normalized by the (growing) size of domestic markets, financial globalization both in emerging and advanced economies has remained relatively stable in the past ten years. Thus one can conclude that in both cases financial globalization has largely mirrored the relative dynamism of local markets. On one hand, the larger FG-to-GDP ratio in advanced economies simply reflects their deeper markets. On the other, the upward trend in equity FG-to-GDP ratios in emerging markets masks valuation effects owing to local asset inflation (in particular, the equity boom that preceded the 2008 crisis).

—*Financial globalization in Latin America and the Caribbean is still dominated by foreign direct investment at the expense of debt.* Unlike in advanced economies, where debt securities still account for the larger part of cross-border holdings, equity flows have been gradually taking over debt flows as

TABLE 2. Initial Holdings and Flows^a

Variable	Equity		Debt		Foreign direct investment		Equity global funds		Debt global funds	
	FE	BE	FE	BE	FE	BE	FE	BE	FE	BE
<i>Emerging markets absolute flows</i>										
Stock of foreign equity liability	4.310*** (0.677)	10.95*** (2.821)								
Stock of foreign debt liability			1.863 (1.537)	3.322** (1.491)						
Stock of foreign direct investment liability					20.96** (9.013)	16.56*** (2.816)				
Assets under management stock							0.0405*** (0.0139)	0.0655*** (0.0123)	0.072*** (0.0104)	0.115*** (0.0096)
Observations	383	383	398	398	433	433	168	168	88	88
R ²	0.174	0.736	0.045	0.349	0.417	0.666	0.541	0.614	0.6016	0.8828
Countries	25	25	24	24	25	25	21	21	22	22
<i>Advanced markets absolute flows</i>										
Stock of foreign equity liability	0.170 (2.161)	3.602*** (0.708)								
Stock of foreign debt liability			3.771*** (0.611)	5.399*** (1.299)						
Stock of foreign direct investment liability					13.24 (11.75)	7.903*** (2.171)				
Observations	274	274	280	280	298	298				
R ²	0.168	0.996	0.306	0.742	0.238	0.954				
Countries	17	17	17	17	17	17				

a. This table presents estimations of absolute flows vs. lagged stocks of different financial globalization variables. Robust standard errors are in parentheses. FE indicates fixed effects estimation, and BE indicates between estimations. FG stock variables are lagged one period. All estimations include time dummies and capital account openness as additional controls.

***Significant at less than 1 percent.

**Significant at less than 5 percent.

their main portfolio vehicle, especially in Latin America, where debt liabilities declined markedly owing to sovereign deleveraging.

—*Portfolio diversification in emerging markets is still very limited and has been declining over time.* Indeed, there seems to be no correlation between traditional measures of financial globalization and the degree to which residents of emerging market countries diversify into international securities.

—*There is a significant correlation between liability holdings and the corresponding flows for foreign direct investment and equity instruments,* which suggests that, though not interchangeable, for those assets larger stocks are associated with larger flows—a link relevant to the discussion of the incidence of financial globalization and financial stability.

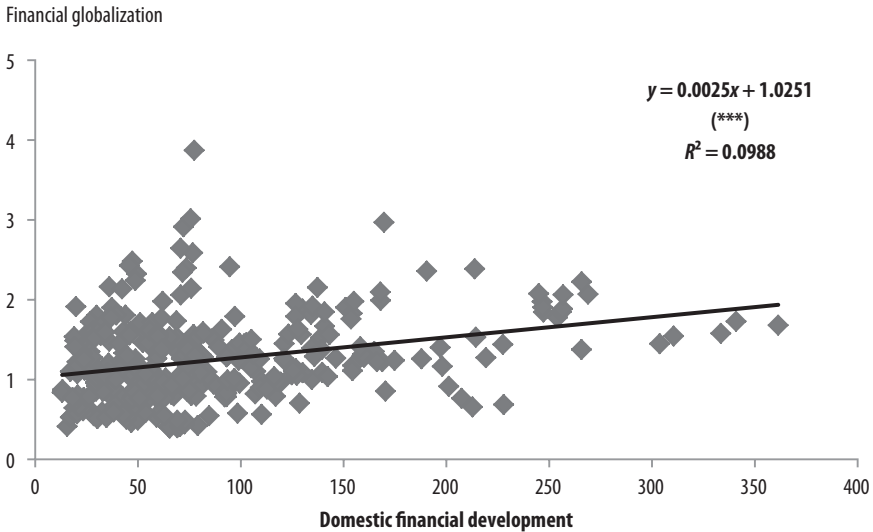
—*There is little (if any) correlation between de jure and de facto measures.* Although this does not come as a surprise, it warns us that the two represent different economic aspects and, at the very least, they should not be used interchangeably. It also motivates our focus on de facto financial globalization in the rest of the paper.

Does Financial Globalization Foster Financial Depth?

Conventional wisdom tells us that financial globalization, by attracting sophisticated investors and considerable liquidity, should foster the development of domestic financial markets. However, deeper, more liquid markets are expected to attract foreign inflows and larger sophisticated investors that require a minimum trading scale.

Indeed, as we have shown above, while FG-to-GDP ratios have been on the rise for most emerging markets, FG-to-marcap ratios have remained relatively stable. Are the former (the key exhibit behind the conventional view of expanding financial globalization in the emerging world) simply the reflection of international investors catching up, belatedly, with local market developments? Moreover, intuitively, tighter financial integration could foster the transmission of shocks in financial centers to peripheral advanced and developing markets, creating an exogenous source of financial (and ultimately real) instability. In this section, we revisit the causes and consequences of financial globalization from an empirical perspective.¹²

12. See, for example, Mishkin (2007) and Kose and others (2010). Following Kose and others (2010), in this paper we use the terms *financial globalization* and *financial integration* interchangeably.

FIGURE 10. Financial Globalization and Financial Development at First Glance^a

Source: WDI and Lane and Milesi-Ferretti (2008).

a. The figure plots de facto financial globalization (measured as the sum of stock of foreign assets and liabilities over GDP) against domestic financial development (measured as the sum of bank deposits and equity market cap over GDP). The sample comprises emerging market countries with data available from 1995 to 2007, excluding Singapore.

***Significant at the 1 percent level.

Many studies acknowledge the positive link between financial integration and domestic financial development, a link summarily illustrated in figure 10. However, the literature leaves some key questions unanswered regarding this link. Does the composition of financial integration matter? Is the link instrument specific—that is, does a deep domestic equity market lead to more financial globalization in the equity market, as opposed to financial globalization in general? How do these links vary across different groups of countries? Finally and perhaps more important: Does financial globalization drive financial development, or is it the other way around? In this section, we show that a few measurement considerations along the lines described above help to refine the evidence and the interpretation of the empirical results.

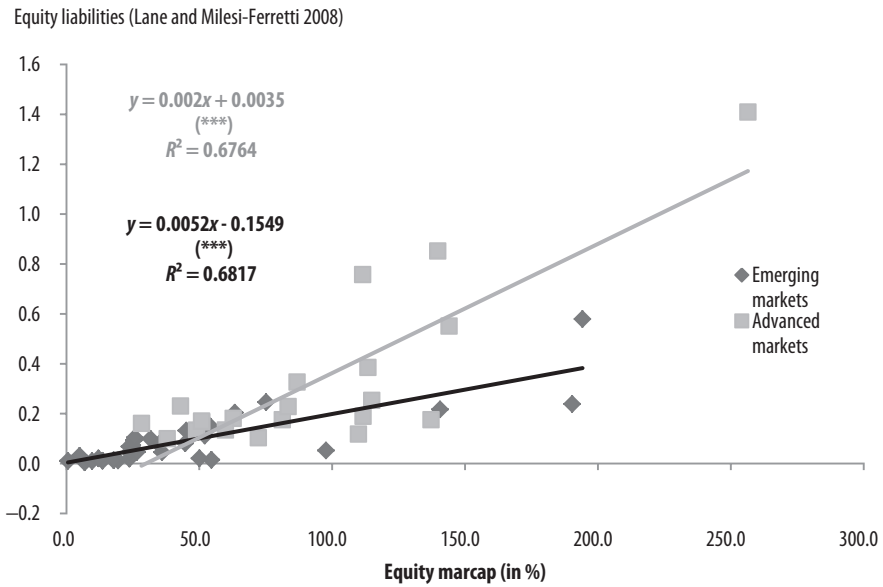
One can think of a number of aspects that intervene in the degree and intensity of cross-market investment. For starters, investors tend to maximize risk-adjusted returns across different markets, balancing yield equalization

and diversification and risk pooling (and the more they do so, the less correlated national markets are). But there are a number of factors (which can be broadly grouped as transaction costs) that are not included in the asset price quote and may end up being more relevant than attractive yields or hedging benefits. These aspects include not only financial innovation that reduces transfer and settlement costs and facilitates monitoring and transparency but also access to specialized analysis (which, in turn, requires a minimum market size to justify specialization costs) and a rich menu of instruments to cater to specific investors, both of which require a minimum market size to justify specialization and standardization costs. Market size is also critical in terms of liquidity risks, which may keep big players away. Thus even in the face of a decline in credit risks (owing to enhanced fiscal solvency, for example) and currency risk (owing to a balanced long currency position and a reduced tail risk of a sharp currency run, for example), local markets may fail to fully develop scale until they gain a minimum scale. This rather circular logic underlies the simultaneity problem noted above: If, a priori, market depth is a condition for foreign participation and foreign participation fosters market deepening, how can we tell one link from the other?

On the other hand, the way in which financial globalization is measured is not irrelevant: an improvement of local market conditions should be correlated with an increase in gross (and net) foreign liabilities (locals bringing money back; foreigners bringing money in). Although the literature that looks at the link between globalization and financial development often treats foreign assets and liabilities similarly (as in the standard measure discussed in the previous section), there is in principle no reason why capital outflows and residents' investment abroad should be positively related to local market development. By the same token, the tests may improve in accuracy by making the connection market specific: a deep equity market should attract equity inflows; similarly, a liquid bond market should lure bond investors. Indeed, it is not unusual in the developing world for countries to have blooming emerging markets in one asset class and shallow frontier markets in another. At any rate, the connection between the local market depth and foreign investment is stronger when we focus on a single market (as we do for equities in figure 11).

With this in mind, we revisit the results in Lane and Milesi-Ferretti (2008) on the drivers of financial globalization. The authors report a positive cross-country correlation between FG (measured as foreign assets and liabilities over GDP) and financial development (proxied by bank deposits and stock market capitalization over GDP), for a sample of emerging and advanced markets. We extend their exercise to the period 1995–2007 (the latest year

FIGURE 11. Domestic Financial Development and Financial Globalization: Equity Markets^a



Source: Lane and Milesi-Ferretti (2008), WDI.

a. The figure plots foreign equity liabilities over GDP against equity market capitalization over GDP.

***Significant at the 1 percent level.

for which Lane and Milesi-Ferretti [2007] data are available at the time of this writing), include frontier markets in the sample, and run panel regressions for different proxies of financial development: the standard one used in the original paper and assets-specific versions (for example, stock market capitalization over GDP). In addition, we include time dummies to capture common factors such as global liquidity and risk aversion, global investor reallocations to emerging relative to core markets,¹³ and GDP per capita, as a broad proxy for economic (and financial) development.¹⁴

13. See the appendix for a detailed list. Advanced markets are the twenty-eight advanced countries used in Lane and Milesi-Ferretti (2008). All variables are lagged and included in logs, except capital account openness.

14. As Lane and Milesi-Ferretti (2007) note in their paper, “The level of economic development can also be an important factor in explaining domestic residents’ propensity to engage in cross-border asset trade.” We prefer to include it here more specifically as an indicator that subsumes many of the transaction costs listed above.

The regression results, reported in table 3 for a sample of emerging equity markets, show a closer link between development of local stock markets and foreign equity liabilities (as opposed to the sum of assets and liabilities used in the original paper).¹⁵ The link between financial development and financial globalization is weaker for cross-country estimates and stronger over time, where financial development is proxied by the sum of equity market capitalization and bank deposits over GDP as in the original specification (columns 1 and 2). We split our financial development proxy, considering bank deposits and equity market capitalization as different variables instead of their sum. Columns 3 and 4 show that financial globalization (as the sum of total foreign assets and liabilities) has a stronger link with bank deposits than with stock market capitalization. Furthermore, columns 5 and 6 confirm our hypothesis that financial domestic markets that have deep domestic equity markets are strongly linked to more financial globalization in the equity market, as opposed to financial globalization in general. A similar thing happens when we regress equity market capitalization against financial globalization. The former is more strongly linked to financial equity liabilities than to a broader measure of financial globalization (columns 7 and 8).

As noted, the strong link between financial globalization and financial domestic development comes with a severe endogeneity problem: foreign flows to equity and local debt markets, by definition, add to these markets' liquidity and depth. Is it the domestic market depth that draws foreign inflows, or is it rather that foreign inflows foster the deepening of domestic markets? The connection between financial globalization and domestic financial markets has been noted by Rajan and Zingales (2003), who emphasize the impact of financial globalization and trade liberalization on the size of the domestic financial sector. In the same direction, Baltagi, Demetriades, and Law (2009) estimate dynamic generalized method of moments with internal instruments to argue that both financial globalization and trade openness cause greater financial development (measured separately as private credit and local stock market capitalization).

This causality problem is best approached by looking at foreign liabilities and the domestic depth of the equity market.¹⁶ In line with Baltagi, Demetriades, and Law (2009), we estimate a generalized method of moments, albeit

15. Note that the correlation between de jure and de facto FG is generally not significant or of the opposite sign, in line with the findings in the previous section.

16. Cross-border holdings and flows could influence the depth of the banking sector, albeit in a less straightforward way, to the extent that flows are largely intermediated by banks.

TABLE 3. Financial Globalization and Domestic Financial Development in Emerging Markets^a

Variable	Financial globalization			Equity liabilities			Equity marcap			GMM (external)	GMM (internal)
	BE	FE	BE	FE	BE	FE	BE	FE			
Trade	0.195 (0.140)	0.186 (0.132)	0.324* (0.159)	0.184 (0.124)	-0.241 (0.405)	-0.262 (0.544)					
Financial development	0.138 (0.110)	0.375*** (0.0720)									
Equity marcap/GDP (FD1)			0.159* (0.0901)	0.0878** (0.0403)	0.647** (0.229)	0.493** (0.215)					
Bank deposits/GDP (FD2)			-0.186 (0.189)	0.430*** (0.120)	0.631 (0.480)	-0.642* (0.364)					
FG/GDP					0.550 (0.411)	0.600** (0.241)					
Foreign equity liability/GDP					0.527*** (0.130)	0.321*** (0.147)			0.434*** (0.121)	0.404*** (0.147)	
GDP per capita PPP	0.143 (0.0993)	0.00144 (0.211)	0.144 (0.0978)	-0.140 (0.237)	0.208 (0.249)	1.469* (0.854)	-0.264 (0.225)	0.831* (0.462)	0.422 (0.654)	0.462 (0.651)	

KA openness	0.110*	-0.0128	0.0901	-0.0134	-0.0134	0.0939				
	(0.0620)	(0.0162)	(0.0610)	(0.0194)	(0.155)	(0.104)				
Constant	-2.582**	-2.430	-2.752**	-1.403	-7.368**	-14.95*	7.252***	-2.753		
	(1.136)	(1.937)	(1.127)	(2.148)	(2.871)	(7.276)	(2.451)	(3.915)		
ρ value joint test	326	326	326	326	326	326	325	325	323	323
Observations	27	27	27	27	27	27	27	27	27	27
Countries										
Number of instruments										
Arellano-Bond test AR (2)										
Hansen test									0.335	0.275
R^2	0.550	0.581	0.588	0.584	0.742	0.536	0.698	0.557	0.485	0.277

Source: Lane and Milesi-Ferretti (2008); World Development Indicators; Chinn and Ito (2008); and Emerging Portfolio Fund Research (EPFR).

a. Robust standard errors in parentheses. BE and FE indicate between and within estimates. All variables are in logs except capital account openness. All variables are lagged one period. Regressions include time dummies. Joint test is $FD1 = FD2 = 0$. External instrument is rest-of-EM average FG. PPP is purchasing power parity. FD1 is equity marcap/GDP; FD2 is bank deposits/GDP; BE is between estimations, FE is fixed effects estimation, and GMM is generalized-method-of-moments estimation.

***Significant at less than 1 percent.

**Significant at less than 5 percent.

*Significant at less than 10 percent.

with a few changes. We focus on the more homogeneous emerging markets group and compute, for each country-year, equity FG averages, excluding their own ratio, as an external instrument. We do so on the assumption that financial globalization, which is highly correlated across emerging markets (the median correlation between individual equity liability holdings and their emerging market group aggregates is 0.86), can only affect financial development in the host country.¹⁷ The chosen specifications with both internal and external instruments are supported by the Arellano-Bond test for second-order autocorrelation and the Hansen test of overidentifying restrictions. Moreover, the results indicate that equity inflows indeed appear to foster the deepening of the equity market (columns 9 and 10 of table 3).

What can we conclude from the evidence in this section? Although foreign capital does seem to flow to larger, deeper markets, there is at least some indicative evidence that it also has contributed to the development of the corresponding local market. For example, growing foreign holdings of emerging market equity (rather than broader measures of financial globalization) led to deeper equity markets in emerging market economies. Ultimately, the use of asset-class-specific measures of financial globalization confirms that, in this regard, foreign capital is no different from domestic capital: it both attracts and is attracted by liquidity in the marketplace.

How Has Financial Globalization Affected International Risk Sharing?

In past theoretical research studies, the implications about financial integration and macroeconomic volatility are clear: countries with greater financial globalization should reduce consumption relative to output volatility through international risk sharing.

In theory, one of the more important benefits of financial globalization comes by allowing more efficient international risk sharing in a country. As is stated in the literature, more efficient international risk sharing may help reduce consumption volatility. Standard theoretical open-economy models yield clear testable implications regarding the role of financial integration in risk sharing: the farther the country is from financial autarky, the lower the correlation between consumption and domestic output and the greater the correlation of consumption across (financially integrated) countries. Further-

17. We run a parsimonious version of the previous specification, dropping trade and other financial development proxies that are generally not significant, to gain observations at a minimum loss of information.

more, models with complete markets predict that correlation of consumption growth with the growth of world output (or, equivalently, world consumption) would be higher than that with domestic output.

Recent empirical studies have failed to validate this premise. Kose, Prasad, and Terrones (2007) analyze output and consumption growth rates and their volatilities for the period 1960–2004 and find little evidence of a beneficial effect from financial globalization on international risk sharing (as captured by a smoothing out of output changes in the consumption pattern, once common global shocks are filtered out). In particular, following a standard risk-sharing measure, they measure risk sharing as the consumption betas estimated from

$$(1) \quad \Delta \log(c_{it}) - \Delta \log(C_t) = \alpha + \beta(\Delta \log(y_{it}) - \Delta \log(Y_t)) + \varepsilon_{it},$$

where $c_{it}(y_{it})$ is the PPP-measured per capita consumption (GDP), $C_t(Y_t)$ is the world per capita consumption (GDP) (PPP being purchasing power parity).¹⁸ C_t and Y_t are, respectively, measures of aggregate (common) movements in consumption and output. Since it is not possible to share the risk associated with common fluctuations, the common component of each variable is subtracted from the corresponding national variable. The difference between the national and common world component of each variable captures the idiosyncratic (country-specific) fluctuations in that variable. In this specification, under complete markets and perfect international risk sharing, the left-hand side of the equation should be zero.

In turn, to assess the influence of financial globalization on international risk, they estimate $\Delta \log(c_{it}) - \Delta \log(C_t) = \alpha + \mu(\Delta \log(y_{it}) - \Delta \log(Y_t)) + \lambda FG_i (\Delta \log(y_{it}) - \Delta \log(Y_t)) + \varepsilon_{it}$, where FG_i is a measure of the country's financial globalization over the period, and the degree of risk sharing is measured by $(1 - \mu - \lambda FG)$, where a negative λ would indicate higher risk sharing for higher levels of financial globalization. The study focuses on three measures of financial integration—gross holdings (the sum of foreign assets and liability holdings), assets holdings, and liability holdings—and finds that financial globalization improves risk sharing only for the late period (1987–2004), the

18. Growth in World Output and Consumption is measured as follows: $\Sigma \Delta \log(x_{it}) * Share_{AM}$, where x_{it} is either real per capita consumption or output in country i (where the country belongs to the advanced-markets subsample), and $Share_{AM}$ is the share country i represents of advanced-market consumption or GDP measured by PPP current prices.

TABLE 4. Output and Consumption Volatility: Group Medians^a

	<i>Full sample, 1995–2007</i>			<i>Late period, 2000–07</i>		
	<i>Volatility Y</i>	<i>Volatility C</i>	<i>Ratio</i>	<i>Volatility Y</i>	<i>Volatility C</i>	<i>Ratio</i>
Full sample	2.0479 (1.7193)	2.3151 (2.3557)	1.13	1.5727 (1.5481)	1.8504 (2.1965)	1.18
Advanced market	1.1995 (0.4551)	1.1041 (0.7680)	0.92	1.2349 (0.3853)	0.9973 (0.9085)	0.81
Emerging market	3.2135 (1.7803)	4.2959 (2.2195)	1.34	1.9481 (2.0011)	2.3524 (2.4793)	1.21
Foreign market	2.1109 (1.2735)	3.5319 (2.2865)	1.67	1.9681 (0.5892)	3.1093 (1.9335)	1.58
More financially integrated economy ^b	2.8847 (1.8151)	4.6620 (2.4317)	1.62	1.6999 (2.3729)	2.9576 (2.7419)	1.74
Less financially integrated economy ^c	2.2018 (1.6487)	3.3633 (1.9825)	1.53	2.0503 (0.8561)	2.1163 (1.8566)	1.03

Source: World Bank, World Development Indicators; Lane and Milesi-Ferretti (2008).

a. Standard errors appear in parentheses.

b. More financially integrated economies are developing economies with financial globalization (measured by the sum of foreign assets and liabilities over GDP) above the sample median.

c. Less financially integrated economies are ones in which financial globalization is below the sample median.

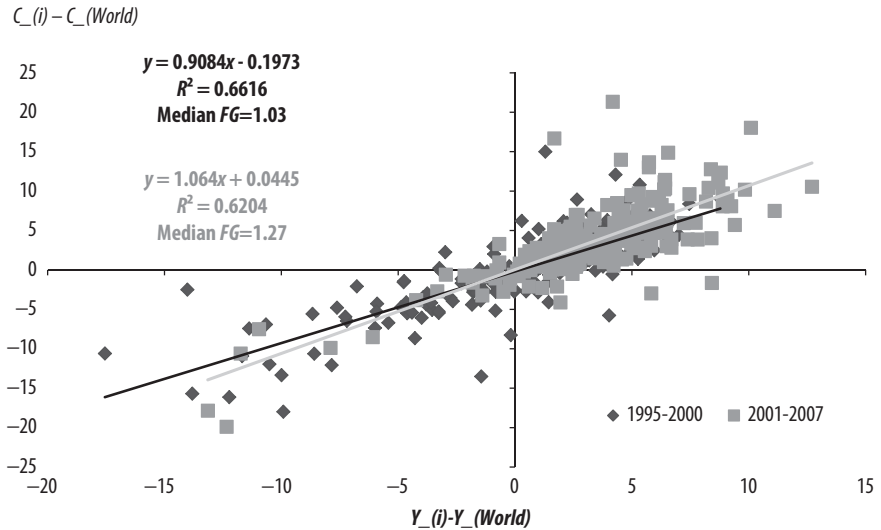
one most closely associated with an advance in financial globalization and for advanced economies.¹⁹

The data do not support these premises. The figures shown in table 4 indicate that consumption volatility generally exceeds that of output. Moreover, the same figures suggest that, for more financially integrated economies, the volatility of consumption growth relative to that of output has increased in the past decades, while it has decreased for less financially integrated economies.²⁰

A first glance at the data indicates that this pattern has continued to prevail. Table 4 presents descriptive statistics of growth and consumption volatility for 1995–2007 (and the subperiod 2000–07), across our selected country groups. The statistics indicate that, in recent years, output volatility and economic growth seem to have moved hand in hand. Emerging markets exhibit the highest output volatility, advanced markets the lowest, and frontier markets lie in between.

19. These results expand on previous findings by Kose and others (2007) along the same lines, for the period 1960–95.

20. We define output (consumption) volatility as the variance of output (consumption) growth rates.

FIGURE 12. Risk Sharing and Financial Globalization^a

Source: World Development Indicators, Lane and Milesi-Ferretti (2008).

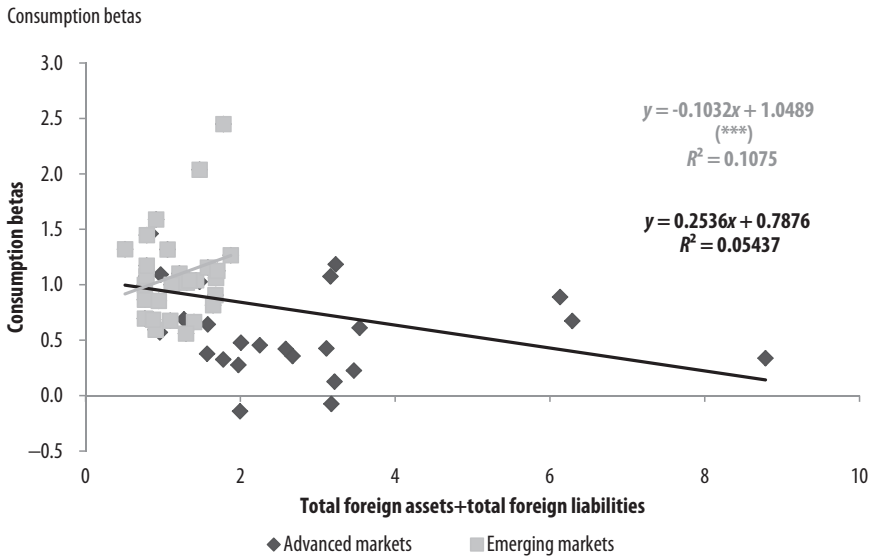
a. The figure plots per capita consumption against output growth. $X_{(i)} - X_{(World)}$ refers to the domestic variable minus the world variable. C and Y represent consumption and output growth per capita, respectively. FG is the ratio of the sum of foreign assets and liabilities to GDP.

Overall, the ratio of consumption to growth volatility ranks according to priors: the lower for presumably more financially integrated advanced markets, followed by emerging markets, and then frontier markets. However, when, following Kose, Prasad, and Terrones (2007), we divide the developing group (emerging markets plus frontier markets) into more financially integrated and less financially integrated economies (whether FG over GDP lies above or below the sample median), the link is much less clear: in contrast with less financially integrated economies, more financially integrated economies do not appear to have benefited from smoother consumption volatility, despite the marked decline in growth volatility.²¹

Figure 12 offers another glance at the same evidence. Following Bai and Zhang (2012), it asks whether the country-specific sensitivity of consumption to output growth (relative to global values, estimated based on annual data)

21. FG is measured here, as usual, as the sum of foreign assets and liabilities over GDP .

FIGURE 13 . Risk Sharing: Consumption Betas versus Financial Globalization^a



Source: Lane and Milesi-Ferretti (2008), WDI.

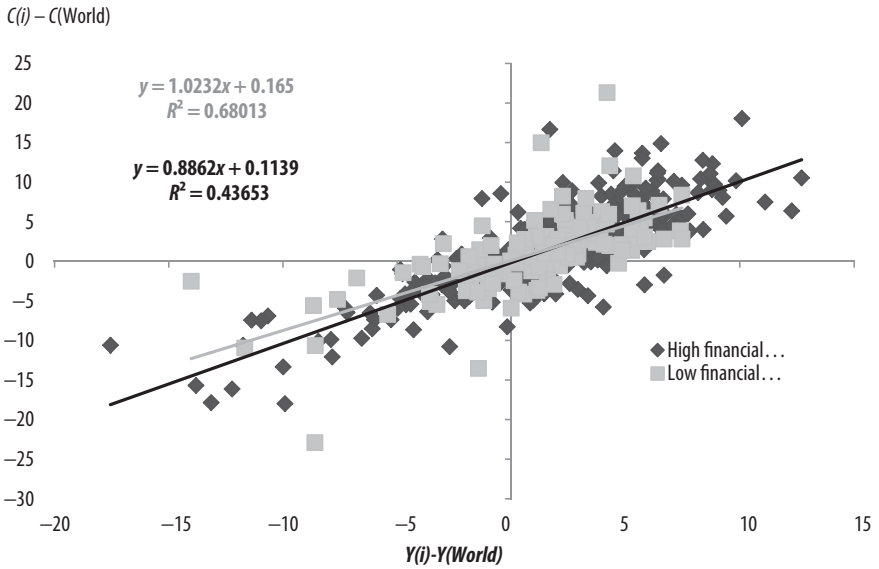
a. The figure presents a scatter plot of consumption betas as measured by the slope of $C_{(i)} - C_{(World)}$ to $Y_{(i)} - Y_{(World)}$ versus FG/GDP. C and Y represent consumption and output growth per capita respectively.
 ***Significant at the 1 percent level.

increased in the first decade of this century relative to the 1990s, as FG-to-GDP ratios rose. Sensitivities appear to have remained stubbornly near one to one in the past two decades, contradicting the risk-sharing argument.

To measure the impact of financial globalization on risk sharing more rigorously, we proceed in two steps. We first estimate, for the period 1995–2007, “consumption betas” country by country, using equation 1. Next, we run a regression of estimated betas on alternative measures of financial globalization.²² The standard financial globalization proxy appears negatively correlated with betas for the advanced-market sample (figure 13), but the link is not significant (and changes sign) for emerging markets.²³

22. Note that this is similar to allowing μ to vary across countries in Kose, Prasad, and Terrones (2007) panel estimation—and that their risk-sharing measure for country i would equal $1 - \beta_i$.

23. Using foreign direct investment holdings, or the sum of equity plus debt holdings, over GDP as FG proxies yields comparable results.

FIGURE 14 . Relationship between Financial Globalization and Risk Sharing^a

Source: WDI, Lane and Milesi-Ferretti (2008).

a. The figure plots consumption against per capita output growth in countries with high and low financial globalization. $X_{(i)} - X_{(World)}$ refers to the domestic variable minus world variable. C and Y represent consumption and per capita output growth, respectively. The sample comprises all developing countries. High and low financial globalization is determined by the lower bound of FG in the advanced markets sample. If a country is above that lower bound, it belongs to the high FG group. Financial globalization is the sum of total assets and liabilities over GDP.

Why this disappointing result? Kose and others (2010) address and discard a number of potential explanations (measurement errors, country characteristics, financial globalization composition), to propose two hypotheses: First, a threshold effect, namely, that countries need to achieve a minimum degree of integration to reap the diversification benefits (a proposition prompted by the better results they find for advanced markets), and second, the procyclicality of capital flows in emerging markets, which in principle may offset the risk-sharing benefits of financial globalization.

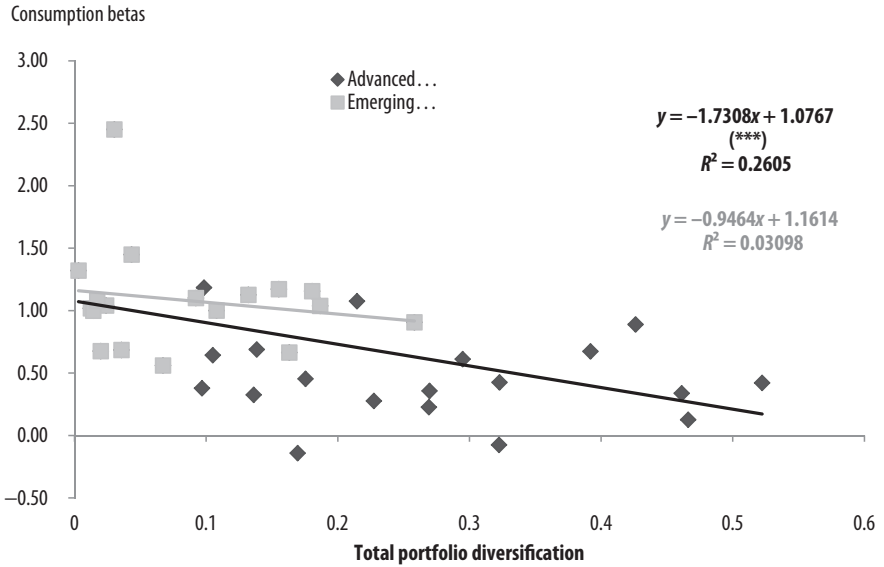
Although the first hypothesis is virtually impossible to verify, a casual look at the data suggests that a simple threshold cannot explain the whole story. That emerging economies today exhibit levels of financial globalization comparable to those exhibited by advanced markets in the past raises the following question: Do developing countries with financial globalization at the level of advanced markets display a better risk-sharing pattern? Figure 14

shows consumption and GDP growth pairs within the developing group for the period 1995–2007, broken into high and low levels of financial globalization, according to whether or not the level of financial globalization of a given pair lies within the advanced markets range for the same period. As can be seen, the results, if anything, contradict the hypothesis: high financial globalization pairs display higher consumption betas.

The second hypothesis is also hard to substantiate with the data. For starters, the diversification benefits of financial globalization as measured in the literature (namely, in terms of international portfolio diversification) should in principle work through a decoupling of residents' income from the domestic economic cycle. By borrowing and investing abroad, residents benefit from income from their foreign assets that is uncorrelated with the domestic cycle, while sharing the ups and downs of the domestic cycle with foreign lenders. In this light, the procyclicality of capital flows should a priori have little to do with risk sharing and consumption smoothing: indeed, to the extent that capital flows have a stronger impact on GDP growth than on the consumption pattern, they should increase "measured" risk sharing. Moreover, as Kose and others (2010) suggest, the recent shift away from procyclical fixed-income securities (most notably, bonded debt) to variable income vehicles (foreign direct investment and equity flows) should have mitigated capital flow procyclicality in the recent period, which is at odds with the persistently high consumption betas found in recent data (figure 13).

Here, we highlight two alternative reasons that, we believe, may explain why higher financial globalization does not lead to a smoother consumption pattern. The first is related to measurement considerations. If consumption smoothing is the result of a diversified portfolio, the standard financial globalization measure may not be the best gauge. The previous discussion of the price effect in equity markets is a good illustration of the limits of FG over GDP as a proxy for portfolio diversification: as equity prices rise, the share of foreign equity over GDP also rises, regardless of whether the foreign share of the residents' equity portfolio changes. Thus we may be seeing increased diversification when in fact there is none. More generally, by looking only at the standard financial globalization proxy, we miss domestic assets that typically represent the largest part of residents' wealth. Thus the consequences of financial globalization on international risk sharing may be better suited for our portfolio diversification measure. Earlier in this paper we state that the ratio of foreign equity liabilities (or foreign debt liabilities) to market capitalization highlights "real" inflows to a certain market in the host country. In turn, portfolio diversification measures exactly the diversification of wealth

FIGURE 15. Risk Sharing and Portfolio Diversification^a



Source: Lane and Milesi-Ferretti (2008), WDI.

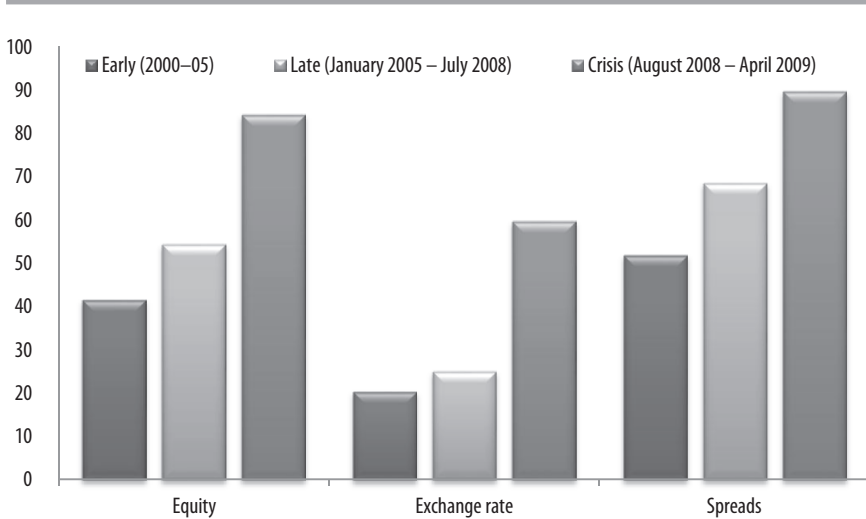
a. The figure plots consumption betas (measured by the slope of $C_t(i) - C_t(\text{World})$ to $Y_t(i) - Y_t(\text{World})$) against portfolio diversification (as measured in figure 7). C and Y represent consumption and output growth per capita, respectively.

***Significant at the 1 percent level.

for a particular country, combining both debt and equity instruments, as we defined them. We rely on this new measure to gauge the effects of financial globalization on international risk sharing.

Does our new measure of portfolio diversification fix the problem? Reassuringly, when in figure 15 we substitute portfolio diversification for the standard FG-to-GDP measure, we indeed obtain a better fit and a negative slope for emerging markets. Thus though the use of portfolio diversification brings the analysis conceptually closer to a risk-sharing test and the data empirically closer to the expected negative correlation between globalization and risk sharing, results are still far from the theoretical result. This should not be surprising, given the rather low degree of diversification in the developing world (figure 7). Moreover, the menu of financial assets in middle- to low-income countries is often limited and accessible only to a small population of high-income households.

What if financial assets were made available to the middle class with savings capacity, the one often associated with more advanced economies? And

FIGURE 16. Financial Recoupling in Emerging Markets: Across Assets^a

Source: Bloomberg.

a. The figure reports the average R^2 of the regressions of country-specific equity returns, exchange rate returns, and sovereign credit spreads on the corresponding first principal component computed over an emerging markets sample. Countries are Argentina, Brazil, Chile, China, Colombia, Czech Republic, India, Israel, Korea, Mexico, Peru, Poland, Russia, Singapore, South Africa, Taiwan, Turkey, and Uruguay.

why is risk sharing so limited in the developed world where financial sophistication and access should not be such a problem?

An additional reason why the global diversification of financial portfolios does not immediately translate into smoother (less cyclical) consumption patterns, independent of portfolio composition and financial access, is that financial assets tend to move very close to one another, particularly in the event of extreme events. In other words, the international diversification margin may have been declining along with a steady process of financial recoupling, namely, the growing co-movement between emerging markets and global portfolio assets (Levy Yeyati and Williams 2012).

Figure 16 illustrates the point: the share of the variability of returns explained by the first principal component is large and has been growing larger over time (even before the 2008–09 sell-off).²⁴ In turn, the first prin-

24. For the figure, we regress country-specific equity. Changes in exchange rate and credit default swap spreads on the first principal component are constructed based on changes in the corresponding asset for all emerging markets. Credit default swaps spreads are used as a proxy for debt securities. One important consideration is that while the analysis in the figure is based on monthly returns, the co-movement also verifies (and often increases) for longer horizons.

TABLE 5. Correlations First PC versus Global Indexes^a

<i>Year</i>	<i>Standard and Poor's</i>	<i>Morgan Stanley Capital International</i>	<i>High-yield U.S. corporate spread</i>
<i>PCE equity</i>			
2000–09	0.843	0.941	–0.685
2000–04	0.831	0.919	–0.616
2005–09	0.868	0.956	–0.727
<i>Emerging market equity</i>			
2000–09	0.810	0.892	–0.641
2000–04	0.786	0.817	–0.640
2005–09	0.843	0.939	–0.665
<i>Emerging market credit default swaps</i>			
2000–09	–0.625	–0.671	0.753
2000–04	–0.526	–0.566	0.516
2005–09	–0.775	–0.774	0.815

Source: Bloomberg.

a. This table reports the correlation of global indexes versus the first principal component of equity returns and credit default swap spreads.

cial component is highly correlated with global assets returns, as captured by the S&P 500 and Morgan Stanley Capital International equity indexes, and the spread on high-yield U.S. corporate debt (table 5), indicating that most of the co-movement displayed by emerging markets assets comes from global influences or globally synchronized shocks. In sum, even if residents in emerging economies were to diversify their portfolios internationally, the diversification gains would be limited by the growing co-movement with other emerging markets or with advanced markets, limiting in turn the impact of financial globalization on their consumption patterns.²⁵

Final Remarks and Policy Discussion

Perhaps the main take-away from this empirical examination of financial globalization is its most pedestrian finding: for all the market and media hype about the increasing globalization of emerging economies, financial

25. As our editor usefully remarked, in an imperfect world, individual portfolio diversification is only part of the story, as consumption smoothing could also be affected by cyclicity of foreign investment flows. More precisely, while foreign assets may diversify residents' financial income flows, foreign capital flows (which, as demonstrated by the evidence reported above, are positively linked to the stock foreign liabilities) can contribute to or detract from this benign effect depending on how they correlate with nonfinancial income. Given that the evidence in the literature suggests that foreign flows tend to move procyclically in emerging economies, one could infer that international risk sharing may ultimately decline with the stock of foreign assets.

globalization in the emerging world appears to have been vastly overstated. Rather than growing in the last decade of the past century and the first decade of the present one, as is usually argued based on standard GDP ratios, *de facto* globalization has accompanied (and, to some extent, supported) a more secular process of financial deepening (in emerging markets and elsewhere), temporarily slowed down by the recent global crisis. More precisely, once measured in a way that minimizes the various biases that plagued the most popular empirical proxies, financial globalization in emerging markets looks rather stable, and well below advanced country levels.

This finding is critical for a debate on financial globalization that often investigates its causes and consequences starting from the questionable premise that financial globalization has actually strengthened over the years. Instead, the globalization process during the 1990s (which almost defined emerging markets as a concept) came to a halt in the years that followed.²⁶ This statement is mostly true for policy debates that generally start from the premise of growing financial globalization, a view that we argue is particularly misleading in the case of emerging markets. Also, policy discussions on local financial development and international risk sharing should benefit from the use of better (albeit still imperfect) measures: as we show above, under these metrics financial globalization has not increased as much as often believed; hence, the minor statistical impact.

That said, it is true that the ratio of foreign liabilities over GDP is a useful measure of the macroeconomic exposure to swings in global risk appetite, as witnessed by the rise in the pre-2008 crisis years. Indeed, the enthusiasm for emerging markets continued to elicit overweight portfolio positions from benchmarked investors, plus an increasingly active speculative turnover, during the 2009–11 recovery, opening the question of whether cross-border holdings (particularly, easy-to-unwind foreign portfolio liabilities) are good or bad or, more generally, whether they should be taken by policymakers as a source of concern (particularly now that global liquidity, as well as inflows from emerging markets, may start to revert to normal levels). However, once we correct for valuation effects, low and stable levels of financial globalization, coupled with measurement limitations and the short time span of available globalization data on emerging markets, advise us to take any normative conclusion with a grain of salt.

26. This is particularly so for emerging Latin America, where FG lags those in their emerging peers, and has come down since the turn of this century, reflecting in part the sovereign deleveraging trend in the region.

TABLE A1. List of Countries

<i>Advanced markets</i>	<i>Peripheral core economies</i>	<i>Emerging markets</i>	<i>G-5</i>	<i>Frontier markets</i>
Australia	Australia	Argentina	France	Bahrain
Austria	Canada	Brazil	Germany	Bangladesh
Belgium	New Zealand	Bulgaria	Italy	Bosnia and Herzegovina
Canada	Norway	Chile	Japan	Botswana
Denmark	Sweden	China	United States	Croatia
Finland		Colombia		Ghana
France		Czech Republic		Jordan
Germany		Ecuador		Kazakhstan
Greece		Egypt, Arab Rep.		Kenya
Iceland		Estonia		Kuwait
Ireland		Hungary		Lebanon
Italy		India		Mauritius
Japan		Indonesia		Nigeria
Netherlands		Israel		Oman
New Zealand		Korea, Rep.		Pakistan
Norway		Latvia		Qatar
Portugal		Lithuania		Saudi Arabia
Spain		Malaysia		Serbia
Sweden		Mexico		Slovenia
Switzerland		Peru		Sri Lanka
United Kingdom		Philippines		Trinidad and Tobago
United States		Poland		Tunisia
		Romania		United Arab Emirates
		Russian Federation		
		South Africa		
		Thailand		
		Turkey		
		Ukraine		
		Uruguay		
		Venezuela, RB		
		Vietnam		

References

- Artis, M. J., and M. Hoffmann. 2006. "The Home Bias and Capital Income Flows between Countries and Regions." Discussion Paper 5691. London: Center for Economic Policy Research.
- Bai, Yan, and Jung Zhang. 2012. "Financial Integration and International Risk Sharing." *Journal of International Economics* 86 (1): 17–32.
- Baltagi, Badi H., Panicos O. Demetriades, and Siong Hook Law. 2009. "Financial Development and Openness: Evidence from Panel Data." *Journal of Development Economics* 89 (2): 285–96.
- Bekaert, Gert, and Harvey R. Campbell. 1997. "Emerging Equity Market Volatility." *Journal of Financial Economics* 43 (1): 29–77.
- Borensztein, Eduardo, Eduardo Levy Yeyati, and Ugo Panizza. 2006. *Living with Debt: How to Limit the Risks of Sovereign Finance*. Harvard University Press.
- Chinn, Menzie, and Hiro Ito. 2008. "A New Measure of Financial Openness." *Journal of Comparative Policy Analysis* 10 (3): 309–22.
- Cowan, Kevin, and others. 2006. "Sovereign Debt in the Americas: New Data and Stylized Facts." Working Paper 4480. Washington: Inter-American Development Bank, Research Department.
- Didier, Tatiana, Constantino Hevia, and Sergio Schmukler. 2010. "How Resilient Were Developing Countries to the Global Crisis?" World Bank.
- Gagnon, L., and A. Karolyi. 2010. "Do International Cross-Listings Still Matter? Evidence on Financial Globalization and Crisis." Johnson School Research Paper 32-2010.
- Giannone, D., and L. Reichlin. 2006. "Trends and Cycles in the Euro Area: How Much Heterogeneity and Should We Worry about It?" European Central Bank Working Paper 595.
- Ize, Alain, and Eduardo Levy Yeyati. 2003. "Financial Dollarization." *Journal of International Economics* 59 (2): 323–47.
- Kaminsky, Graciela, and Sergio Schmukler. 1998. "What Triggers Market Jitters? A Chronicle of the Asian Crises." *Journal of International Money and Finance* 18 (4): 537–60.
- Kose, M. Ayhan, Eswar Prasad, and Marco Terrones. 2007. "How Does Financial Globalization Affect Risk Sharing? Patterns and Channels." IMF Working Paper 07/238. Washington: International Monetary Fund.
- Kose, M. Ayhan, and others. 2010. "Financial Globalization and Economic Policies." In *Handbook of Development Economics*, vol. 5, edited by D. Rodrik and M. Rosenzweig. Amsterdam: Elsevier.
- Kraay, Aart, and others. 2005. "Country Portfolios." *Journal of the European Economic Association* 3 (4): 914–45.
- Lane, Philip R., and Gian Maria Milesi-Ferretti. 2007. "The External Wealth of Nations, Mark II." *Journal of International Economics* 73 (2): 223–50.

- . 2008. “The Drivers of Financial Globalization.” *American Economic Review* 98 (2): 327–32.
- Levy Yeyati, Eduardo. 2007. “Dollars, Debts, and the IFIs: Dedollarizing Multilateral Lending.” *World Bank Economic Review* 27 (1): 21–47.
- Levy Yeyati, Eduardo, Sergio L. Schmukler, and Neeltje Van Horen. 2009. “International Financial Integration through the Law of One Price: The Role of Liquidity and Capital Controls.” *Journal of Financial Intermediation* 18 (3): 432–63.
- Levy Yeyati, Eduardo, and Tomas Williams. 2012. “Emerging Economies in the 2000s: Real Decoupling and Financial Recoupling.” *Journal of International Money and Finance* 31 (8): 2102–26.
- Mishkin, Frederic S. 2007. “Is Financial Globalization Beneficial?” *Journal of Money, Credit, and Banking* 39 (2–3): 259–94.
- Quinn, Dennis P., and Carla Inclan. 1997. “The Origins of Financial Openness: A Study of Current and Capital Account Liberalization.” *American Journal of Political Science* 41 (3): 771–813.
- Rajan, Raghuram, and Luigi Zingales. 2003. “The Great Reversals: The Politics of Financial Development in the Twentieth Century.” *Journal of Financial Economics* 69 (1): 5–50.
- Rose, Andrew, and M. Spiegel. 2010. “Cross-Country Causes and Consequences of the Crisis: An Update.” Discussion Paper 7901. London: Center for Economic Policy Research.
- Schindler, Martin. 2009. “Measuring Financial Integration: A New Data Set.” *IMF Staff Papers* 56 (1): 222–38.