Financial Globalization in Emerging Economies: Much Ado About Nothing?

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Abstract

Financial globalization, defined as global linkages through cross-border financial flows, has become increasingly relevant for emerging markets as they integrate financially with the rest of the world. This paper argues that, because of the way it is often measured, it has also led to the misperception that financial globalization in emerging markets has been growing in recent years. The authors characterize the evolution of financial globalization in emerging markets using alternative measures, and find that, in the 2000s, financial globalization has grown only marginally and international portfolio diversification has been limited and declining over time. The paper revisits the empirical literature on the implications of financial globalization for local market deepening, international risk diversification, financial contagion, and financial dollarization, and finds them to be rather limited. Whereas financial globalization has indeed fostered domestic market deepening in good times, it has yielded neither the dividends of consumption smoothing (in line with limited portfolio diversification) nor the costs of amplifying global financial shocks. In turn, financial de-dollarization has largely reflected the undoing of financial offshoring and the valuation effects of real appreciation.

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1. Introduction

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 sharing 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 specializing the existing literature to characterize the evolution and implications of FG in emerging economies.

As conventional wisdom has it, the globalization process has been growing steadily since the mid-1980s, particularly in developing countries (Kose et al, 2010) and has accelerated in the 2000s, with a dramatic increase in cross-border portfolio flows as a fraction of global wealth (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 effects) reveals a more stable FG pattern during the 2000s.[2] In turn, normalizing foreign portfolio asset holdings by total portfolio holdings by residents show that, despite the growing FG ratios, international portfolio diversification in the emerging world are still remarkably low, and have 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. FG 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 et al., 2010) and vice versa (Baltagi, Demetriades and Law, 2008). 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 this evidence controlling for the endogeneity bias, and find that there is indeed a positive effect, that works through market-specific channels (e.g., foreign equity liabilities help deepen local equity markets rather than financial markets as a whole).

In turn, empirical evidence on the link between FG and consumption smoothing has shown mixed results at best. On the 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 (2005) analyze a two period sample, 1973-1985 and 1986-1998,

[2]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 FG-to-GDP ratio regardless of changes in portfolio composition. To the extent that cross-border debt liabilities are denominated in hard currency, the same applies to debt FG ratios in the event of a real depreciation.

for advanced and developing economies, and showed that although according to their measure FG doubles from period to period, there is no substantial improvement in international risk sharing. In the same vein, Kose, Prasad and Terrones (2007) discuss the theoretical advantages of FG in terms of international risk sharing as a way to hedge consumption against domestic income shocks, but 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 EM ("consumption betas", where both output and consumption are computed relative to the world´s) and find no improvement nor link with conventional FG-to-GDP ratios. We argued that this negative result can be attributed to two main factors. First, FG-to-GDP ratios overstate the increase in international portfolio diversification by EM residents. A revised measure of diversification, which displays the expected positive correlation with consumption betas, reveals that diversification in EM is well below that in advanced economies, and has not improved in recent years. Second, the rising "financial recoupling" in international securities markets has significantly reduced the diversification gains.

Finally, we explore the link between FG and financial stability from two angles. First, we examine whether FG played a role in determining the size of the growth response to with the 2008-2009 global crisis, and find that, while at first sight FG appears weakly and positively related to growth collapses, the effect is largely capturing the negative incidence of external debt in times of global deleveraging. Secondly, we discuss the connection between FG and financial dollarization (a typical source of financial fragility in EM) and show that most of the recent decline in deposit and debt dollarization is explained by valuation effects due to the real appreciation in the 2000s, as well as gradual on-shoring of residents´ savings abroad that supported the development of domestic markets at the expense of external, hard-currency denominated ones. While FG may have favored this development, the correlation between standard measures of FG and financial dollarization is not clear.

In sum, our exploration indicates that FG have been overstated due to measurement choices, and that, beyond a benign effect on financial development, its incidence on financial risk sharing and contagion, or its role in the recent de-dollarization process has been rather muted.

The paper is structured as follows. The next section looks at alternative measures of FG, how they evolved over the recent period, for a group of advanced, emerging and frontier markets, in terms of intensity, direction and composition. The third section tackles the link of FG with financial development (understood as local market deepening), consumption smoothing (through international portfolio risk sharing), financial stability, and systemic currency mismatches. The last section summarizes the main findings and concludes.

2. 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, FG, 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. While 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 typically based on the IMF´s AREAR (Kaminsky and Schmukler, 1998, Quinn and Inclan 1997, Schindler, 2009, Chinn and Ito, 2008: henceforth CI) or the IFC´s equity globalization index that measures the ratio of equity market capitalization that is investable for non-residents (Bekaert and Harvey, 1998). While all of these measures are predictably close to each other when applied to a particular financial market (e.g., equities), they differ across markets in a way that would complicate the characterization of a financially globalized *economy*.[3] Here, we consider as our *de jure* measure CI's index of financial openness.[4]

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. 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 fact* measures of FG, typically proxied by the ratio of foreign assets plus foreign liabilities over GDP, based on data on foreign positions compiled by Lane and Milessi Ferreti (2007; henceforth, LMF) –a measure that has become standard in the recent FG literature.[5]

Findings are not independent from how the sample is cut. In this paper, we focus on a set of 34 emerging markets (EM), which we occasionally split into Asian, Latin America and other EM to analyse regional differences. In addition, for the sake of comparison, we divide developed economies into two groups: a set of 5 peripheral core economies (PCE: Australia, Canada, New Zealand, Norway and Sweden) that, in our view, provide a reasonable mirror in which to look at the relative developments in EM, and a sample of more advanced economies (G5: France, Germany, Italy, Japan and the US).[6] For a better comparison with existing results in the literature, in some cases we use a broader advanced markets category (AM), as well as a frontier

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

[4] The measure is based on principal components extracted from disaggregated (qualitative) measures of capital and current account restrictions in the IMF's AREAER, converted to numerical values by the authors.

[5] Kraay, Loayza and Ventura (2005) report a similar dataset on country´s 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 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.

[6] EM comprise countries customarily included in emerging markets indexes such as the MSCI or the EMBI, excluding financial centers (Singapore and Hong Kong) which tend to display disproportionate large gross cross-border positions. The G5 comprises countries in the G7 group minus Canada (already included in PCE) and the UK (because of its status as financial center). FM are less financially developed markets that do not make it to the emerging category. See the Appendix for a detailed list.

markets category (FM) that comprises less financially developed economies that tend to be associated with limited financial integration.

To have a first look at both the differences between each other and the evolution of each proxy over time, in **Figure 1** we compare the standard de facto measure based on cross-border holdings compiled by LMF, showing the break down into equity, debt and FDI, all normalized by the country´s GDP. We also include CI ´s measure of de jure FG.

As can be seen, the correlation between de jure and de facto measures of FG is far from perfect. They move hand in hand for EM, but de jure FG looks stable in more advanced countries (PCE and AE), despite the upward trend in de facto FG. Moreover, despite a relatively limited (and declining) de jure FG in Asian markets, the pattern of de facto FG looks similar to other EM, both cross section and over time.

Also, the figure clearly shows that, for all the debate about growing financial integration in the emerging world, FG in EM is much smaller, and has been growing more slowly that in more advanced markets.

Finally, the charts document a difference in the composition of the FG-to-GDP pattern between emerging and advanced economies. In the former, FG is driven by the increasing role of FDI and, more recently, equity markets as the main vehicles for cross-border investments, at the expense of debt liabilities (particularly for the Latin American region), a fact already documented in the literature.[7] In the latter, FG is still largely dominated by debt securities.

This is more clearly seen when we compare changes in gross foreign positions for the three different instruments (equity, debt and FDI) over the 2000-2007 period, again using the traditional FG over GDP measure (**Figure 2**). The comparison highlights the marked decline in the debt liability position due to the rapid sovereign deleveraging process in EM (coupled with growing reserve assets, and a growing equity and FDI net liability position) and the contrast with the growing net debt of G5 countries.

Generally, **Figures 1 and 2** indicate a growing FG-to-GDP pattern across the board. However, 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. To this we turn next.

[7] See, e.g., Cowan et al. (2006), Borensztein et al., (2007). Note that this debt pattern is not so much the results 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 EM 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 2000s.

I. Is the GDP the correct denominator for the FG ratio?

Rather than the standard normalization by the (US 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 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, this increase in marcap can be largely explained as the combination of a stable foreign participation and a deepening local market –itself a reflection of equity valuation changes.

Table 1 and **Figure 3** offer an alternative cut of FG data for the 2000s, looking at foreign equity and debt liabilities normalized by the host market capitalization (marcap), 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 domestic markets, including through persistent price rallies. The re-normalization shows that the deepening of domestic markets played a central role in explaining the increase in the FG over GDP ratio, particularly in Latin American EM where the difference is more striking: FG to marcap ratios during the latest period remained virtually unchanged for equity and contracted by 7% for debt securities.

This evidence suggests that changes in FG to GDP ratios mask valuation effects due to asset inflation. Specifically, if the perceived rise in FG in EM equity markets is in part due 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 prior to the 2008 crisis, rather than to new issuance. If so, the narrative of the evolution of FG based on GDP ratios would spuriously reflect equity markets booms and busts –another reason to use marcap ratios instead.[8]

Moreover, while the standard normalization by the (US dollar) GDP looks in principle natural for issues related with the country´s wealth diversification away from domestic shocks (and exposure to external shocks), in practice the GDP ratio ignores residents´ participation in local markets, and may ultimately suffer from the aforementioned valuation bias.[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 remain the same.

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

While the domestic-foreign composition or physical assets is hard to estimate (due to the lack of reliable capital stock data for most developing countries), we can proxy portfolio diversification (PD) as the foreign share of the representative resident´s equity and debt securities portfolio by combining LMF and marcap figures, such that:

$$PD\ (equities\ +\ debt\ securities) = FEA\ +\ FDA\ /\ [(FEA\ +\ equity\ market\ cap\ -\ FEL)\ +\ (FDA\ +\ total\ debt\ -\ FDL)$$

where FEA and FEL (FDA and FDL) are foreign equity (debt) assets and 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.

Figures 4 sheds light on the first aspect: note the stark contrast between emerging and advance economies. The level of PD in the developed world appears to be growing, although they are still too low to have a decisive impact in risk sharing. By contrast, PD in the emerging world is not only much lower (less than 10% 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 EM residents appears to be quite limited and declining over time –a critical aspect that we will come back to when we look at FG and risk sharing below.

II. Are holdings a good indication of the intensity and nature of flows?

The stock size of cross border holdings, while possibly a good indication of geographical diversification and international risk sharing, may not be the best summary statistic of *de facto* FG 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 a limited geographical 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 rebalancing and cross-market arbitrage.

How correlated are FG 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, to varying degrees depending on the country group, and the type of instrument.

To illustrate, we run regressions of the size (the absolute value) of annual Balance of Payments (BoP) flows on LMF´s beginning-of-the-period 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 **Figure 5**,

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

indicate that larger holdings are associated with larger flows, particularly in the case of FDI. However, a look at the scatter plots of the partial regression residuals shows important differences when it comes to portfolio holdings, where the link with flows appear to be strong only for EM equity.

The diverse nature of the correlation between stocks, on the 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 holding have a positive correlation with the associated flow.

III. Are all holders alike?

The investor behind a particular flow may also be relevant to understand the nature and implications of FG. For example, a passive buy and hold portfolio investor may behave closer to real investors (FDI), with limited turnover (flows) for a given holding. By contrast, institutional or professional investors would tend to be more sensitive to expected return differentials, with both a larger turnover and a bigger impact in terms of price action its correlation across markets and with respect to economic fundamentals. Global mutual funds are a case in point in this regard. While, as a subset of cross-border holdings, they are generally a poorer proxy than other more comprehensive measures, they may shed some additional light on the role of the international investor as a financial transmission channel. To the extent that these funds tend to keep close to their benchmarks, they may introduce an additional source of market co-movement, particularly in the event of sharp swings in global risk aversion (when contributions and redemptions lead to purchases and sales in all markets at the same time).[11]As can be seen, global funds' assets under management (AUM) and flows display a tight correlation once time trends are filtered out (**Figure 5c**). Moreover, initial AUM exhibits a strong explanatory power for its current flows (stronger than LMF measures for BoP flows), as shown in columns 7to 10 of **Table 2**.

IV. Financial globalization at a glance: Preliminary score

From the previous discussion, it follows that the characterization of FG is complex and prone to potentially misleading simplifications, and cannot be summarized by the standard de facto measures. Because of that, the cross-country evolution of FG and its implications is best characterized by comparing and discussing alternative FG proxies. Specifically, in this paper we look at four different sources: (i) Lane and Milesi-Ferretti's (2007) yearly dataset of cross border asset and liability holdings (by country, based on adjusted Balance of Payments data); (ii) the US Treasury's TIC monthly survey data on the market value of sales and purchases, and stock holdings of foreign securities by US-domiciled investors (by the market where the security is issued); (iii) capital flows from the IMF's Balance of Payments Statistics; and (iv) EPFR's monthly data on global fund flows and assets under management (AUM) (by issuing country).

[11] Anecdotal evidence suggests that herd behavior may also be present, albeit for different reasons, in the hedge fund industry, where the trades of a few leader funds may be emulated by others, stretching speculative positions and potentially amplifying the reversals. However, data on country-specific holdings and flows by hedge funds are not available to corroborate this hypothesis.

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

- **There is much less FG in EM than is usually thought.** More precisely, FG-to-GDP ratios in EM lag those in advanced economies. Moreover, when normalized by the (growing) size of domestic markets, FG both in EM and advance countries have remained relatively stable in the past ten years. Thus, one can conclude that FG in both cases has largely mirrored the relative dynamism of local markets. On the 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 EM masks valuation effects due to local asset inflation (in particular, the equity boom prior to the 2008 crisis).
- **FG in EM is still dominated by FDI**, unlike in advance economies where debt securities still account for the larger part of cross border holdings –although equity flows have been gradually taking over debt flows as their main portfolio vehicle, especially in Latin America where debt liabilities declined markedly due to sovereign deleveraging.
- **Portfolio diversification in EM is still very limited, and has been declining over time**. Indeed, there seems to be no correlation between traditional measures of FG and the degree to which EM residents diversify into international securities.
- **There is a significant correlation between liability holdings and the corresponding flows**, particularly for FDI and equity instruments, which suggests that, while not interchangeable, larger stocks lead to larger flows –a link relevant to the discussion of FG and financial stability below.
- **There is little (if any) correlation between de jure and de facto measures.** While this does not come as a surprise, it warns us that they represent different economic aspects and, at the very least, they should not be used interchangeably. It also motivates our focus on de facto FG in the rest of the paper.

3. Why do we care about financial globalization?

Conventional wisdom tells us that FG, by attracting sophisticated investors and considerable liquidity, should foster the development of domestic financial markets.[12] However, on the other hand, 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 GDP ratios have been on the rise for most EM, FG marcap ratios have remained relatively stable. Are the former (the key exhibit behind the conventional view of the ever rising FG 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 what follows we revisit the causes and consequences of FG from an empirical perspective.

[12] See, e.g., Mishkin (2007) and Kose et al. (2010).

I. Does FG foster financial depth?

The drivers of financial globalization have not received much attention despite the increase in financial integration in the last two decades. Many studies acknowledge the link between trade and financial openness in the one hand, and financial integration with domestic financial development on the other, illustrated in a simple way in **Figure 6**. 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 leads to more FG in the equity market, as opposed to FG in general)? How do these links vary across different group of countries? Finally and perhaps more importantly: Does financial development causes financial globalization or the other way around?

One can think of a number of portfolio considerations 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 (the more so, the les correlated national markets are). But there are a number of aspects (which can be broadly grouped as *transaction costs*) that are not included in the asset price quote but may end up being more relevant than attractive yields or hedging benefits. This 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 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 (due, e.g., to enhanced fiscal solvency) currency risk (due, e.g., to a balanced of long currency position and a reduced tail risk of a sharp currency run), local markets may fail to fully develop scale until…they gain a minimum scale. This rather circular logic highlights 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?

To shed light on the complex –and possibly bi-directional –connection between financial development and FG, we first build on work by Lane and Milessi-Ferretti (2008) on the drivers of FG, which reports a positive cross-country correlation between their measure of FG (foreign asset + foreign liabilities over GDP) and financial development (proxied by bank deposits and stock market capitalization to GDP), for a sample of EM and advanced markets (AM). We extend their exercise to the period 1995-2007 (the latest year for which LMF is available), include FM in the sample, and run panel regressions for FG as a whole and broken down into equity, debt and FDI, In addition, we include time dummies to capture common factors such as

global liquidity and risk aversion, and fund reallocations relative to core markets,[13] and GDP per capita, as a broad proxy for economic (and domestic financial) development.[14]

Last, but not least, the way in which FG 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), rather than the standard FG measure used in the original paper. While the literature that looks at the globalization-financial development link often treats foreign assets and liabilities similarly (as in the standard LMF´s FG measure), there is in principle no reason why capital *outflows* should be *positively* related with local market development. By the same token, a deep *equity* market should attract *equity* flows but not necessarily other unrelated flows. As expected, there connection between the depth of the local market and foreign investment is stronger when we focus on a single market (as we do for equities in **Figure 7**).

The regression results, reported in **Table 3**for a sample of EM equity markets, show a closer link between local stock market development 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 FG is weaker for cross-country 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 FG (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 a deep domestic equity market is strongly linked to more FG in the equity market, as opposed to FG in general.

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 rather the latter that fosters the deepening of domestic markets? The connection from FG to domestic financial markets have been noted by Rajan and Zingales (2003), who emphasize the impact of FG and trade liberalization on the size of the domestic financial sector. In the same direction, Baltagi, Demetriades and Law (2008) estimate dynamic GMM with internal instruments to argue that both FG 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 (2008), we

[13] See the Appendix for a detailed list. AM are the 28 advanced countries used in Lane and Milesi-Ferretti (2008). All variables are lagged and included in logs, except capital account openness.

[14] As LMF 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.

[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.

estimate a GMM, albeit with a few changes. We focus on the more homogeneous EM group, and compute, for each country-year, equity FG averages excluding its own ratio, as an external instrument –the assumption being that FG, which is highly correlated across EM (the median correlation between individual Equity Liability holdings and their EM group aggregates is 0.86) can only affect financial development in the host country.[17] The results indicate that equity inflows indeed appear to foster the deepening of the equity market (columns 7 and 8 of **Table 3**). What can we conclude from this preliminary evidence? While foreign capital does seem to flow to larger, deeper markets, there is at least some indicative evidence that it also has contributed to develop the corresponding local market. For example, growing foreign holdings of EM equity (rather than broader measures of FG) led to growing EM equity markets. Ultimately, in this regard, foreign capital is no different than the domestic one, both attracted and attracting liquidity to the market place.

II. FG and international risk sharing

In past theoretical research studies, the implications about financial integration and macroeconomic volatility are clear: countries with greater FG 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, a 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. Furthermore, 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 et al. (2007) analyze output and consumption growth rates, and their volatilities, for the period 1960-2004, and finds little evidence on a beneficial effect from FG 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:

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

where $c_{it}\,(y_{it})$ is the PPP-measured per capita consumption (GDP), C_t (Y_t) is the world per capita consumption (GDP).[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

[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.

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

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 FG on international risk, they estimate,

$$\Delta \log(c_{it}) - \Delta \log(C_t) =$$

$$\alpha + \mu(\Delta \log(y_{it}) - \Delta \log(Y_t)) + \lambda FG_i(\Delta \log(y_{it}) - \Delta \log(Y_t)) + \epsilon_{it} \qquad (2)$$

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 FG. 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 FG improves risk sharing only for the late period (1987-2004), the one most closely associated with an advance in FG, and for advanced economies.[19]

The data does 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 MFI, the volatility of consumption growth relative to that of output have increased in the last decades, while it has decreased for LFI.

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 2000-2007), across our selected country groups. The statistics indicate that, in recent years, output volatility and economic growth seem to have moved hand in hand. EM exhibits the highest output volatility, AM the lowest, and frontier markets (FM) lie in between.

Overall, the ratio of consumption over growth volatility ranks according to priors: the lower for presumably more financially integrated AM, followed by EM and FM. However, when, following Prassad et al. (2003), we divide the developing group (EM+FM) into More Financially Integrated (MFI) and Less Financially Integrated (LFI) economies (whether FG over GDP lies above or below the sample median), the link is much less clear: in contrast with LFI economies, MFI do not appear to have benefited from smoother consumption volatility –despite the marked decline in growth volatility.[20]

Figure 8 offers another glance at the same evidence. Following Bai and Zhang (2005), it asks whether the country-specific sensitivity of consumption to output growth (relative to global values, estimated based on annual data), increased in the 2000s relative to the 90s, as FG-to-GDP ratios rose. Sensitivities appear to have remained stubbornly close to one to one in the past two decades, contradicting the risk sharing argument.

[19]These results expand on previous findings by Kose et al. (2007) along the same lines, for the period 1960-1995.
[20] FG is measured here, as usual, as the sum of foreign assets and liabilities over GDP.

In order to measure the impact of FG on risk sharing more rigorously, we proceed in two steps. We first estimate, for the period 1995-2007, "consumption betas" country by country using (1). Next, we run a regression of estimated betas on alternative measures of FG.[21]The standard FG proxy appears negatively correlated with betas for the AM sample (**Figure 9**), but the link is not significant (and changes sign) for EM. [22]

Why this disappointing result? Kose et al. (2010) address and discard a number of potential explanations (measurement errors, country characteristics, FG composition), to propose two hypothesis: (i) a threshold effect, namely, the idea 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 AM), and (ii) the pro-cyclicality of capital flows in emerging markets, which in principle may offset the risk sharing benefits of FG.

While the first hypothesis is virtually impossible to verify, a casual look at the data suggests that a simple threshold cannot explain the whole story. The fact that emerging economies exhibit today levels of FG comparable to those exhibited by AM in the past begs the following question: Do developing countries with AM-level FG display a better risk sharing pattern? **Figure 10** shows consumption and GDP growth pairs within the developing group for the period 1995-2007, broken into high and low FG, according to whether or not the level of FG of a given pair lies within the AM range for the same period. As can be seen, the results, if anything, contradict the hypothesis: high FG pairs display higher consumption betas.

The second hypothesis is also hard to substantiate in the data. For starters, the diversification benefits of FG 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, capital flows pro-cyclicality 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 coauthors suggest, the recent shift away from pro-cyclical fixed income securities (most notably, bonded debt) to variable income vehicles (FDI and equity flows) should have mitigated capital flow pro-cyclicality in the recent period, which is at odds with the persistently high consumption betas found in recent data (**Figure 9**).

Here, we highlight two alternative reasons that, we believe, may explain why higher FG does not lead to a smoother consumption pattern. The first one is related to measurement considerations. If consumption smoothing is the result of a diversified portfolio, the standard FG 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 looking at increased

[21] Note that this is similar to allowing μ to vary across countries in Kose et al.´s panel estimation –and that their risk sharing measure for country i would equal to $1-b_i$..

[22]Using FDI holdings, or the sum of equity plus debt holdings, over GDP as FG proxies yields comparable results.

diversification when there is none. More generally, by looking only at the standard FG proxy, we miss domestic assets that typically represent the largest part of residents´ wealth.

Does our new measure of portfolio diversification (PD) fix the problem? Reassuringly, when in **Figure 10** we substitute PD for the standard FG-to-GDP measure, we indeed obtain a better fit and a negative slope for EM. Thus, while the use of PD 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 4**). 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 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 pattern, independent of portfolio composition and financial access, lies in the fact that financial assets tend to move very close to each other, 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 EM and global portfolio assets (Levy Yeyati, 2011).

Figure 12 illustrates the point: the share of the variability of returns explained by the first principal component (PC1)is large and has been growing larger over time (even before the 2008-2009 sell-off).[23]In turn, PC1 is highly correlated with global assets returns, as captured by the S&P 500 and MSCI equity indexes, and the spread on high yield US corporate debt (**Table 5**), indicating that most of the co-movement displayed by EM assets comes from global influences or globally synchronized shocks. In sum, even if residents in emerging economies were to diversify their portfolio internationally, the diversification gains would be limited by the growing co-movement with other EM or with AM, limiting in turn the impact of FG on their consumption pattern.

III. FG and global event risk: The test of the global financial crisis

If the benefits of FG in terms of international risk sharing and output and consumption smoothing are, at best, elusive, what about the tail risks of a global systemic shock? Does FG amplify the adverse impact of generalized external shocks in a situation where, no risk sharing is available? Do external crisis propagate more when the domestic economy is financially linked with the crisis epicenter?

[23] For the figure, we regress country-specific equity. FX and CDS spread changes on the PC1 constructed based on changes in the corresponding asset for all EM. Credit default swaps (CDS) spreads are used as a proxy for debt securities. Importantly, while the analysis in the figure is based on monthly returns, the co-movement also verifies (and often increases) for longer horizons.

The global financial crisis of 2008 offers a perfect event to evaluate this question empirically. Empirical views on the subject differ. On the other hand, analysts have found that richer countries (as measured by their per capita GDP) have fared worse than poorer ones (Claessens et al., 2010; Frankel and Savarelos 2010, Lane and Milesi-Ferretti 2010, Rose and Spiegel 2010). On the other, they found that middle-income economies suffered collapses comparable to those in high-income economies (Didier, Hevia and Schmukler, 2010).

Did FG play a role in the impact of the crisis? To answer this question, a good starting point is provided by Didier, Hevia and Schmukler (2010), who analyze both the correlation between the growth collapse and the subsequent recovery in different countries, and a few variables including FG proxies, based on a definition of growth collapse as the 2009 – 2007 growth differential.

We reproduce this exercise in **Figure 13**, where in addition we divide the sample into the three financial market categories used above: AM, EM, and FM. Interestingly, our EM sample (which differs significantly from the Middle Income one, in particular because of their higher degree of FG) appears to have done slightly *worse* than AM in terms of growth collapse. Moreover, as **Figure 14**seems to confirm, both in EM and –particularly– in AM, **the growth collapse seems to be have been negatively associated with FG** (greater FG leading to sharper drops in the growth rate).

The differential sensitivity to the global shock has been attributed to many factors other than FG, in particular, trade openness that may have been the main channel of contagion to the real economy. Moreover, even if the link between FG and growth collapse is robust to the inclusion of trade, it may well be capturing other variables, such as external debt, that can be more naturally linked with the economic response to a crisis tied to a global liquidity crunch.

In **Table 6**, we build on Didier, Hevia and Schmukler´s (2010) cross section regressions of growth collapses on financial integration to investigate these points. Results are rather mixed – not surprisingly, given the simultaneous, hard-to-identify effects of the many events surrounding the crisis period. The EM dummy appears negative (in line with **Figure 13**), and so does the standard FG proxy, but significance is poor. But it is the stock of foreign debt liabilities that explains the association with a harder collapse. While any conclusion from a test based on a cross section of observations corresponding to a period populated with so many simultaneous systemic shocks is bound to be taken with caution, it appears that FG played, if anything, a neutral role in the output response to the global crisis, beyond its correlation with hard-currency liquidity needs of liquidity-constrained, heavily indebted countries.

4. Final remarks

Perhaps the main take away from the previous empirical examination of FG is its most pedestrian finding: for all the market and media hype about the increasing globalization of emerging economies, **financial globalization in the emerging world appears to have been vastly overstated**. Rather than growing in the 1990s and 2000s as usually argued based on standard GDP ratios, de facto globalization have accompanied (and, to some extent, supported) a more secular process of financial deepening (in EM and elsewhere), temporarily slowed down by the recent global crisis. More precisely, once measured in a way that minimize the various biases that plagued the most popular empirical proxies, FG in EM looks rather stable, and well below advance country levels.

This finding is critical for an FG debate that often investigates its causes and consequences starting from the debatable premise that FG 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 2000s.[24]

Importantly, FG levels may have been further overstated by measurement problems, since part of the offshored financial intermediation of developing country residents is often reported as foreign, both because of the domicile of the investment vehicles (e.g., global funds and ETFs) and because of tax evasion (which cause residents to misreport transactions booked in financial centers).

That said, it is true that the ratio of foreign liabilities *over GDP* has been on the rise, and that the current enthusiasm for EM continues to elicit overweight portfolio positions from benchmarked investors, plus an increasingly active speculative turnover, all of which opens the question of whether cross-border holdings –particularly, easy-to-unwind foreign portfolio liabilities– are good or bad or, more generally, should be taken by policy makers as a source of concern. However, low and stable levels of FG, coupled with measurement limitations and the short time span of relevant FG data for EM, advises to take any normative conclusion with a grain of salt.

[24]This is particularly so for emerging Latin America, where FG lags those in their emerging peers, and have come down in the 2000s reflecting in part the sovereign de-leveraging trend in the region.

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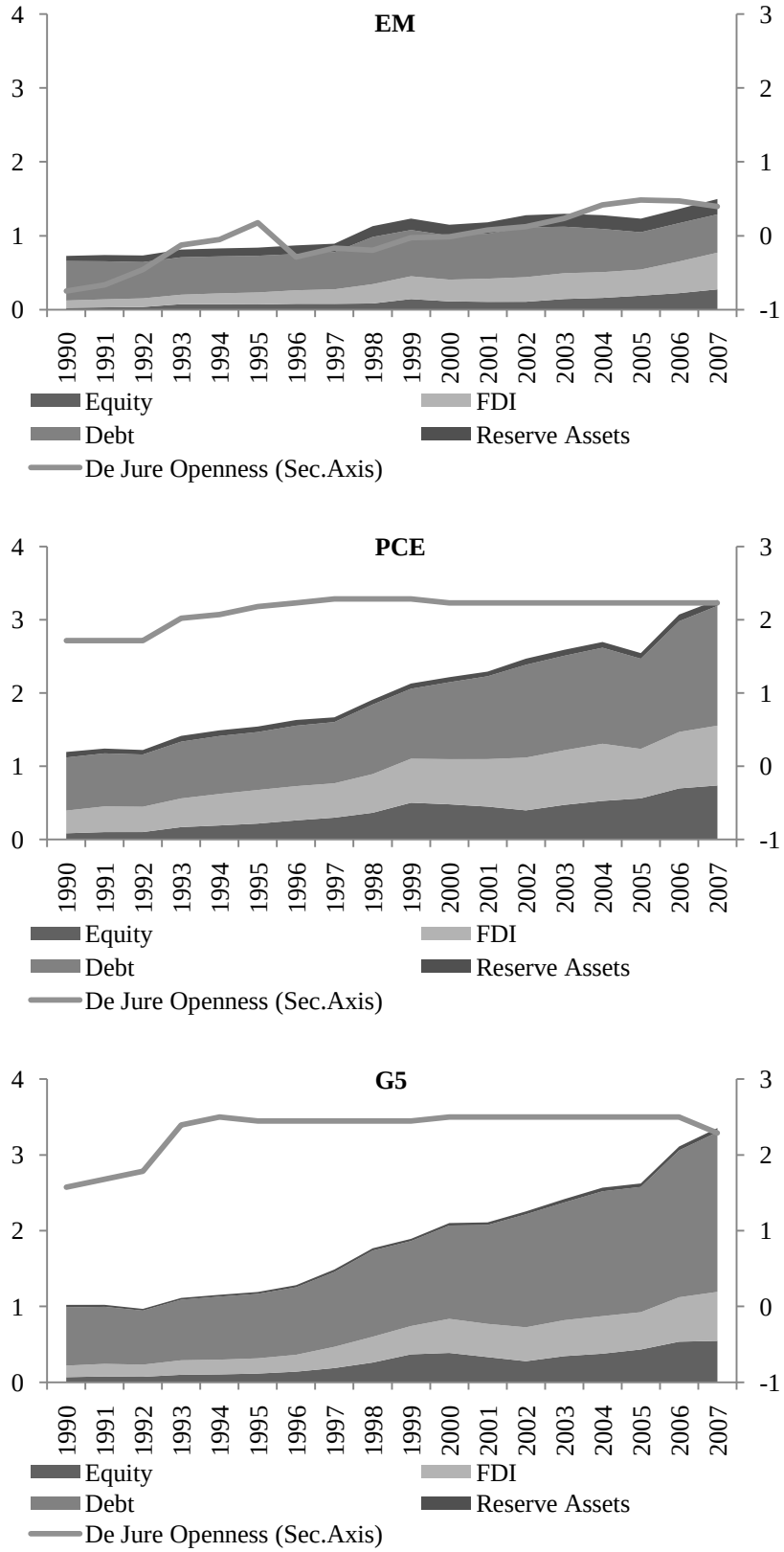
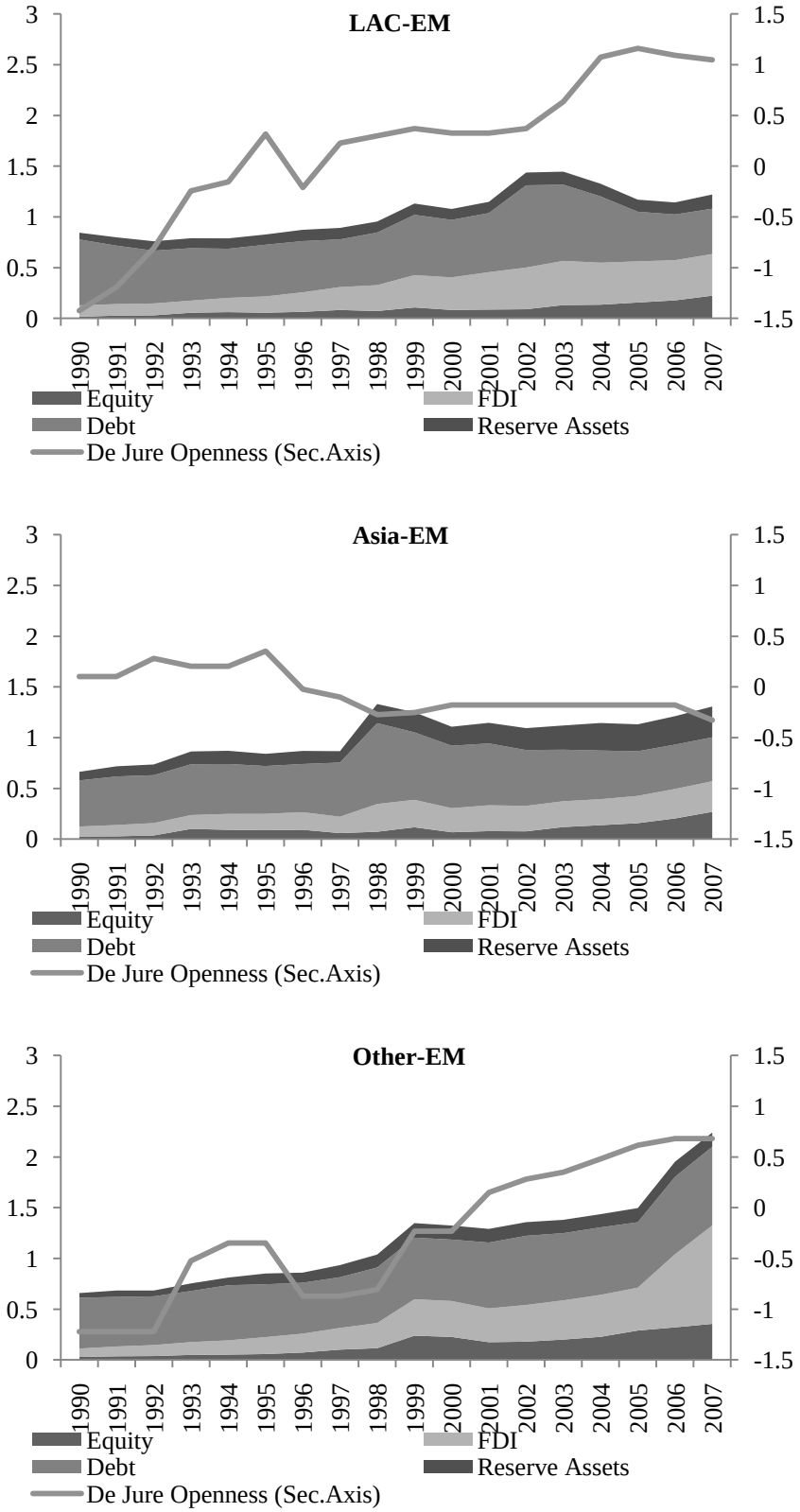
Figure 1a. FG measures: EM vs. others



Note: The figure shows country group averages of de facto FG over GDP and CI ´s measure of de jure FG. Only countries with complete data from 1990 to 2007 were used. Source: LMF (2008), WDI, CI (2008).

Figure 1b. FG measures: Within EM



Note: The figure shows country group averages of de facto FG over GDP and CI ´s measure of de jure FG. Only countries with complete data from 1990 to 2007 were used. Source: LMF (2008), WDI, CI (2008) .

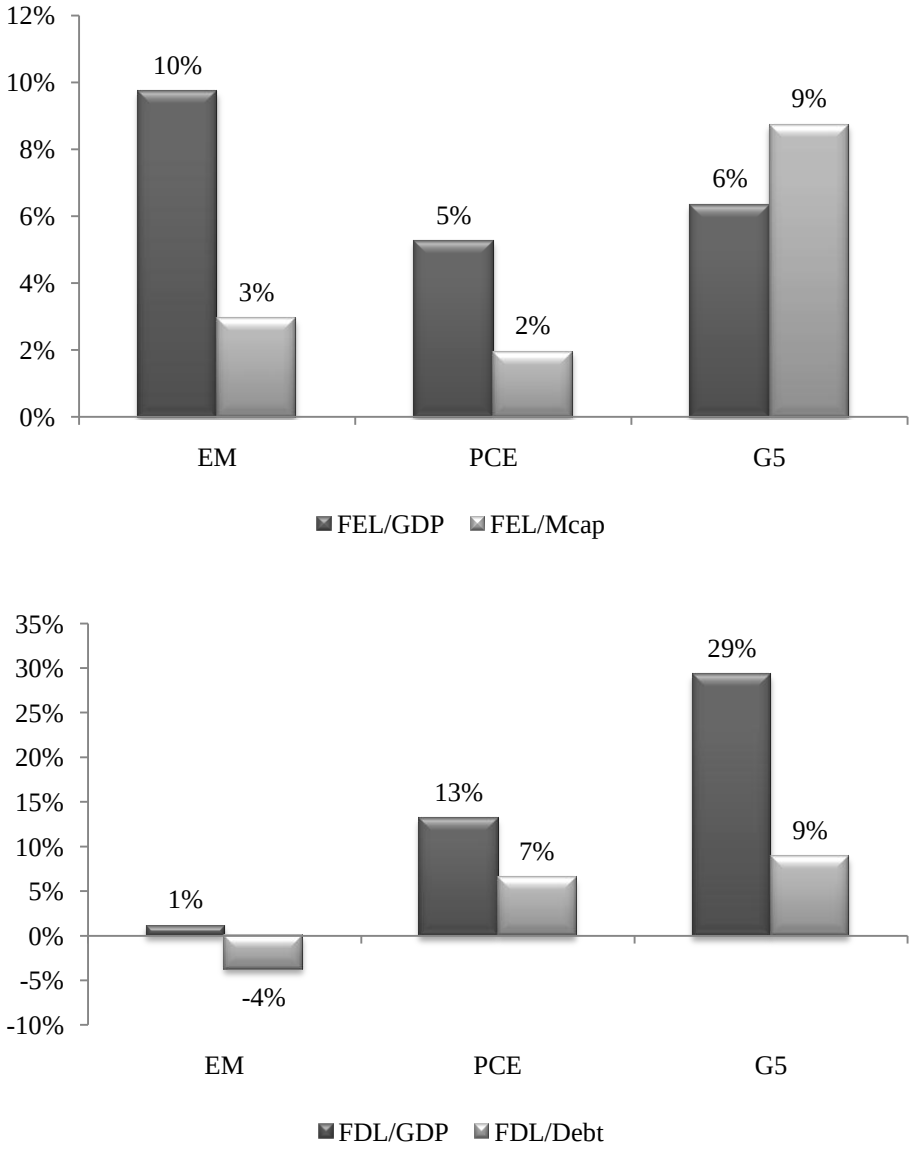
Figure 2a. From 1999 to 2007: EM vs. others

Note: The figure presents changes of de facto FG over GDP. The country sample is the same as in F1a. Changes are from 1999 to 2007. Source: LMF (2008), WDI.

Figure 2b. From 1999 to 2007: Within EM

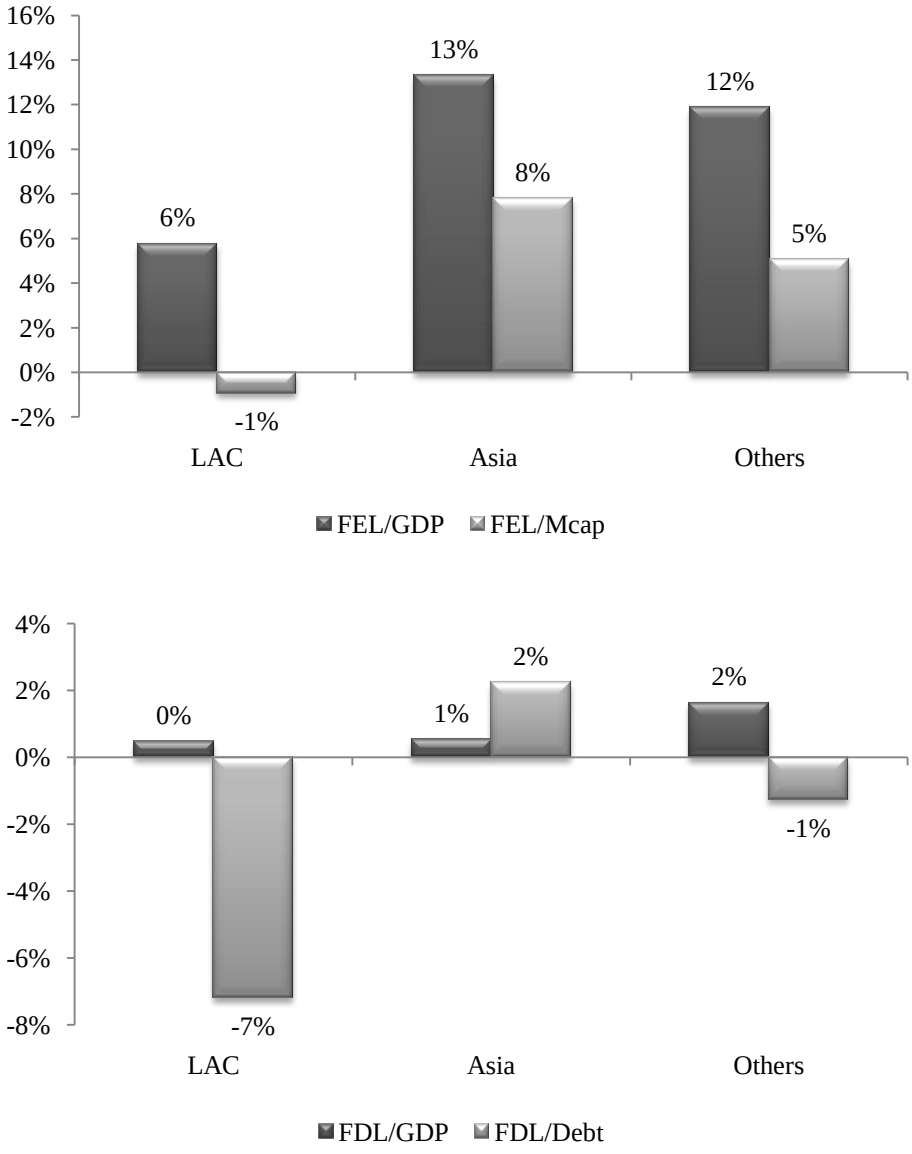
Note: The figure presents changes of de facto FG over GDP. The country sample is the same as in F1b. Changes are from 1999 to 2007. Source: LMF (2008), WDI.

Figure 3a. FG and different normalizations: EM vs. others



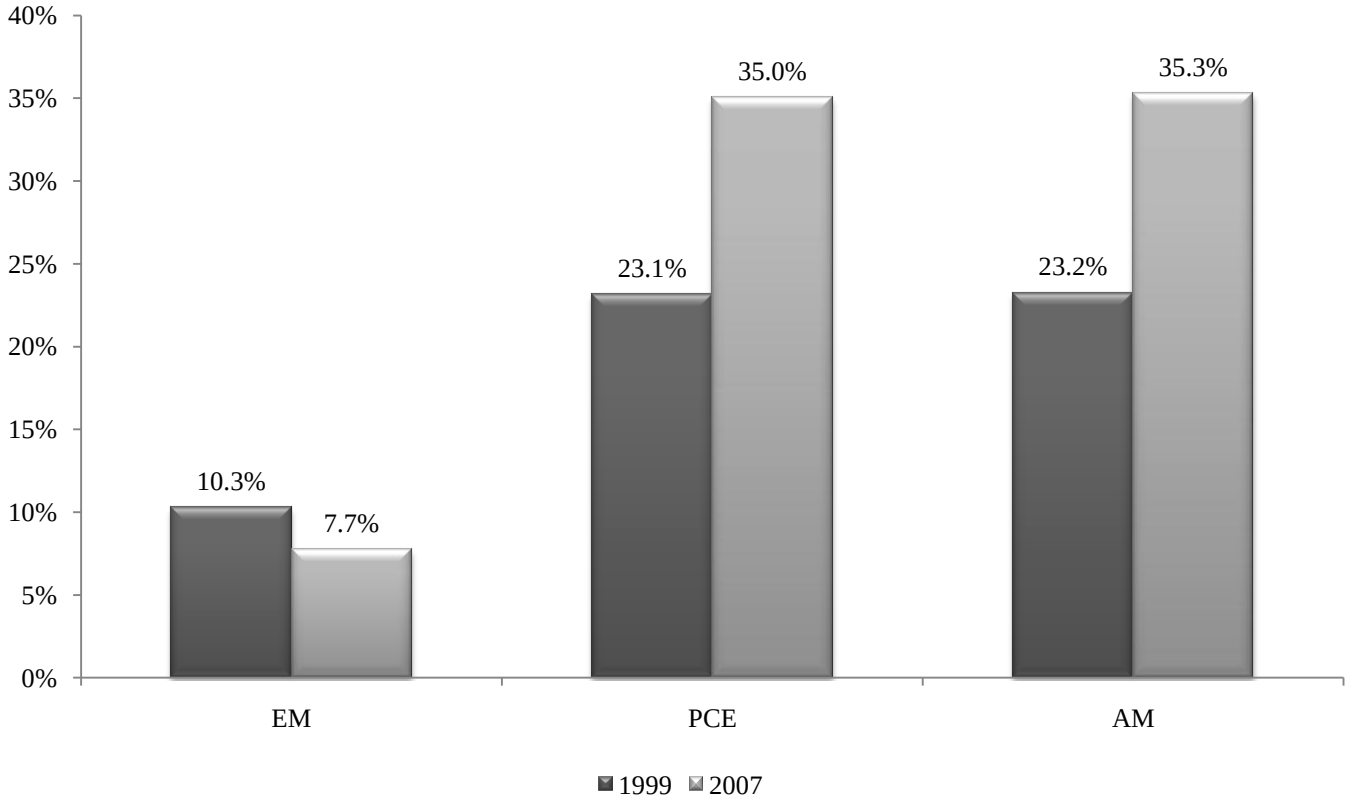
Note: The figure presents changes in foreign equity/debt liabilities divided by GDP or the corresponding market capitalization. Changes are from 1999 to 2007. Source: LMF (2008), WDI, BIS.

Figure 3b. FG and different normalizations: Within EM



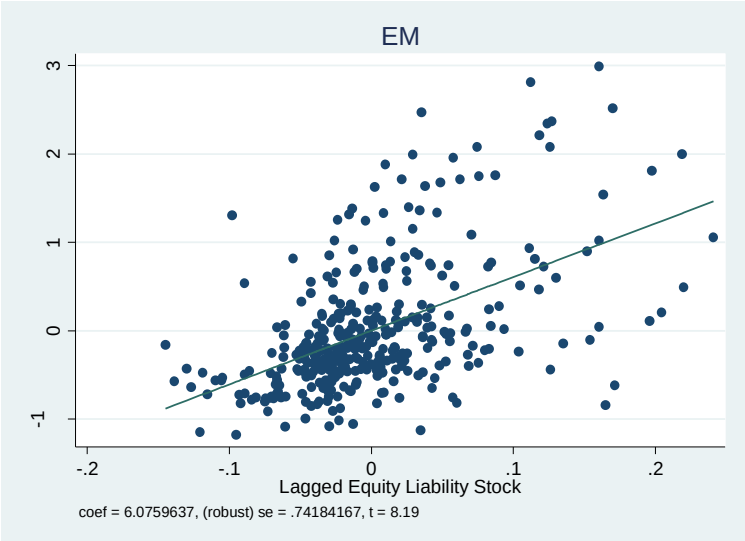
Note: The figure presents changes foreign equity and debt liabilities divided by GDP or the corresponding market capitalization. Changes are from 1999 to 2007. Source: LMF (2008), WDI, BIS.

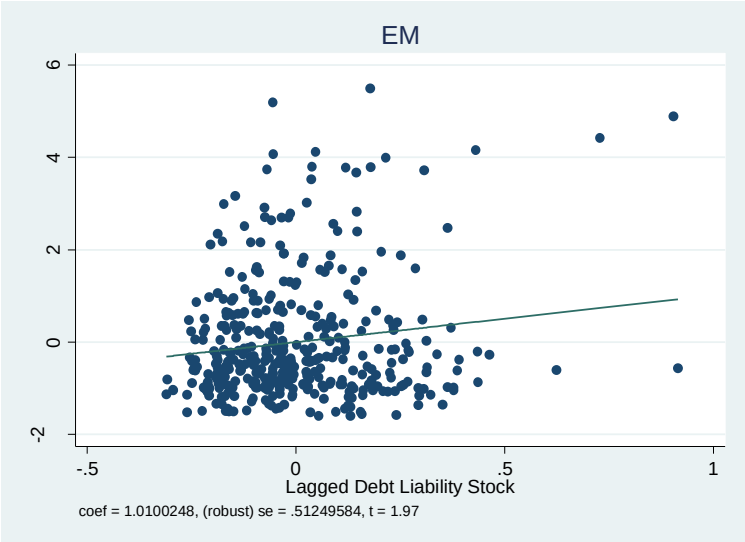
Figure 4. Portfolio Diversification

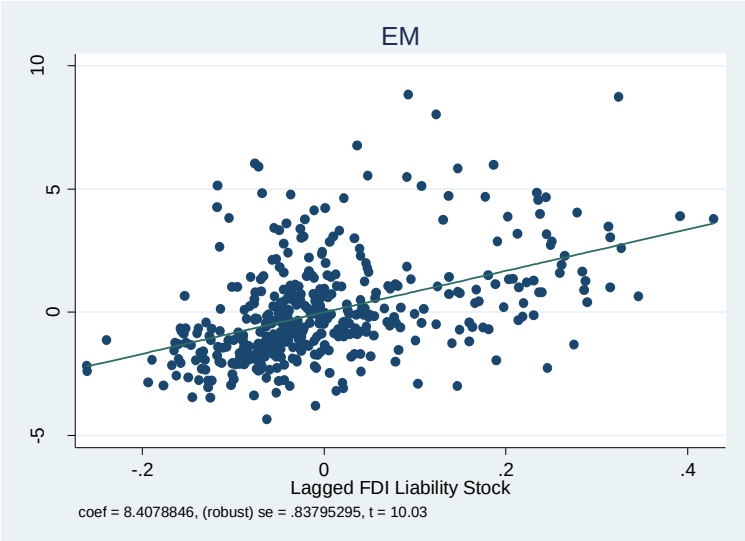


Note: The figure shows level of portfolio diversification (PD) in 1999 and 2007. PD is measured as (FEA+FDA)/(NFEA+NFDA+Mcap+Total Debt). FEA is foreign equity assets, FDA is foreign debt assets, NFEA is net foreign equity assets and NFDA is net foreign debt assets. Source: LMF (2008), WDI, BIS.

Figure 5a. Initial Holdings and Flows by different instruments: EM

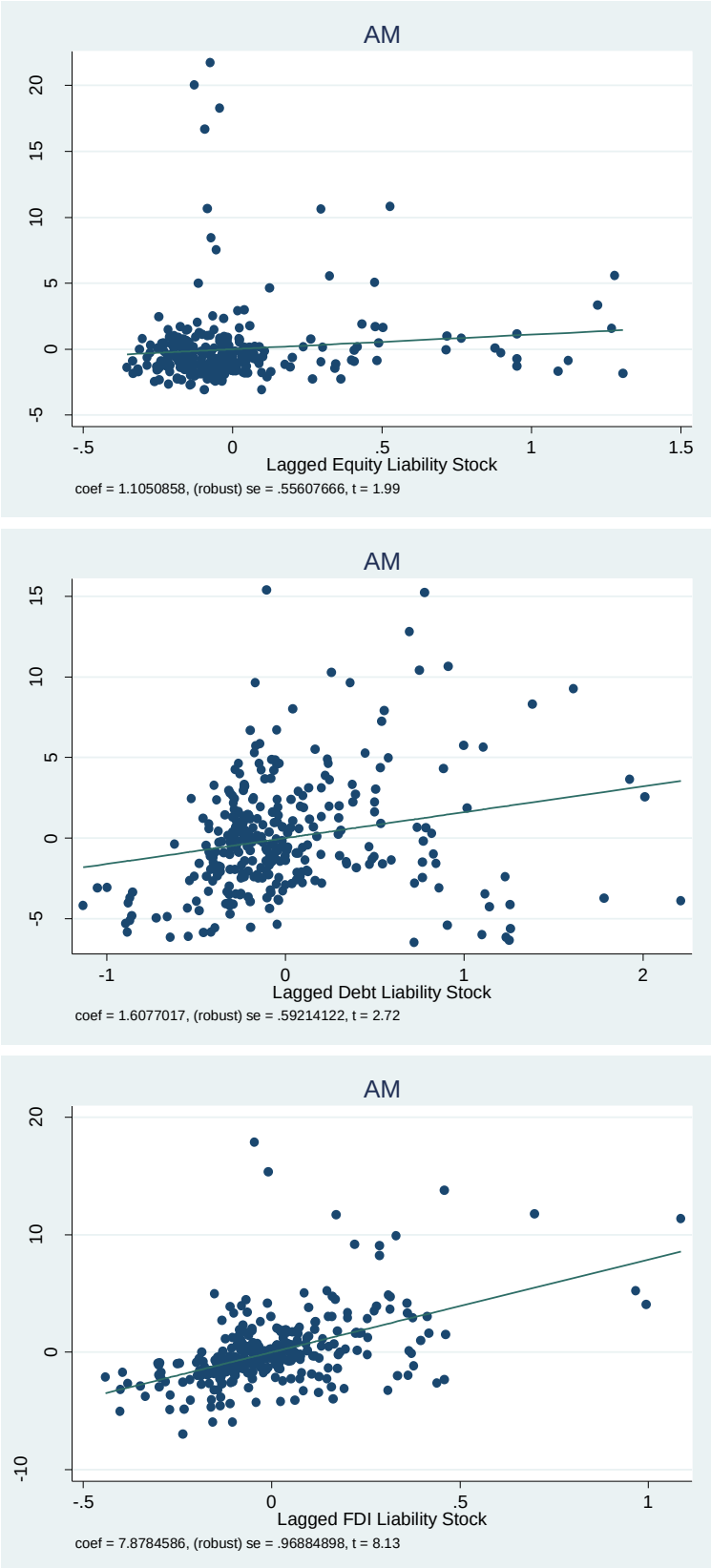






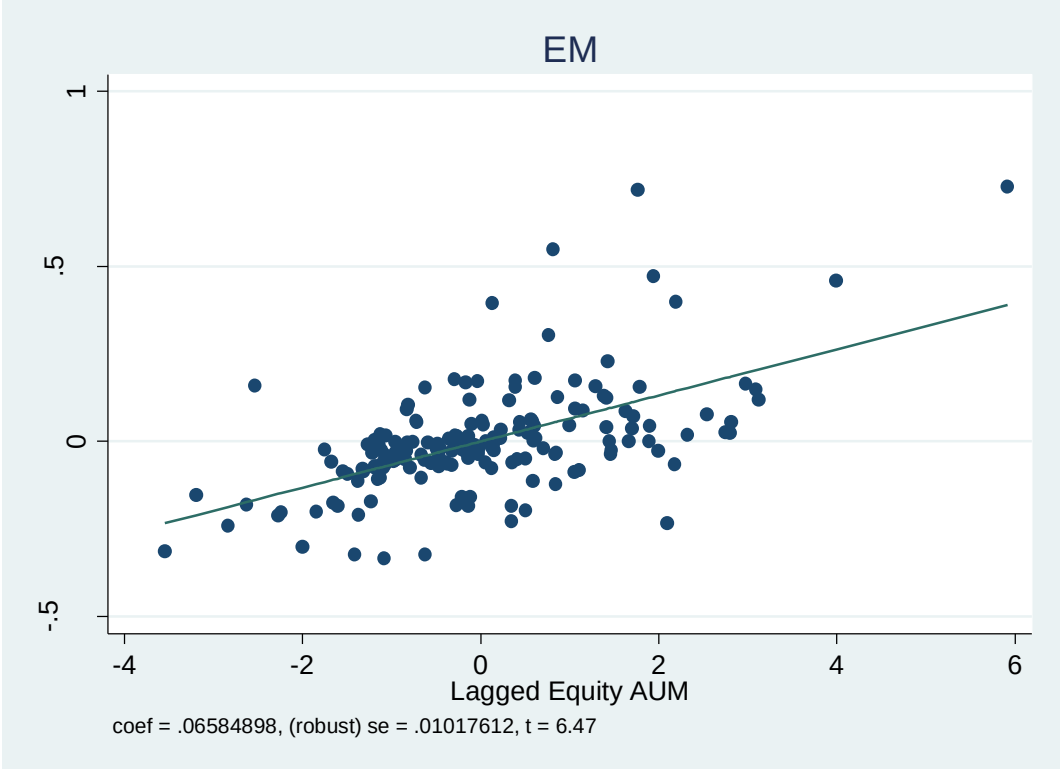
Note: The figures shows partial regression plots from estimations of abs(flows) vs. end-of-last-period FG holdings for different instruments (equity, debt, FDI). Time dummies and de jure capital account openness were included in the regressions as additional controls. Source: LMF (2008), BoP IMF IFS, WDI, CI (2008).

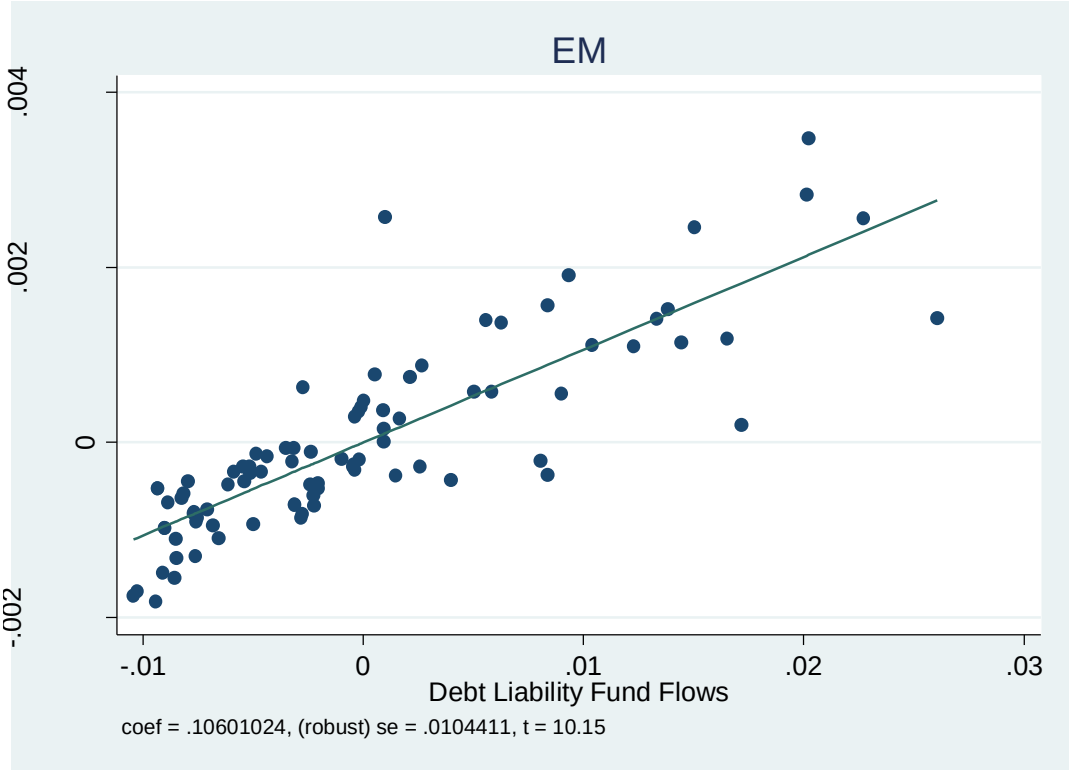
Figure 5b. Initial Holdings and Flows by different instruments: AM



Note: The figure shows partial regression plots from estimations of abs(flows) vs. lagged FG holdings for different instruments (equity, debt, FDI). Time dummies and de jure capital account openness were included as additional controls in the regressions. Source: LMF (2008), BoP IMF IFS, WDI, CI (2008) .

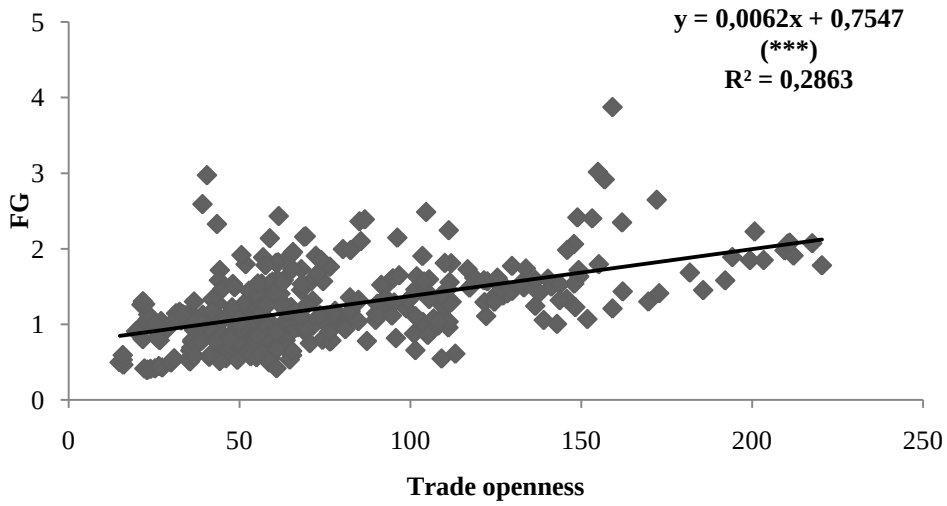
Figure 5c. Initial Holdings and flows: Global Funds



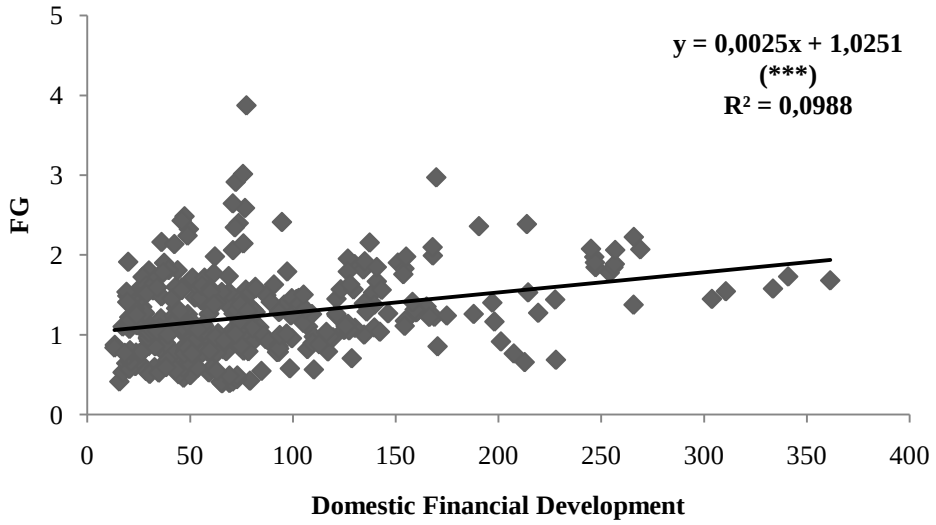


Note: The figure shows partial regression plots from estimations of abs(flows) vs. lagged FG holdings. Time dummies and de jure capital account openness were included as additional controls in the regressions. Source: LMF (2008), BoP IMF IFS, WDI, CI (2008) , Barclays Capital.

Figure 6. FG, trade and financial development: First glimpse

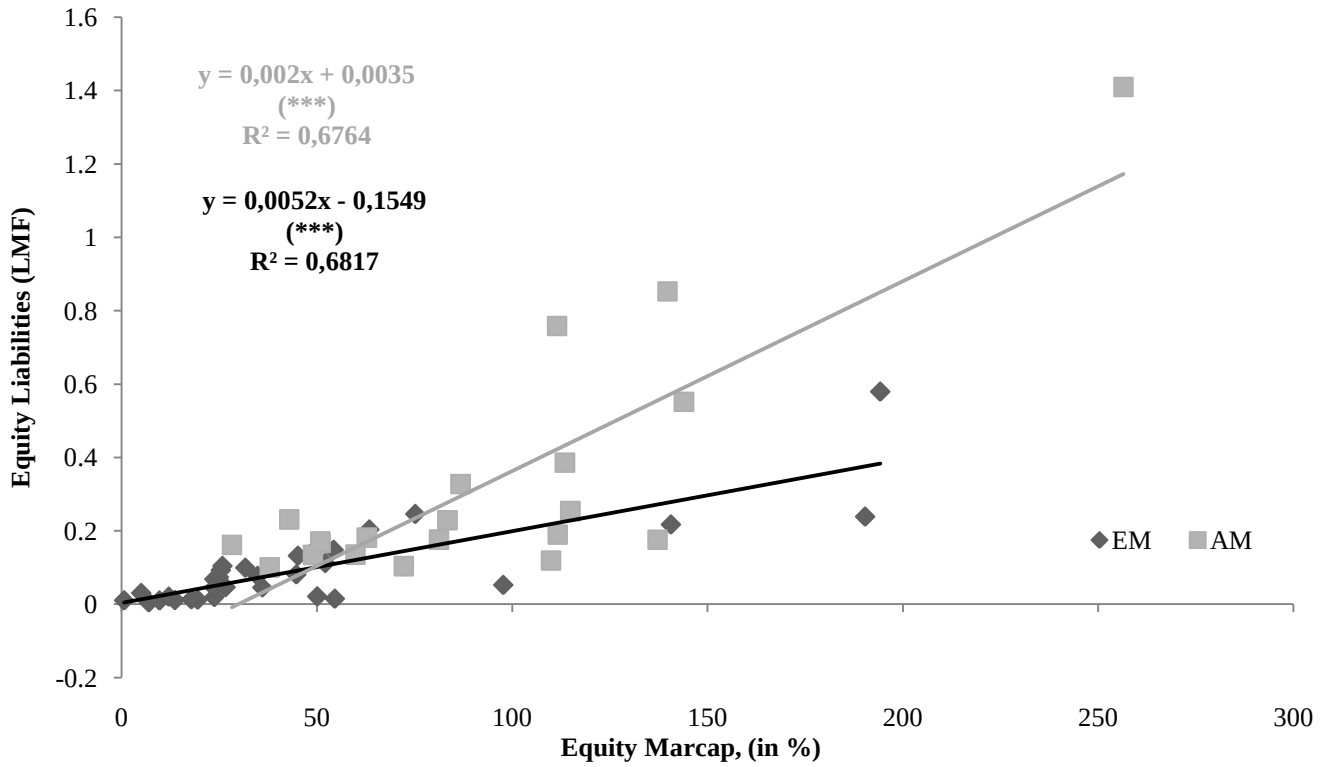


Note: The figure plots de facto FG (measured as is sum of stock of foreign assets and liabilities over GDP against trade openness (measured as exports plus imports over GDP).. The sample comprises EM countries with data available from 1995-2007 excluding Singapore. (***) denotes that the slope of the simple regression is significant at a 1% level. Source: WDI and LMF (2008).



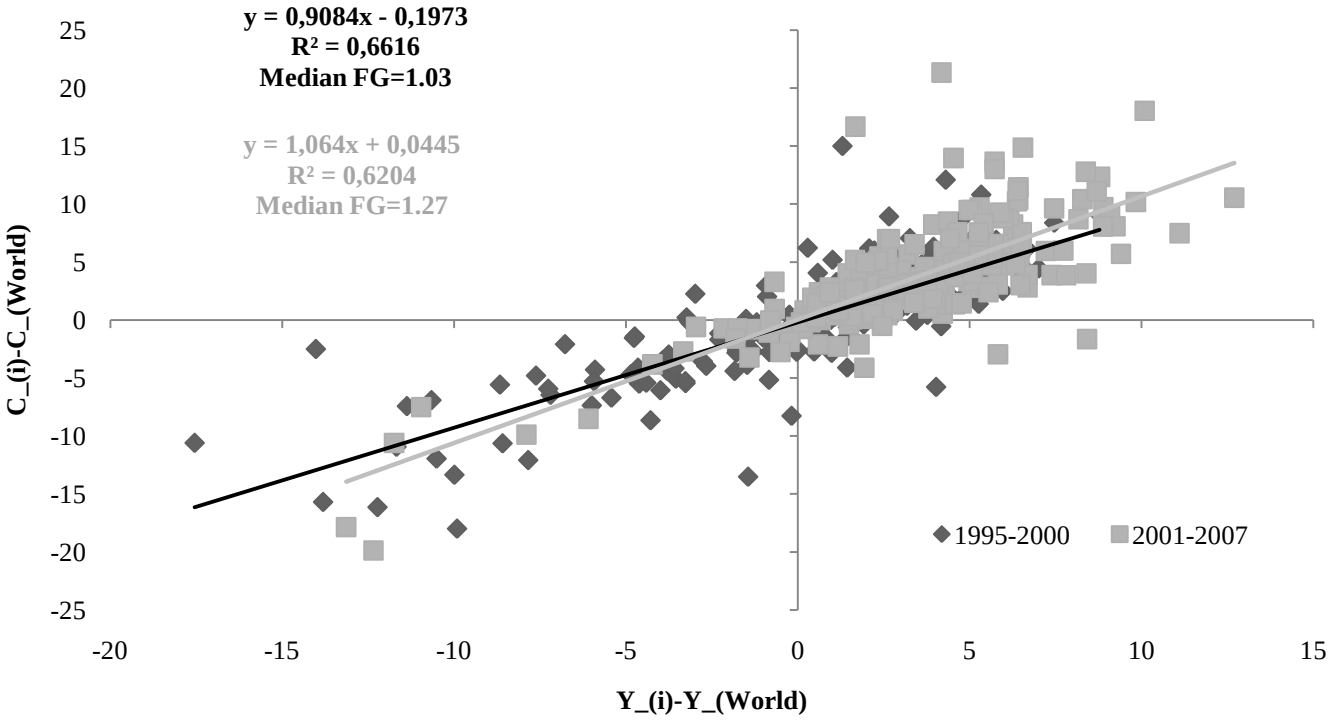
Note: The figure plots de facto FG (measured as is sum of stock of foreign assets and liabilities over GDP) against domestic financial development (measured as the sum of bank deposits and equity marcap over GDP). The sample comprises EM countries with data available from 1995-2007 excluding Singapore. (***) denotes that the slope of the simple regression is significant at a 1% level. Source: WDI and LMF (2008).

Figure 7. Domestic Financial Development and FG: Equity Markets



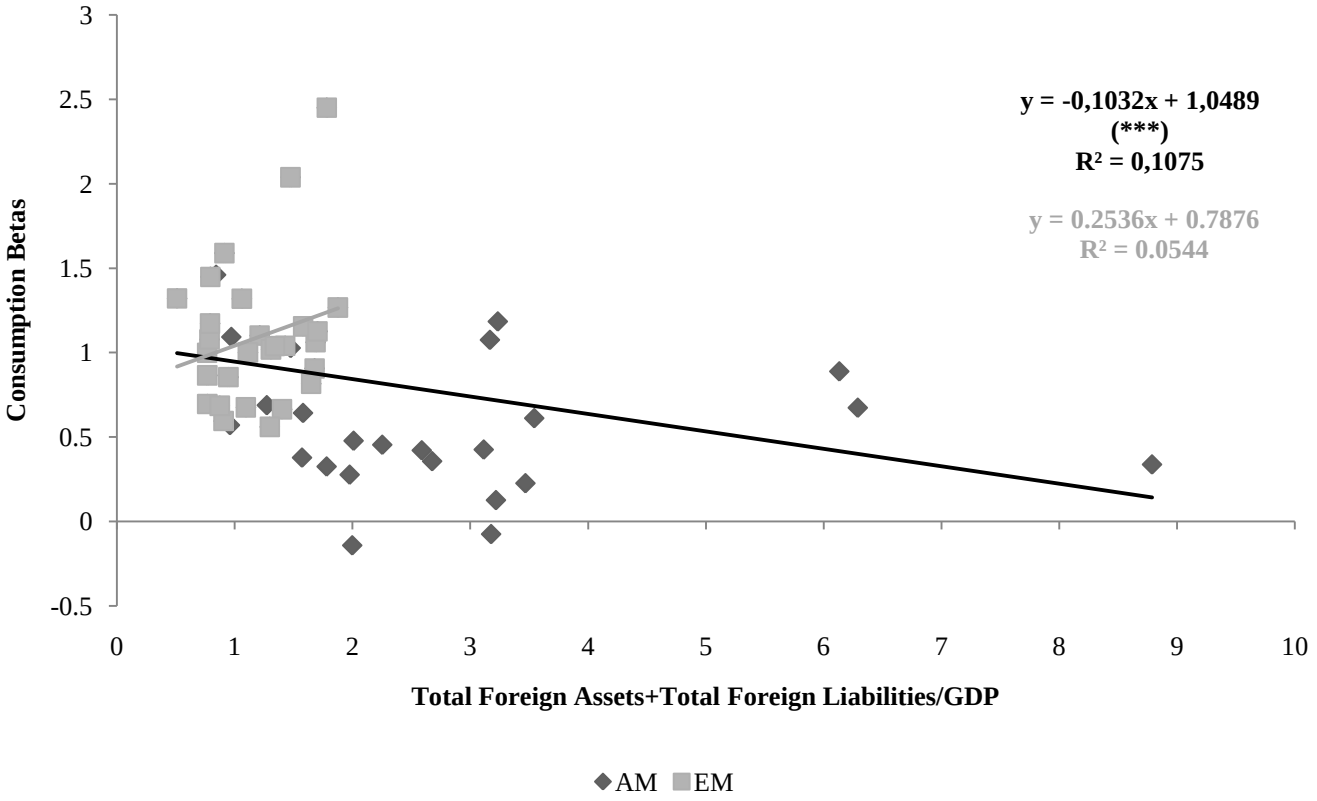
Note: The figure plots foreign equity liabilities over GDP against equity market capitalization over GDP . (***) denotes significance at the 1% level.
Source: LMF (2008), WDI.

Figure 8. Risk Sharing and FG



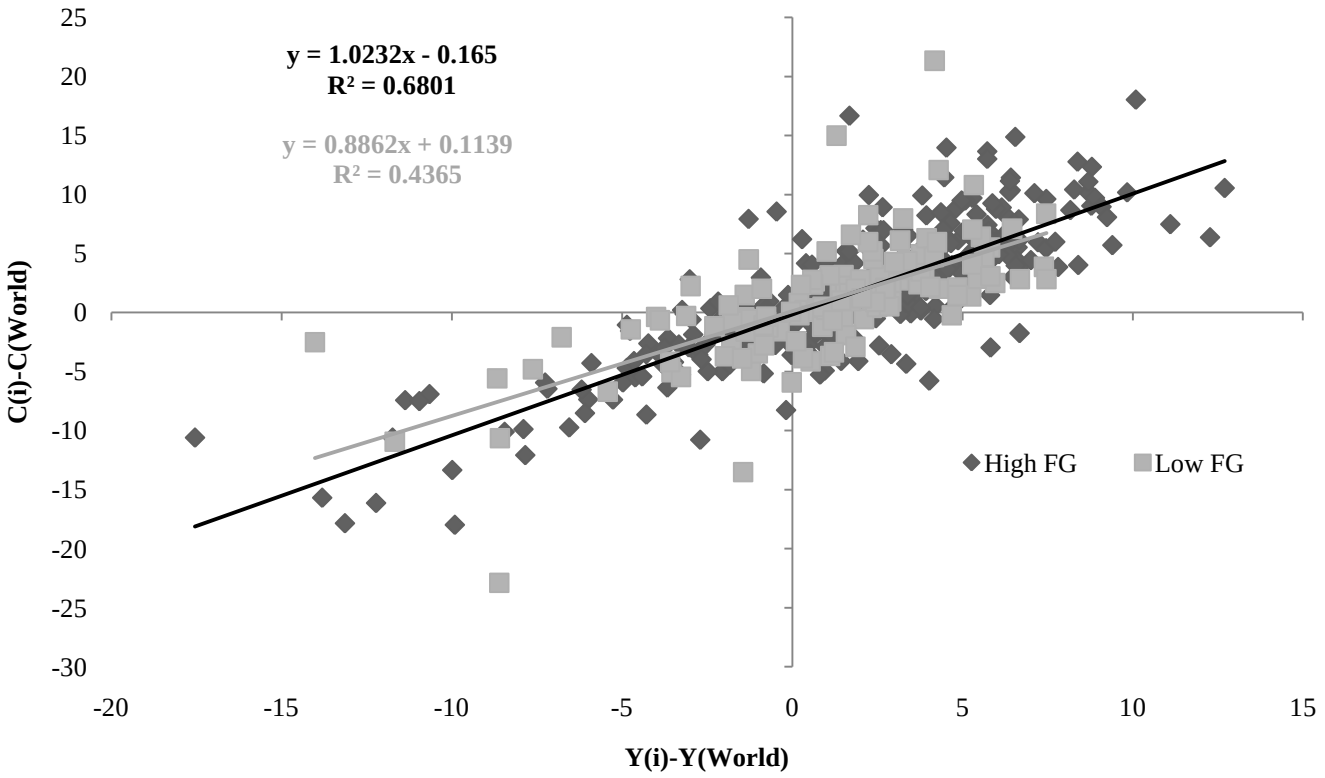
Note: The figure plots per capita consumption against output growth. X_(i)-X_(World) refers to the domestic variable minus the world variable. C, and Y represent consumption and output growth per capita. FG is the ratio of the sum of foreign assets and liabilities to GDP. Source: WDI, LMF (2008)

Figure 9. Risk Sharing: Consumption betas vs. FG



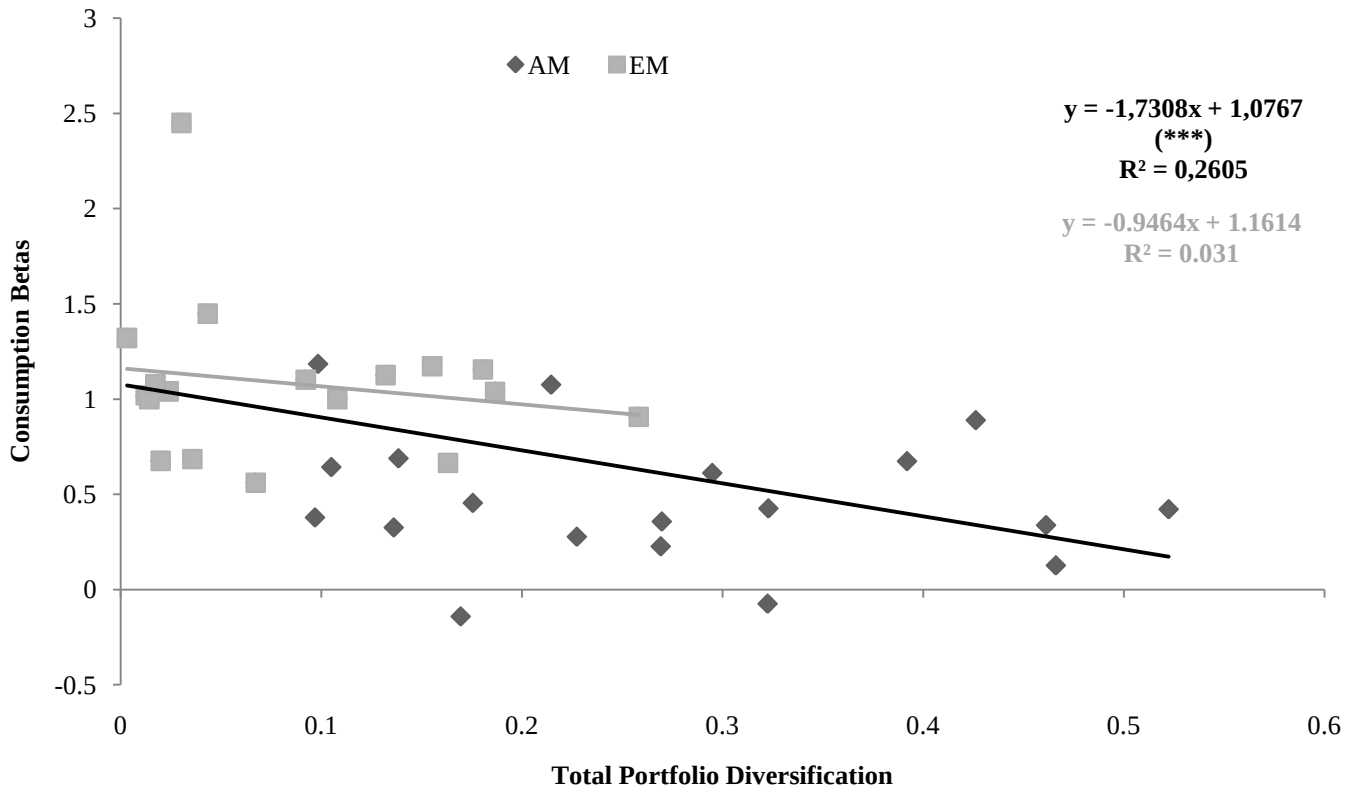
Note: The figure presents a scatter plot of consumption betas as measured by the slope of c_(i)-c_(World) to y_(i)-y_(World) vs. FG/GDP. C and Y represent consumption and output growth per capita respectively. *** denotes significance at the 1% level. Source: LMF (2008), WDI.

Figure 10.The higher FG the greater risk sharing?



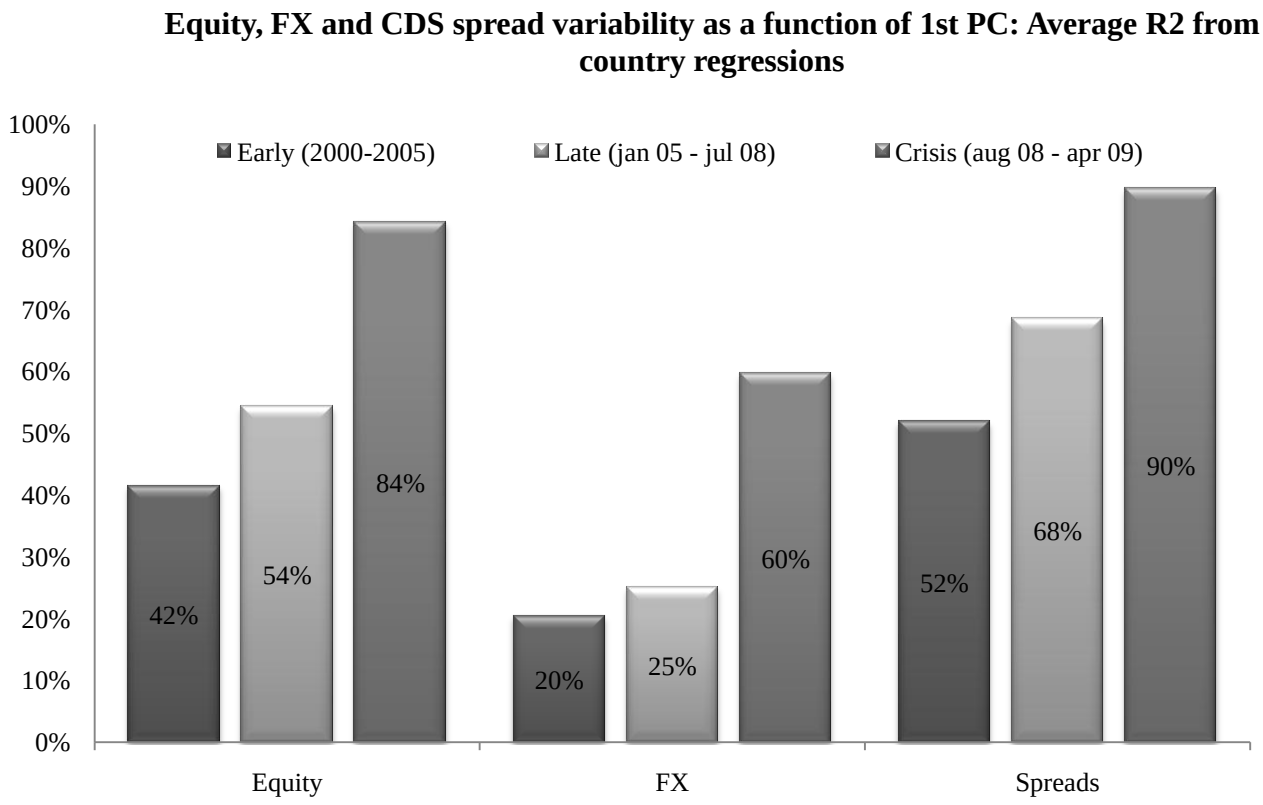
Note: The figure plots consumption against per capita output growth in countries with high and low financial globalization. X_(i)-X_(World) refers to the domestic variable minus world variable. C, and Y represent consumption and per capita output growth. The sample comprises all developing countries. High and low FG is determined by the lower bound of FG in advanced markets sample. If a country is above that lower bound, it belongs to the high FG group. FG is the sum of total assets and liabilities over GDP. Source: WDI, LMF (2008)

Figure 11. Risk Sharing and Portfolio Diversification



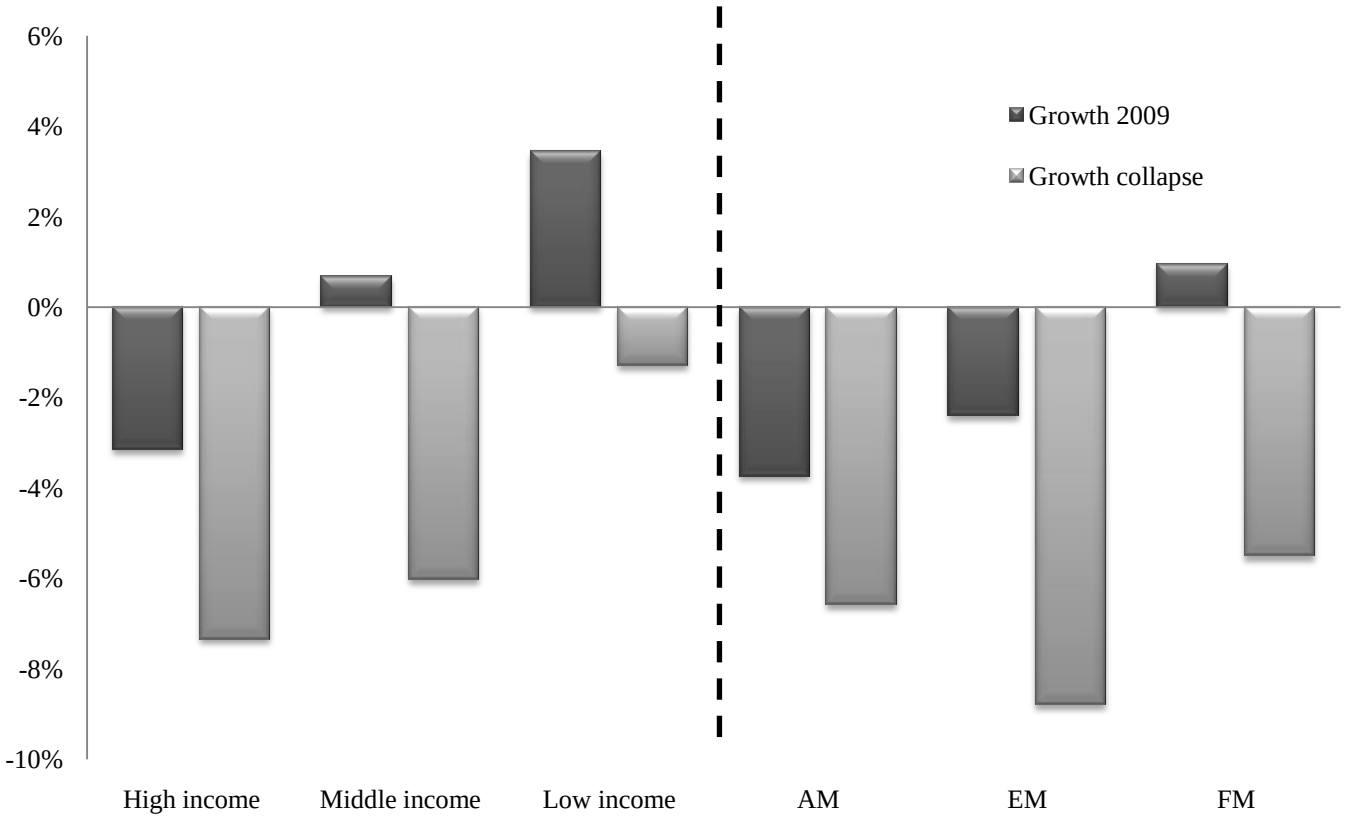
Note: The figure plot consumption betas (measured by the slope of c_(i)-c_(World) to y_(i)-y_(World)) against portfolio diversification (as measured in Figure 4). C and Y represent consumption and output growth per capita respectively. *** denotes significance at the 1% level. Source: LMF (2008), WDI.

Figure 12. Financial recoupling in EM: Across Assets



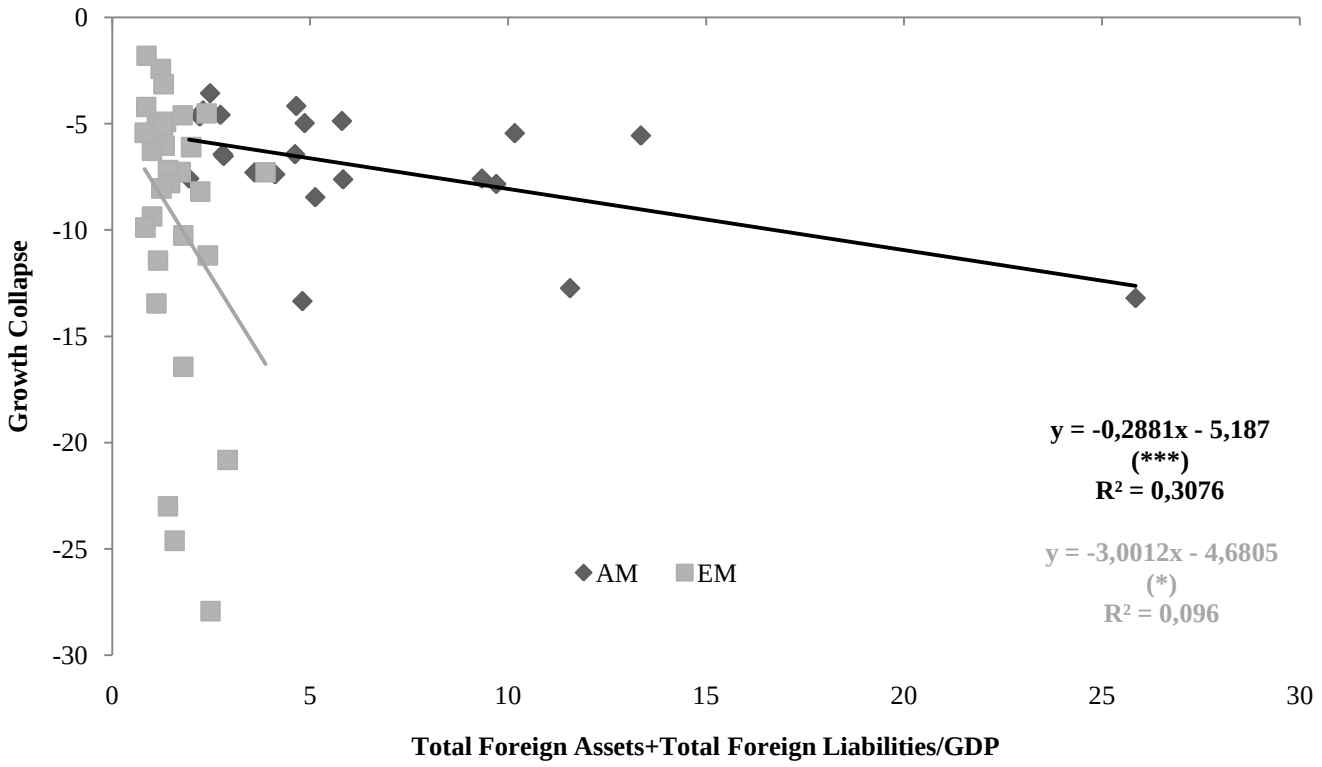
Note: The figure reports the average R-squared of the regressions of country-specific equity returns, FX returns and sovereign credit spreads on the corresponding first principal component computed over an emerging markets sample. Countries: Argentina, Brazil, Chile, China, Colombia, Czech Republic,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

Figure 13. Growth collapse in the global financial crisis



Note: In the left half of the figure, growth collapse is measured as growth in 2009 minus growth in 2007. The income classification if from World Bank's July 2010 classification. In the right side of the figure, growth collapse is measured as growth in 2009 minus the average growth rate in the 2003-2007 period. Source: WDI, IMF WEO Database.

Figure 14. Growth collapse and FG: The global financial crisis



Note: Growth collapse is measured as growth in 2009 minus average growth in 2003-2007. Source: WEO October 2010, LMF (2008), WDI.

Table 1. FG and different normalizations

Variable	Year	Level			Difference		
		EM	*PCE*	*G5*	*EM*	*PCE*	*G5*
FEL/GDP	1999	10.2%	24.6%	20.3%	9.7%	5.3%	6.3%
	2007	19.9%	29.8%	26.6%			
FEL/Mcap	1999	18.5%	25.7%	22.1%	2.9%	1.9%	8.7%
	2007	21.4%	27.7%	30.9%			
FDL/GDP	1999	8.8%	39.7%	25.9%	2.4%	13.1%	29.3%
	2007	11.2%	52.8%	55.2%			
FDL/Debt	1999	23.7%	39.3%	21.2%	-3.5%	6.5%	8.9%
	2007	20.2%	45.9%	30.0%			

Note: This table reports group averages for different FG measures. Source: LMF (2007), IMF

Table 2. Initial Holdings and Flows

VARIABLES	FE Equity	BE Equity	FE Debt	BE Debt	FE FDI	BE FDI	FE Eq. Global Funds	BE Eq. Global Funds	FE Debt Global Funds	BE Debt Global Funds
EM Absolute Flows										
Stock of Foreign Equity Liab.	4.310***	10.95***								
	(0.677)	(2.821)								
Stock of Foreign Debt Liab.			1.863	3.322**						
			(1.537)	(1.491)						
Stock of Foreign FDI Liab.					20.96**	16.56***				
					(9.013)	(2.816)				
AUM Stock							0.0405***	0.0655***	0.072***	0.115***
							(0.0139)	(0.0123)	(0.0104)	(0.0096)
Observations	383	383	398	398	433	433	168	168	88	88
R-squared	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
AM Absolute Flows										
Stock of Foreign Equity Liab.	0.170	3.602***								
	(2.161)	(0.708)								
Stock of Foreign Debt Liab.			3.771***	5.399***						
			(0.611)	(1.299)						
Stock of Foreign FDI Liab.					13.24	7.903***				
					(11.75)	(2.171)				
Observations	274	274	280	280	298	298				
R-squared	0.168	0.996	0.306	0.742	0.238	0.954				
Countries	17	17	17	17	17	17				

Note: This table presents estimations of absolute flows vs. lagged stocks of different financial globalization variables. Robust standard errors in parentheses. FE indicates fixed effects estimation, and BE indicates between estimation. FG stock variables are lagged one period. All estimations include time dummies and capital account openness as additional control. *** p<0.01, ** p<0.05, * p<0.1

Table 3. FG and domestic financial development

Group of Countries	EM	EM	EM	EM	EM	EM	EM	EM
Type of estimation	BE	FE	BE	FE	BE	FE	GMM (External)	GMM (Internal)
VARIABLES	FG	FG	FG	FG	Equity Liabilities	Equity Liabilities	Equity Marcap	Equity Marcap
Trade	0.195	0.186	0.324*	0.184	-0.241	-0.262		
	(0.140)	(0.132)	(0.159)	(0.124)	(0.405)	(0.544)		
Financial Development	0.138	0.375***						
	(0.110)	(0.0720)						
Equity Marcap/GDP (FD1)			0.159*	0.0878**	0.647**	0.493**		
			(0.0901)	(0.0403)	(0.229)	(0.215)		
Bank Deposits/GDP (FD2)			-0.186	0.430***	0.631	-0.642*		
			(0.189)	(0.120)	(0.480)	(0.364)		
Foreign Equity Liab/GDP							0.402***	0.418***
							(0.114)	(0.131)
GDP per capita PPP	0.143	0.00144	0.144	-0.140	0.208	1.469*	0.405	0.535
	(0.0993)	(0.211)	(0.0978)	(0.237)	(0.249)	(0.854)	(0.740)	(0.788)
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*		
	(1.136)	(1.937)	(1.127)	(2.148)	(2.871)	(7.276)		
P-value Joint Test			0.2357	0.001***	0.000***	0.025**		
Observations	326	326	326	326	326	326	323	323
Countries	27	27	27	27	27	27	27	27
R-squared	0.550	0.581	0.588	0.584	0.742	0.536		

Note: 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.*** p<0.01, ** p<0.05, * p<0.1

Table 4. Output and Consumption volatility: Group Medians

Sample	Full Sample	Full Sample		Late Period	Late Period	
Period	1995-2007	1995-2007		2000-2007	2000-2007	
Variable	Volatility Y	Volatility C	Ratio	Volatility Y	Volatility C	Ratio
Full Sample	2.0479	2.3151	1.13	1.5727	1.8504	1.18
	(1.7193)	(2.3557)		(1.5481)	(2.1965)	
AM	1.1995	1.1041	0.92	1.2349	0.9973	0.81
	(0.4551)	(0.7680)		(0.3853)	(0.9085)	
EM	3.2135	4.2959	1.34	1.9481	2.3524	1.21
	(1.7803)	(2.2195)		(2.0011)	(2.4793)	
FM	2.1109	3.5319	1.67	1.9681	3.1093	1.58
	(1.2735)	(2.2865)		(0.5892)	(1.9335)	
MFI	2.8847	4.6620	1.62	1.6999	2.9576	1.74
	(1.8151)	(2.4317)		(2.3729)	(2.7419)	
LFI	2.2018	3.3633	1.53	2.0503	2.1163	1.03
	(1.6487)	(1.9825)		(0.8561)	(1.8566)	

Note: More financially integrated (MFI) economies are developing economies with FG (measured by the sum of foreign assets and liabilities over GDP) above the sample median. LFI are economies with FG below the sample median. Full sample is 1995-2007 and late period is 2000-2007. Standard errors appear in parenthesis. Source: WDI, World Bank Data and LMF (2008).

Table 5. Correlations first PC vs. Global Indexes

		S&P	MSCI Developed	HY
PCE - Equity	2000-2009	0.843	0.941	-0.685
	2000-2004	0.831	0.919	-0.616
	2005-2009	0.868	0.956	-0.727
EM - Equity	2000-2009	0.810	0.892	-0.641
	2000-2004	0.786	0.817	-0.640
	2005-2009	0.843	0.939	-0.665
EM - CDS	2000-2009	-0.625	-0.671	0.753
	2000-2004	-0.526	-0.566	0.516
	2005-2009	-0.775	-0.774	0.815

Note: This table reports the correlation of global indices vs. the first principal component of equity returns and CDS spreads.
Source: Bloomberg.

Table 6. Tail risk and FG: The global financial crisis

Country Group	All Countries	All Countries	All Countries	EM	EM	EM
VARIABLES	Growth Collapse	Growth Collapse	Growth Collapse	Growth Collapse	Growth Collapse	Growth Collapse
AM	-1.248	0.218	0.416			
	(1.131)	(1.563)	(1.545)			
EM	-3.004*	-2.998*	-2.872*			
	(1.568)	(1.552)	(1.508)			
Trade	-0.0443**	-0.0369*	-0.0363*	-0.0148	-0.00629	-0.0270
	(0.0172)	(0.0189)	(0.0186)	(0.0315)	(0.0298)	(0.0294)
FG		-0.369		-3.342		
		(0.326)		(2.777)		
FG Assets			-0.101		6.342	1.737
			(1.033)		(4.731)	(4.943)
FG Liab.			-0.692		-10.67**	
			(1.117)		(5.170)	
Equity Liab.						5.398
						(10.80)
FDI Liab.						5.129
						(4.990)
Debt Liab.						-19.93***
						(3.432)
Constant	-1.854	-1.938	-1.981	-2.142	-1.856	-1.773
	(1.834)	(1.812)	(1.793)	(2.918)	(3.202)	(2.470)
Observations	72	72	72	29	29	29
R-squared	0.141	0.154	0.155	0.152	0.249	0.507

Note: Robust standard errors in parentheses. Growth collapse is measured as growth in 2009 minus average growth in 2003-2007. All FG variables are normalized by GDP. Trade is imports plus exports over GDP. EM and AM are dummies associated with each country group. *** p<0.01, ** p<0.05, * p<0.1

Table A1. List of Countries

AM	PCE	EM	G5	FM
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		