

# **Global financial volatility and its consequences for small open economies.**

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All countries are exposed to financial volatility. Emerging economies, in particular, have been periodically affected by surges and "sudden stops" in capital flows for many decades. Interestingly, despite this long and universal experience, attitudes and policy responses still diverge widely. And the policy debate remains intense and sometimes contentious.

Broadly speaking, one can identify two opposite views.

According to one, global volatility is mainly driven by fundamentals. Capital inflows to emerging economies reflect favorable long term growth prospects and high potential returns on capital. Short term volatility itself may help. To some extent, it is a sign of well-functioning financial markets. Movements in asset prices serve as a cushion, an "absorber" for economic shocks. This is welfare improving since it avoids, or mitigates, adjustment in more rigid goods or labor markets. The best strategy then, is to get the fundamental right - "put your house into order"- and, if necessary, let the exchange rate fluctuate in response to temporary financial shocks.

According to a second, and opposite, view, economic policies in major countries are mainly responsible for financial volatility. *"A popular narrative among financial commentators is that low interest rates in advanced economies act as a key driver of cross-border capital flows, resulting in overheating and excessive credit growth in the recipient economies. Balance sheet policies have the same effect"*(Bruno and Shin (3)). In short, global volatility is a code word to designate the impact on emerging economies of Quantitative Easing policies implemented by advanced countries.

Both views are partially correct. They can coexist with reasonable credibility because the nature of financial volatility is multifaceted and changing. As a consequence, policy responses may legitimately differ between countries while, at the same time, the focus of international coordination is moving in new directions.

## **I/- the changing nature of global financial volatility**

International economics are built on the analysis of interdependences between countries, spillovers and contagion effects. A traditional way of looking at financial volatility would be to

first identify shocks and then describe how they are transmitted across borders. This approach does not fit well with the level of integration and complexity observed to day in global capital markets. Rather, there is a “need to take a systemic view of global financial stability” (Obstfeld 2009, 2) and “the correct perspective nowadays is that the world economy comprises a single, interdependent financial system”(Obstfeld 2009, 1) . But that system is incomplete and asymmetric, so its dynamics are extremely complex.

### ***A/- the world as a single financial system<sup>1</sup>***

Looking at the world as a single financial system yields important insights. A system is governed by numerous feedback loops and interactions between its components. Exogenous shocks occur. But, once the dynamics have developed, identifying causes and effects is pointless. Rather, what matters is the behavior of the system as a whole. And, correlatively, it may be impossible to understand the state of one component without considering all the others.

Transformations undergone by capital markets over the last decades have made this systemic approach more and more relevant.

1. Domestic and global financial markets are becoming increasingly interconnected. Those interconnections are best measured by the expansion of gross international asset positions (whereas, of course, the current account only measure evolutions in *net* positions). This expansion dwarfs the growth of trade in goods or even GDPs. Taking, as a yardstick, the average between gross international assets and liabilities; it has grown from around 50% of GDP in the US in the 1990s to 150% to day. Some emerging economies, as Singapore, stand at 200% while the Euro area is somewhere in between. Obviously, the composition, the denomination, the maturity of those exposures matter enormously for growth and financial stability.
2. The supply of assets by emerging economies has increased and diversified, as a result of strong growth, opening of their capital accounts and remarkable fiscal consolidation. The availability of broader and more diversified asset classes allows financial intermediaries to manage their positions and allocate capital on a global basis. Global funds have become major players in emerging economies debt and equity markets.
3. The main transformation, however, has been the emergence of global banks. Because they distribute credit and allocate liquidity across borders, global banks form the backbone of the world financial system. Banking activity is a key driver of financial conditions both within and across borders (Bruno and Shin(2)). For instance, "many European banks use a centralized funding model in which available funds are deployed globally through a centralized portfolio allocation decision" (Shin, 2011). Global banks'

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<sup>1</sup> Obstfeld (2009,1)

behavior can be adequately described by a model where they equalize returns for lending in all countries, adjusted for the risk of default. ( Bruno and Shin(2))

Traditional analysis would distinguish between two determinants of international capital flows: push and pull. Capital may be "pushed "into one country by an increase in global risk appetite or easier monetary policies abroad. It may be pulled in (or out) as a result of changes in domestic financial conditions or growth. With global banks, however, there is permanent interaction between push and pull factors and the distinction may be impossible to draw in practice. (Bruno and Shin(2)).

4. Finally, global liquidity has become a key focus of attention and policy debates (Caruana(1)). It is hard to define, let alone to measure. To grasp its implications, it is useful to contrast two stylized visions, what could be called the old and the new world.

In the old world, predating the era of strong capital mobility, international liquidity mainly referred to instruments available to settle payments between monetary authorities. It was publicly created by Central banks of reserve currencies. Many analysts still refer to this framework when they talk about global liquidity. In the "new" world of high capital mobility, most international liquidity is privately created through cross-border operations of banks and other financial institutions. Interbank markets play a crucial role in this process. The more capital markets become integrated at the short end, the more international liquidity is provided by the private sector.

As a consequence, there is a strong continuity and complementarities between domestic and international liquidity. Both depend on the willingness of counterparties to extend credit to each other. Both are subject to aggregate supply and demand shocks with sudden shifts in risk aversion or liquidity preference. Both result from leveraging and deleveraging by private institutions (Adrian and Shin, 2008). When markets seize, counterparty risk is perceived as excessive, uncertainty settles in, financial institutions deleverage their positions towards nonresidents. Then international liquidity dries up and disappears.

This is the essence of private liquidity. One moment it is there and then it is not. Liquidity shocks cannot be forecasted, which creates fundamental uncertainty. The importance of global private liquidity conditions has been apparent during the period which followed Lehman's failure. Output and trade fell across the world with astonishing simultaneity. It seemed natural to assume, at the time, that "traditional" forms of contagion – through goods or capital markets – were at work. Policy makers were looking to trade finance as a major channel. However, contagion takes time and cannot fully account for the exceptional synchronization in the drop of output. With hindsight, the phenomenon may best be seen as a global liquidity shock. Net supply of liquidity dried up at the same time everywhere in the world. International banks faced a sudden and ample shortage of

dollars. Firms started to hoard liquidity. Investment and, for a part, production, came abruptly to a halt. (Landau(1))

Quantitatively, global private liquidity dominates official liquidity. It displays both an increasing trend and a strong cyclical component. The increasing trend is a result of deeper financial integration between countries and financial innovation (spurred, among other things, by regulatory changes). But private global liquidity is also highly cyclical because it is driven by divergences in growth rates, monetary policies and, above all, risk appetite.

There is some interaction between official and private liquidity. In times of stress, private liquidity collapses and the supply of global liquidity will depend crucially on official sources. One major objective of most emerging economies is to provide public liquidity to their banks through foreign exchange reserves.

### ***B/ - asymmetries***

As global and integrated it has become the world financial system is by no means homogenous. It remains asymmetric and segmented into many currencies. Both characteristics have significant consequences for financial volatility.

Asymmetries in financial development persist, reflecting both differences in history, preferences and institutional capacities. Financial deepening is unequal between economies and so is capital account convertibility. Not all countries have the same tradeoff between efficiency and stability in the financial sector. Financial intermediation may be based on different structures (with, for instance, the share of banking in financial intermediation double in Europe as compared to the US). Finally, the behavior of financial systems will depend on the soundness of financial intermediaries, which vary across countries and periods of time.

Consequences are generally overlooked. Domestic financial systems are unequally “elastic” to interest rates and react differently to the same external monetary impulse. Taking, for instance, the credit channel of monetary policy, well-functioning and capitalized banks in one country will react strongly to small changes in interest rates or financial conditions; while, in other countries, where banks are weaker and deleveraging, the same policy impulse will produce smaller or no result. Now, supposing that those two economies are confronted to the same global environment, they will take widely divergent paths. The resulting volatility is typical of a system where different parts are interconnected but still heterogeneous.

Asymmetry in financial integration also creates a paradox. Cross border capita mobility is higher, in some cases, than domestic mobility. Hence, there may be greater substitutability between domestic and international assets than between domestic assets themselves. As a consequence, the exchange rate has to absorb a disproportionate share of international financial shocks, which, in turn, increases volatility and complicates policy choices by the authorities.

Another, well documented, asymmetry comes from countries' different abilities to produce safe financial assets. While the demand for those assets emanates from all over the world, the supply is unevenly distributed across regions, with the US (and, to a lesser extent, Japan and Germany) providing a large chunk of the total. This asymmetry not only drives the volume and composition of capital flows, but also their direction. There is a structural excess demand for dollar denominated securities, which sustains permanent capital inflows into the US. Episodes of flight to safety benefit some countries at the detriment of others, as the example of Japan repeatedly shows, and as Europe itself has recently experienced for intra euro area capital movements towards Germany.

### ***C/- segmentation***

The global financial system is still - and will remain - segmented into a multiplicity of currencies. Interestingly, currency segmentation does not reproduce the geography of national jurisdictions. According to the BIS triennial foreign exchange survey, one third to three quarters of all foreign exchange transactions of major emerging market currencies take place among non-residents (Caruana(2)). Nor can financial intermediaries be easily identified by the currency of their operations. Major global banks - including in emerging economies - work in all global currencies. In those countries, foreign exchange reserves are have been extensively used to provide domestic institutions with liquidity in foreign currencies during the crisis.

In this increasingly complex panorama, it is not easy to assess the role of exchange rates in fostering - or compromising- financial stability.

The standard recommendation, for a country faced with external financial volatility is to absorb it by floating its exchange rate. Doing so, monetary policy is free to pursue domestic objectives (inflation targeting). Output is also better insulated from real shocks, because the exchange rate can adjust and stabilize demand for domestic goods through expenditure switching.

Reality, however, is more complex. Leaving aside the "real "arguments underpinning the fear of floating, and taking a pure financial stability perspective, there are some reasons why the insulating properties of floating exchange rates do not always materialize.

First, domestic debt is, in many emerging countries, partially denominated in foreign currency. A substantial stock of foreign currency debt directly transmits the policy of the major central banks to other countries. There is something like \$7 trillion in US dollar credit to borrowers who

reside outside the United States. (Caruana(2)). In addition, because of currency mismatches, exchange rate evolutions affect the equity base of domestic banks and corporates, with potential amplification effects on the supply and demand of credit.

Second, the insulating properties of floating are predicated in some form of efficiency in capital markets where movements in exchange rates are self-stabilizing. For instance, capital inflows would trigger an appreciation making domestic assets more expensive, reduce their attractiveness and stabilize or reverse the initial inflow. Empirical observations suggest, on the contrary, that exchange rate movements are often self-reinforcing, fueling expectations of further moves in the same direction. This is attested by numerous episodes of carry trades developing and suddenly unwinding in recent years.

Finally, a more subtle and powerful mechanism has recently been identified by Bruno and Shin (3), linking capital flows, exchange rates and the risk-taking behavior of international banks. If local residents are indebted in foreign currency, appreciation of the domestic exchange rate will improve their creditworthiness (measured in local currency) creating an incentive for local banks to borrow abroad and lend more to the local residents. This, in turn, will appreciate further the exchange rate, setting in motion a powerful feedback loop.

### ***D/ - complex dynamics***

A complex financial system produces equally complex dynamics. Financial volatility is the joint product of a number of forces whose directions intensity and interactions constantly change over time. A list of the main drivers would include monetary policies, risk appetite, and the behavior of Central Bank along the process of reserve accumulation.

As for monetary policies, greater financial integration naturally brings increased sensitivity of capital flows to differences in interest rates and expectations. Current financial conditions may exacerbate those effects. Interest rates in all three major currencies areas are very close to zero and, in some of them, expected to stay there for the foreseeable future. This means that expectations are the sole drivers behind capital flows and exchange rate movements. Basically, we live in a world of multiple equilibria between major currencies. Carry trades provide a good example. As long as exchange rates expectations are stable, carry trades will develop based on very small (expected) interest rates differential. Small shifts in exchange rate expectations, however, could lead to major portfolio rebalancing and capital flows reversals.

In such a world, risk appetite plays an even bigger role than usual in influencing the direction and amplitude of capital flows. Figures 1 and 2 document the close correlation between cross border capital flows and usual indicators of risk appetite (VIX) over a long period of time. The expansion of international banking, is closely correlated with fluctuations in attitudes towards risk. This correlation is even stronger when liquidity is abundant and monetary conditions are easy. The cyclical behavior of risk appetite is a well-known empirical regularity. Markets will shift rapidly from “risk on” to “risk off” attitudes, leading to abrupt changes in the volume and directions of capital flows to emerging economies. Periods with low policy rates or elevated

interest rate differentials across currency areas can be associated with over-optimistic risk perceptions and elevated risk tolerance, leading to a mispricing of assets and excessive easing of lending standards (CGFS, 2011)

There is a reciprocal and self-reinforcing relationship between risk appetite and liquidity. Investors' risk appetite may depend on perceived liquidity constraints. And, symmetrically, when risk appetite increases, the availability of liquidity is usually enhanced. That circularity may generate powerful and hard to predict, amplification mechanisms and financial cycles.

Finally, faced with volatile and significant capital flows most emerging countries are accumulating foreign exchange reserves. Those reserves are mainly invested increasingly in longer-term U.S. Treasuries, (Foreign official holdings of US Treasuries at end-June 2011 were \$3.5 trillion). There is a very active debate on the ultimate impact of those investments in US long term interest rates. Supposing such an impact materializes, it would trigger an acceleration of capital inflows to the emerging countries by further encouraging investors to search for yield. (Kobayashi and Yushino).An alternative, but equivalent, description is given by Mc Kauley : "capital inflows into emerging markets systematically lead to leveraging by central banks there, and ... capital outflows lead to deleveraging. Given the investment and financing habits of emerging market central banks, their leveraging tends to remove duration from global bond markets. As a result, their response to risk-on markets tends to put downward pressure on global bond yields, reinforcing the risk-on mode". Such a feedback loop operating between developed and emerging countries may be a powerful accelerator of other market dynamics.

## **II/- Policy responses and the future of the international financial system**

### ***A/ generalities***

The cross-border spillovers associated with international capital flows would call, prima facie, for increased international coordination. For obvious reasons, however, the world will never be managed as a single financial system.. The scope for further advances must be assessed by taking account of two fundamental realities.

First, countries are free to conduct monetary policies they deem appropriate. Indeed, when Central Banks are independent, they are legally obliged to do so. Monetary policies are conducted with domestic objectives in mind with all Central Banks having the same mandates aiming at price stability. This is true for all countries, whether small or large. The world has enormously benefited from two decades of price stability resulting from monetary regimes based on Central bank independence and a focus on internal price stability.

Second, according to the IMF Articles, countries are free to choose their capital account and exchange rate regimes with the proviso that they do not engage in currency manipulation. Most policy discussions assume that freedom of capital movements is the norm and controls should be the exception. That is certainly the objective in an integrated world economy. But it is not the situation today. Attempts to give the IMF increased jurisdiction in this matter have met, in the past with strong resistance. Ignoring this reality will only lead to misunderstandings and impasses.

Taken together, those two realities complement each other rather well and leave enough space to find the proper balance between national responses and international cooperation. First, countries should design and implement for themselves, a framework of policies to mitigate the financial risks of cross-border flows at the national level. And second they should also make sure that those policies complement – and do not contradict or nullify – each other.

### ***B/ - A simplified framework for domestic policies***

When faced with potential financial shocks inflicted by the external world, a country can in principle resort to three strategies: prevention, anchoring and cushioning

1. Prevention of financial shocks means that, to some extent, the economy and financial markets are insulated from the external world. Measures can be designed to reduce the elasticity of the domestic financial system to global conditions. To the extent that the causes of volatility are external, prevention may involve some form of capital flow management.
2. A strategy of anchoring would lead authorities to stabilize the value of one specific financial variable, most often the exchange rate.
3. Cushioning strengthens ex ante the robustness of the domestic economy and financial system through the building up of shock absorbers. Cushioning can take place at several levels: banks (through higher capital and liquidity requirements); the national budget (through earmarking revenues for future generations or absorbing cyclical fluctuations); and, finally, the whole domestic economy, through the buildup of foreign exchange reserves.

Those strategies are not mutually exclusive. On the contrary, they are additive and countries will find advantage in exploiting their complementarities. Anchoring the exchange rate, for instance, certainly implies accumulation foreign exchange reserves; it can also be facilitated by some degree of capital control.



On the other hand, all strategies have some negative side effects. Anchoring the exchange rate, may come at the price of increased volatility on capital flows and interest rates. Prevention measures involve interfering with the functioning of markets, at the risk of creating distortions and rent seeking. Finally cushioning sterilizes resources and has efficiency cost.

An essential policy choice consists in determining the optimal mix. It is necessary country specific. It is also informed by lessons from the crisis from which two conclusions may be drawn.

### **Foreign exchange reserves**

First, it seems that cushioning strategies increasingly “dominate” others as shown by the continuous increase in Foreign Exchange Reserves accumulation.

The facts are well known. Reserves amount to 14% of global GDP and 8% of gross international exposures, doubling from their level in 2000; over half the worldwide reserve holdings are held by only five countries. Emerging market holdings amount to 32% of their GDP.

This evolution has motivated a new wave of studies aimed as assessing reserve adequacy, mostly based on some form of cost benefit analysis. The standard argument is that reserves are costly, that they lead to resources misallocation and often are accumulated through exchange rate manipulation. There are a lot of truth in those assertions. But there are also limits to any quantification, let alone, normalization in the level of reserves.

In a sense, countries face the same dilemma as financial institutions when deciding on their appropriate liquidity position. There is a tradeoff between the costs and benefits. For private financial institutions, there may be a tendency to underestimate liquidity needs in normal times, with the expectation that the lender of last resort will bail them out if and when a shortage occurs. For countries, the bias goes in the other direction. With no international lender of last resort, precaution motives will lead to what looks as over-accumulation of liquidity, but is, in fact, a rational response to a fundamental uncertainty

Yet, the size of reserves has significant spillover effects and systemic implications for the world economy. A huge share of gross international exposures is in the hands of official entities. Reserve holders already are dominant players in key asset markets. This takes us far away from the canonical model of free, atomistic and competitive global capital market.

In terms of stability, movements of even small fractions of reserves could trigger enormous shifts in asset prices and exchange rates which would negatively affect reserves holders themselves. To quote Obstfeld, (2009,1): "to think that the international financial system will necessarily be more stable simply because all countries have more foreign exchange reserves is to subscribe to a fallacy of composition". The same author notes rightly that reserves are not "outside liquidity" in the sense that they can't protect their holders against a systemic

symmetric shock which would affect all of them at the same time. That could explain the strong desire of countries with important levels of reserve and floating exchange rates nevertheless to gain access, when the crisis stroke, either to IMF facilities and/ or Central Banks' swaps.

### **Macro prudential policies**

For small open economies, there is necessarily a continuum between measures aiming at domestic and external financial stability. The so called " capital flows management measures" cannot – and should not - be dissociated from the broader objective of limiting instability.

Most often, the rationale for those measures has not been fully and extensively spelled out. They are seen as a second best in the panoply of macroeconomic tools. As a consequence, they often appear as a way to delay necessary adjustments, or, worse, as accessories to exchange rate management, not to speak of manipulation. Hence they are tainted with an enormous suspicion from the start.

It is commonly accepted that such measures do not impact the volume of flows, only their composition. But in a financial stability perspective, composition matters. Those measures should not be seen, or devised, therefore, as macroeconomic tools, substituting to others in the adjustment process. Rather, they can be part of a continuum of instruments deployed to implement macro prudential policies.

To achieve that objective, however, several conditions must be met.

First, there must be, in each country, full consistency, almost a continuum, between domestic macro prudential measures and those which affect nonresidents or cross border flows. For instance, limiting a boom in foreign currency denominated domestic lending may imply both higher reserve requirements on foreign currency loans imposed on domestic banks ( the "domestic" part) and limits on foreign currency borrowing from non-residents (the "external" part ) . By the same token, limiting excessive stock market volatility can require a raise in margin requirements as well as a tax or a quota on inflows

### ***C/ international coordination***

There also must be consistency between policies implemented in "source" and recipient countries as regards international capital movements. There would be little sense to introduce or accept regulatory incentives to export capital in some countries while others are deploying measures to prevent capital inflows. A close examination of our prudential regimes may show some inconsistencies in this regard. Regulators are aware of this type of spillovers, for instance, when they discuss the implementation of the countercyclical capital buffer under Basel 3.

And finally, there must be consistency between measures and policies taken in different recipient countries. There is a good case for, at least, some form of coordination between countries using macro prudential tools to ensure that measures taken individually are mutually consistent.

For one given country, regulating capital flows may temporarily reduce the pressure on its capital account or even permanently limit the volatility of its exchange rate. For the whole international system, however, those measures may simply displace the pressure to other countries or asset classes and exacerbate, rather than reduce, overall volatility. The rapid increase in trade and financial globalization has amplified spill-over effects. As a result, policy actions that affect international capital flows cannot be assessed from the viewpoint of each individual economy only, but should also take the international dimension into consideration to avoid globally sub-optimal results.

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## **Conclusion**

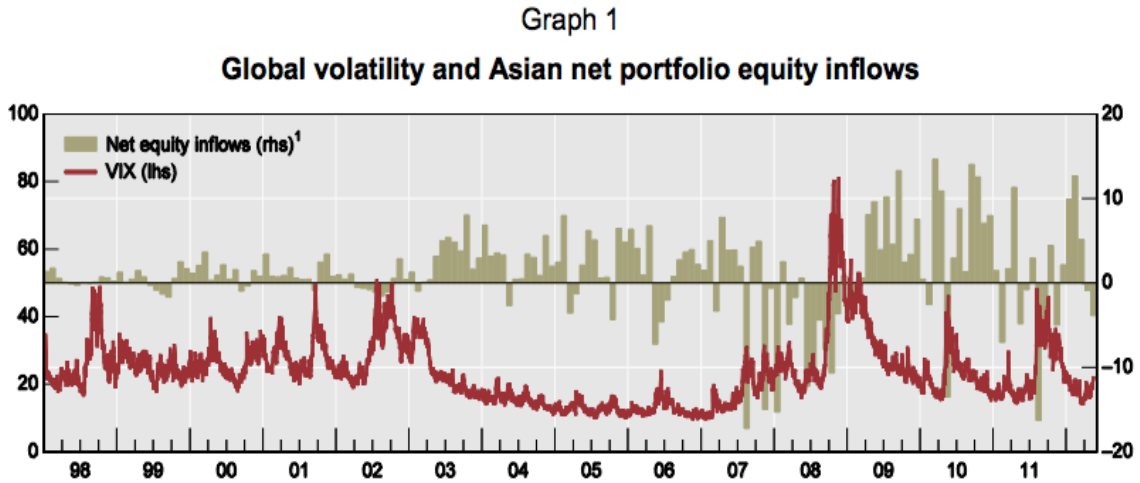
We live in a world of greater interdependence and complexity. International capital flows have made countries truly interconnected. The monetary and financial system has become "multipolar". An increasing number of countries, both developed and emerging, have become active participants in the global capital market. Spillovers between national monetary and economic policies have multiplied. And no country can truly be indifferent to actions taken by others.

In current circumstances, divergences in monetary policies are unavoidable given the uneven paths of recovery across the world. And, for each country, this may be a time where price and financial stability objectives may not coincide. In advanced economies, monetary easing, together with inhibitions on credit growth, creates a potential for further financial imbalances. In many emerging countries, when inflationary pressures warrant monetary tightening, there is a clear risk this would trigger destabilizing capital inflows.

In those circumstances, there is a major role to play for macro prudential policies. For advanced economies, they should aim at spurring credit growth, while increasing the resilience of the financial sector. Supervisors should also stand ready to act if bubbles like phenomena appear in

some markets. For emerging economies, measures aimed at stabilizing capital inflows may help and relieve the pressure on domestic financial conditions and prevent further asset bubbles.

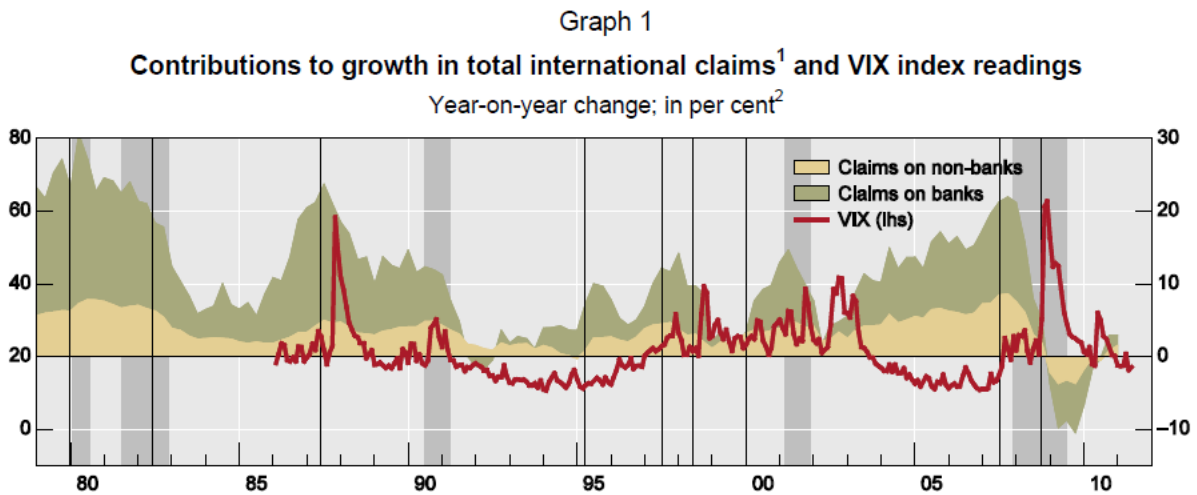
Figure 1 (source: McCauley)



<sup>1</sup> Net foreign purchases of equities in India (data start in 1999); Indonesia; Korea (KOSPI and KOSDAQ); Philippines; Chinese Taipei and Thailand, in billions of US dollars.

Sources: CEIC; Bloomberg.

Figure 2 (source: CGFS)



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