The fragility of exchange rates in emerging countries in the 2000s: a Minskyan analysis

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Abstract

The article suggests an analysis of capital flows to emerging market countries and of its exchange rates through the lens of Hyman Minsky's Financial Instability Hypothesis. This framework allows an analysis of the interactions between the macro environment and the decisions of international investors, what combined with exchange rate flexibility generate cyclical capital flows and cyclical exchange rates in emerging countries. The boom phase of increasing capital flows and appreciating exchange rates take place after a period of tranquility and configures a situation of increasing fragility that allows a 'not unusual surprise' event to trigger the exchange rate crisis.

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1 Introduction

In the days following the collapse of Lehman Brothers most emerging countries saw their currencies suffering major depreciations due to the movement of capital towards the countries hit by the crisis, putting into question the concept of flight to quality. Although the problem was in advanced countries, emerging countries were the ones to suffer the depreciations; a situation that became the rule from 2010 onwards with the European debt crisis.

These circumstances also put in evidence another phenomenon: the considerable similarity of the paths followed by different emerging markets that started an appreciating tendency since the mid-2000s, saw a major depreciation with the crisis, an appreciation in early 2009 and relatively important depreciations since 2010 following different events in Europe and in the USA (see Figure 1). These 'synchronized exchange rate cycles' not only evidences the importance of financial flows in determining exchange rates but also the association of these flows to the international, rather than the local, context. This wave of financial flows towards emerging countries was not the first - Biancareli (2009) studies it as the second, having the one of the 1990s as a first one[1] (see Figure 4 on page 25 for portfolio flows to selected emerging markets since the 2000s). This paper is however focused on the developments that have been taking place since the 2000s in order to analyze the consequences of such flows in a context of floating exchange rates in emerging countries and a stage of capitalism characterized by financialization.

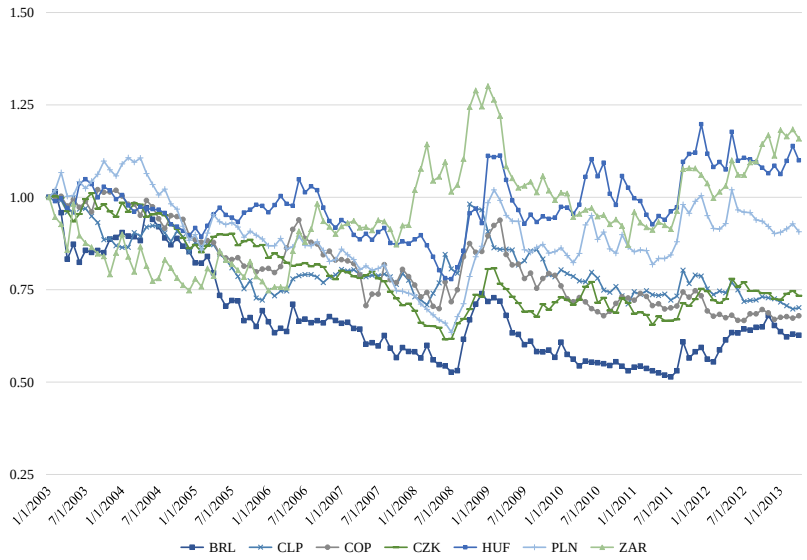
The rise, characteristics and implications of financialization has been analyzed by many scholars under several different terms, and with different definitions[2]. But one definition that is broad enough to encompass many of the subjects studied is the one of Epstein (2005) : "financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies".

Among the major changes seen with the rise of financialization, the most important for an analysis of capital flows and exchange rates are the accumulation of pension (and wealth with the change in the monetary regime) with its correspondent volume of liquidity; the rise of institutions responsible for man-

[1] The author also mentions other studies which, by having a longer term perspective indicate other waves of capital flows to developing countries sincethe late 19th century.

[2] Aglietta (2000) called it "patrimonial capitalism" - a system which favors creditors at the extent of debtors and is based on a market-based financial system being therefore very unstable; Boyer (2000) calls it "finance-led growth regime" - an accumulation regime where finance has imposed its logic over the other economic sectors and which is substituting Fordism; Chesnais (2001) named it "financialized growth regime", Plihon (2001, 2010) "shareholder capitalism" and Stockhammer (2007) a "finance-dominated accumulation regime".

Figure 1: Exchange rate change: selected emerging market countries



Source: Datastream. Unit: Special Drawing Rights over Local Currency Unit. Monthly data.

aging pensions and wealth; the erosion of the barriers for capital to float among products and among countries; and the IT-related improvements that facilitate the later. The result is the higher importance of financial flows among countries and its higher volatility.

Also Minsky analyzed these issues, arguing that the USA was, since the 1980's, in the stage of Money Manager Capitalism (MMC). Minsky's analysis of 'financialization' is of special interest for this paper given its focus on money managers, who are the main actors behind the determination of financial flows to emerging countries.

MMC succeeded Managerial Capitalism, a period of "revolution of government intervention" (Minsky, 1988, p. 23). This stage combined a state that was responsible for an important part of the aggregate demand (Big Government) and a central bank that act as lender-of-last-resort (Big Bank), resulting in a period that "did not exhibit the serious recessions and depressions of finance capitalism"[3] (Minsky, 1988, p. 32). The tranquility of this period decreased the downside vulnerability of firms profits. With these changes, potential profits of financial innovation increased. When business, financiers and portfolio

[3]Finance Capitalism being the period just before Managerial

managers learned the financial impact of these changes and realized the obsolescence of the regulatory arrangements that had been put in place prior to the World War II, they were "remarkably fecund in developing new instruments, institutions and usages". Indeed, assessing their margins of safety, that reflected earlier experience, as excessive, firms changed their liability structures to accommodate higher indebtedness levels (Minsky, 1992a, p. 111). All these changes contributed to the transition of Money Manager Capitalism.

Money Manager Capitalism is a stage where wealth holdings increasingly take the form of "ownership of liabilities of managed funds rather than the holding of a portfolio of the liability of individual business" (Minsky, 1992b, p. 110-111) . As a result, these managers of money ("mutual, pension and trust funds") are at the central place (Minsky, 1988, p.4). Financial markets were already important in Managerial Capitalism, but their focus in Money Manager Capitalism is no longer on the capital development of the economy, but on the "quick turn of the speculator, upon trading profits" (Minsky, 1992a, p. 111). The objective of money managers is to maximize total returns of portfolios "for each short period" in order to guarantee the continuity of their funding (Minsky, 1988, p. 32-33).

When analyzing capital flows to emerging markets specifically another institutional characteristic that must be taken into account is the asymmetry and hierarchy of the monetary system. The current monetary system has the dollar at its core: it is the currency used as means of payment, unit of account and reserve of value internationally. Other currencies of advanced economies come in the sequence: they are used as means of payment and relatively (but increasingly) used as reserve of value. The currencies of emerging markets occupy a much lower place in this hierarchy; not being used internationally in any of these three functions (Prates, 2005) (see de Conti (2011) for a detailed analysis).

The analysis suggested in this paper concerns emerging countries that have a 'financialized integration' to international markets: the developing coutnries whose currencies are peripherical and thus less liquid and that receive important amounts of financial flows relatively to their trade flows.

With the aim of analyzing how financial flows to emerging market countries could take the form of a cycle, and result in exchange rate cycles, the paper suggests an analysis based on Minsky's framework. Minsky is broadly known by its endogenous cycles: according to its financial instability hypothesis, where fragility is endogenously built during a period of boom, planting the seeds of the bust. Given its similarities with the developments seen in capital flows and exchange rates of emerging markets, the analysis presented is based in the

framework used by Minsky in its Financial Instability Hypothesis. In order to do so, this framework is expanded to a context of open economies, with all the appropriate adaptations.

This introduction is followed by a section that analyzes Minsky's financial instability hypothesis and its use in contexts other than the original one of closed economies. The subsequent section presents the expansion of Minsky's framework to open economies that allows the analysis of capital flows and exchange rates in emerging countries from the analysis of the decisions of money managers. The last section concludes.

2 The Financial Instability Hypothesis

This section presents Minsky's well-known hypothesis in its original framework for a closed economy and its more recent use in the analysis of other contexts.

2.1 The Financial Instability Hypothesis by Minsky

Minsky's hypothesis was created for a very specific institutional background: "a capitalist economy with expensive capital assets and a complex, sophisticated financial system" (Minsky, 1992a). Following Keynes, the banking system has a central place in his analysis because goods are not traded against goods (and that is why he opposes himself to the view of the Quantity Theory of Money) but against m money given that asset owners borrowed money to produce goods their claims are on money. The importance of debt and profits emerges from this framework.

The funding used to finance the expensive capital is in the form of debt and the repayment of these come from expected receipts derived from the unit's assets. Debt and assets, and its corresponding balance-sheets are therefore of major importance. The analysis of balance sheets is done through an analysis of the cash inflows and outflows, mostly the ones related to finance: borrowing and lending. The centrality of borrowing and lending in Minsky's framework is very clear in Minsky (1993) where he argues that "every capitalist economy is characterized by a system of borrowing and lending based upon margins of safety. The fundamental borrowing and lending act in this system as an exchange of "money" now for "money" in the future."

The different combination of expected cash outflows, compared to cash inflows characterize three types of units - also named a "taxonomy of cash

flows" Minsky (1986, (1986) p. 223). Hedge units are those whose "flow of funds that result from the normal functioning of the assets it owns (...) are sufficient to fulfill current and future expected payment commitments due to liabilities." (Minsky, 1993, p. 80) Speculative units, on the other hand, are those who "*e*xpect the cash flows (...) to be less than the cash payment commitments in some, typically near-term, periods" (Minsky, 1986, p. 230). Accordingly, a Ponzi unit is one that cash inflows are lower than the amount needed to cover the debt repayment and interests.

Minsky's definitions of units based on their cash inflows and outflows are broadly known . But the author has also presented it in a broader definition, what is very useful when applying his hypothesis to other contexts[4] (Minsky, 1993).

In Minsky (1993, p. 80), speculative units are those whose type of financing "introduces and element of uncertainty in financial relations, in that the terms of the refinancing depend upon market conditions when the refinancing takes place", or "all financing that involves refunding at the market terms that rule at the refunding date." . By defining speculative units in this way Minsky (1993) provides the space for a broader use of his financial instability hypothesis than in earlier definitions - what seems to be his interest with this definition given that other units rather than firms are mentioned in this analysis.

Indeed, the simplification/reduction of the differentiation of speculative and a hedge unit by the additional element of uncertainty of the first one allows its application to a much larger set of cases[5].

A Ponzi situation is defined in Minsky (1993, p. 80) in a closer way to the earlier definitions, as a case when inflows are not enough to service the debt - "if the cash flow of a highly indebted operation - firm, household, government, or financial institution - is less than the interest part of its debts failing due to during a relevant period, then new debt must be issued if the interest is in full or in part to be paid. Long ago I labeled such 'payment in kind' financing Ponzi finance". Minsky also referred to this type of financing as "the capitalizing of interest" Minsky (1993, p. 80). This definition is however very close to the one of speculative units[6], the difference being that in the case of a Ponzi unit "the face amount of outstanding debt increases" Minsky (1986, (1986) p. 231).

[4] This way of looking at the different types of units seems indeed to be behind Kregel (2008) understanding of Minsky's units

[5] In the two essays Minsky mentions other types of units as hedge, speculative and Ponzi units; in Minsky (1986, (1986) p. 230) Chrysler, New York City, Baldwin-United and Brazil are mentioned, and in Minsky (1993, p. 80) banks, households and the US are cited.

[6] "A Ponzi financing unit is similar to a speculative financing unit in that, for some near-term periods, the cash payment commitments exceed the expected cash receipts on account of owned assets" Minsky (1986, (1986) p. 231).

Summarizing, both speculative and Ponzi units have an additional element of uncertainty: they depend on "the market terms that rule at the refunding date" (Minsky, 1993, p. 80). Except that Ponzi have lower margins of safety[7]. They therefore share their exposure to changes in financial market conditions, what hedge units do not: "speculative- and Ponzi-financing units have to meet changing financial market conditions, whereas a hedge units will be impervious to such changes" Minsky (1986, (1986) p. 231). This allows us to think of speculative and Ponzi units as very similar to one another, and different from hedge units - a point that will be important for the next part of the paper where Minsky's framework will be enlarged. Knowing the characterization of the different units allows us to understand the financial instability hypothesis.

The financial instability hypothesis is divided in Minsky (1992a) into two theorems[8]. The first is that the relative presence of each of those units defines the instability of the system. "If hedge finance dominates, then the economy may well be an equilibrium seeking and containing system. In contrast, the greater the weight of speculative and Ponzi finance, the greater the likelihood that the economy is a deviation amplifying system".

This first theorem, regarding the determination of the level of the fragility of an economy has been further elaborated in Minsky (1993), that take other institutional elements into account. Specially, Minsky (1993, p. 81) adds i) "the willingness and the ability of the authorities to refinance units at concessionary terms when current market rates transform units into Ponzi units"; and ii) "the in-place power of the authorities to sustain aggregate profits (cash flows to business) and aggregate wages when current market rates turn a large number of units into Ponzi financing units and when the flow of profits and wages could slow down (...)".

These two aspects were already present in debates over policy implications, but it is interesting to see them as part of the determination of the fragility of an economy because they indeed have a role on the spreading and the dimension of the crisis, and therefore on the fragility of an economy. This point is clear in (Minsky, 1982, p. 33): "Although endogenous market forces lead to incipient financial crisis and an upper turning point, the extent of the financial crisis and whether or not a debt-deflation process takes place depend on how quickly and aptly the central bank intervenes as a lender of last resort and whether or not

[7] "For a private operation engaged in Ponzi finance, net worth is debited by the amount that indebtedness increases. Thus the margin of safety provided to the lenders by the excess of the book value of assets over indebtedness shrinks." Minsky (1993, p. 80)

[8] Minsky (1992a) cites his 1975 and 1986 books as the most important references on the hypothesis, but Minsky (1992a) and Minsky (1993) provide straightforward explanations of his hypothesis.

government deficits stabilizes profits."

It is also interesting to note that these aspects reinforce Minsky's focus on cash inflows and outflows and therefore the importance of liquidity in a crisis. The first point - on providing refinance at concessionary rates - is an attempt to avoid units from turning Ponzi units by decreasing its cash outflows related to debt servicing. While the second point is an attempt to increase cash inflows of a unit.[9]. The importance of liquidity is also evident in Minsky (1986, (1986) p. 245) that states that whether or not the break in the boom leads to a crisis "depends upon the overall liquidity of an economy (...)"

The second theorem of the Financial Instability hypothesis in Minsky (1992a) is that instability will increase over periods of prolonged prosperity (Minsky, 1992a, p. 8), or, as in Minsky (1993, p. 8), "over a run of good times the structure of units among hedge, speculative and Ponzi financing changes, so that the weight of hedge financing decreases and the weight of speculative and Ponzi financing increases." This point is present in many of Minsky's essays and is a central part of the hypothesis.

This change in the relative weight of the different types of financing happens because "during a period dominated by hedge financing, the structure of financing terms and the performance of markets and institutions that trade in assets and refinance debts lead profit -seeking clients of banks and markets and the operators of banks and the operators in markets to substitute debt for equities and short-term debts for long-term debts" (Minsky, 1993, p. 81). In broader terms, periods of tranquility (with the predominance of hedge units) and better performance of markets lead to financing decisions related to lower margins of safety[10]. How units form their expectations and thus decisions, and how these two interact with the environment is therefore crucial. As stated by (Papadimitriou and Wray, 1997, p. 14) "It is precisely the apparent 'stability' that generates changes of expectations that leads to the adoption of [fragile] financial positions" - "financial positions that cannot be validated should events prove to be less favorable than expected"[11]. In order to cope with the possibility that the future is not as expected - that profits do not turn out as expected, that market conditions change - units consider a certain margin of safety when choosing their indebtedness level and the financing form/modality. The choice

[9]It is also interesting to note how well the second point is associated with Minsky's characterization of Managerial Capitalism.

[10]What (Minsky, 1993, p. 81) calls "a period dominated by hedge financing" is the same as he has much more often called a period of tranquility, "a run of good (or tranquil) year" (Minsky, 1982, p. 24) or "a run of good times" as in Minsky (1993, p. 8).

[11]Note that it is clear from this statement the use of Minsky's definition of speculative positions as one that depends on future circumstances, as future market rates as in Minsky (1993).

of the margin of safety cannot be dissociated to the stability of the economic environment [12] ; and it is during a period of stability that these shrinks. That is because when reassessing their decisions, units will be constantly assessing their margins of safety as too conservative and reducing it; as the period of stability continues, this expectations and decisions will be confirmed, leading to consecutive reductions of the margins of safety. It is therefore the confirmation of expectations in good times that drives the change towards more fragile structures.

What triggers the crisis? Minsky has certainly defended that the crisis can be trigged by a change which is endogenous to the cycle itself. This is for instance clear with regards to the evolution of interest rates: "The upper turning point is completely endogenous once it is accepted that interest rates rise in an investment boom and that the successful functioning of the economy induces profit-seeking bankers and their customers to engage in speculative financial arrangements and to economize on holdings of money and protected assets." Minsky (1982, p. 33). Also the evolution of other variables can trigger the crisis: "A break in the boom occurs whenever short- and long-term interest rates rise enough so that attenuations and reversals in present-value relations take place. Often this occurs after the increase in demand financed by speculative finance has raised interest rates, wages of labor, and prices of material so that profit margins and thus the ability to validate the past are eroded." (Minsky, 1986, (1986) p. 245).

The cycle can thus be endogenous, but this does not impede it from being exogenous, as the change in interest rates could, for instance, be due to a shock. The most important to take from the FIH is however that the fragility is endogenous. It is only if fragility is built that an exogenous shock can trigger a crisis. In the words of Arestis and Glickman (2002, p. 241) "for Minsky, the reasons why a 'choking' event can actually have the power to shock are emphatically endogenous." A consequence of this dual possibility of endo- and exogenous event is that the crisis will happen anyway, but we cannot predict the timing of the event that triggers it: Minsky (1993, p. 81) called it a "not abnormal event". Wolfson (2002) offers an interesting label for this event: a "not unusual surprise" given that "the fragility makes the appearance of such surprise event likely..." Wolfson (1994, p. 147), although we cannot predict it. This position is shared by Borio and Drehmann (2009): "while the precise timing of the unwinding is unpredictable, its occurrence is not."

[12] This association between the margins of safety and the economic environment is clear in Minsky (1982, p. 24), that cites as an example of period when the economy moved to a more robust situation, of therefore higher margins of safety the process of debt deflation of the 1930's.

When these 'not unusual surprises' happen, hedge firms are pushed into speculative, speculative units are pushed into Ponzi and... "the net worth of Ponzi units will quickly evaporate" (Minsky, 1992a, p. 8). As this loss affect other units, these will likely recur to "selling positions to make positions" (p 8). When "everybody is a seller" (Kregel, 2004, p. 577) - or, there is no liquidity -, asset prices collapse, shifting even hedge units are towards speculative and Ponzi. At this moment, a crisis will emerge in which nobody is able to meet its commitments.

2.2 Minsky's framework applied to other contexts

Although the FIH was mostly used as an analysis of the fragility of firms, it has also been used in other contexts. In most of these analyses, the main elements of cash inflows and cash commitments deriving from debt are maintained, but other analyses keep the focus on inflows and outflows without necessarily relating these to debt. In these analyses, the focus is no longer on explaining business cycles, but the build-up of an unstable situation or crisis.

Minsky himself has used his famous typology with reference to units other than firms, but these were rather superficial. They took place mostly on the 1990s. In his 1992a article on the FIH, the author cites, as examples of speculative units, governments with floating debt, corporations with floating issues of commercial paper, and banks". The United States was mentioned as a Ponzi unit twice: for borrowing to pay the interest on outstanding debt and for borrowing from international capital markets to pay interest as well as the principal on its international debt (as in Minsky (1993)).

It was however after the exchange rate crises of the late-1990s that the use of Minsky's framework to other contexts increased considerably. Most of this literature, and what interests us the most, is on the enlargement to open economies, where most often countries are the main units analyzed.

It must be highlighted that Minsky's theories are implicitly targeted at financial crisis in a closed economy (Dymski, 1999) as it neglects any influence from other economic systems. The importance of this limitation became evident in the late-1990s when several developing countries faced major crisis which were associated with developments in other countries. As argued by Arestis and Glickman (2002), Minsky's "work predates the current era of financial 'liberalization"'. Indeed, regardless of Minsky's extensive analyzes of the current stage of capitalism ("money manager capitalism"), and of his analysis of the late 1980's currency attacks, he has never used his own framework into an open-

economy analysis (or his own use of his framework into open-economies analysis have never overpassed the short citations). The enlargement of Minsky's theory to open economies is thus a natural evolution given the current context of liberalization and free capital mobility. In this context, "the global economy can be considered as a closed system of capitalist systems" (Wolfson, 2002).

How to transpose Minsky's analysis? The methodologies used to do so are very diverse. Some are more discursive while others present adapted typologies of the concerned economic units, and others suggest specific indicators to track the vulnerabilities of these economies. Wolfson's (2002) analysis of the Asian crisis consists of identifying Minskian main themes" and transposing them to the new context throughout his analysis of the crisis. Minskian elements as the role of expectations, evolving expectations as prior expectations are validated and changing expectations after a change in the environment are always present. For instance, on the build-up of fragility the author argues: "as profits grew, expectations of further profits expanded, which led to further flows of funds." And on the role of the expectation of continuity of the exchange rate stability: "as funds poured into Asian markets few investors though it was necessary to hedge these investments, since exchange rates in these countries have been stable." The analysis also present some elements of optimistic or euphoric expectations, that can be behind the decisions of incurring in more risks: "lending and investment to "emerging market" became the hot new area in the 1990s" (p. 395)

By explaining how fragility was built in Asian emerging markets, from carry trade operations from Japan that through Asian banks funded Asian companies, Wolfson concludes for the centrality of the exchange rate and that this is the needed element to transpose Minsky to a global context: "Thus, in addition to the characteristics of domestic financial fragility mentioned by Minsky, we should consider the exchange-rate risk to be an aspect of financial fragility in the global environment". (p. 396)

Nevertheless, the possibility of "making on the carry by borrowing at relatively low short-term rates and lending at high long-term rates" takes the central place. As argued, it substitutes the yield curve that in Minsky was an incentive for borrowing short and lending long-term. Hence configuring "one important source of financial vulnerability implied by speculative and Ponzi finance" (p. 396)

Accordingly, the expected interest rates become central: "what become increasingly relevant for borrowers is the stance of monetary policy, and the direction of interest rates, in the country from which the loans are being made.

Apparently, the rumor of increasing interest rates in Japan was a precipitating factor in the Asian financial crisis, as profits from the carry trade were threatened" (p. 396).

The author mentioned that the exchange rate posed an additional problem, due to currency mismatch, but the main focus on interest rates remained. This focus on interest rates is, in my view, a reflection of the context of the Asian crisis which should not have the same importance on other contexts. In the current environment exchange rate swings have gained and interest rates have lost importance. The importance of exchange rate derives, obviously, from the adoption of flexible exchange rate regimes and from the fact that the late 1990s crises themselves increased apprehension concerning exchange rate swings. The importance of interest rates in this new context is already decreased, and the change in the types of flows adds to that. Although flows of carry trade operations and towards government bonds are still very important, flows to stock markets have gained importance - and if those have any correlation with interest rates, it is more likely to be a negative one (ref). In this case, drivers of flows cannot be simplified to interest rate gap. This explains why the author could shift its focus from exchange rates to interest rates. In the context just described, however, a capital outflow could take place after a change in interest rates, but due to its expected impact on exchange rates, only indirectly and partially due to its impact on the profitability of carry trade operations.

An important element in Minsky's analysis is the interconnection among units, which in Wolfson's analysis we can argue that is determined by the carry trade operations, what makes firms in one country vulnerable to changes of Japan's monetary stance.

Another important Minskian element of Wolfson analysis is the "not unusual event" that reverse the until-then optimistic expectations, which, he argues, is the "contagion" from one country to the other. Indeed, this can be seen as the trigger of the crisis in some of the countries, and it fits perfectly with the idea of something that cannot be predicted but that is more likely to happen due to the vulnerabilities built. It is however not the main reason behind the crisis (especially not in the case of Thailand) nor the main driver of changes in the optimistic expectations. Maybe the rumors of changes in interest rates in Japan were more of a surprise event, but also the end of the pegged system is an important event.

The parallel of the debt deflation is the 'debt-exchange-rate interaction': " as investors fled (...) and as exchange rates fell, (...) more loans were defaulted (...) investors fled financial markets, and the exchange rates fell further. Thus an

interactive process developed that ultimately spiraled downward and intensified the crisis, a process very much like the debt deflation at the domestic level" (p. 397). In this case, Wolfson somehow inverses Minsky's original focus: the issue is no longer decreasing values of assets, but increasing values of liabilities.

In Wolfson's analysis there is no discussion on whether the cycle was exogenous or endogenous, but one may assume it at least partially exogenous when the author argues that the flows to Asian developing countries were 'partially' the "result of the recession and falling interest rates in the United States and other developed countries" (p. 395).

The analysis includes a discussion of two major policy implications. Capital Controls is an obvious one: "of course, the importance of the ability of funds to cross national borders can be reduced if there are limited opportunities for investment of foreign funds in domestic financial markets. Thus what is necessary for financial fragility to develop in this way is a lack of regulations and laws limiting foreign financial investment." (p 397). Another one is the presence of a Lender of Last Resort, this is also often defended by Minsky. In the case of vulnerability in a 'global context', the IMF is the institution that could play such a role.

Arestis and Glickman (2002)also provide "a Minskian account of the road to financial crisis in Asia". After analyzing core elements of Minsky's analysis of a closed economy the authors propose the use of this framework to the study of the Asian crisis, adapting the elements appropriately. The road leading to the crisis is then explained with reference to the new elements and their "extended Minskian explanation" is compared to other types of explanations of the crisis.

In adapting the framework to a context of liberalized open-economies, the authors also highlight that funding can now be done in another currency and, accordingly, highlight the importance of interest rates and exchange rate as the main 'novelties' of the enlarged Minskian framework. Arestis and Glickman (2002) argue that given these new possibilities the classification of different financing-types becomes blurry. For instance, a firm that finances itself with a long-dated loan, but in a foreign currency would be classified as a hedge unit domestically but not internationally due to its vulnerability to the exchange rate... The authors thus chose to add a fourth type of unit: the 'super-speculative', that has short-term funding in foreign currencies - as a unit that is Ponzi both domestically and internationally.

Dymski (1999)considers Minsky's theory a-spatial due to its implicit assumption that the financial crisis happens in a closed economy. The author aims at adding a spatial element to Minsky's analysis through the inclusion of

"spatial economic borders and foreign-exchange constraints".

The analysis is focused on a very interesting point: the role of asset bubbles in Minsky's cycles, more specifically in "creating, transmitting and resolving financial crisis" (p 2). In Minsky's analysis, asset bubbles are very likely to take place in later stages of economic cycles - i.e. after a period of prolonged expansion. Precisely "the most powerful the boom, the greater the potential for an asset bubble; and the more rapid the growth of a bubble, the more certain are participants that the sky will not fall, the more likely a crash" (Dymski, 1999, p. 9). And as the confirmation of different expectations leads to a change of behaviors, bubbles are very important in intensifying fragility - "success breed success, and this breeds fragility and eventually the reversal of the growth-generating conditions". With the enlargement of Minsky cycles to include open economies, Dymski highlights two other sources of bubbles a part from the traditional case of a domestic Minsky cycles: (i) when prices of an economy with positive outflows ("an asset-buying economy") are driven up due to a financial-asset bubble overseas, or when (ii) an economy with positive inflows ("a capital-absorbing economy") faces important capital inflows. The collapse will thus also take place when (i) an asset-buying economy is affected by a collapse of prices overseas, and when (ii) a capital-absorbing economy faces a reduction in capital inflows or a sudden capital flight (p 22).

De Paula and Alves Jr (2000) study the development of financial fragility in Brazil after the implementation of the real plan in the mid-1990s. The authors differentiate the domestic economic units that do not run any exchange rate risk (the hedge units) from those who do (either importers or exporters). The latter are vulnerable to changes in the exchange rates and to changes in international financing conditions. From a macro perspective, the results of agent's attitude are reflected in the balance of payment. The authors thus propose an index of external financial fragility based on a country's main balance of payment elements, where actual and potential foreign currency liabilities are compared to its payment capacity. The idea is that this index would indicate a potential "need to resort to the international capital markets in order to renegotiate outstanding financial positions" (p 11?)

Following Foley (2003) , Schroeder (2002)proposes to track whether a country has a hedge speculative or Ponzi based on a comparison of the rate of increase of profits, interest rates and growth. This approach is based on the transposition to a national economy from a firm's balance-sheet, which consists to consider its two sources of funding - profits or new borrowing - and its uses - investment or debt servicing. (xxxxx to be further explained - but it is probably better to do it through Foley's paper) A unit is classified as hedge when profit

grows faster than economic growth and than the rate of interest; speculative when economic growth is higher than the growth of the profit rate; and it is Ponzi when interest rates grow faster than profits. This approach is then used to track the evolution of fragility in Thailand during the 1990s.

In terms of policy implications, Arestis and Glickman (2002), and Wolfson (2002) argue for similar policies. A consensus is that capital controls should be used to allow countries to deal with these problems and it was its relaxation that allowed vulnerability to be built.

Arestis and Glickman (2002) argue that currently there is no such an institution to play the role of "big bank" or "big government", while Wolfson (2002) believes that the IMF is in the position to intervene with hard currency and therefore could conceivably act as the lender-of-last-resort.

Kregel (2004) is another example of the use of Minsky's framework to analyze developing countries that borrow from international lenders in foreign currency. The focus of his analysis is however on governments, instead of firms, and offers a more structural perspective through the analysis of the fragility of the country's balance-sheets. To repay this debt, these countries must use their foreign exchange earnings, which can be of three types: current account surpluses, foreign exchange reserves (which were accumulated from prior current account surpluses), or from more foreign debt. Given that net lending by developing countries is usually associated with a negative current account balance, debt service must be covered by external borrowing. In other words, Kregel argues that debt servicing and repayment will very often be paid by new debt, characterizing Ponzi financing and financial fragility.

Countries have two options to overcome this situation. The first is to build "real capital": to use foreign borrowing to enhance the share of exports in GDP thus increasing foreign earnings. The second is to increase "financial capital": to increase lenders confidence about its own decisions so that they continue lending in an increasing rate[13]. The broad policy conclusion is on the essence behind Minsky profiles: to manage its balance sheet to match earning and commitments - similarly to what export countries do when they, at least partially, hedge their commitments.

[13]The author differentiates between using capital inflows to build real and financial capital, the first being related to the use of foreign lending in investments that ensure an increase in the share of net exports to GDP, in a way that it would late be sufficient to pay for the lending's commitments. Financial capital, on the other hand, refers to increasing lender's confidence so they continue increasing lending. The importance of increasing real capital is a point that was also raised by Dymski (1999), who argues that capital flows can create imbalances in developing countries if they lack the proper institutional structure to channel the flows to productive investments instead of speculative investments.

Moving apart from analysis of countries, Kregel (2008) offers a very interesting way of looking at the evolving vulnerability, with an important focus and a detailed discussion of margins of safety. The analysis is broader than Minsky's original one, although margins of safety are still associated with inflows and outflows of cash and to debt payment. The subject of the analysis is the subprime financial crisis, that, according to Kregel (2008), was not Minskian in the most pure sense. A main point for this assessment is the argument that the decrease in the margins of safety was not due to changes in expectations (as in Minsky), but due to a miss-assessment of risks by the rating agencies. His analysis has the subprime mortgage obligations as the central units and their vulnerability depends on the vulnerability of the securities that back them. There are three types of securities with very different cash inflow positions depending on their seniority: senior, intermediate, and residual. The intermediate receives income only after the senior security and the residual only after the two others. These different levels of expected income determine different margins of safety and their classification into hedge, speculative and Ponzi profiles. Overcollateralization then plays a role in determining expected income. To assure an investment grade to a senior security that was backed by subprime mortgages, these would be overcollateralized. Overcollateralization would be done by the exact amount needed for the rating, which was calculated according to the statistical probability of default of the underlying mortgage (p. 15-16). The result was that for the senior security, the "expected income from the mortgage pool was far in excess of what had been pledge to" its purchaser; for the intermediate securities, cash inflows were more likely to fall short of payment commitments, "but would, on average, have a positive NPV [net present value]; and in the case of residual securities, margins of safety were zero.

What determines the margins of safety of the senior security is thus the degree of overcollateralization. Put alternatively, the margins of safety are represented by the residuals. The author concludes that the crisis was not Minskian in the most pure sense because the amounts of residuals in each security was calculated by the rating agency, and did not increase due to more optimistic views about these mortgages by the economic agents, but rather due to a miss calculation of risk by these agencies.

Kregel (2008) in deep analysis of the subprime mortgage crisis through the lens of Minsky's presents an important progress of the use of Minsky's framework. Expected earnings are deeply studied, with its components being made explicit and subject, themselves, to individual classifications according to Minsky's typology. In Kregel's analysis, there is an aggregation of differently classified types of income to determine the classification of an economic unit as

hedge, speculative or Ponzi. This constitutes a major change in the understanding of margins of safety where this is determined by the presence of a "riskier" element of income. The analysis gains a lot from this classification of two different units, the first being determined by the proportional presence of the latter. The use of Minsky's framework to study of emerging markets exchange rates that will be conducted in the next section follows this type of analysis.

3 The Fragility of Emerging Markets Exchange Rates

This section uses from Minsky's analysis of how fragility is created in different systems as presented in the previous section to analyze the fragility of exchange rates in emerging markets. It does so by suggesting adaptations to Minsky's framework to an analysis of this context while presents the corresponding empirical evidence.

3.1 The economic units: money managers

As discussed, Minsky's original analysis is focused on productive units that have assets and liabilities determining inflows and outflows; their financial commitments must be covered with income from either business activities or loans, their constraint being to be able to meet these commitments. The decisions on liability structure change according to expectations concerning future income which is based on assessments of past and actual activity. This decision result on an expected margin of safety.

In an analysis of financial flows in a global context, the central units are the money manager; they have liabilities in the (funding) advanced economies and buy assets in different countries (according to their portfolio diversification decisions) - advanced or emerging ones. In order to continue receiving funding, money managers must be successful in allocating portfolio - as flows migrate to the successful fund managers (Minsky, 1988, p. 32), their survival constraints is to maximize profits, ensuring a return at least in line with the return of other money managers. The relevant return is total returns, that consist of: dividends distributed, interest paid and, very importantly, asset appreciation - a point that was often highlighted by Minsky - for instance in Minsky (1988, p. 33). In the context of international portfolio allocation, total returns must also include exchange rate changes, what is of especial relevance when investing in emerging markets due to their higher exchange rate variability.

The importance of exchange rate changes in total returns results in an interconnection among units where the decision of a money managers to invest in a country has an influence on the exchange rate of a country and thus on the return of other money managers.

3.2 Exchange rates and margins of safety

Minsky's original analysis was focused on funding and its repayment, a framework that obviously has the interest rate as a central variable. The expansion of this framework to open economies has the exchange rate at the central place - especially when focusing on the investment in other countries and when the exchange rate has an impact on returns. This was already the case in the analysis of the Asian crisis (as in Arestis and Glickman (2002) and Wolfson (2002)), but the role of exchange rates was however limited given the prevailing fixed exchange rate regime. In the case of emerging countries in the 2000s, with the prevalence of floating regimes in most countries concerned increases its importance substantially as it has the potential to substantially change the value of Money manager's assets held in another country than the funding one.

Indeed, portfolios can be allocated in i) the same country as where they have their funding from, ii) another advanced economies, and iii) emerging markets. The major difference among these three options being the exchange rate and its impact on returns: it plays no role in the first case, but is relevant in the second, and is a main element of uncertainty in the third case. The margin of safety vary accordingly: given the constraint of maximizing total returns, money managers margins of safety are related to the extent of whether their decisions put returns at stake. The margin of safety will thus be the highest in the case of a money manager that invest only in its funding country, lower if it includes assets from other advanced countries, and the lowest in the case of investment in emerging markets. Following Minsky's typology, and specially the broader differentiation of speculative and Ponzi from hedge units as units that are vulnerable to changes in financial markets conditions (Minsky, 1993), this characterizes three different types of units as, respectively, hedge, speculative and Ponzi. To be more precise, given the fact that portfolios are rarely allocated solely in one type of country, we can define Ponzi investors as the ones who an important part of their portfolio's is allocated in an emerging market.

We recall that the Ponzi position, characterized by decreased margins of safety, is only a more fragile one, more vulnerable to changes in financial conditions. In fact, under the condition that the environment continues as favorable as they expected, money managers that invested in emerging markets

will have highest returns and meet their survival constraint[14]. However, in case of turbulence in emerging markets exchange rates Ponzi money managers are the only ones to be exposed to it.

3.3 Tranquility: low liquidity preference internationally

As discussed before, Minsky's cycle begins in a period of tranquility. In a profit-seeking strategy firms change their liability structures to take advantage from new profit opportunities that arise from innovations or from a changed economic environment. They do that by constantly, over "each short period", reassessing the environment and their opportunities (Minsky, 1988, p. 33). Indeed, in the case of international portfolio allocation, innovations (in both technological and institutional terms) are important for allowing investments in emerging markets to take place[15], but over shorter periods it is the tranquility of the economic environment that plays a greater role.

This periods of absence of crisis are known as periods of low liquidity preference internationally[16]. Indeed the importance of liquidity preference in the determination of capital flows to developing countries has been studied by other scholars. This literature argues that given the hierarchy of currencies, developing countries assets are much less liquid than assets of central economies (de Conti, 2011), and are therefore demanded only in circumstances of low preference for liquidity internationally[17]. Given the different liquidity provided by different currencies, Andrade and Prates (2013) present an analysis of the behavior of exchange rates of currencies of 'peripheral countries' through changes in an asset's 'own rate of interest' - a (Keynesian) concept that is made explicit through an equation that combines different attributes, including the *liquidity premium*. With the same idea in mind, Biancareli (2011) argues that periods of low liquidity preference are a main determinant of 'liquidity cycles' to developing countries. In comparison to these studies, we want to go a step back and study the change in the expectations of foreign investors following the change in the economic environment.

[14]The parallel to this in Minsky's firms is the fact that speculative or Ponzi firms can have enough inflows to cover for outflows even after reducing their safety margins, as long as they continue finding other types of funding.

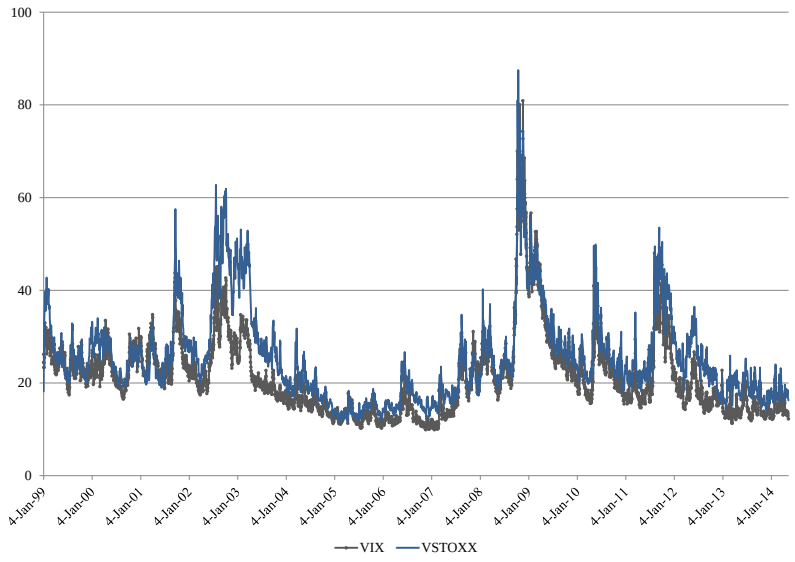
[15]And that is why only emerging countries, those that passed through a liberalization process, are the ones considered here

[16]The concept of liquidity preference is based in the understanding of uncertainty as fundamental uncertainty that is not reducible to calculable risk and of a goods liquidity as the ability to reverse the decision of investing in such financial or physical good (Hayes, 2003). Given the uncertainty

[17]If uncertainty is low, an agents preference for holding liquid assets might decrease, leading to a change in the composition of its portfolio towards less liquid assets.

The 2000s clearly presented a long period of tranquility from 2002/3 to the GFC. A broadly used indicator of uncertainty and stress in financial markets in general is the VIX index. It meassures the expected volatility implied in different S&P 500 index options, where values lower than 20 are commonly considered as less stressful periods and values higher than 30 are associated with crisis. A similar index is also calculated for Europe, the VSTOXX (that calculates the volatility implied in the EURO STOXX 50 option prices[18]). As it can be seen in Figure 2 the two are very similar. Through their evolution we can see that the 2000s was market by a rather low level of uncertainty between the dotcom bubble and the global financial crisis (GFC). The period after the GFC was marked by much smaller, but frequent, peaks of higher uncertainty (related to crisis in Europe), all followed by relatively low levels of uncertainty.

Figure 2: VIX and VSTOXX daily data from 2000 to 2014



Source: Chicago Board Options Exchange (2014) for VIX data and STOXX (2014) for VSTOXX data. Due to the fact that the series are not available for the same workdays, data presented here corresponds to the availability of the VIX index.

[18]The VSTOXX Indices are based on EURO STOXX 50 real time options prices. It is measured by the square root of the implied variance across all options of a given time to expiration (STOXX, 2014) The EURO STOXX 50 is made up of fifty of the largest and most liquid stocks.

3.4 The self-feeding cycle and the build-up of fragility

As in Minsky's original framework, what is central for the beginning of the cycle of capital flows to emerging countries is the change of expectations of agents that follow a period of stability. After a period of tranquility in financial markets, prior decisions will be considered as excessively conservative and reviewed, resulting in a decrease of margins of safety. Money managers will thus decide to include their assets in their portfolios, what triggers the beginning of the cycle.

The fact that the decision of a few money managers to invest in these markets can trigger a cycle of capital flows results from the institutional characteristics of emerging market currencies prevailing in the 2000s: the relative small size of their markets, the low liquidity of their currencies internationally, and the floating regime.

In 2013, according to the Bank for International Settlements (2013) survey of foreign exchange markets, emerging market countries accounted for 8.4% of total foreign exchange market. Although this represents the double of the participation in 2001, it is still a very small share[19]. The relative small size of emerging countries' markets amplifies the impact of the decision of a few money managers, both for ensuring liquidity and for being an appreciation pressure on their exchange rates.

The extra capital brought by these new investments assures the liquidity of these countries' markets. Given the low liquidity of their currencies internationally, the assurance of liquidity plays an important role in increasing the demand for their assets.

The third fact that reinforces the cyclicality of capital flows to emerging countries is the floating regime that was adopted by most of these countries (even if a dirty-floating one) in the aftermath of the late-1990s crisis. With a floating regime capital flows lead to exchange rate appreciation, what configures an extra gain for the international investor. As discussed earlier, money managers are interested in maximizing the total return of their portfolio, what includes asset appreciation (and thus exchange rate appreciation). As a result, when some money managers decide investing in emerging markets they increase the attractiveness of these markets to other money managers, leading to further inflows and spurring the cycle. These changes in the conditions of the emerging country's market reinforce the reassessment of portfolio decisions and more money managers review their decisions of not investing in emerging markets as

[19] To allow for comparability only the currencies that are in the 2013 survey were considered in the calculation of the market size of 2001

too conservative[20].

Another reason for the constant increase in the amount of investment in these countries is the fact that money managers that decided not to invest in emerging markets (hedge) have now lower returns than the ones that did so (Ponzi), what put their funding at risk.

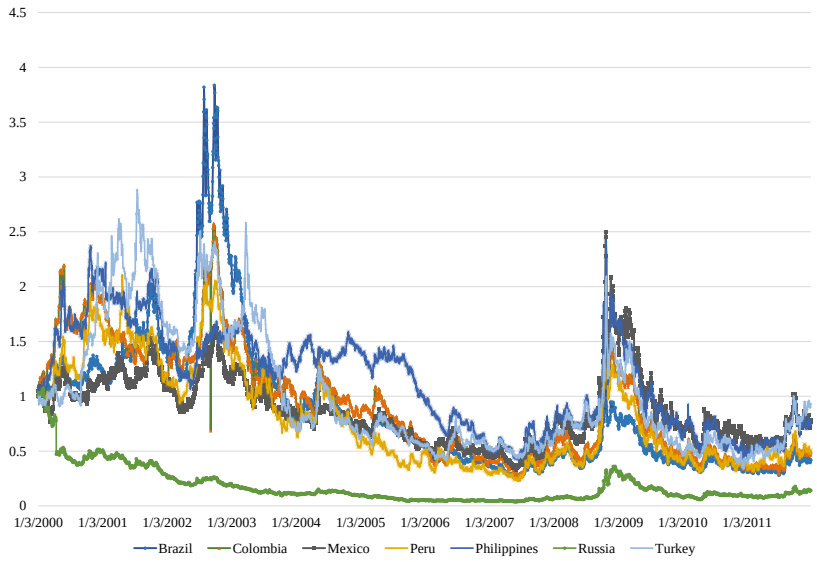
As the cycle goes on, there is the establishment of a new convention of emerging markets as a good investment alternative. A convention, for Keynes is a situation where the participants expect everything to remain the same: "The essence of this convention though it does not, of course, work out quite so simply lies in assuming that the existing state of affairs will continue indefinitely, except in so far as we have specific reasons to expect a change." (Keynes, 1936). This focus on the continuity leads Orléan (1999) to call it a Keynesian convention, a convention of 'continuity' or 'normality', indicating that there are times where this convention will be tested by the markets. While this is not the case, the convention guides the participants of a market and as more participants adhere to this convention, the greater success it has and the more legitimate it is. The convention will thus validate itself, making participants confident and liquidity abundant. In this period of stability of conventions, expectations of participants converge[21]: there is an expectation of stability (no crisis) and of higher returns from these markets. An evidence of this peak in the desirability for emerging market assets is the low-levels achieved by JP Morgan's EMBI (Emerging Market Bonds Index) before the crisis (see Figure 3). Interesting to note, it was also in early 2008 that Peru and Brazil were classified as investment grade by the main rating agencies; Russia changed its classification in 2005 and others followed after the crisis: India and Indonesia in 2011, Turkey in 2012, the Philippines in 2013.

From the perspective of the emerging country's exchange rate markets, the presence of money managers will thus inaugurate a constantly changing equilibrium. A higher participation of these countries assets in money managers' portfolios and its correspondent higher inflows stimulates more participation and more inflows, with their exchange rate constantly appreciating. For the emerging market countries not only the assets which receive the investment will inflate as they do during a boom, but also the exchange rate will follow this pattern. Accordingly, this system will become more and more fragile as the

[20]This evolution of expectations where the own actions validate themselves is also present in Minsky's original analysis in the fact that the decision for higher investments increases aggregate demand and therefore profits that pay for the investment funding validating the decision.

[21]In Orlean's analysis the expectations of all participants is the same, but his analysis only concerns investors who already invest in an asset itself, while this analysis concerns 'all' potential investors.

Figure 3: EMBI+, selected countries



Source: JP Morgan

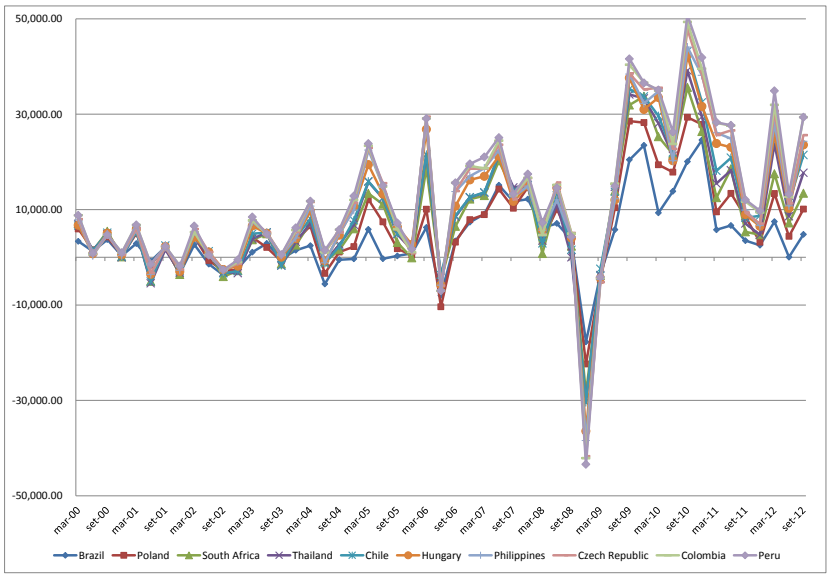
amount of Ponzi managers increase. The vulnerability is however exogenous to these countries, as it depends on decisions of Money Managers that follow not only these countries variables, but follow a self-determining cycle and depends on the conditions of all other "available" markets.

Figure 4 presents the accumulated value of portfolio flows to the ten emerging countries to receive the highest amounts of flows (as a proxy of their integration to the international markets); only liabilities are considered here in order to put evidence to the behavior of the foreign investor. As it can be seen, flows to emerging markets increased significantly after the period of tranquility in the mid-2000s, achieving very high values between the GFC and the turbulences related to the European Union.

3.5 By the end of the cycle: fragility and exchange rate instability

When fragility is at high levels any event can cause instability. This event is known in the Minskyan literature as a 'not unusual surprise event' a term that emphasizes the recurrent characteristics of the event that nevertheless is con-

Figure 4: Portfolio Flows, Liabilities, accumulated values. 10 Countries to receive the highest amounts since the year 2000.



Source: IMF, through Datastream

sidered as a surprise by market participants (or units in general) given their euphoric state.

In the 2000s, the major event that caused substantial turbulence in emerging markets currencies was obviously the collapse of Lehman Brothers and the crisis that followed. In this moment, the economic scenario became much more uncertain and higher margins of safety were required, leading money managers to reduce their exposure to emerging markets and placing their portfolio in assets issued in the funding country (or in any of the core and most liquid currencies). The end of the cycle of tranquility and boom is thus followed by a sell-off of assets which triggered exchange rate depreciation. As Wolfson (2002) put in his analysis of the Asian crisis, this process is very much like the debt deflation in the domestic level.

With this major turbulence, instability was installed and every event would lead to a significant increase in uncertainty and revision of assessments. This period of instability has nevertheless also included periods of capital flows to

emerging countries given the high differential in returns in emerging and in core economies - with interest rates in advanced countries nearing the zero bound - and the risk of depression. Here we cannot forget that money managers have a constraint of maximizing total returns and that a period of high instability can even offer significant opportunities for that.

In this context, the amounts of capital flowing to emerging countries even outpaced the pre-GFC values (see Figure). This episode was markedly different than prior currency crises in the emerging world. No specific moment marking the end of the cycle can be pinpointed (yet): there were major depreciations in 2008 - but most in most countries these reversed relatively quickly afterwards -, and for over five years these countries have been experiencing relatively important depreciations. This crisis has being much more characterized by a hike of volatility than by a one-off depreciation, what reveals the state of high fragility which is typical from the end of a boom cycle in Minsky's framework.

3.6 Policy Implications

The policy implications of this analysis point to the need of intervening in the booming phase, when the fragility is being built. Successful policies would, in this case, be policies that limit the exchange rate appreciation decreasing the actual and expected gains (total returns with the asset). Also policies that interfere in the expectations of future total returns have the potential to control the capital inflow and thus the exchange rate fragility.

The most common policies in this sense are the capital inflow controls and the accumulation of reserves[22]. The policy of reserve accumulation suffer however from important drawbacks (see (Ramos, 2012)). A main problem is the one of the cost of sterilizing the market liquidity provided when buying foreign currency (to buy the foreign bond that constitutes reserves). In order to do so, domestic debt is usually emitted and given the interest rate differential between the value paid by the debt emitted and received by the foreign bond bought, the government might incur in an important lost. Another issue with this process is that it can actually be an incentive for more inflows as it creates the supply of assets demanded by the foreign investor (see Kaltenbrunner and Painceira (2009) for the case of Brazil in the late-2000s).

[22]More recently some countries have also used intervention in the future markets to limit appreciation in the spot rate.

3.7 Concluding remarks

The use of Minsky's framework in an analysis of capital flows to emerging markets enlightens the decision making process behind these flows, putting in evidence the cyclical and reinforcing pattern of those flows given its interactions with the floating exchange rate and more broadly speaking with the features of emerging market exchange rates seen from a global perspective.

Following a period of stability in international financial markets money managers reassess their decisions of not investing in emerging markets as too conservative and add this type of asset to their portfolios. By doing so they are validating their new expectations: they assure liquidity to emerging market exchange rates and contribute to their appreciation, leading other money managers to also reassess their decisions and invest in emerging markets. For the emerging country the cycle will be characterized by a constant appreciation of the exchange rates and a continuous increase of the stock of financial assets hold by international investors, what configures a situation of increasing fragility: in the case of a change in the international environment the stock can be withdrawn, leading to a sudden exchange rate depreciation. The fact that the presence of money managers in a country is a result of its portfolio diversification strategy is what makes the fragility even more important. Contagion will not only happen in countries which pass by a similar situation, but among any countries that composes the portfolio diversification strategy of the same money manager. The emerging country will thus be susceptible to changes in its own economy, in the funding economy and in any other economy that provide alternative assets.

4 Conclusions

Minsky's framework firstly used in an analysis of firms and its decisions on indebtedness and investment has since then proven useful in the analysis of different situations. Each enlargement of the framework to other contexts resulted in a deep analysis of the central units that allowed the understanding of their decisions, of how their expectations evolve according to changes in the macro environment, and of the interactions among units and the macro environment, creating the basis for understanding the resulting phenomenon with a focus on how fragility is created.

In the analysis of the late-1990s crisis, these units were often firms that engaged on operations characterized by currency mismatch. In the case of the

subprime crisis, mortgage-backed securities were at the central place.

When looking at emerging countries exchange rates since the 2000s, we observe major and synchronized exchange rate swings, a phenomenon that can only be analyzed in the context of financialization that characterizes the advanced economies and the international capital flows. Minsky named this current phase of capitalism Money Manager Capitalism calling attention to the central units leading these changes. We thus suggested an analysis of capital flows - and thus exchange rates - in emerging markets through the analysis of the decisions of money managers. In order to do so, Minsky's framework was enlarged to one of open economies and the focus was shifted from firms to money managers.

The analysis puts emphasis on the importance of periods of tranquility in the main financial markets and in an emerging country in the changing assessments of investors about investing in emerging countries. It also calls attention to the fact that given the floating exchange rate regime the expectations about this investment and the decision to invest itself are self-reinforcing, as the financial flow assures the liquidity of the country's exchange rate and exercise an appreciation pressure that configures higher returns with an investment in this country. The self-feeding cycle is thus created where the exchange rate of the country is increasingly fragile to changes in the behavior of money managers which, in turn, depend on the conditions of different markets around the world.

From the moment when the conditions of tranquility are established, the cycle takes place. This boom and the related increasing fragility of the countries' exchange rates are endogenously determined: by the interaction of the expectations and investment of international investors. It is thus the period of tranquility and the boom that plant the seeds of the bust, the exchange rate crisis, because once the fragility is at high levels, any 'not unusual surprise event' can lead to a massive and sudden outflow.

This framework calls attention to the need to understand and intervene in the boom phase, instead of in the bust. Most analyses of exchange rate crisis are focused on the conditions ruling immediately before the crisis, while the fragility is actually built much earlier. These analysis are also often focused on the country - and mostly its government - suffering the 'attack', while the central agents in this case, whose understanding we must enhance - are the foreign investors. Accordingly, policies to be implemented in the boom phase must be further analyzed.

With regards to the determination of exchange rates, the analysis argues for the importance of financial flows due to its cyclical pattern. Financial and trade-related flows are the two main types of capital flows that should, accord-

ingly to their relative importance, be a more or less important determinant of exchange rates. But the fact that financial flows are cyclical (due to the interactions presented) could generate exchange rate cycles.

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