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a Brazilian perspective on emerging market issues**

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# Coping with a Complex Global Environment: a Brazilian perspective on emerging market issues

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## Abstract

*The Working Papers should not be reported as representing the views of the Banco Central do Brasil. The views expressed in the papers are those of the author(s) and do not necessarily reflect those of the Banco Central do Brasil.*

This policy paper reviews the rationale for emerging market economies adopting macroprudential policies in an unstable global environment. Monetary policy in these economies is discussed with reference to its complex interaction with global events and spillovers. In particular, the paper describes and discusses macroprudential and monetary policies adopted in Brazil in 2009-10. The paper also reviews the market turbulences caused by the fiscal limit problem in some advanced economies in 2011-12 and explores its consequences for emerging market economies, in particular for Brazil, highlighting the role of macroprudential measures under such circumstances. Global coordination issues are also addressed from an emerging market point of view. Commodity prices, inflation and growth prospects for emerging markets will be discussed as well under a complex and volatile global liquidity environment.

**Keywords:** global liquidity; macroprudential policies; monetary policy; policy coordination.

**JEL Classification:** E50, E60

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## **1. Introduction**

The main challenge for monetary policymakers in emerging market economies (EMEs) is how to implement price stability mandates in a complex and volatile global environment. During 2009-10, high global liquidity and commodity price volatility created important policy dilemmas. The abundant global liquidity generated extraordinary capital inflows to EMEs, leading to rapid expansion of their credit markets and upward pressures on asset prices. The policymaker's response to such a global environment has been to increase reliance on macroprudential policies, including targeted capital controls. However, the ongoing discussion about using non-conventional policy tools instead of conventional ones is still in a very preliminary stage. Unconventional circumstances may justify the use of less conventional policy instruments whose effects have not yet been fully debated in the economic literature. For instance, Taylor (2008), Cúrdia and Woodford (2010), among others, suggest augmenting the standard Taylor rule to take changes in bank interest rate spreads into account, which implies indirect targeting of asset prices. However, it is too early to conclude that targeting asset prices will become part of the standard toolkit of central banks in the near future.

In 2011-12, it became clear advanced economies have an impending fiscal limit problem. The fiscal problem in these economies led to renewed global risk aversion, flight to safety and interbank liquidity problems. In a sense, this is exactly the scenario macroprudential policies implemented by several emerging markets in 2009-10 were supposed to address. In this context, despite the continuing environment of high global liquidity – at least from official sources – monetary policy issues in EMEs have changed from previous years. The effects from macroprudential measures and monetary tightening, along with the spillovers from the deleveraging process in Europe, resulted in lower risks of excessive credit growth in the medium run. Indeed, relative to the previous year (2009-10), credit and economic activity are in the exact opposite stage in the cycle for many emerging markets. Correspondingly, exchange rates and capital flows have been more volatile, motivating fine tuning of interventions in foreign exchange market and capital flow regulation measures. As long as private liquidity continues to flow erratically to EMEs, as they have done so far, and as long as the fiscal limit problem persists, the same issues are bound to reappear.

This policy paper reviews the rationale for adopting macroprudential policies<sup>1</sup> in an unstable global environment and describes the policies adopted in Brazil in 2009-10. The paper also reviews the fiscal limit problem in 2011-12 in some advanced economies and explores its consequences for EMEs, particularly Brazil. Monetary policy will be discussed regarding to its complex interaction with uncertain global events. The main objective of this paper is to organize a summary view of those events from a policy perspective, to provide a reference point for further discussions.

## **2. Global Liquidity – 2009-10**

When liquidity is abundant in global markets, such as in 2009-10, emerging markets may face a tension between monetary policy and financial stability objectives. The continuing high level of global liquidity and resulting inflationary pressures may entail negative interaction between the two mandates. In fact, capital inflows tend to respond to higher interest rates and are often associated with rapid credit expansion, rising asset price and resource misallocation across the receiving economy. Although a flexible exchange rate can partially absorb the shock, exchange rate volatility and one-directional persistent trends also raise policy concerns. Therefore, global liquidity tends to reduce the power of EMEs' monetary policy and also risks leading their economies on unstable and inefficient paths. It is important to note that capital inflows that finance local credit operations is not neutral for aggregate demand, even with a countervailing sterilized intervention policy. In fact, the credit channel is an independent transmission mechanism of external liquidity shocks. As a result, the policymaker's pragmatic response to this challenge has been a greater reliance on macroprudential policies and targeted capital controls.

By analogy to credit market events in the US prior to the global crisis, the key point is that, as a result of capital inflows, excess credit supply to specific sectors could stimulate the formation of asset price bubbles. When the bubble bursts, prices on asset side fall very quickly, while, on the liability side, the value of outstanding loans – which in general are not marketable – will not. As a result, borrowers (especially the most

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<sup>1</sup> Macroprudential policies may be defined as financial sector measures devised to minimize aggregate risks *ex-ante* and often resulting in buffers and policy space to be used *ex-post* during a crisis. Critically, policy calibration must be made with reference to macro events, not micro; otherwise we have standard prudential regulation. In a recent survey, Galati and Moessner (2011) present a sample of macroprudential policies defined as prudential tools set up with macro or systemic lens.

leveraged ones) will experience a sharp contraction in their net worth, which in turn will precipitate credit defaults, margin calls and liquidity squeezes. Banks would, then, be the next in this chain reaction. They will suffer losses due to (potentially large) defaults by borrowers, and banks' net worth will be depleted if the bank capital base is weak. Under extreme situations such as the Great Depression and the 2008-09 crisis in the United States, the downward asset price dynamics may be amplified, contaminating other markets and precipitating costly bank failures.

Capital flows to emerging markets are associated with global liquidity conditions ("push factors") as well as domestic factors ("pull factors"). Global liquidity is often linked with strong stock market returns, real interest declines and capital inflows to EMEs. Domestic factors in receiving economies such as the perspective of high domestic growth, the prospects of currency appreciation and monetary policy also play a significant role, with effects depending on the type of capital inflow (IMF, 2010a). To capture these effects empirically, official global liquidity may be gauged, for instance, by G4 reserve money growth or an index of US real interest rates and global risk aversion (IMF, 2010a, 2010b; Psalida and Sun, 2011).

By any measure, official global liquidity has remained high since the financial crisis. This environment stimulated private agents to intermediate volatile flows to risky assets and to cause large swings in market sentiment. In fact, foreign capital flows to emerging economies have reached record highs and lows in the four year period from 2009 to 2012, with much higher volatility in 2011-12 (Figure 1). As a good indication of the magnitude of this process, net private capital inflows to Brazil have reached record level just before August 2011, at USD 130 billion in twelve months or 6.1% of GDP (as a reference, the average net inflow since 1995 is 2.7% of GDP). Following this peak, inflows slowed as global market risk aversion deteriorated.

Capital inflows, financial reforms and productivity gains are usually the main factors driving credit cycles in EMEs. This view is consistent with the international evidence on the matter (IMF, 2011). The propagation mechanism through appreciation of collateral or net present value of corporations and financial institutions also has a role in amplifying the driving factors and generating a more volatile credit cycle. The recent credit growth trend in Brazil has been led mostly by institutional reforms and domestic conditions, with capital inflows having a more marked influence only during periods of high global liquidity. Brazil has implemented a series of microeconomic market

reforms, since 2003, aimed at improving collateral availability, securitization possibilities and creditor protection. However, the evidence indicates that the cycles around this overall trend are related to capital flow patterns (Figure 2).

The monitoring of selected indicators in Brazil during 2009-10 provided evidence of potential risks for financial stability. There was a noticeable growth in domestic credit funded abroad in a broad sense - considering financial and non-financial external debt (Figure 3). This was particularly the case in medium sized financial institutions that have no significant deposit base. An expansion of longer-term household credit with high loan to value ratios and poor collateral was also observed in some instances. At the same time, there was fast deterioration of the current account and picking up of non-tradable inflation. Finally, the BRL had been exhibiting fast nominal appreciation until that period (Figure 4), and interest rate differentials stimulated carry-trade activity which was intermediated by domestic banks.

Therefore, before re-starting a monetary tightening cycle at early-2011, the Central Bank of Brazil introduced a series of macroprudential measures. The set of measures were designed to minimize the identified risks to financial stability, which could be intensified by further capital inflows. In particular, it established higher reserve requirement on time and demand deposits, higher capital requirements for long-term credit, and reserve requirements on excess short foreign exchange positions. Regarding capital flows, foreign exchange market intervention had been intensified both in the spot and future markets, respectively with international reserve accumulation and foreign exchange swap operations. Moreover, capital control measures were taken by the Ministry of Finance. These measures supported the Central Bank in its monetary tightening policy applying the usual interest rate instrument. The measures were later unwound partially, along with monetary easing, in light of the worsening of the external scenario and private global liquidity, which became the dominant factors later that year.

## **2.1. Reserve Requirements**

Reserve requirements appear to be an effective instrument and may have relaxed the policy dilemma in 2009-10. After their introduction, the pace of credit expansion to households moderated considerably on a par with interest rate increases in longer-term loans. Required reserves at the Central Bank reached desired levels and constituted a



readily available domestic liquidity buffer that is funded by financial institutions, amounting to 10% of GDP as of mid 2011. Bank's short positions in foreign currency were reduced, with carry-trade operation restrained along the way (see also section 2.2).

The set of macroprudential measures has had an impact on economic activity. According to a survey among market analysts conducted in February 2011, the median effect of macroprudential measures is equivalent to a 75 basis point hike in the policy rate. These measures have had clear effects on credit concessions and interest rate spreads as reported in the Financial Stability Reports, by the Central Bank of Brazil, April and September 2011. The effect is more notable when different sectors or institutions are compared. For instance, credit for the auto-sector faced harsh constraints, as well as strong reduction in new loans. Also, reserve requirement constraints are binding for large institutions, implying widening of spreads, while the same are not occurring with small institutions.<sup>2</sup> Since credit concessions and interest rate spreads are clear channels of transmission to the real economy, there is suggestive evidence of significant effects.

Those measures may imply costs and uncertainties, not least, effective communication. First, reserve requirements may shift the steady state path away from the efficient one, though it may also strengthen monetary policy in response to certain shocks and help stabilize the economy during liquidity crisis (Montoro and Tovar, 2010). Second, stringent banking regulation stimulates the disintermediation of capital inflows, making it harder to monitor the buildup of imbalances and reducing the power of monetary policy in the longer run.<sup>3</sup> Third, macroprudential measures may be difficult to communicate.<sup>4</sup> The reliance on these measures in addition to interest rate policy can be perceived, at first, as increased leniency with inflation, despite their being explicitly designed to improve the power and efficiency of interest rate policy in a context of large capital inflows. Perhaps this can be traced to ambiguity aversion by market participants, that is, the worst case scenarios receive a disproportionate subjective weight in particular periods.

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<sup>2</sup> With a similar identification strategy, Rodrigues and Takeda (2004) explore cross-section variability in reserve requirements to estimate their effect on spreads.

<sup>3</sup> This issue reportedly became important in China. See the IMF's November 2011 Financial Sector Assessment Program (FSAP) review of China.

<sup>4</sup> The Central Bank of Brazil communicated potential effects of macroprudential policies. See, for example, the box "*Medidas Macropudenciais – Impactos dos Recolhimentos Compulsórios*", Inflation Report, June 2011.

Reserve requirements have also been used by EMEs as an instrument to sterilize foreign exchange intervention, though not by Brazil. The policy maker can substitute reserve requirements for open market operations, but there is a trade-off, that is, one must compare there are marginal costs of reserve requirements and sterilized intervention. Interestingly, the reserve requirements costs are carried by private agents in proportion to their use of the financial system while the cost of open market operations entails a public liability. Reinhart and Reinhart (1999) document the pattern of reserves requirement practice in EMEs. Also, in their model, the incremental distortions created in domestic asset markets by reserve requirements could depreciate the domestic currency. But the argument is only theoretical. In any case, this is not the rationale for current reserves requirement policy in Brazil, a policy aimed at creating a prudential liquidity buffer, smoothing the credit cycle and ensuring financial stability.

Recently, as the external liquidity conditions deteriorated, the Central Bank of Brazil began to unwind macroprudential measures in an attempt to stimulate the economy. It removed some of the increases in capital requirements for new consumer loans, and it also announced that a planned increase in the minimum amount of credit card payments had been cancelled, thus preserving the floor established at the end of 2011. Longer-term payroll loan capital requirements and the hike in reserve requirements on cash and time deposits have remained unchanged, so that there would still be more space to move.

## **2.2. Foreign Exchange Intervention**

The Central Bank of Brazil has the formal mandate to oversee the foreign exchange market, ensuring a stable nominal exchange rate. Therefore, it is required by law to implement a free floating regime, but with concerns to limit excessive volatility. Whenever the Central Bank assesses the existence of persistent trends subject to abrupt reversal risks, specific actions are taken in the spot and future markets to lower volatility in the relevant horizon. Over time, these actions often result in buffer stocks, in the form of open future market positions or international reserves, which allow stabilizing interventions during crisis episodes. In this section, we review the rationale for a low exchange volatility environment and the intervention policy adopted by the Central Bank of Brazil to ensure such an environment.

Exchange rate volatility interacts with some features of EME financial markets to generate financial stability problems. Indeed, incomplete capital markets and weak governance institutions reduce the opportunities and the incentives to currency hedging.<sup>5</sup> Therefore, any sufficiently wide and long swing in the nominal exchange rate may affect adversely bank credit quality, provision of new credit and even interbank operations. Additionally, if micro prudential regulation is not in place to restrict currency exposure in banking operations, banks might be directly affected by the high volatility episodes. From a steady state perspective, too much currency volatility leads to a risk premium in domestic credit operations, constraints the efficient allocations of resources across the economy and increases the likelihood of systemic events. Nonetheless, if volatility is driven too low, it might favor speculative positions and also subject the economy to unstable dynamics (Plantin and Shin, 2007).

Brazil provides many examples of the kind of financial stability problems EMEs may face when exposed to excessive exchange rate volatility. During the 2008 financial crisis, many large exporters in Brazil had future market positions much larger than their hedging needs, with stark maturity mismatches, and were, therefore, forced to absorb large losses. As foreign credit lines were closed, firms found themselves in need of financing in the worst possible time. The unknown level of exposures of particular financial institutions to the firms in trouble – in addition to the already turbulent global environment – led to a market freeze. It also led to a crowding out of domestic wholesale market, which is usually tapped by small and medium institutions, further aggravating the interbank market freeze. The Central Bank of Brazil intervened in the market by providing ample liquidity to avoid possible failures of financial institutions. More recently, in the 2011 turmoil, major exporters were once again surprised by bond covenants triggered by the stark depreciation of the BRL and were forced into costly renegotiation. This problem occurred despite many regulatory measures taken to avoid the repetition of the 2008 problems, which shows how difficult it is to fill all the market and incentive gaps by means of regulation. The 2011-12 episodes, however, did not lead to financial stability issues, in part, because macroprudential measures had been taken in

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<sup>5</sup> Of course, advanced economies have similar problems of incomplete markets and weak governance. Dollar funding became a problem during the financial crisis, and that motivated swap agreements with the Federal Reserve. Some emerging market, with adequate external positions and international reserves, also accessed the swap lines. In any case, the point here is that market incompleteness and weak governance are an order of magnitude higher in EMEs.

the previous years, such that avoided excessive asset price increases and growth in credit aggregates.

As an empirical matter, persistent appreciation periods are often followed by disruptive depreciation episodes, such as the ones observed in 2011/2012 in many emerging markets. The reversal of the appreciation trend may be a response to negative real shocks. However, in the present scenario of volatile private liquidity, another likely cause is liquidity squeeze in speculative positions (Brunnermeier et.al, 2008). As mentioned before, incomplete capital markets could justify, in theory, ex-ante intervention to avoid overshooting at the depreciation episode (Caballero and Lorenzoni, 2007). Non-fundamental shocks to the exchange rate which generate irrelevant price signals and, correspondingly, resource misallocation across the economy, also justify intervention (Leith and Lewis, 2007). Although research on the matter is only beginning, empirical evidence tends to favor this analysis, since strong real appreciation in face of capital inflows often results in costly adjustment upon capital reversal (Cardarelli, Elekdag, Kose, 2010).

Exchange rate volatility may also have subtle consequences for monetary policy. Exchange rate flexibility is usually the first line of defense against international shocks, since it helps to channel foreign demand in ways that help to balance the economy. For instance, after a commodity shock in Brazil, the floating exchange rate tends to appreciate due to increased non tradable consumption and larger capital inflows, and this will temper the demand for domestic goods while also stabilizing commodity prices when measured in the domestic currency. Yet, too much volatility may also have adverse consequences for monetary policy. With more volatility, the resetting of prices will be more frequent and more synchronized among economic agents, therefore accelerating the transmission of shocks and making it more costly to anchor expectations. The adoption of the inflation targeting regime and other structural macroeconomic policies which reduce aggregate volatility may contribute to reduced pass-through of external shocks. The international evidence is consistent with this view (Kohlscheen, JIMF, 2010). From a business cycle perspective, there is evidence of non linearity in the pass-through of external shocks to domestic prices (Correa and Minella, BCB WP, 2006), although the evidence of volatility effect in these frequencies is less robust than at the lower frequencies considered before.

What are the recent policies used by the Central Bank of Brazil to minimize the risk of excessive foreign exchange volatility? First, interventions in the spot market since 2004 have followed a publicly stated policy of international reserves accumulation, and, for this reason, are calibrated on a daily basis to avoid upsetting underlying market trends.<sup>6</sup> Although the long run trend is not disturbed, short term trends may be affected, thus allowing for lower volatility and less unstable dynamics.<sup>7</sup> Second, spot market interventions were complemented by interventions in the futures market. For example, if there is foreign exchange selling pressure in the future, say, from carry-trade activity, domestic banks could arbitrage, posting lower ask prices in the spot market and buying futures. In this scenario, central bank intervention of increasing its long position in the futures market can in principle avoid appreciation pressures. To the extent that the driver of future market activity is volatile, the intervention could lower spot volatility. Moreover, it has proved wise to have a contrarian futures market position in the event of a liquidity crisis, since arbitrage relations are weaker in these situations and market participants may find it harder to close open forward positions in a stressed environment, which could lead to non linear dynamics. The accumulated stock of international reserves works as an actual buffer in a more fundamental way, since it effectively offers a partial hedge to the net international position of the whole economy in the case of a global liquidity shock.

If there is any general lesson from the Brazilian experience, it is that international reserves should be abundant to enable credible intervention when it is mostly needed, that is, during crisis that risks macroeconomic and financial. The intervention policies in specific crisis events may vary, since the source of the disturbance and the transmission channels to the economy will also vary. For instance, (i) swap instruments may address a futures market squeeze; (ii) liquidity provision to foreign trade may mitigate a credit squeeze; and (iii) intervention using international reserves may provide liquidity in a stressed spot market. The choice of instrument depends on the type of problem in each relevant market.<sup>8</sup> In a quantitative assessment of the Brazilian experience, Silva (2011) estimates international reserves cost Brazil 1.32%

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<sup>6</sup> This is possible due to the informational advantage of the Central Bank of Brazil within this market.

<sup>7</sup> Kohlscheen (2012) shows interventions perturb the effect of daily order flow on the exchange rate.

<sup>8</sup> Stone, Walker and Yasui (2009) provide an interesting empirical assessment of the effects of interventions by the Central Bank of Brazil during the financial crisis in 2008. In general, announcements are found to have greater effects than interventions themselves. This result signals two things: first, there was sufficient central bank credibility; second there was sufficient level of reserves to support the claims.

of GDP per year, while the expected output loss during the crisis is estimated at 14.64% of GDP. This of cost and benefit assessment of holding international reserves is enlightening as it provides a macroprudential perspective, avoiding in this way the usual outcome of a purely accounting exercise. If international crisis occurred only once in every 10.7 year, the avoided losses would already compensate the cost. With this overall rationale, international reserves increased from USD 205 billion before the financial crisis to USD 372 billion in May 2012.

### **2.3. Capital Controls**

Capital control measures have been adopted as another instrument to minimize the effects of high global liquidity. The Financial Operation Tax (IOF) on capital inflows had already been increased from 0% to 2% in October 2009 as a response to capital inflows — foreign direct investment (FDI) flows were exempt. On that occasion, there was a significant reduction in portfolio investment and stabilization of the exchange rate. One year later, in October 2010, the Ministry of Finance increased the IOF tax on inflows from 2% to 4%, and, a few weeks later, from 4% to 6%. FDI was still not taxed and the tax on portfolio investment to individual equities was left at 2%. An additional tax of 6% was imposed on margin deposits for exchange rate derivative transactions, and the Central Bank of Brazil issued regulation to close some loopholes on margin deposit operations.

These measures seem to be effective. Since November 2010, net foreign investment to fixed income has been zero or negative, in comparison to a previous average inflow of USD 1.8 billion per month (Figure 5). The simultaneous unexpected increase in FDI flows, however, could indicate the existence of loopholes — something that is very likely in the light of previous Brazilian experience with these instruments. But capital flow monitoring, which is very comprehensive in Brazil, does not suggest this has been the case in 2010-11. In any case, the possibility of further controls has remained as a vivid possibility, which may have contributed to the overall effect. The prevailing expectation at that time of monetary normalization in some advanced economies also could have contributed in the same direction. More recently, as the situation in the major financial centers deteriorated following the uncertainty in the euro area, this event also helped slow capital flows to EMEs.

Historical experience points to the temporary nature of effects and of the capital controls themselves. From 1994 to 1996, the use of the exchange rate as the nominal anchor in the stabilization program also led to monetary policy dilemmas and the adoption of capital controls. Studies from that period suggest the effect of capital controls decays after six months (Cardoso and Goldfajn, 1997). In any case, the sharp reversals of capital following periods of large inflow forced the elimination of all capital controls a short period after its inception. This has been the regular pattern for the use of capital flow taxes observed in Brazil. For example, the IOF tax imposed at the beginning of 2008 to counter capital inflows was soon reverted in October of the same year after capital flow reversals.

In principle, capital controls could make monetary policy more independent. The accumulated evidence on the matter suggests controls on inflows may improve central bank independency, alter the composition of flows and reduce somewhat real exchange rate pressures (Magud, Reinhart and Rogoff, 2011). Our experience so far is consistent with the international evidence (Figure 6). There are initial attempts (Barroso, 2011) at measuring the risks to financial stability stemming from capital flows, and optimal (in a macroprudential sense) capital flow taxes have been devised within this perspective. Although further work would be necessary before sound quantitative advice could be given to policy makers, it is interesting that current estimates of the best policies lie in the range of capital flow taxes actually implemented in the past.

### **3. Fiscal Limit – 2011-12**

The fiscal limit of a country is defined by Bi (2011) as the maximum level of debt that its government is able and willing to service. Some advanced economies in the euro area seem to face an impending fiscal limit problem. It is less clear what happens once a government reaches such a limit, or what market participants think will happen. Sovereign default could be a possibility that advanced economies downgrades by rating agencies may suggest. Since government securities are seen as the benchmark for bank and firm instruments, financial turmoil has followed the downgrade events.

As several global market participants have large exposures to distressed advanced economy sovereign debt, there is continuing risk of short term funding difficulties for particular institutions. Moreover, there is the potential of bank and

sovereign risks feed into each other, compounding the problems in a downward spiral. That means similar policy tools that were used in 2008 may still be needed. Dollar liquidity lines have been available through central banks' swap arrangements. Central banks have been ready to step in a coordinated way to provide liquidity as needed to their domestic financial system. EMEs' central banks in turn have relied on accumulated buffer stocks of international reserves and local currency liquidity lines to cushion domestic financial system from turbulences abroad. Many EMEs appear to be in a better position today, and would be able to withstand financial turbulences.

The reversal of liquidity conditions in the major financial centers observed between mid-2011 and mid-2012 following previous liquidity abundance would be the kind of events macroprudential policies were designed to deal with. EMEs' concern is, in particular, the effect of foreign funding stress on the domestic credit markets. There are also concerns that turbulences abroad may affect adversely other variables such as trade, consumer and investment confidence domestically.

Until mid-2011, Brazil had experienced a strong recovery of foreign funding from the slowdown of 2008-09. Then, the flows slowed down once more in the third quarter of 2011 (Figure 3). During the 2008-09 global crisis, the combination of foreign funding stress and inadequate corporate hedging strategies led to an interbank market freeze and a credit crunch in Brazil. This time, however, the Brazilian banks are more capitalized and have better liquidity buffers than before. Most of banks' external debts are of longer term maturities (67% today, compared to 53% in 2008). Moreover, stronger regulation and more transparency in corporate hedging strategies would address concerns on bonds covenants if the exchange rate depreciates further.

As a result of previous monetary tightening and macroprudential measures, the credit cycle was already tipping towards deceleration at the time global credit markets were becoming thinner. The combined result led to faster than expected drying out of credit to corporations. Had macroprudential measures not been adopted probably the Brazilian banks and corporations would have much more debt and exposure to market and liquidity risk than would be advisable in a worsening external environment. From this point of view, macroprudential measures have contributed to financial stability. Moreover, reserve requirements and the high level of international reserves provide a comfortable buffer should severe developments in domestic and external credit markets occur, thus reducing the probability of a new credit crunch in the economy.



### **3. Global Coordination**

In the context of high global liquidity, EMEs have shown signs of overheating, yet, for different reasons, several of them have not allowed the nominal exchange rate to function as a shock absorber. Some have delayed monetary tightening fearing disruptive consequences of massive capital inflows. As a result of what appears to be a collective standstill, inflation rose and commodity price volatility increased. Although commodity prices appear individually as a supply shock for emerging markets as a whole, there is an underlying demand shock associated with global liquidity. From a broader perspective, the process of urbanization, development and social consolidation would also be a source of autonomous pressure on commodity markets. Moreover, the low price elasticity of many commodities tends to amplify these shocks.

As global markets anticipate this path of events, liquidity shocks are combined with immediate commodity price hikes. Monetary policy response in this situation usually accommodates partially to shocks. The exchange rate may also absorb some of the shock. Finally, in the case of a net commodity exporter, additional macroprudential measures might be required to cope with capital inflows. Brazil has adopted the full set of strategies, using partial accommodation, some absorption by the floating exchange rate, and implementation of macroprudential instruments. Of course, it would be better to have more coordination among EMEs to adopt prudential policies that would smooth the underlying shock driving commodity prices.

However, the presumption policymakers in EMEs will adopt macroprudential measures should not be taken for granted. High liquidity in the global markets may actually stimulate EMEs to borrow against high growth prospects, perhaps not possible otherwise. This process in turn leaves EMEs vulnerable to sudden stops and other undesirable dynamics. In the end, the strategy of expanding liquidity adopted by major reserve currency issuers tend to increase the asymmetry between advanced countries and EMEs growth and to produce unstable capital flows and business cycle dynamics.

Trade restrictions are other policy responses to global liquidity, particularly for EMEs with flexible exchange rate regimes. However, trade restrictions which hinder efficient allocation of resources and lower the return to the capital stock provide clear incentives for net outflows in the medium run (Antràs and Caballero, 2007). Therefore, in the event of escalating trade restrictions, emerging markets could face even more

capital flow uncertainty, with possible effects on FDI flows. Multilateral institutions have an important role in avoiding this disruptive equilibrium pattern, for example, by supporting macroprudential policies.

In the advanced economies, the ongoing economic volatility could reduce their potential growth, increasing differentials to EMEs growth for a prolonged period. There are many known transmission channels from volatility to potential growth. Also, the headwind from fiscal adjustment would increase the amplitude of the current business cycle and the uncertainty regarding the effects of any impending recession. This seems to be one factor behind growing corporate cash balances in advanced economies, since uncertainty increase the value of options. The nonlinear behavior of the economy near the fiscal limit would also contribute to increased uncertainty and to act as a disincentive to private investment. In any case, its interaction with unemployment and uncertainty may collect the greatest toll on potential growth.

Slow growth in advanced economies may eventually feedback into EMEs, and some would argue this is already taking place. In fact, many EMEs rely on advanced economies demand as a source of growth, be it directly or indirectly – via the effects on their trade partners. Therefore, they tend to be affected adversely by another round of global trade contraction. These EMEs would have to rely increasingly on domestic demand, probably with important institutional challenges along the way. Furthermore, advanced economies account for a great deal of final demand for commodities as well. In this way, the likely terms of trade volatility would also impair emerging market potential growth, especially for commodity exporters (Mendoza, 1997). This volatility would have a direct bearing on currency volatility, reducing somewhat the strong appreciation trends experienced by commodity exporters.

Growth differential and high global liquidity can spur further capital flows towards EMEs, with their domestic financial systems absorbing and intermediating a great deal of them. The potential for financial instability and excessive asset price increases may still persist, making the strengthening of macroprudential policies a vivid option for policy makers. In a period of high global uncertainty, institutional change, and subtle, although decreasing, inflation risks, it would be unwise to disregard capital flow volatility and its possible consequences as the recent turmoil attests. Without previous macroprudential and capital control measures, the exposure of domestic agents would have been an order of magnitude larger.

In the medium to longer run perspective, the global efforts should be focused on measures to strengthen macroprudential elements in global policy making. Monitoring the impact of global conditions will be an important element in this strategy. EMEs may consider the exchange rate and net international asset position as early warning indicators. A focus exclusively on credit aggregates tends to minimize the potential financial stress stemming from the reversal of capital flows. To the extent the increase in private sector credit beyond historical norms is a signal of financial distress, the same principle applies to the exchange rate and the international asset position, which have performed as good early indicators of crisis.

#### **4. Final Remarks**

The environment of high liquidity in the global markets may justify EMEs use of unconventional policy tools. Macroprudential measures, including capital controls, foreign exchange interventions and accumulation of international reserves have higher payoffs in this environment. For example, rapid credit growth driven by large capital inflows is a clear-cut case requiring macroprudential measures. High levels of international reserves in turn are appropriate when private agents have accumulated considerable net international liabilities and may face, therefore, roll-over risks.

Macroprudential policies have been implemented not only in Brazil, but also in other EMEs, in the context of high global liquidity and domestic economic activity above trend. The conjunction of both factors led to the above-trend credit growth and soaring asset prices. Following the abundant liquidity period, the Brazilian economy faced an opposite situation with the deleveraging process in the global markets as a consequence of financial problems in some advanced economies. The economy slowed and capital inflows have moderated. However, the measures adopted during the liquidity expansion period helped to mitigate the impact of fiscal limit problem on the Brazilian economy.

Advanced economies have their own domestic reasons for expanding the official liquidity to minimize tail-risks. However, the EMEs are concerned with such an expansion of liquidity, in view of its spillover effects and possible non-linear relation with private liquidity. While official support may diminish acute downward spirals, it may also sustain an environment prone to short-lived spikes in the private flows. The

major consequence of this volatility is transmitted to the EMEs. The high liquidity held by financial agents in the advanced economies may stimulate volatile flows to riskier assets and trigger large swings in market sentiment. Therefore, macroprudential policies need to be strengthened in capital receiving EMEs, and probably also in liquidity source advanced economies.

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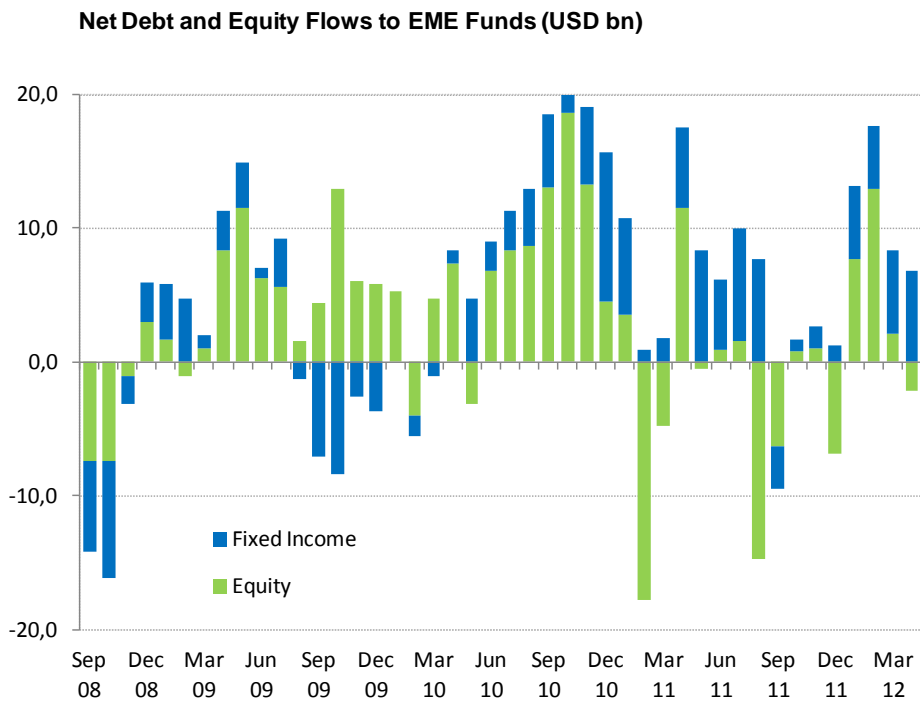
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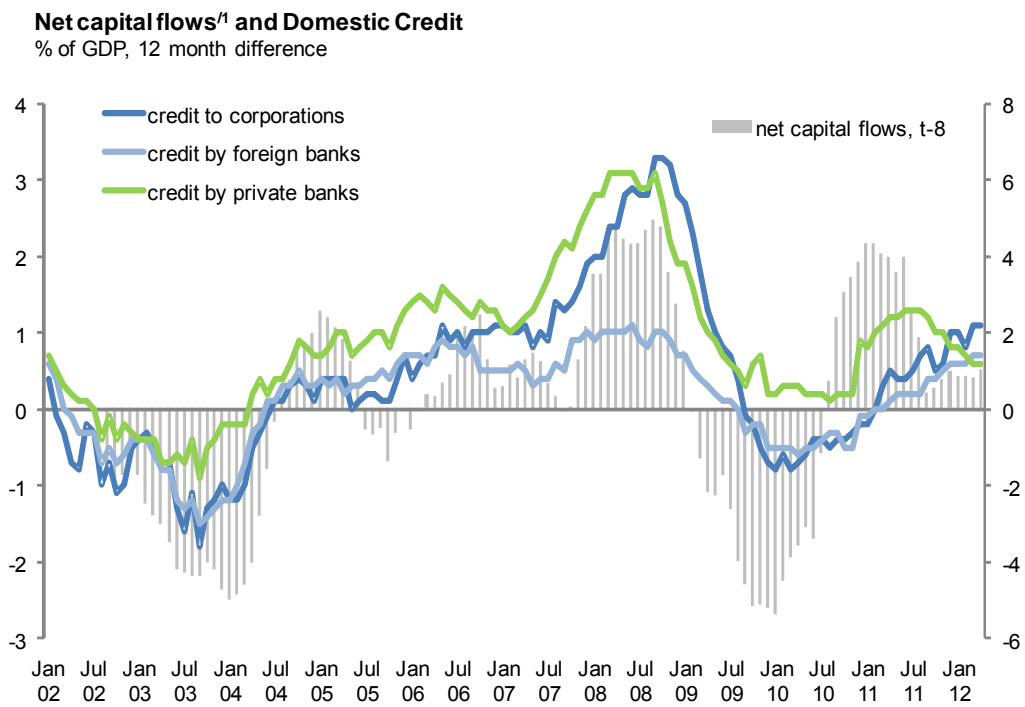
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Figure 1



Source: Institute of International Finance

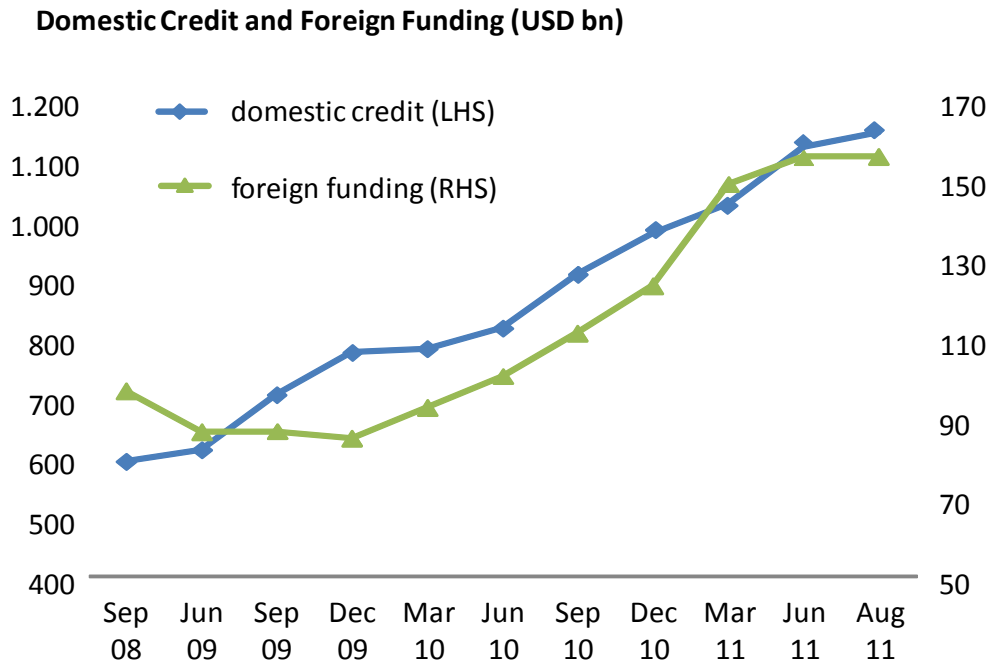
Figure 2



<sup>1/</sup> capital and financial account except monetary authority loans

Source: Central Bank of Brazil

Figure 3

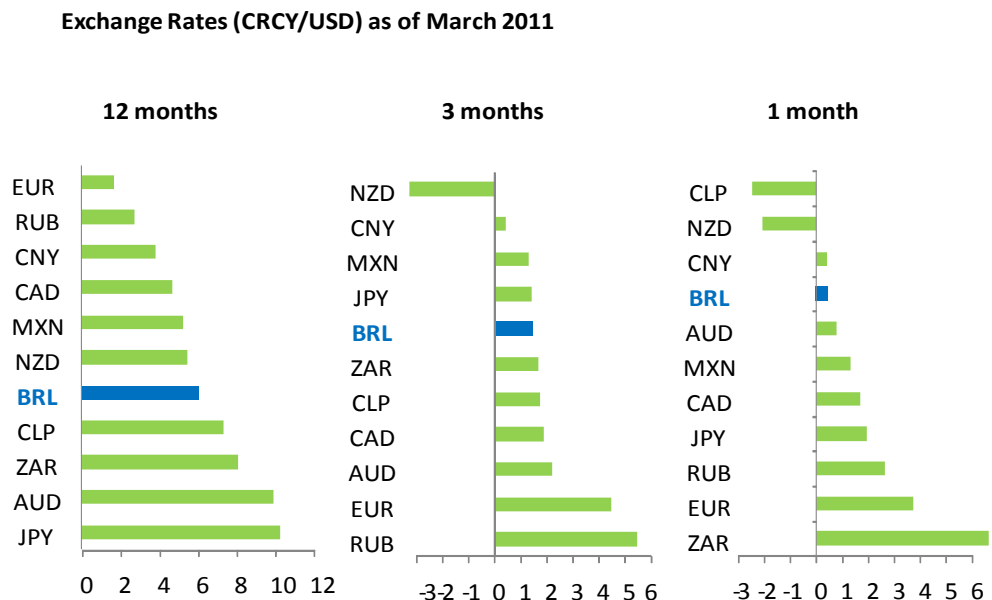


Domestic credit = total credit *minus* foreign funded credit lines

Foreign funding = private external debt *plus* foreign funded credit lines

Source: Central Bank of Brazil

Figure 4

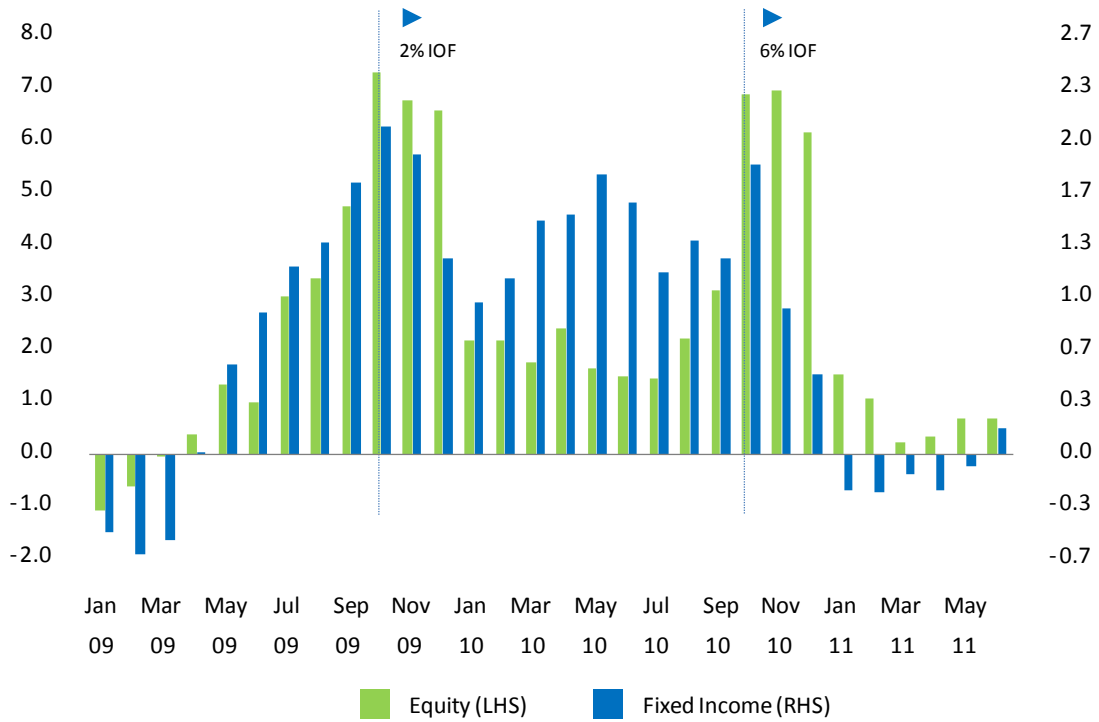


Source: Bloomberg, 14th March 2011



Figure 5

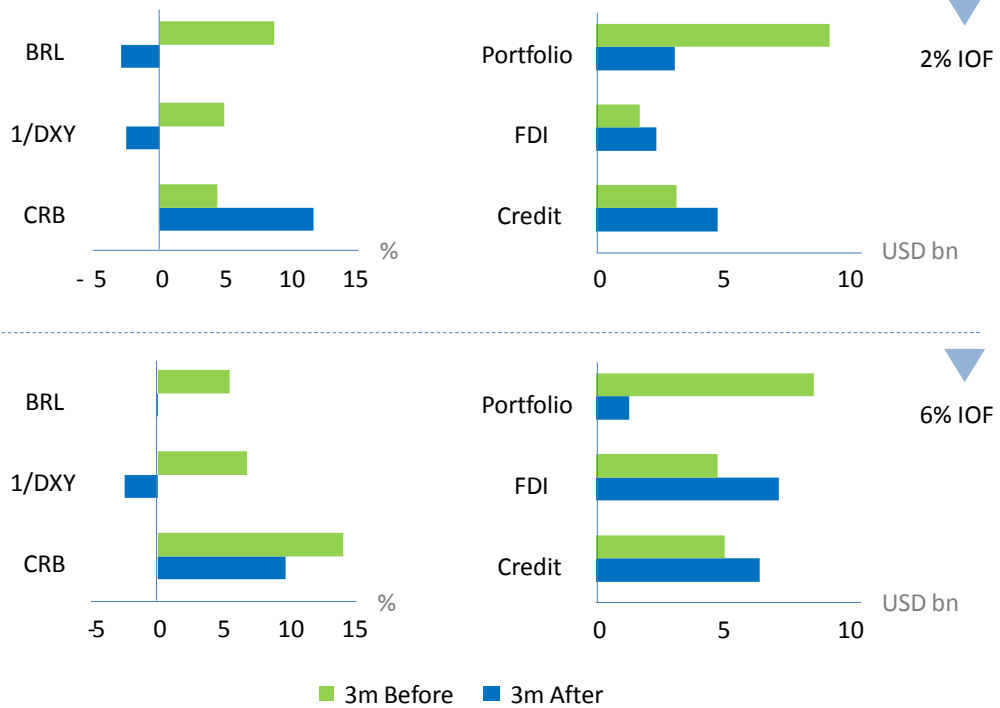
Portfolio Capital Inflow to Brasil (USD bn, 3 month moving average)



Source: Central Bank of Brazil

Figure 6

Impact of Capital Control Mesasures



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