

Financial Liberalization, Capital Account Regulation and Economic Policy in Brazil⁺

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1 Introduction

Brazil since the beginning of the 1990s had a gradual and deep process of capital account liberalization, that increased its propensity to external crises and to consequently to macroeconomic instability. After the 1999 Brazilian currency crises, Brazilian government implemented economic policies according to what has been known New Consensus Macroeconomics: inflation targeting regime, floating exchange rate and primary fiscal surplus. However since the middle of the 2000s Brazilian government adopted some policies to reduce external vulnerability that contributed to reduce the impact of the 2008 financial crisis over the Brazilian economy. Yet in the 2000s, the commodities boom combined with the abundant capital inflows led to a tendency to exchange rate appreciation, that eventually had negative impacts on manufacturing sector and manufacturing goods exports. While Lula da Silva's government capital controls were not used to reduce capital inflows, in Dilma Rossef's government, economic authorities made more intensive use of capital account regulation (CCR), promoted a certain exchange rate devaluation and reduced short-term interest rate.

In this chapter we analyses the relationship between exchange rate policy and economic performance under the environment of financial liberalization in Brazil. We argue that while capital account liberalization caused macroeconomic instability and reduced policy space, recent changes in the economic policy has been done in order to reach broader objectives of policy. For this purpose, the paper is divided in four sections, besides this introduction. Section 2 analyses the relationship between financial liberalization, capital flows and economic policy in emerging economies. Section 3 focuses on the process of capital account liberalization in Brazil, while section 4 shows

⁺ To be published in In: Bresser-Pereira, L.C.; Kregel, J.; Burlamaqui, L.. (Org.). *Financial Stability and Growth: Perspectives on financial regulation and the new developmentalism*. Abingdon: Routledge, 2014.

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the Brazilian recent experience with capital account regulation. Finally, section 5 summing up and concludes the chapter.

2 Financial liberalization, capital flows and economic policy

2.1 Financial liberalization, economic performance and macroeconomic instability

Financial globalization is a phenomenon that has been intensified since the 1970s in consequence of a set of factors that includes: (i) the development of euro-dollars market, that was the ‘embryo’ of the international and de-regulated financial markets; (ii) the end of the Bretton Woods system, with the end of the fixed but adjustable exchange rate regime; (iii) the development of technological innovations in telecommunication and informatics that allowed a faster data computing and an online integration of different geographic regions; and (iv) the financial de-regulation that happened initially under the context of the adoption of neo-liberal policies in the United States and United Kingdom and elsewhere. In other words, financial globalization is a process in which there is a greater integration among financial markets and capital flows cross-border at the global scale, a certain tendency to the erosion between countries’ borders, and an increase in the volume and velocity of financial resources in the international financial market.

According to Prasad et al (2003) the potential benefits of financial liberalization for emerging market countries can be divided in two channels: direct and indirect. *Direct channels* include augmentation of domestic savings, reduction in the cost of capital due to better global allocation of risk, reduction of consumption volatility, transfer of technological and managerial know-how, and stimulation of domestic financial sector development. *Indirect channels* include promotion of specialization, commitment to better economic policies, and signaling the practice of more friendly policies. Augmentation of domestic savings is related to the notion that capital flows from capital-rich countries to the capital-poor countries due to a comparatively higher marginal productivity capital in the former ones. Financial liberalization results in market discipline that shall stimulate more consistent macroeconomic policy (understood as sound fiscal and monetary policies, guarantee of rights propriety etc.) as market force (rational foreign investors) can penalize bad policies.

A lot of empirical works, most of them using panel data and measuring the international financial integration with the use of different de jure and de facto indexes, seek to evaluate the relationship between capital account liberalization, on one hand, and economic growth, financial crises and/or macroeconomic volatility, on the other hand. A number of surveys conclude that empirical evidences in general do not present a robust relationship between financial liberalization and economic growth (Prasad et al, 2003; Einchengreen, 2004, Ch 3). Prasad et al (2003) surveys 14 studies on this subject done in 1992-2002 and report that only three studies found positive effects of financial integration on growth, while four did find any effect and seven papers found mixed effects. So, they resume the empirical findings of the literature as follows: “a systematic examination of the evidence suggests that it is difficult to establish a robust causal relationship between the degree of financial integration and output growth performance” (Idem, p. 6).

Some recent IMF’s economists works have acknowledged the potential risks and costs related to international financial integration and specifically to the volatility of capital flows in emerging economies (Prasad et al, 2003; Kose et al, 2006; IMF, 2008), as the surge of capital inflows can have negative effects on emerging economies, including the appreciation of the domestic currency beyond the equilibrium level, fiscal costs of sterilization related to international reserves accumulation, inflationary pressures can result from incomplete sterilization and/or credit boom, and possible bubbles in certain sectors as equity markets. However, IMF sustain that financial globalization leads to better macroeconomic outcomes when certain threshold conditions are met (financial market development, institutional quality, sound macroeconomic policies, trade integration, etc.), but some analysts have argued that such conditions are almost the same factors that are stressed by the authors as collateral benefits of financial globalization, generating a logical contradiction between consequences and causes (see, for instance, Biancareli, 2008).

One of the major drivers of capital inflows during the beginning of the 1990s boom and during the 2000s capitals flows’ boom was the low interest rates in developed economies. Capital flows volatility can translate into huge macroeconomic instability in the emerging economies, complicating in particular the macroeconomic management and entailing tradeoffs in attaining macroeconomic objectives (economic growth, financial stability, price stabilization, avoiding exchange rate appreciation etc.). Indeed, “large surges in capital inflows can lead to strong upward pressure on the exchange rate

and contribute to macroeconomic overheating, widening current account imbalances through an appreciating exchange rate as well as inflationary pressures and asset price bubbles to the extent that a nominal exchange rate appreciation is resisted and monetary sterilization is either not undertaken or is ineffective. The financial sector generally plays an important role in amplifying these asset price bubbles, and can exacerbate macroeconomic cycles” (Ghosh, 2010, p. 2).

Cyclical capital swings have strong effect on major macroeconomic variables, such as exchange rates, interest rates, domestic credit, and asset prices. Sales and Barroso (2012, p.5) states that “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 (...) 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 (...) will not. As a result, borrowers (especially the most 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”.

Some analysts stress that with the financial liberalization and the emergence and spread of new financial instruments (such as derivatives), the likelihood of occurrence of speculative financial operations increases substantially. Tobin (1978), for instance, states that the main macroeconomic problem related to integrated financial markets is not the choice of the appropriate exchange rate regime but the excessive short-run capital mobility that reduces the autonomy of national governments to pursue domestic objectives with respect to employment, output and inflation. According to Tobin (*op. cit.*), “the mobility of financial capital limits viable differences among national interest rates and thus severely restricts the ability of central banks and governments to pursue monetary and fiscal policies appropriate to their internal economies” (p. 154). In the same contribution, Tobin also doubts whether a flexible exchange regime is a panacea: “I believe that the basic problem today is not the exchange rate regime, whether fixed

and floating. Debate on the regime evades and obscures the essential problem. That is the excessive international – or better, inter-currency – mobility of private financial capital.” (p. 153).

Stiglitz (2000) states that capital flows in emerging countries are markedly pro-cyclical and exacerbate economic booms, and that financial liberalization exposes countries to the vicissitudes associated with changes in economic circumstances outside the country; so that such economies are exposed to sudden change in lenders’ and investors’ perceptions. Such shifts can increase capital outflows. According to Stiglitz (2000): “capital market liberalization is systematically associated with greater instability, and for good reason: capital flows are markedly pro-cyclical, exacerbating economic fluctuations, when they do not actually cause them (...) In addition, capital market liberalization exposes countries to vicissitudes associated with changes in economic circumstances outside the country: a sudden change in lenders’ perceptions concerning “emerging market risk” can lead to huge capital outflows, undermining the viability of the entire financial system” (p. 1080).

In contrast with financial markets closed to foreign capital, capital flows in liberalized markets can have disruptive action on countries, damaging the autonomy of domestic macroeconomic policies, and even generate speculative attacks on domestic currencies. As Eichengreen *et al.* (1995) state, “volatility in exchange rates and interest rates induced by speculation and capital flows could have real economic consequences devastating for particular sectors and whole economies” (p. 164). In other words, financial globalization has been a source of broader instability related to the occurrence of currency crises and speculative attacks, and also of the reduction in the degrees of freedom in the implementation of a more autonomous economic policy. Indeed, under the action of ‘global players’, in a more liberalized and integrated market, the operational way of working of the financial markets became a sort of big and global casino. The high capital mobility of today’s global economy has increased the arbitrage and speculative transactions in foreign exchange markets (Alves Jr. *et al.*, 1999/2000).

Recent empirical studies undertaken by the IMF (2011) and its economists, such as Cardarelli *et al.* (2009), found some findings that are line with Stiglitz (2000) analysis of the effects of the capital flows to emerging economies:

(a) Volatility of capital flows has increased over time and fluctuations in net flows are much sharper for emerging economies compared with developed economies – in the

latter, gross outflows largely offset gross inflows, generating smoother movements in net flows. By contrast, in emerging economies, gross inflows and net flows both fell dramatically during the crisis and rebounded sharply afterward (IMF, 2011, p. 125).

(b) Episodes of large capital inflows are associated with acceleration of GDP growth, but afterwards growth often drops significantly: over one third of the completed episodes ended with a sudden stop or a currency crisis, what suggests that abrupt endings are not a rare phenomenon (Cardarelli *et al.*, 2009, p. 5). Thus, there is an inverted V-shaped pattern of net capital flows to emerging economies outside the policymakers control (IMF, 2011).

(c) Fluctuations in GDP growth have been accompanied by large swings in aggregate demand and in the current account balance, with strong deterioration of the current account during the inflow period and sharp reversal at the end (Cardarelli *et al.*, 2009, p.5).

(d) The surge of capital inflows also appears to be associated with a real effective exchange rate appreciation, damaging the competitiveness of export sectors and potentially reducing economic growth (Cardarelli *et al.*, 2009).

(e) Historically, portfolio flows have been more volatile and their volatility has recently risen. Bank flows have historically been less volatile but their volatility rises sharply around crisis times FDI is only slightly more stable than other types of flow for emerging economies, and its volatility has increased recently due to increase of direct borrowing by a firm subsidiary (IMF, 2011).

Greenville (2000) states that the problems related to the exchange rate volatility are greater for emerging economies due to the following reasons: (i) they have no long historical experience of market-determined exchange rate; (ii) there are few 'Friedmanite' stabilizers speculators acting in the exchange market, that is there has been a lack of players willing take contrarian foreign exchange positions in emerging countries; (iii) exchange markets are prone to exhibiting herd behavior generating swings in the exchange rate; (iv) these economies have much larger and volatile capital flows, in relation to the size of their capital markets and economies more generally; and (v) fundamentals cannot explain the behavior of the exchange rate over a short/medium-term horizon.

Exchange rate volatility in general is higher in emerging economies than in developed ones as the former have small and less liquid foreign exchange markets that make such economies more vulnerable to one-way expectations and herd behavior. Indeed such economies face problems related to the ‘asymmetric financial integration’ as they have much larger and volatile capital flows compared to the size of their capital market and economies more generally. That is markets in emerging economies are thin and subject to a high degree of uncertainty and information asymmetries. Foreign exchange markets in most emerging countries continue to be relatively small and less liquidity than their counterparts in the industrial world. Countries with high debts, currency mismatches and/or fragile financial sector are particularly vulnerable (Moreno, 2005).

In particular, exchange rates can influence inflation (‘exchange rate pass-through’) through the prices of traded final goods and imported intermediate goods, and their impact on agents’ inflation expectations. Ho and McCauley (2003) show evidence that: (i) domestic income is negatively and significantly correlated with pass-through as lower-income economies have a larger portion of traded goods in the consumption basket; (ii) “exchange rate pass-through has tended to be stronger in Latin America than in Asia even though Latin American are not necessarily more open than their Asian counterparts” (p. 6). The explanation for such difference is that countries with histories of high inflation – as is the case of many Latin American countries, especially in the 1980s – are more sensitive to exchange rate fluctuations, probably due to the existence of an inflationary memory (Eichengreen, 2002). Thus, considering the important influence of the exchange rate on domestic inflation in these economies, exchange rate considerations can be expected to play a more prominent role in emerging economies.

2.2 Policy space and capital account regulation

In order to enhance the possibility of a successful management of exchange rate regime in emerging economies some measures to reduce the volatility of capital flows and the likelihood of speculation attack on domestic currency are necessary. One possibility is the use of official intervention in the foreign exchange market, which may exert direct influence on nominal exchange rate as it alters the relative supply of domestic and foreign currency assets. On the one hand, the countries’ ability to resist currency depreciation is limited by its stock of foreign exchange reserves and its access

to potential credit lines. Thus, reserve accumulation can be seen as an insurance against future negative shocks and speculation against domestic currency, as emerging economies have limited access to the international capital market. On the other hand, the ability to avoid currency appreciation may require the use of sterilized intervention. Monetary authorities have often sought to sterilize impact of foreign exchange intervention through open market operations and other measures, such as increasing bank reserve requirements. If central banks have a target for the short-term rate, then they can attempt to offset increases in bank reserves selling domestic assets or issuing their own securities (Mohanty and Turner, 2006). Moreover, sterilization often implies quasi-fiscal costs, as it in general involves the central bank exchanging high-yield domestic assets for low-yield foreign reserves (Cardarelli *et al.*, 2009).

Another possibility to enhance the management of exchange rate regime (that is not excluding official intervention in the currency markets) in emerging economies is the use of ‘*capital management techniques*’ that includes capital controls, that is measures that manage volume, composition, and/or allocation of international private capital flows,¹ and/or ‘prudential domestic financial regulations’, which refer to policies, such as capital-adequacy standards, reporting requirements, or restrictions on the ability and terms under which domestic financial institutions can provide to certain types of projects (Epstein *et al.*, 2003, pp. 6-7). Capital controls can be used for different though related objectives, such as: (i) to reduce the vulnerability of a country to financial crises, including capital flight during currency crisis; (ii) to drive a wedge between onshore and offshore interest rates in order to provide monetary authorities with some policy autonomy at least in the short-run; and (iii) to maintain some short-term stability of nominal exchange rate and to reduce exchange rate pressures derived from excessive capital inflows. Capital controls may be limited and temporary, that means that they should be used in the magnitude necessary to be effective, and dynamically adjusted to compensate the tendency of financial systems to elude them.

Magud and Reinhart (2006) review more than 30 papers that evaluated capital controls either on inflows or outflows around the world (the evaluation excludes countries with comprehensive capital controls, such as China and India), making use of a capital controls effectiveness index in order to standardize the results of the empirical

¹ Capital controls can target inflows and outflows, and can be *tax-based* (for instance, reserve requirement taxes against certain types of investments) or *quantitative* (for instance, outright bans on certain investments, restrictions or quotas, or license requirements).

studies. They conclude that “capital controls on inflows seem to make monetary policy more independent; alter the composition of capital flow; reduce real exchange rate pressures (although the evidence is more controversial)”, but “seem not to reduce the volume of net flows (and hence, the current account balance)”, while “limiting private external borrowing in the ‘good times’ plays an important prudential role because more often than not countries that are ‘debt intolerant’” (pp. 26-27). Based on this, Magud and Reinhart (2006) argue for enhancing the effectiveness of controls by taking into account country-specific characteristics in their design.

To sum up, set against the adoption of conventional economic policies is the perceived need to preserve the autonomy of developing countries’ fiscal and monetary policies. This has reinforced the opinion of some economists and policymakers of the necessity of introducing capital controls and an exchange rate regime that prevents exchange rate fluctuations.

Concerned with the amount and volatility of capital flows to emerging economies after the contagious of the 2008 crisis, IMF revised its official position towards capital controls, that now can be considered as a ‘measure of last resort’, when all other macroeconomic policies and regulatory measures are exhausted: “We argue that *if* the economy is operating near potential if reserves are adequate, *if* the exchange rate is not undervalued, and *if* the flows are likely to be transitory, then controls on capital inflows – together with macroeconomic policy adjustment and prudential measures – may usefully form part of the policy toolkit” (Ostry et al, 2010, p. 562, italics added). In this connection, “controls are part of the toolkit when certain macroeconomic conditions are satisfied, and when non-discriminatory prudential tools will not have traction in addressing the financial-stability risks” (Ostry et al, 2011, p.9). Therefore, the authors seek to establish a triple hierarchy between the instruments to manage capital inflows: macroeconomic policies should be first applied; then prudential regulations on the domestic banking sector that affect cross-border flows that are intermediated by domestic financial institutions should be implemented; finally, when prudential tools were insufficient or could not be made effective in a timely manner, proper capital controls, defined as measures that restrict capital transactions between residents and non-residents, could be applied as transitory measure of last resort. So, the management of capital inflows should not be used as a substitute of the sound macroeconomic policies and the necessary reforms.

Some authors have criticized the new IMF pragmatic approach as insufficient to deal with some emerging economies macroeconomic issues (Gallagher et al, 2012; Fritz and Prates, 2012). First, they argue that by defining capital controls as temporary and a measure of last resort this approach poses serious limits to the policy space that is required to emerging countries. Gallaguer et al (2012, p.6), for instance, argue that ‘capital account regulations’ (CAR) should not be seen as measures of last resort, but as *permanent* part the policy toolkit to be used in a counter-cyclical way to smooth booms and busts, and to increase the policy space to exert control over the key macroeconomic prices such as the exchange rate and interest rate. CAR are integral part of the macroeconomic policy, as they can help economic authorities to face and eventually solve some macroeconomic trade-offs, as it is the case of a situation in which central bank under an environment of capital flows surge wants for some reason to increase the interest rate and at the same time wants to avoid a further exchange rate appreciation, or, another situation in which central bank wants to intervene in the foreign exchange market in order to affect nominal exchange rate, and at the same time would like to avoid the fiscal costs of sterilization of such operations.

Second, the IMF hierarchy is inappropriate as it seeks to draw lines between macro-prudential measures, measures to influence the exchange rate and capital controls defined in a jurisdictional manner as discrimination against the residency of investors. According to Fritz and Prates (2012, p. 9-10), “[a] deeper look at the countries’ experience, however, makes clear that there is a great deal of synergy and overlapping in these measures. There are important feedbacks to be found between capital controls and prudential financial measures, as much as between these measures and macroeconomic policy. For example, instruments of prudential financial regulation (such as limits on banks operations in foreign currency) work in practice as capital controls, while some of these controls (such as taxation of foreign loans) add to reduce systemic financial risks”. As we will see in the section 4 the Brazilian experience shows that is not possible to establish a clear cut triple hierarchy between the instruments to manage capital flows as supported by the IMF approach, as it was only when Brazilian governmental authorities used all kinds of capital account management simultaneously that policy effectiveness increased in terms of protecting the exchange rate from upward pressures.

3 Capital account liberalization in Brazil

3.1 The normative dimension²

Capital flows legislation in Brazil was introduced in the 1960s, according to which foreign capital flows should be registered in order to obtain permission for associated outflows (profits, interests, royalties, and repatriation). The most important provisions of the legislation on capital flows, particularly as regards foreign direct investment and external indebtedness, were introduced in the 1960s. Law 4,131, of 1962, which is still in force, stipulates that foreign capital must be treated at law identically with national capital. It also defines the right to return on capital entering Brazil, assuring capital earnings in the form of interest, dividends and royalties – although limiting this to the capital originally applied. On 31 December 1964, the National Monetary Council (*Conselho Monetário Nacional*, CMN) was instituted by Law 4,595 as the highest deliberative body in the National Financial System (*Sistema Financeiro Nacional*, SFN), with competence to stipulate overall guidelines for monetary, foreign exchange and credit policy; to regulate the conditions for the constitution, functioning and oversight of financial institutions; and to discipline monetary and foreign exchange policy instruments. Until the 1980s it was widely believed in Brazil that capital account convertibility had to be controlled and limited.

The process of financial liberalization in Brazil started cautiously in the late 1980s, when the international financial market was practically closed to the emerging countries, because of foreign debt crisis. Indeed, since the end of the 1980s it can be noted an increasing trend towards capital account liberalization in Brazil. Early 1990s foreign direct investment (FDI) was further liberalized as prohibition on FDI into certain sectors was lifted and bureaucratic obstacles were reduced. In 1991 Brazilian government permitted the acquisition by foreign institutional investors of equities of domestic firms. In 1992 BCB allowed a broad liberalization of capital outflows as it permitted that a special non-resident account called CC5 could be operated more freely by foreign financial institutions as a result of acquisition or sale of foreign currencies. This exception created a privileged way to short-term capital flight that was used very often during periods of speculation attacks on domestic currency and represented the

² For a detailed analysis in the foreign exchange rules in Brazil, see Paula (2011, ch.4). Information about foreign exchange norms can be obtained in the BCB's website.

introduction of de facto convertibility, as in practice residents could deposit in a non-resident bank's account held in a domestic bank, that could convert domestic into foreign currency: residents could transfer resources abroad making these deposits and asking the non-resident financial institution to buy foreign currency to make deposit in an account abroad. In April 1994 Brady Plan converted the external loans into debt securities, helping to overcome the external debt crisis that had contributed somehow to the 'stagflation' environment of Brazil since 1981. In 1994 BCB implemented a financial transaction tax (IOF – *Imposto sobre Operações Financeiras*) and increased the minimum maturity requirements for capital inflows in order to reduce upward pressure on the exchange rate, to minimize the cost of sterilization and to give some freedom degree for monetary policy. At the same time, measures aimed to stimulate outflows – including the permission for prepayment of foreign borrowing and import finance – were also adopted.

After the 1999 Brazilian currency crisis and the adoption of a floating exchange regime, economic authorities implemented a lot of norms that resulted in further financial liberalization (mainly related to capital outflows) and greater flexibility in foreign exchange market, including the unification of the exchange rate markets (floating and free ones), the reduction and later elimination of both the minimum average maturity for external loans and the financial transaction tax on capital inflows, the elimination of the restrictions on investments in the securities markets by foreign investors, and the simplification of the procedures related to the capital remittance to other countries. In November 1999, Brazil accepted the obligations under Article VIII of the IMF, that precludes the country members from imposing restrictions on the meaning of payments and transfers for current international transactions.

In the 2000s, Brazil's exchange liberalization policy was directed to consolidating and extending the changes made in the 1990s, particularly with a view to reducing the operational restrictions, bureaucratic requirements and even transaction costs of foreign capital inflows and outflows. One difference from the liberalization efforts of the 1990s, however, is that the previous measures were designed predominantly (although not exclusively) to afford greater flexibility in "inward transactions", while liberalization in the 2000s targeted predominantly "outward transactions". In this respect, the more recent wave of capital account liberalization can be seen as complementing the earlier period and seeking, among other things, to

contemplate another aspect of Brazil's international financial integration, that is the internationalization of Brazilian businesses.

The main measures affecting “inward transactions” in Brazil in the 2000s were the lowering to zero the income tax rates and the Temporary Financial Tax (*Contribuição Provisória para Movimentação Financeira*, CPMF) on new investments by non-residents in federal public securities, under Law 11,312, of 27 June 2006 (shifted the Provisional Measure 281 of 02/15/2006). In relation to “outward transactions”, a number of measures were introduced, the most important directed to bringing greater flexibility to foreign exchange coverage for Brazilian exports and also eliminating restrictions on direct foreign investments by Brazilian residents. Indeed, in 2005, Brazilian government provided extensive freedom to purchase and sell of foreign currencies in the foreign exchange market, for which was not necessary any BCB’s specific permission, and, in 2006, it allowed greater flexibility in the exports operations’ exchange rate coverage, by stipulating that Brazilian exporters could retain at most 30% of their export revenues abroad, the balance was to be converted into reais. Finally, on 12 March 2008, it stipulated that Brazilian exporters could hold up to 100% of their export revenues abroad.

Under an environment of surge of capital inflows since middle of 2009, and consequent strong trend of currency appreciation, Brazil began to implement a set of capital management techniques since the end of 2010. We will analyze these measures in section 4.

3.2 Empirical literature

There are some few recent works that evaluated empirically the relationship among financial liberalization, economic performance and macroeconomic stability in Brazil.

Ono et al (2005) carried out econometric tests to reflect possible implications of capital account regimes on macroeconomic performance in the period 1990-2001. Using the VAR methodology, they examined the effect of financial liberalization, measured by an index of capital controls (ICC), on the macroeconomic variables base interest (Selic) rate and nominal exchange rate. Their results show that the base interest rate responded negatively to an impulse in the ICC (evidence that an increase in capital controls may reduce short-term interest rate variations) and that the exchange rate did not respond to

an ICC shock, contradicting the hypothesis of Arida (2004) that measures restricting capital flows would cause a maladjustment in the exchange rate market and even precipitate a speculative attack. Ono et al (2005) also carried out another econometric test with panel data to analyze capital account convertibility and macroeconomic performance. They used the variables GDP per capita, literacy rate, life expectancy, investment rate, government consumption and savings rate for a set of 87 countries. The results are inconclusive as regards the hypothesis that countries with capital account convertibility tend to greater growth, because even when the sample was divided into two groups (OECD member and non-member countries) both groups returned statistically insignificant coefficients. The results of both tests reject the hypothesis advanced by Arida and others that capital controls could act to upset the exchange rate market, increase the interest rate and undermine macroeconomic performance. On the contrary, these results seem to suggest that capital controls can attenuate exchange rate volatility and reduce the interest rate.

Goldfajn and Minella (2005) examined the relationship between capital account liberalization and macroeconomic volatility over a recent period in Brazil. As regards smoothing consumption expenditures and reducing the volatility of GDP growth rate, they show evidence that, according to the behavior of the standard deviation, both variables behaved more stably in the recent period (1992-2003) than in the 1970s and 1980s. They also considered the relationship between capital flows and economic performance from January 1995 to August 2004, using VAR methodology to gauge the impact of capital flow movements on the following set of economic variables: industrial output, current transactions balance, private capital account, terms of trade (measured as a ratio of export prices to import prices), the Emerging Markets Bond Index – Brazil (EMBI+Brasil), real exchange rate and real domestic interest (Selic) rate. The impulse-response function and variance decomposition results show that an increase in country risk generates a positive response in interest rates, exchange rate depreciation, reduction in capital flows and, after a certain lag, a fall in product. Meanwhile, positive shocks to capital flows are not persistent, although they do entail a reduction in interest rates, which in turn seems to cause a depreciation in the exchange rate. Goldfajn and Minella interpret these results as an indication that financial liberalization has led to a reduction in external vulnerability and macroeconomic volatility, possibly on the understanding that a floating exchange rate regime and capital account liberalization combined have a

disciplining effect on economic policy, with beneficial effects on economic fundamentals (country risk) and on macroeconomic volatility.

Van der Laan (2006) evaluated the capital account liberalization process for a period from 1990 to 2005, using two indices: one, a de jure index, the index of capital controls (ICC), and another, a de facto index, the index of financial integration (IFI). Using VAR methodology he performed an econometric analysis (with quarterly figures for the period 1994-2005) to test the positive causal relationship between financial liberalization and economic growth. The macroeconomic variables used were: Selic interest rate, nominal exchange rate and variations in GDP (at market price). The results did not enable a robust positive relationship to be established between financial liberalization (either de jure or de facto) and economic growth for the period under consideration. Other important results were: the ICC is not very significant in explaining either interest rate behavior or exchange rate behavior, leading the author to question the beneficial effects of the de jure liberalization argued by Persio Arida (2003) (reduction in interest rates and in exchange volatility, with beneficial effects on growth). The IFI, meanwhile, generates strong oscillatory effects on interest rate variation (but with no defined trend), and increases in the IFI tend to raise the level of interest rates practiced in the country. The author concludes that increasing capital account liberalization in Brazil has a negative, although limited, net effect.

Van der Laan et al (2011) uses a de jure index - Quin's (1997) ICC index - and a de facto index - a financial integration index - to test econometrically with a VEC model the relationship between financial liberalization with a set of macroeconomic variables (interest rate, country-risk, exchange rate volatility, industrial output, and international reserves) to a broad period between January 1995 and April 2011. The tests show weak effects deriving from financial deregulation and integration to macroeconomic performance. Besides, financial flows respond significantly to impulses on the real economy, independently of the level of capital controls. Results are in accordance with what the IMF has recognized more openly, that experiences with capital controls may be useful instruments to manage capital flows from and to a growing emerging economy financially integrated with abroad.

Paula et al (2012) analyzed the relationship between capital account liberalization, economic performance and macroeconomic stability in Brazil in 1994-2007 period. For this purpose, the paper develops an empirical study on the effects of financial liberalization in Brazil on a set of macroeconomic variables using VAR

methodology in two models: one with a de jure index of financial liberalization, and another with a de facto index of financial integration. In the first model, the study intended to evaluate the proposal that the full convertibility of capital account in Brazil would result in the reduction of country-risk and, consequently, of the domestic interest rate. In the second one, it aimed at assessing the hypothesis that financial liberalization has positive effect on economic growth and macroeconomic stability vis-à-vis the hypothesis of the critics of financial liberalization that support that it generates unstable effects on developing economies. The results from the first model (index of financial liberalization) do not validate the hypothesis that full capital account convertibility would have the effect of reducing country risk and, consequently, domestic interest rate. The results from the second model (index of financial integration) model offer no evidence that financial liberalization has generated positive effects on a set of macroeconomic variables (inflation and economic growth). On the contrary, the empirical evidence shows that Brazil's increased financial integration, in addition to having an adverse effect on GDP, has generated more destabilizing effects from the macroeconomic standpoint, as evidenced by its impact in raising the rate of inflation and the exchange rate.

Summing up, most empirical studies show that there are no clear benefits of capital account liberalization in Brazil in terms of economic performance and macroeconomic stability: in general financial liberalization has a negative, although limited, net effect on economic growth, and strong and oscillatory effects on interest rate variation and exchange rate variation, and also on inflation.

3.3 Macroeconomic policy and capital controls in Brazil

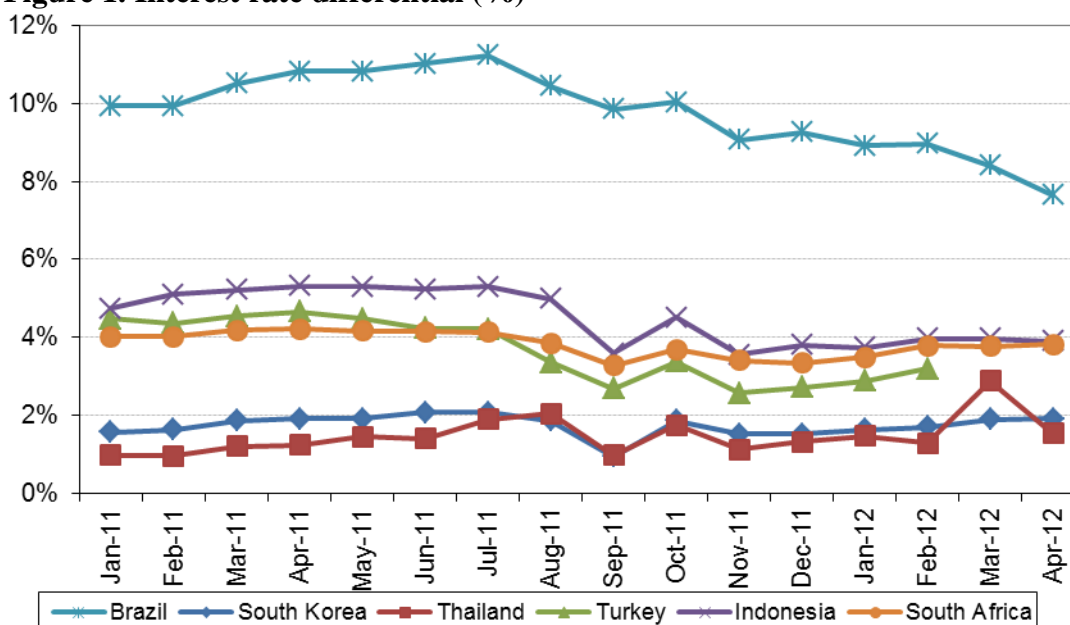
In spite of the process capital account liberalization in Brazil in the 1990s and 200s, domestic norms on foreign exchange transactions still allow the implementation of capital controls at any time – there is no formal restriction on this concern. Law 4,321/1961, which allows the adoption of controls on capital outflows by foreign investors and transnational enterprises, has not been repealed. However, there are some limits to the efficacy of capital account regulation (CAR) due to two specificities of the Brazilian economy.

The first one is the high degree of financial openness of the Brazilian economy. As we have already seen in section 3.1, Brazil had an ample and deep experience of

external financial liberalization. Although Brazil adopted a more gradual style of Washington Consensus policies compared other Latin American countries, capital account liberalization was relatively fast and widespread. This liberalization began in the 1990s and was most time incremental, marked by key rules that, given their strong impact on capital inflows and outflows, can be considered as landmarks. The process of financial opening up gained momentum in January 2000, when the Resolution CMN no. 2,689 allowed the unrestricted access of non-resident (i.e. foreign) investors to all the segments of the domestic financial market, including the derivatives market. Afterwards, during the 2000s there was in course a process of consolidation of the foreign exchange rules.

The second specificity is the huge differential between internal and external interest rates, which attracted dramatically capital inflows, mainly portfolio ones, and stimulated private agents to find loopholes to circumvent the regulations (regulatory arbitrage). Despite the recent reduction in the short term interest rate (Selic) by the BCB, the differential between the internal and external interest rates is still high compared to other emerging countries (see Figure 1)

Figure 1. Interest rate differential (%)

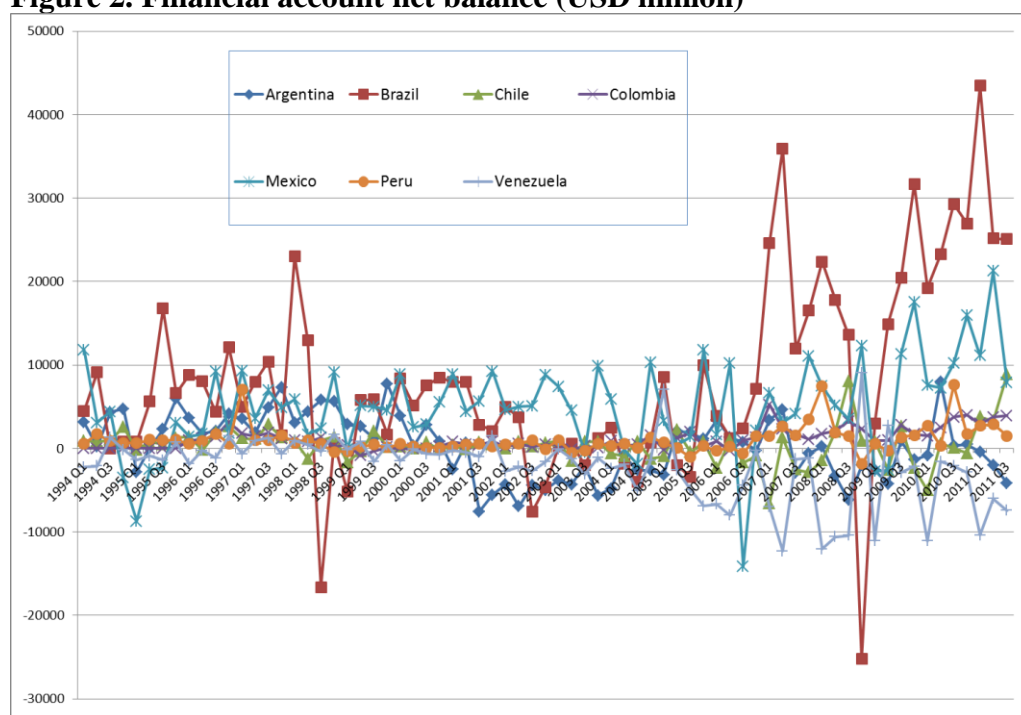


Source: Paula and Prates (2012), and Central Bank of Brazil.

Note: Interest differential is the difference between the short-term interest rate of each country and the sum between country-risk (CDS premium for 5 years) and in the US Fed funds interest rate.

As we can see in the Figure 2, a new surge of capital inflows to Latin America (and also to other emerging economies) started in the middle of 2009, with a quick recovery of capital inflows after the contagious of the global financial crisis. The main drivers behind of this wave are: (i) loosening monetary policy in advanced economies due to the “quantitative easing” policy of the FED, and later of the ECB, widening the interest rate differentials and creating abundant global market liquidity; (ii) better economic performance of the emerging economies and the slow recovery of the developed countries; (iii) sound fiscal and debt position of the emerging economies relative to advance economies; and (iv) quick and continuous recovered of commodity prices until May 2011, when prices started a decline trend.

Figure 2. Financial account net balance (USD million)



Source: ECLAC (2012) and IMF/International Financial Statistics (2012).

All these factors, along with improved global risk appetite, have attracted capital inflows, especially portfolio debt capital flows. The current episode is characterized by a predominance of volatile portfolio inflows, much more than previous wave, with a sharp and unprecedented increase in the flows (net flows of more than USD 50 billion in some quarters), followed by the direct investments that have increased in 2011. Note that Brazil had records of capital flows in the recent wave, followed far above by Mexico, Colombia, Peru and Chile. This movement can be attributed to the

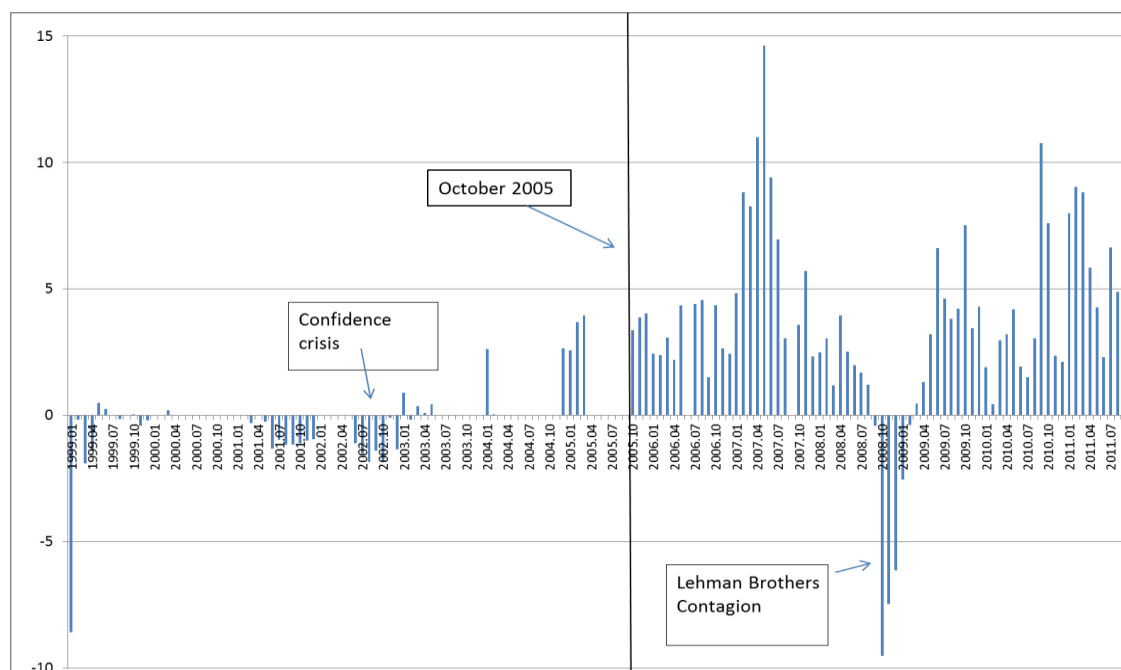
improvement in the country-risk (Brazil got the degree of “investment grade” in the second quarter of 2008) and the interest rate huge differentials. It should be stressed that since mid-2011 capital flows to Latin America, including Brazil, were affected by the Eurozone crisis that resulted in a sharp increase of the volatility in the international financial market, for which also contributed the uncertainty related to performance of the North-American economy due to the threat of the so-called “fiscal cliff” (IEDI, 2012). Indeed, capital inflows slowed as global market risk aversion deteriorated.

Focusing on the policy response to the abundance of capital inflows to Brazil it is worth to have a look in the management of the exchange rate policy and the implementation of CAR, particularly since 1999 when Brazil, after the collapse of the semi-pegged exchange rate regime (that was the main piece of Real Plan’s program of stabilization), adopted a New Consensus Macroeconomics’ style of economic policy (thereby, NCM). NCM supports that the main focus of the economic policy is price stabilization, and that inflation targeting regime is the best arrangement for economic policy, as it provides some freedom degrees to accommodate output fluctuations due to non-anticipated shocks (Bernanke et al 1989). In such arrangement, fiscal policy is no longer viewed as a powerful macroeconomic instrument, and should be aligned and subordinated to monetary policy and monetary policy is a flexible instrument for achieving medium-term stabilization objectives, in that it can be adjusted quickly in response to macroeconomic developments³. In Brazilian case, this macroeconomic arrangement has been characterized by a sort of tripod of economic policy: floating exchange regime, inflation target regime, and primary fiscal surplus. Some flexibility in the operation of NCM policies was introduced along the time in Brazil, that is during the Lula da Silva’ government (2003-2010) and mainly in Dilma Rouseff’s ones (2011-...).

³ For a criticism on the New Consensus on Macroeconomics, see Arestis and Sawyer (2004), for whom the use of a inflation target regime can be a ‘straitjacket’ for output and employment growth, due to the negative effects of interest rate policy on productive accumulation rate. So, nominal variables affect real variables in the long-run because changes in nominal short-term interest rates have permanent effects over investment decision in capital assets. According to the authors, changes in the level of investment expenditures affect not only the level of aggregate demand through the standard Keynesian investment multiplier, and hence the current level of unemployment, but also the equilibrium rate of unemployment – that is, the level of unemployment for which inflation is constant through time – due to its effects over the level of capacity utilization and, through this variable, the level of real wage that firms are ready to pay for their workers.

Figure 3 shows the BCB interventions in the foreign exchange market (spot market) since 1999, when Brazil adopted a floating exchange rate regime, where negative values means that it is selling foreign currencies and positive values means that it is buying them. A general outlook shows broadly speaking two distinguish BCB pattern of intervention: (i) from 1999 to September 2005 exchange rate policy was of “free float” type or “no fear of floating” behavior, in which BCB did only eventual and few interventions, mainly in periods of instability in the foreign exchange market (such as during the 2002 confidence crisis), selling dollars in order to avoid further devaluation of the domestic currency; (ii) since October 2005 BCB began to buy foreign currencies in a continuous but uneven way, mainly as part of the international reserves accumulation policy, without having any commitment with a certain level of exchange rate, that continued to have an appreciation trend. Some more aggressive intervention was done eventually in order to reduce greater exchange rate volatility in the sense of appreciation or depreciation. So, there was a more typical dirty floating behavior.

Figure 3. BCB intervention in the foreign exchange market (US\$ billion)



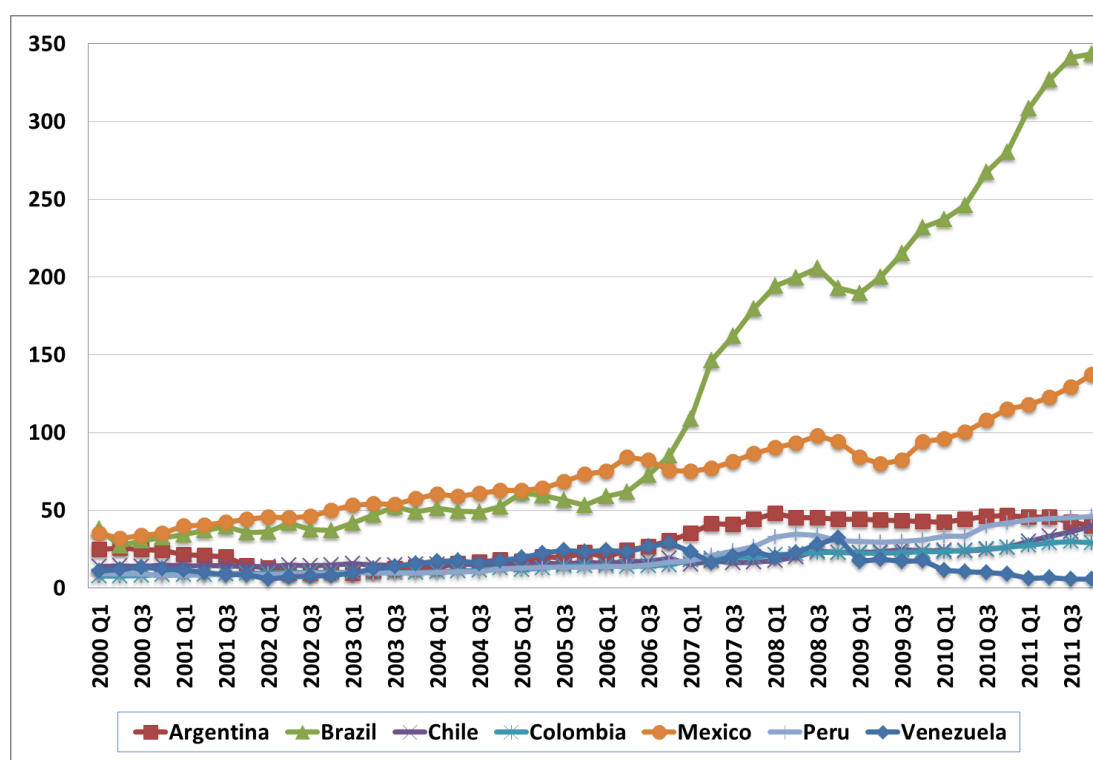
Source: Author' elaboration with data from BCB.

Note: (+) purchase (-) selling

Since the 1990s, CCR have been mainly endogenous in Brazil, in the sense that they have been adopted and tightened during periods of boom of capital flows, and have been loosened during periods of capital flight. The exception occurred during Lula da Silva's government when the Brazilian economy faced a capital flows boom in 2005-

2008 without adopting CCR (instead BCB accumulated foreign exchange reserves with very high fiscal costs). During the 2000s financial liberalization was integral part of the ‘model’ of economic policy inspired in the New Consensus on Macroeconomics, which supports that the main focus of the economic policy is price stabilization, inflation is a monetary phenomenon that can only be controlled through changes in the interest rate and that inflation targeting regime is the best arrangement for economic policy. Likely the only important change was the policy of foreign exchange reserves accumulation that aimed at having a cushion of safety against currency speculation and reducing exchange rate volatility. It is worth to mention that Brazil compared to other major Latin American economies did a more aggressive foreign exchange (FX) reserve accumulation policy (see Figure 4), that however did not avoid the general trend for exchange rate appreciation. This trend was somehow tolerated by BCB as essential to the attainment of the inflation target in Brazil (Arestis et al, 2010).

Figure 4. Foreign exchange reserves (US\$ billion)



Source: IMF – International Financial Statistics.

Indeed, intervention in the currency markets, including accumulation of reserves, has been massive in Argentina, Brazil and Chile and very high in Colombia and Peru (Figure 4). However, for some economies there was a gradual trend of real

appreciation of the domestic currencies due to massive capital inflows, as it is the case of Brazil in beginning of 2003 until middle of 2011, when there was a downward trend of the real effective exchange rate (as the exchange rate is the price of the USD) (Figure 5). Brazil was one of the emerging countries that had a stronger trend of currency appreciation until 2011.

Figure 5. Real Effective Exchange Rate (June 1994 = 100)



Source: Central Bank of Brazil.

Note: A country's overall real effective exchange rate index is calculated by weighting its real bilateral exchange rate indices with each of its trading partners (in this case using the consumer price index) by each partner's share in the country's total trade flows in terms of exports and imports. A currency depreciates in real effective terms when this index rises and appreciates when it falls.

In the post-global financial crisis context, CAR has also been predominantly endogenous in Brazil. After implementing some slight capital controls in 2009 and 2010, it was only after January 2011 (when the first prudential financial regulation tool was implemented) and, mainly, after July 2011 (when the Brazilian government adopted a broader regulation of the foreign exchange derivatives operations - FXDR) a more comprehensive regulation has been launched, encompassing both capital controls, prudential financial regulation and FX derivatives market regulation. This change is

related to a broader change in the conduction of economic policy during Dilma Rousseff's government (that began in 2011), that CCR and FXDR is an integral part. On the one hand, BCB adopted a more flexible monetary policy with the use of broader tools of monetary policy, including macro-prudential measures, and since August 2011 began a gradual and continuous reduction in the interest rates (from 12.5% in August 2011 to 8.5% in June 2012) so adopting a more "forward looking" behavior. On the other hand, with the use of CCR and FXDR, Brazilian government seems to be committed in affecting somehow the level of exchange rate, without any formal commitment however, avoiding a greater appreciation caused by the exuberance of the capital flows. There is some flexibility in the operation of NCM policies and a greater coordination in the economic policy (monetary, fiscal and exchange rate policies). However, this does not mean a more radical change in the economic policy as Brazilian government is still committed with the inflation targeting regime.

4 The recent experience with capital account regulation in Brazil⁴

As we have already mentioned, Dilma Rousseff's government adopted a broader strategy for the management of capital flows that combined the use of controls on capital inflows (financial transaction tax on fixed income portfolio capitals and external loans) with prudential financial regulation (mainly reserve requirements on sold positions of the banks in the spot market). The main objective was to reduce the flux of capital inflows, and its composition (reducing short-term capital flows), and also to reduce speculative operations related to foreign exchange market, in order to avoid the appreciation trend of the exchange rate.

Initially, the main measures adopted by the Brazil's Ministry of Finance was to increase the percentage of financial transaction tax (*Imposto sobre Operações Financeiras* – IOF) on capital inflows and to enlarge the scope of application of the IOF. In the end of Lula da Silva' government, that is since the end of 2009 and in 2010 some slight controls on capital inflows were adopted: in October 2009 the Ministry of Finance implemented a 2% IOF on non-resident equity and fixed income portfolio inflows, and in October 2010 the IOF increased from 2 to 4 percent for fixed income portfolio investments and equity funds. In terms of derivatives market regulation an IOF

⁴ This section is partially based on Paula and Prates (2012).

on margin requirements of FX derivatives transactions increased from 0.38% to 6%. Later, in March 2011, Brazilian government increased to 6% the IOF on new foreign loans (banking loans and securities issued abroad) with maturities of up a year, and in April 2011 an IOF of 6% was extended for both new and renewed foreign loans with maturities of up to 2 years. However, the tendency for exchange rate appreciation was still in course until the middle of 2011, as can be seen in the Figure 6. Thus, in order to be effective in using capital account regulation (CAR) to affect capital flows and speculation operation related to foreign exchange market it was necessary to enlarge the scope of CAR in a more integrated approach.

Indeed, a major distinction of the Brazilian FX derivatives market is that these operations are non-deliverable. This means that gains or losses in these operations are liquidated in domestic (BRL – Brazilian real), and not in foreign currency (USD). Due to their non-deliverable legislation, the margin requirements of FX futures transactions can be fulfilled in BRL. Along with the unrestricted access of non-residents to the FX futures market in the context of financial liberalization, this specific norm has contributed to its higher liquidity in comparison with the FX spot market as FX futures operations can be carried out without any effective foreign currency flows.

In derivatives markets carry trade expresses itself as a bet which results in a short position in the funding currency and a long position in the target currency. In the case of Brazil, due to the huge differential between the internal and external interest rates, since 2003 foreign investors had taken, predominantly, one way bets on the Brazilian currency appreciation through short positions in the FX futures market (selling USD and buying BRL), which has resulted in downward pressure on the USD price and, thus, in upward pressure on the BRL price. FX future and spot markets are linked by the arbitrage carried out mainly by banks as the dealers in the FX spot market: the excessive supply of USD in the future market leads financial institutions to buy future dollars and sell spot dollars in the primary market or the BCB⁵. In front of the downward trend of the USD futures price, these agents took the contrary position of foreign investors in the FX futures market (long position in USD and short in BRL).

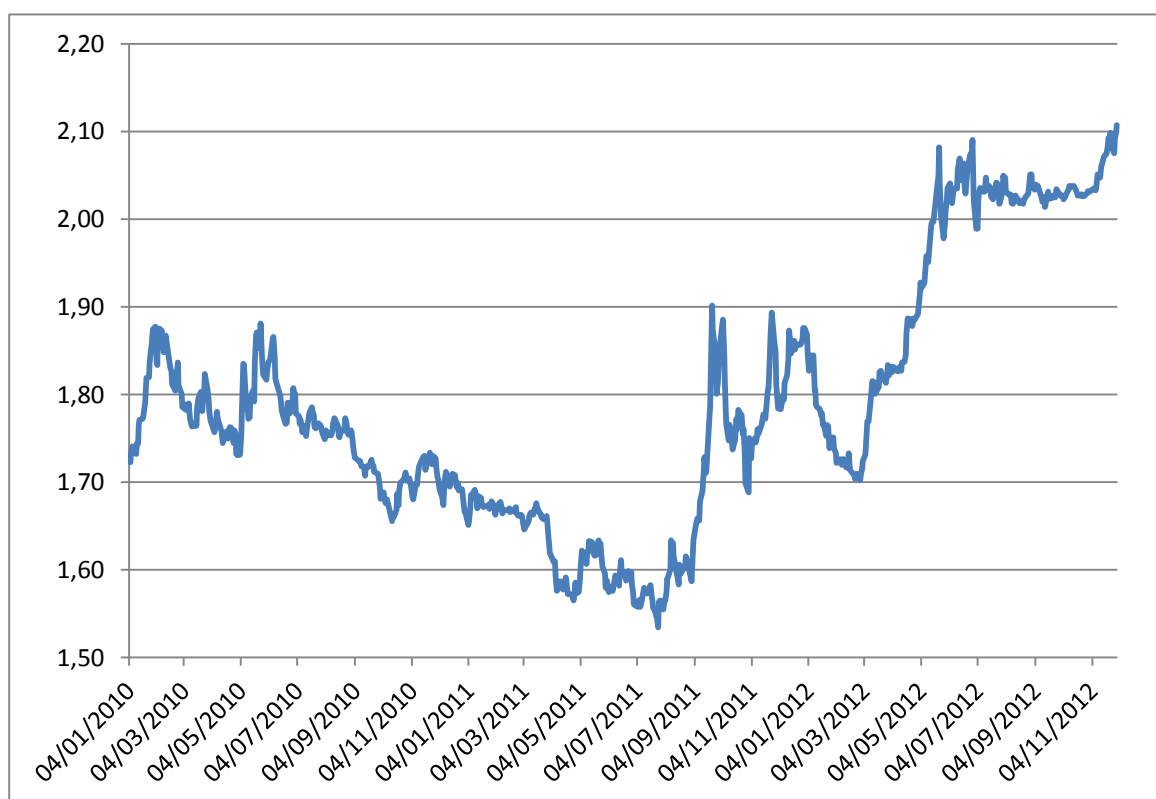
⁵ According to Carneiro and Rossi (2012, p.14), “banks operate as buyers of futures dollars and simultaneously they use international interbank lines to borrow dollars abroad and sell them in the primary market or the Central Bank. The result of this operation is an increase in the sold position of banks in spot market and a pressure to appreciate the real”.

With this strategy, banks have earned arbitrage profits and, at the same time, caused additional appreciation of the Brazilian currency.

Therefore, the implementation of conventional capital controls in the Brazilian case is not enough to attenuate the pressure on exchange rate due to the special features of the foreign exchange market in Brazil; for this reason is necessary to complement them with prudential financial regulation and FX derivatives market regulation. Indeed, after increase IOF on margin requirements of FX derivatives transactions from 0.38% to 6% in October 2010, Brazilian government determined in January 2011 that as a prudential financial regulation a non-interest reserve requirement equivalent to 60% of bank's short dollar positions in the FX spot market that exceed US\$ 3 billion or their capital base, whichever is smaller. Brazilian government sought to decrease the speculation power of the banks in the spot currency market, by implementing prudential financial regulation on bank. Later, in July 2011, it determined that excessive long positions on BRL off all agents had to pay an IOF of 1 percent; this tax could be however increased up to 25 percent.

These measures seem to be effective: since November 2010, net foreign investment to fixed income has been zero or negative; exchange rate devaluated 34.1% from July 2011 to July 2012, and has been maintained between R\$/USD 2.00-2,10 since then (Figure 6). It was only with the implementation of prudential financial regulation and FX derivatives regulation that Brazilian government had greater influence on the determination of exchange rate. IEDI (2012) points out that international financial instability combined with the management of capital inflows and the new combination of key-prices (reduction of interest rate and depreciation of exchange rate) slowed the entrance of speculative capital inflows that were attracted by interest differential and exchange rate volatility.

Figure 6. Nominal exchange rate (R\$/US\$)



Source: Central Bank of Brazil

5 Conclusion

Cyclical capital swings related to international financial integration have strong effect on major macroeconomic variables in emerging economies, such as exchange rates, interest rates, domestic credit, and asset prices. Fluctuations in GDP growth have been accompanied by large swings in aggregate demand and in the current account balance, with strong deterioration of the current account during the inflow period and sharp reversal at the end. Furthermore, the surge of capital inflows also appears to be associated with a real effective exchange rate appreciation, damaging the competitiveness of export sectors and potentially reducing economic growth.

This chapter analyzed briefly the costs and benefits of capital account liberalization, in particular for developing countries. Conventional wisdom, based mostly on theory of market efficiency, supports that free capital movements facilitate an efficient global allocation of savings and help channel resources into their most productive uses, thus increasing economic growth and welfare, mainly for poor-capital countries with savings shortage. Critics of capital account liberalization support that

efficient-markets paradigm is basically misleading when applied to capital flows, as, in practice, financial markets are imperfect and/or intrinsically instable, particularly in developing countries. Furthermore, empirical studies in general have not found robust evidences that financial liberalization has boost economic growth in developing economies.

In order to enhance the possibility of a successful management of exchange rate regime in emerging economies some measures to reduce the volatility of capital flows and the likelihood of speculation attack on domestic currency are necessary. As we have seen in this chapter, one possibility to enhance the management of exchange rate regime in emerging economies is the use of ‘capital management techniques’ that includes capital controls, that is measures that manage volume, composition, and/or allocation of international private capital flows, and/or ‘prudential domestic financial regulations’, which refer to policies, such as capital-adequacy standards, reporting requirements, or restrictions on the ability and terms under which domestic financial institutions can provide to certain types of projects.

Concerned with that amount and volatility of capital flows to emerging economies after the contagious of the 2008 crisis, IMF revised, its official position towards capital controls, that now can be considered as a ‘measure of last resort’, when all other macroeconomic policies and regulatory measures are exhausted. Some authors have criticized the new IMF pragmatic approach as insufficient to deal with some emerging economies macroeconomic issues. They argue that by defining capital controls as temporary and a measure of last resort this approach poses serious limits to the policy space that is required to emerging countries. Furthermore, the IMF hierarchy is seen as inappropriate as it seeks to draw lines between macro-prudential measures, measures to influence the exchange rate and capital controls defined in a jurisdictional manner as discrimination against the residency of investors.

In Brazil, since the end of the 1980s it can be noted an increasing trend towards capital account liberalization in Brazil. However, most empirical studies show that there are no clear benefits of capital account liberalization in Brazil in terms of economic performance and macroeconomic stability: in general financial liberalization has a negative, although limited, net effect on economic growth, and strong and oscillatory effects on interest rate variation and exchange rate variation, and also on inflation.

More recently, while in Lula da Silva’s government capital controls were not used to affect capital inflows, in Dilma Rossef’s government, economic authorities

made more intensive use of capital account regulation (CCR), promoted a certain exchange rate devaluation and reduced short-term interest rate. We saw in this chapter that a wider interest rate differential stimulates regulatory arbitrage, mainly in case of countries with sophisticated financial markets. In this context, CAR and FXDR have to be even more dynamic, flexible and adjustable, involving a steady “fine-tuning” to close the loopholes found by private agents through spot and FX derivatives transactions. Indeed, only when Brazilian government adopted all of the three kinds of techniques simultaneously (capital controls, prudential financial regulation and FX derivatives regulation), the policy effectiveness increased in terms of protecting the exchange rate from upward pressures. There are a great deal of synergy and overlapping among the different CAR tools: capital controls need to be instituted to cover particular types of capital flows that are outside the scope of prudential regulation (for instance, foreign loans by non-financial companies). Therefore, it is not possible to establish a clear triple hierarchy between instruments to manage capital flows as supported by the current IMF approach.

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