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The Financial Crisis of 2007-9 and Emerging Countries: The Political Economy Analysis of Central Banks in the Brazilian and Korean Economies¹

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Abstract:

Insofar as the global crisis of 2007-9 can be understood as a fully-fledged crisis of the financialisation era, it has presented new challenges for central banks. However, this paper argues the central banks' interventions in key middle income countries (Brazil and Korea) have reinforced the main characteristics of financialisation and have been different from their previous foreign exchange crisis of the late 1990s. The key reasons for this sharp contrast in central bank interventions can be found firstly, in the origins of the recent crisis – in developed financial markets – which is different from the previous one which originated in emerging markets. Furthermore, the higher level of financial integration of both economies in relation to the late 1990s is a more important factor. The Korean and Brazilian experiences show that the liquidity management by central banks has been conditioned by international capital flows, and more importantly they have reinforced this trend through their operations in spite of differences in the dynamic of capital flows, in their timing of reserve accumulation and in their level of financial integration.

Keywords: Financialisation, International capital flows, Reserve accumulation, Central banks, Financial integration.

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Introduction

This paper examines the effects of the crisis of 2007-9 on developing countries by considering international capital flows and reserve accumulation. The analysis focuses on the role of central banks during the crisis, considering both the Brazilian and Korean experiences. It is shown that the huge accumulation of international reserves, which is one of the main results of financialisation in recent years, has not been a guarantee against speculative and unstable capital flows or large exchange rate depreciation in developing countries.

The paper establishes the connection between international and domestic financialisation through a political economy analysis of central banks in the key emerging markets in Latin America and East Asia, respectively Brazil and South Korea. The Brazilian and Korean economies have both important domestic financial systems and similar institutional arrangements for their central bank operations. The political economy analysis is conducted by examining central banks interventions in Brazil and Korea in the course of the global crisis. It is argued that central bank interventions in these countries during the global crisis were very different from those during the previous foreign exchange crisis in the late 1990s. In response to the sudden exchange rate depreciation of the late 1990s Central Banks contracted domestic liquidity through raising interest rates and other measures. On this occasion central banks have responded differently by increasing liquidity. This is because their economies have become more financialized domestically, and more importantly they have become more integrated to international financial markets in recent years. The focus of the analysis lies on the unfolding of global crisis, considering the relation between capital flows and their impact on the domestic financial markets. Attention is paid to the relation between international capital flows and domestic public management by central banks.

Financialisation can be defined as the dominance of finance sphere and their agents in the recent economic performance (Epstein 2005) and more specifically represents a profound transformation of the financial system based on changes in real accumulation since the early 1970s (Lapavitsas 2009). Financial activities have spread into several new economic sectors and areas of daily life – housing, pensions, consumption, and so on. Growth of finance has provided fresh scope for the form of value to expand, mainly in developed capitalist countries. Important elements of this process have been the privatisation of activities and capital assets that were previously under state control, as well as the deregulation of financial markets and institutions. Therefore, there has been an expansion of the circulation sphere relative to the productive sector in the last decades. In this sense, the process of economic development has been shaped by financialisation.

In this paper, the focus is on aspects of the international dimension of financialisation in which financial liberalization, mainly financial opening, has played a fundamental role. This process of liberalising the domestic financial system and opening the capital account has allowed an increase in financial integration between developed and developing countries in the last decades. As a result there has been a spread of the main characteristics of financialisation around the global economy. More important, it is possible to say that the process of financial liberalization has a direct relation with central banking operations and actions as they have been the key

players in the implementation of those reforms. Hence, there is a connection between central banks and financialisation.

This connection can be shown through analyzing the main development in international finance in the last decade, the process of foreign reserve accumulation, which in turn has shaped macroeconomic management in key developing countries. Reserve accumulation has facilitated net transfers of capital from developing to developed countries, and has acted as a mechanism of exploitation of developing by developed countries, mainly the USA². On the domestic side, it has shaped the domestic financial conditions in which central banking operations have a determining role. This is because central banks are holders of foreign exchange reserves as well as being responsible for domestic liquidity management. Thus they find themselves in conditions requiring them to deal with the tension between international and domestic spheres which, according to this paper, is related to the dynamic of capital flows and to reserve accumulation. The paper argues that the resolution of this tension depends on the institutional and historical context in which central banks operate and, that there is a central banking bias in favour of the international sphere. Therefore, central banks are fundamental in the relation between international and domestic financialisation, especially in middle income countries.

The paper argues that despite some differences in the dynamics of Brazilian and Korean capital flows and in their mechanisms regulating reserve accumulation, the nature of central bank interventions have had the same logic and characteristics since the global crisis hit both economies in September 2008. The Brazilian (BCB) and Korean (BOK) central banks, through their respective management of liquidity, have intervened in a way which has promoted and reinforced the pillars of financialisation in their countries. These central banks have been key players in the spread of financialisation in their countries by underpinning financial domestic issues to international ones.

The paper is organised as follows. Section 1 considers the relation between the political economy of central banks and financialisation from a Marxist perspective. It highlights the connection of central banks with capital accumulation and the key role of central banks in the financialisation era. Section 2 shows the relation between Brazilian and Korean capital flows and foreign exchange accumulation. It also discusses the characteristics and dynamic of the capital flows in each economy. Section 3 analyses the domestic effects of reserve accumulation on the domestic financial system. It shows the relation between international capital flows and the rise in internal public debt. Section 4 then shows that central bank interventions dealing with the consequences of the crisis have reinforced the process of financialisation instead of ameliorating the impact of this process. Essentially, the central banks' interventions have tried to maintain the pillars of financialisation in developing countries, that is, high levels of liquid financial assets and capital account convertibility. Section 5 concludes the paper.

² For an account of this process and their consequences, see Painceira (2009).

1. The political economy of central banks and financialisation: some theoretical considerations

The unfolding of the 2007-9 global financial crises has highlighted the enormous importance of central banks' interventions not only in dealing directly with the banking crisis but also in relation to the consequences on the real economy. In particular the central banks' actions have reinforced the pillars of financialisation, more specifically those related to financial liberalisation, highlighted by distinct theoretical perspectives as one of the main causes of present crisis.

As a fully-fledged crisis of the financialisation era, the financial crisis of 2007-9 has presented new challenges for central banks. Central banks have been key players in the implementation and spread of financialisation in developing countries as they are the main interface between capital flows and domestic financial markets and are responsible for liquidity management. The analysis on the Brazilian and Korean experiences highlights this trend. Before discussing this it is necessary to undertake some theoretical considerations on the role of central banks in the economy. The theoretical understanding of this paper relies on the Marxist political economy approach which stresses the central bank's connection with capital accumulation through its organic link to the banking system. For this paper, it is crucial to note that the relationship between economic development and financialisation is addressed through the unfolding of events in the circulation sphere and not in the production sphere, where the process of surplus value creation takes place. Nevertheless, developments in the circulation sphere, particularly those related to the monetary and credit system, are fundamental to the capital accumulation as whole³. It is exactly in this sphere of capital circulation where central banks are operating and which is thus the focus of this paper⁴.

The full understanding of the role of central banks is based on their relations with the capitalist credit system as a whole, in particular the banking system⁵. This structure takes the form of a pyramid (from the top downwards), which consists of the money market, banking credit for any economic unit, mostly including the lending operations to enterprises. At the base, spontaneously emerging, is the inter-company commercial credit, where are found trade credit relations among capitalist companies. The pyramid itself rests upon the process of capital accumulation. Therefore, the

³ As pointed out by several writers of the financialization literature (see e.g. Aglietta and Breton (2001) and Stockhammer (2008)).

⁴ This paper can be connected to the discussion of the role of financial elites and economic policy which is addressed by the financialization literature, see Epstein (2002) and Palley (2007). However, this paper addresses the integration between international and domestic capital accumulation through the financial integration of their domestic financial systems in which financial elites can also be included. In spite of being important, the paper does not address the role of those elites in this integration for absence of space.

⁵ The banking system is the locus of transformations related to money and credit in capitalism. Banks have also been fundamental in the changes taken place during the financialisation era.

central banking operations are at the top of the pyramid in direct contact with money markets⁶.

This pyramidal structure shows only the domestic dimension of the credit system, and consequently to the central banking relations. However, central banks have also an international dimension by hoarding foreign exchange reserves, a function which makes them the pivot between domestic and international spheres. In the global capitalist market, world-money is a necessary development in the category of money as “it is only in the markets of the world that money acquires to the full extent the character of the commodity whose bodily form is also the immediate social incarnation of human labour in the abstract....money of the world serves as the universal medium of payment, as the universal means of purchasing, and as universally recognised embodiment of all wealth” (Marx 1973: 141-2). Consequently countries find it necessary to hoard world money in order to participate in international transactions to any country.

It is important to establish that this international dimension of central banks' activities occurs firstly through the foreign exchange markets where the main country's access to world money is established. In this sense, focusing on the role of central banks, the pyramid has a binary role which is primarily a domestic structure. Between domestic and international spheres, there is a tension arising from the different interests involved in the two spheres. For example in the domestic sphere tensions between financial and non-financial industries might require differentiated levels of connection and integration, creating possible areas of conflicts. Meanwhile in the international sphere there are not the same institutional mechanisms as the domestic economies have developed over time such as monetary authority and central government.

In relation to those tensions, as the country's holder of international reserves, “a central bank's promises to pay could be accepted by other nations as a means of payment and elements of international reserves. The credit advanced by central bank would in that case transcend its national character and assume a global aspect. Central bank credit would then reflect the comparative strength of nations in the world arena.” (Lapavitsas 2003: 86) The tensions between domestic and international dimensions have manifested themselves in the monetary and financial realm and have appeared in different forms in the history of capitalism, where the universal form of value has had an important role in determining these forms⁷. In relation to those spheres, in Marxist theory, there is a trend for central banks to operate in favour of the international sphere as the reserves of world money are important for the access of domestic capitalists to the world market. It is therefore necessary to accumulate adequate reserves. More fundamentally, it is connected to the inherent logic of the self-expansion of capital accumulation according to which these hoards are required in

⁶ This theoretical framework is developed by Itoh and Lapavitsas (1999) based on Marx' analysis in the *Capital* and Lapavitsas (2003).

⁷ Historically gold was the universal form of value, and since the end of second war the US dollar has been the quasi-world money. This term (instead of world money) is used to describe the US dollar because there is no formal agreement as there was in the gold era. Moreover, the issuer of world money is a country, not an international multilateral organization. Furthermore, there is no clear mechanism of international adjustment like in the gold era.

order to overcome domestic constraints to global expansion, in production but also in circulation.

Thus the central bank sits between international and domestic spheres and tension arises between each sphere. Hence central banks hoard world money meaning that, all things being equal they favour the international against the domestic. In this paper, a political economy analysis of central banks concentrates on their relation with the world economy. Specifically, the political economy of central banks in key emerging countries (Korea and Brazil) focuses on the world money issue through the relation reserve accumulation and public debt management which in turn affects the domestic liquidity conditions managed by central banks. The process of financial liberalisation is one of the main aspects of financialisation that is directly related to central bank operations. Broadly speaking this process has external and domestic dimensions in which the aim is to facilitate the capital flows and financial transactions with few constraints on flows in and out of a country. In our discussion of international capital flows, the concept of financial opening is more important.

Akyuz (1992) argues that the financial opening of developing countries includes liberalising the inflow and outflow of capital as well as allowing easy convertibility of the domestic currency. Essentially, the inflow of capital refers both to residents borrowing from foreign markets for reasons not connected to international trade and non-residents offering credit in domestic financial markets. The outflow of capital refers to residents transferring capital and acquiring financial assets abroad and to non-residents issuing liabilities in domestic markets. Currency convertibility refers to the legal permission to undertake credit relations among residents in a foreign currency, including bank deposits and lending. Those measures are the core aspects of financial opening which include measures of tax exemption to foreign investment.

During the recent period, as the process of financial liberalisation has been reinforced in developing countries, the connection between the international financial markets and domestic liquidity conditions has become stronger. In this paper, it is important as this has shaped the actions of central banks in the domestic financial markets. Moreover, this development has created new forms of external vulnerabilities in domestic economies⁸. The following sections discuss the ways in which the international capital flows have shaped the financial domestic conditions in Brazil and Korea.

This issue is examined through the liquidity management functions by their central banks, focusing on domestic public debt dynamics. Finally, this closer financial integration had a crucial influence on the central banks' interventions during the crisis in September 2008. It is shown that central banks through their liquidity management have opted between international and domestic spheres, and it has happened particularly during their interventions in which central banks opted in favour of the international sphere in order to preserve the countries' access to the world market.

⁸ These new forms of vulnerabilities are related to the dialectic relationship of capital flows with the domestic financial systems in which capital flows creates vulnerabilities in the domestic financial market which in turn determine the dynamic of capital flows themselves. For a discussion of the new forms of vulnerabilities in the Brazilian financial market, see Kaltenbrunner and Paineira (2009).

2. International capital flows and reserve accumulation: the dynamic and nature of capital flows in Brazil and Korea

This section discusses international capital flows in the Brazilian and Korean economies in recent years. The objective is to analyse the main characteristics of the process of reserve accumulation in each country, including highlighting their differences and specifics. Therefore, the general trend in the current and capital flows, including the dynamics of portfolio and banking flows and the nature of international reserves accumulated are discussed in the section.

The analytical focus is on the immediate period before the global crisis in summer 2007, the first stage of international financial crisis between August 2007 and September 2008 and after September 2008 when the financial crisis hit both economies severely through capital flight and exchange rate depreciation.

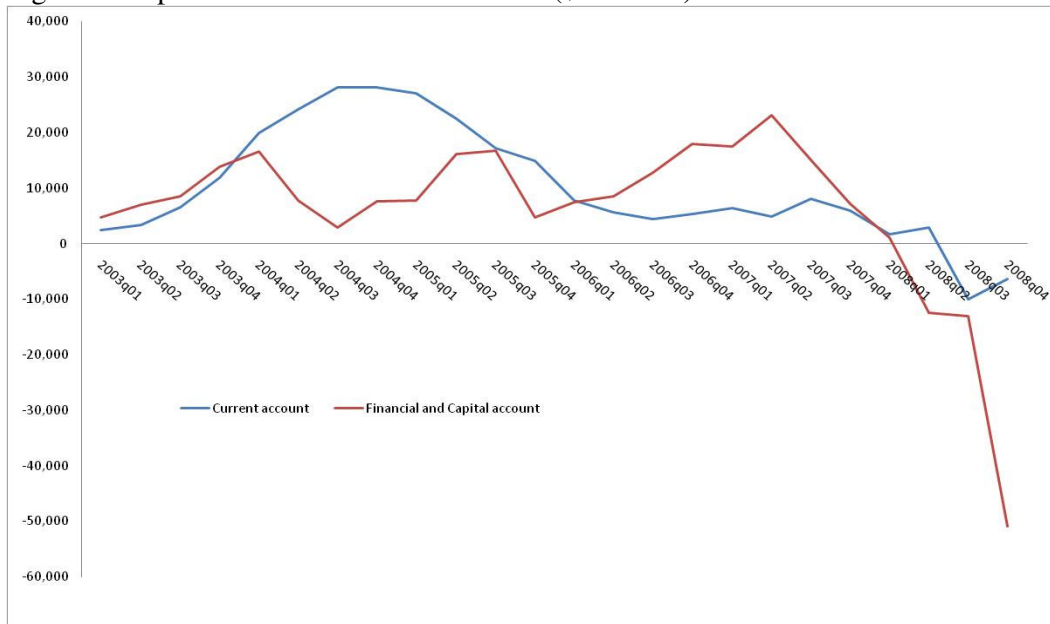
2.1 – Setting the scene in Brazil and Korea: general trends in current and capital flows

It is well known that the decade since the year 2000 has been prominent for the development and increase of international financial capital transactions. Capital export has grown substantially due to the huge reserve accumulation that resulted from trade surplus and private capital flows. The process of reserve accumulation has been the most striking fact in relation to global finance during the last decade, as developing countries have financed some key developed countries, mainly the US economy⁹. Brazil and Korea have been two of the largest holders of international reserves. Moreover, both countries have important domestic financial systems and similar institutional arrangement, namely an inflation targeting regime. Therefore, the analysis of the political economy of central bank in these key countries can be instructive for other emerging economies.

Figures 1 and 2 show the capital and trade flows in Brazil and Korea through the current and capital accounts since 2003. By analysing the general trend of balance of payments between 2003 and 2005 the main points are the trade balance which generated a surplus in the current account in both countries, and the differential pattern of international capital flows that can be seen in their capital accounts. During this period, the Korean current account had a cumulative surplus of \$55 bn while the Brazilian current account showed a cumulative surplus of \$30 bn. Turning to the capital account, while the Korean economy had constant capital inflows mainly through portfolio investment, generating a cumulative net capital flow of \$26 billion during the period, the Brazilian economy showed more volatility with a capital outflow of \$12 bn between 2003 and 2005. Those factors had different impacts on the international reserves in each economy. Thus during this period, the capital and trade flows allowed the Korean economy a huge accumulation of foreign exchange reserves, from \$123 bn to \$210 bn, while the Brazilian reserves had a modest increase to \$54 bn from \$39 bn.

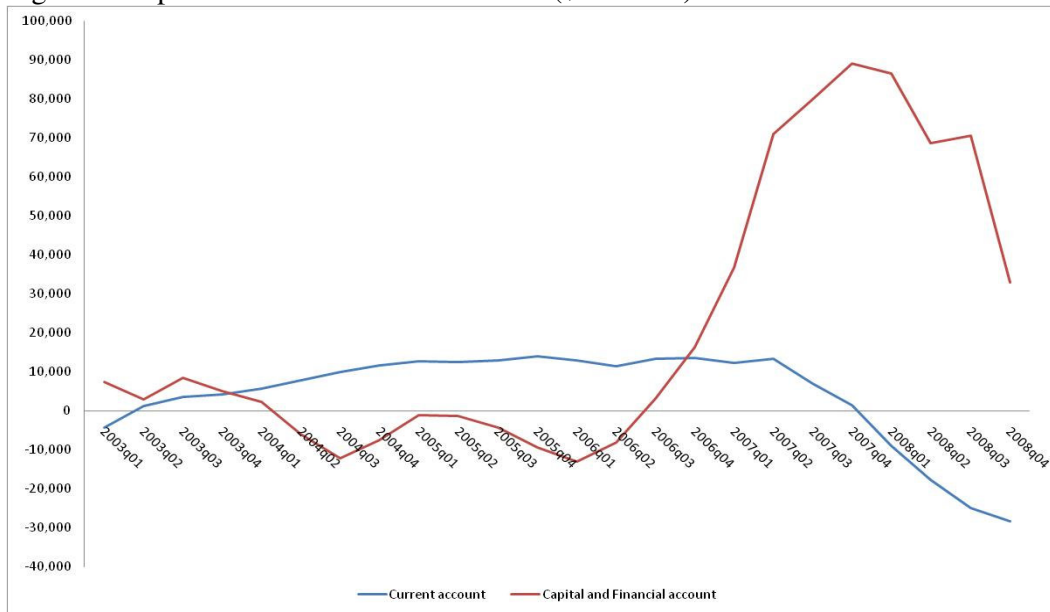
⁹ The impact on the US yield curve during 2003-2006 was around 100-200 bp, see Paineira (2009: 14-6).

Figure 1: Capital and Current Account flows (\$ millions) - Korea



Source: BOK (2009a).

Figure 2: Capital and Current Account flows (\$ millions) - Brazil



Source: BCB (2009a).

It is important to emphasise that the Brazilian payments to the IMF until 2005 exerted a negative influence on the stock of foreign reserves during the period.

Therefore the process of reserve accumulation started in Korea before Brazil. As it is analysed later on, this had different implications for the dynamic of capital flows and for their domestic liquidity management. Never-the-less the central banks' intervention had the same features in both countries during the crisis.

As this paper focuses on the unfolding of the 2007-9 global financial crisis, it is important to analyse more carefully both the Korean and Brazilian economic context in terms of capital flows just before the crisis. Figures 1 and 2 show that the financial accounts in both countries had the same pattern between 2006 and summer of 2007, when there was a huge capital inflow. However, after the outbreak of the global banking crisis, during the first stage of the financial crisis, the international capital flows in the Brazilian and Korean economies exhibit different dynamics. While the Brazilian economy received an astonishing capital flow of \$71 billion during the crisis period, the Korean economy registered a negative capital flow. In both economies the driving factors were short-term capital flows, so the divergence trends highlight the specific differences in the dynamic of capital flows in each country during the first stage of crisis. Those capital flows are analysed below.

2.2 – The capital flows dynamic: portfolio and banking flows

For the purpose of analysing the central banking activities the main capital flows, portfolio and other investments are discussed for both economies. Because of their own characteristics foreign direct investment (FDI) are more related (or connected) to the domestic productive structure and to the level of economic integration of each economy than to central banking operations¹⁰. The objective is to analyse the main characteristics of each type of capital flow in order to understand its dynamic and their domestic effects, thus omitting the relation between reserve accumulation and the liquidity management by central banks which is discussed in the section 3 and 4.

The figures 3 and 4 show the portfolio investment in Brazil and Korea between 2005 and 2008. This investment has been important for both economies, but in different ways. In Korea, the net portfolio flow showed a negative trend during the period that was reinforced after the Kospi (the domestic stock market index) reached its peak in 2006. It is interesting to note that the main driver of portfolio flows has been Korean investment and not foreign investment as one would normally expect. Between 2006 and the summer of 2007, there was a cumulative Korean outflow of \$63 bn while the net portfolio flow was negative by \$37 bn. However, in the first stage of the crisis, the Korean and foreign portfolio investment had the same pattern, i.e., both negative¹¹.

This aspect is related to the high level of integration of the Korean financial system facilitating a high capital inflow and outflow. In general, financial integration is clearer and more important in the case of international banking operations. It is also

¹⁰ In Korea, there is a net outflow of FDI mainly after 2007. This represents the process of internationalisation of their multinational companies, such as Samsung and LG. On this process, see Mon and Geddis (2009). In Brazil, the FDI has shown an almost constant net inflow in despite the fact that Brazilian direct investment has increased in the last years.

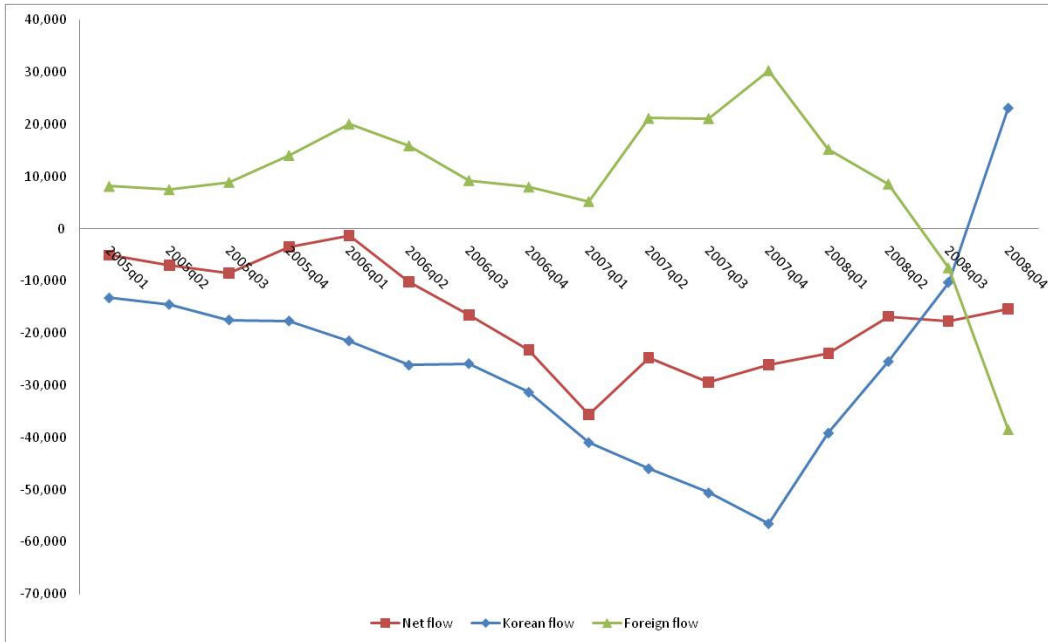
¹¹ It is partially explained by the high correlation between the US and Korean stock markets. On this correlation, see Kyungsoo et alli (2009).

important to stress that the level of financial integration is related to the opening of domestic financial markets to foreign investors and is linked to the liberalisation of the country's capital account. In principle a lower level of liberalisation in the capital account would be required in order to smother the outflow and inflow of capital in a domestic financial system with stronger foreign ownership presence. In Korea, the foreign shareholding in the financial industry was 58% in September 2007 while in banks the figure was 85%. In Brazil, in the same time, the foreign shareholding was of 24% in the banking industry¹².

In Brazil, the portfolio investment flows have been essentially driven by foreign investment. After being quite stable during 2005, the net portfolio flow rose rapidly during 2006, maintaining a strong inflow even after the outbreak of the financial crisis in 2007. Between 2006 and the summer of 2007, and during the first stage of the international financial crisis there were net inflow of \$33 bn and of \$41 bn, respectively. The factors behind this latter huge capital inflow were the central bank's actions through liquidity management by offering high liquidity and short-term assets (repos) and, mainly, the drop of profitability in the developed financial markets caused by liquidity and solvency problems related to the US housing markets which launched a "search for yield" around the global financial system which triggered Federal Reserve actions, lowering their interest rates. Central banks' actions, raising the domestic interest rate during 2008, had also impact.

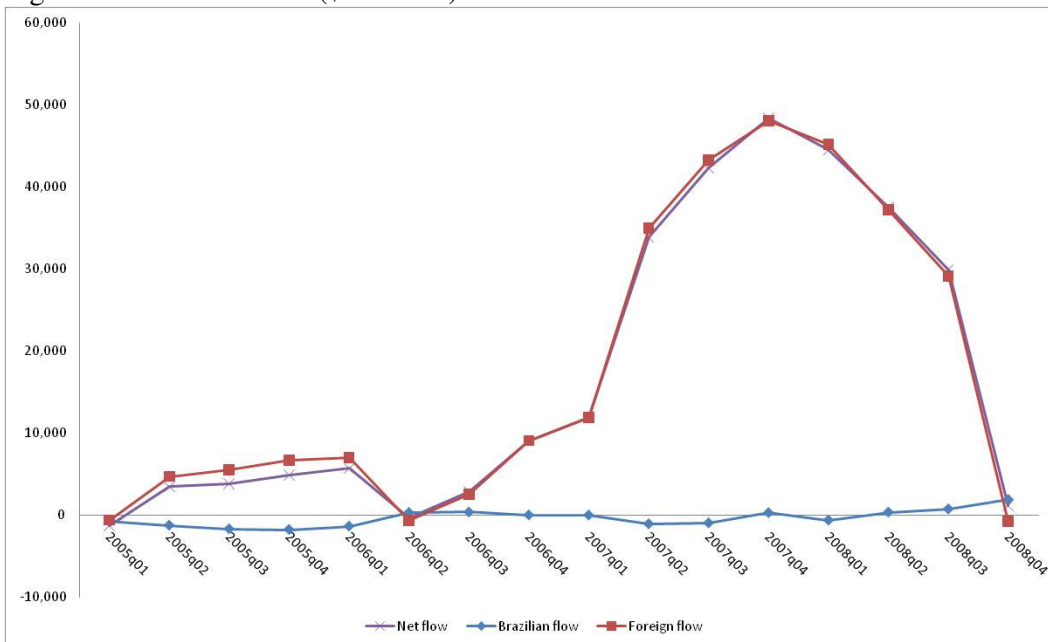
Figure 3: Portfolio Flows (\$ millions) - Korea

¹² See Financial Supervisory Service (2009) and BCB (2009b).



Source: BOK (2009a).

Figure 4: Portfolio Flows (\$ millions) - Brazil



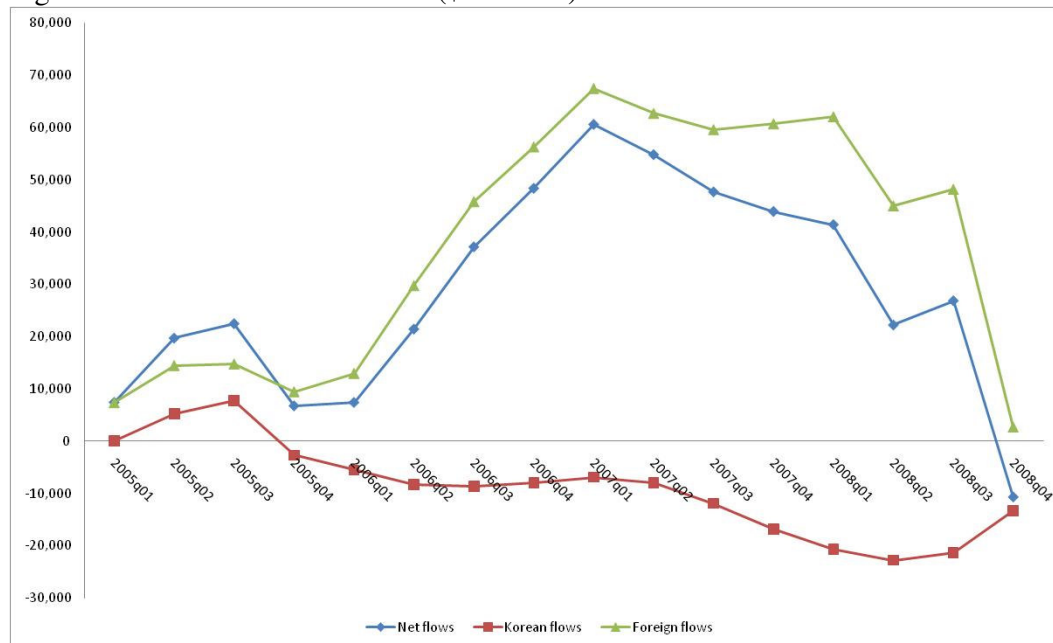
Source: BCB (2009a).

The other investment flows, which are basically banking investment, contrary to the portfolio flows exhibited a similar movement from 2007 in both countries, showing a net inflow up to September 2008 as can be seen in Figures 5 and 6. In Korea, between 2005 and the middle of 2006, banking investment was basically driven by foreigners, being responsible for \$38 bn of the total cumulative net inflow of \$32 bn. However, similar to the performance of portfolio flow, the domestic investment has become increasingly important to the determination of the banking flow. This importance rose dramatically during the first stage of financial crisis when

the net banking inflow was of \$36 billion while the Korean banking investment showed an outflow of \$27 billion. This effect is related to the level of integration of the Korean banking system in which the speculative operations have proliferated over recent years. The next section discusses the importance of public securities to the speculative (and arbitrage) operations.

In Brazil, it is worth mentioning that the banking flows were negatively affected by payments to the IMF which caused an outflow of \$28 bn in 2005. In fact, these flows started to increase in the middle of 2006. Between 2006 and middle of 2007, two points are worth highlighting. First, there was a huge foreign inflow of approximately \$55 bn. Second, Brazilian banking investment had a substantial flow of \$28 billion. In summer 2007, the second process was interrupted. Nonetheless, in contrast to the Korean experience, those flows are not linked to arbitrage operations but could be related to an attempt at internationalisation of the Brazilian banking system, an attempt which failed in summer 2007¹³. During the first stage of the financial crisis, there was a huge net inflow of \$29 billion driven by foreign investment.

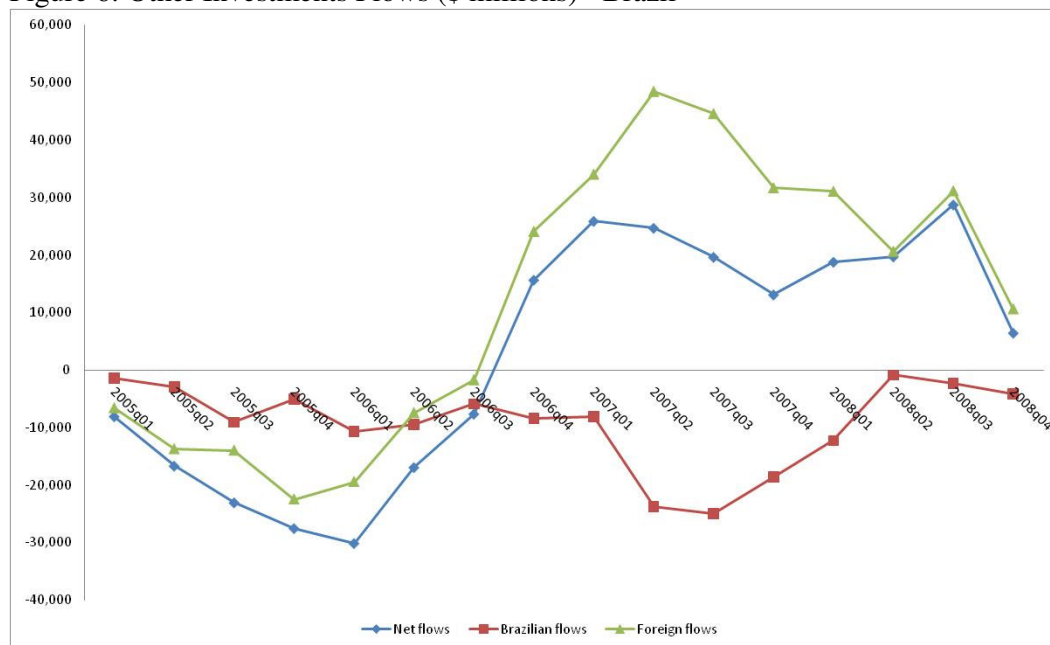
Figure 5: Other Investments Flows (\$ millions) - Korea



Source: BOK (2009a).

¹³ This attempt can be inferred from the increase of foreign assets in the commercial banks' balance sheet from US\$27 bn to US\$ 39 bn in the first half of 2007. Therefore, it can be argued that this increase is reflected an investment flow made on behalf of the banks, see IMF (2009).

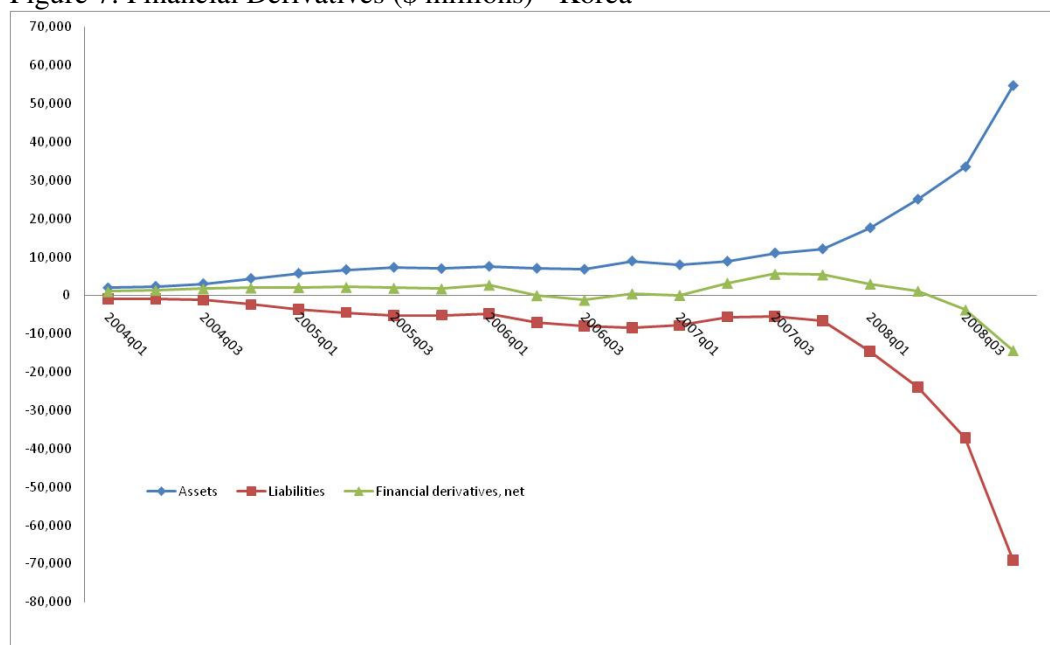
Figure 6: Other Investments Flows (\$ millions) - Brazil



Source: BCB (2009a).

The figure below on financial derivatives shows more clearly the different dynamics of capital flows in Brazil and Korea during recent years. It highlights the higher level of financial integration in Korea as investors (domestics and foreigners) can take the asset or liability position according to their needs. Derivatives operations cover financial instruments that are linked to other specific financial instruments, indicators or commodities. While in Brazil those operations are negligible, the Korean ones were extensive mainly during the first stage of the global crisis. In Korea, those derivatives were used to hedge, and mainly to speculate in, foreign exchange exposure or interest rate risk in a time of crisis. The bulk of those operations were undertaken through forward exchange (FX) swaps and currency swap markets. In these markets there are combination of financial transactions among different investors (domestic and foreign), dealing with exchange of currency exposure between domestic and foreign currencies according to their respective market interest rates. The main factors to this dynamic were the rise in the interest rate differential between the Korean and the US economies and the US dollar depreciation after August 2007. Moreover, those factors also had effects on the other capital flows, mainly banking flows, as banks (domestic and international) took financial positions during this time influenced by them. This is further explored in the next section.

Figure 7: Financial Derivatives (\$ millions) - Korea



Source: BOK (2009a).

2.3 – On the nature of foreign exchange reserves accumulated in Brazil and Korea

Up until now the article focused in analysing the similarities and differences in capital flows. For our purpose, the main differences in the capital flows dynamics between Brazil and Korea become more explicit when the effects on reserves accumulation and exchange rate are analysed between the end of 2006 and September 2008.

During that time, in Brazil the current account balance showed an inversion from a surplus of 1.3% to a deficit of 1.8% of GDP where the accumulated balance in the current account over this period showed a deficit of US\$18 bn. Despite this negative balance, however, the stock of international reserves increased by US\$120 bn during the same period.

It follows, therefore, that the Brazilian international reserves accumulated during the final years before the crisis were essentially “borrowed” reserves, resulting from short-term flows of the capital account rather than current account transactions such as trade balance. In numbers, during the beginning of 2007 – when the first signs of the international crisis emerged – and September 2008 – when it finally hit emerging countries - the stock of short-term external debt increased from \$20 bn to \$48 bn. At the same time, the accumulated portfolio flow to equities and debt securities reached US\$72 bn while the accumulated banking flow was US\$48 bn.

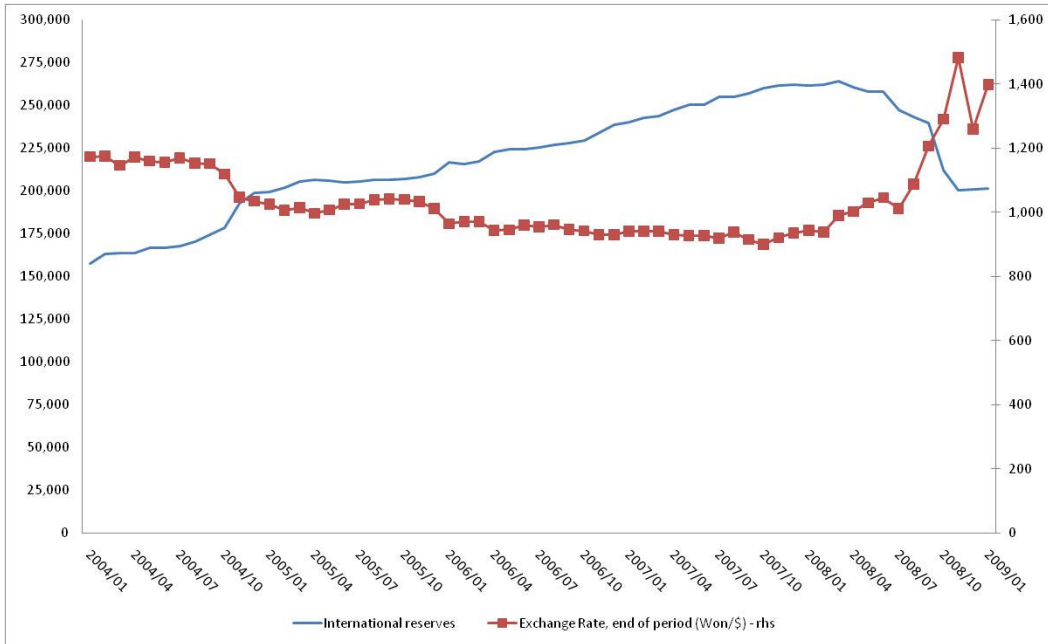
In Korea the current account balance also showed an inversion from a surplus of 1.2% to a deficit of 1.3% of GDP. The accumulated balance in the current account over this period showed a small deficit of \$2 bn. However, contrary to the Brazilian experience, the stock of international reserves remained fairly stable, around \$240 bn, during the same period.

With regard to the financial account, while the accumulated portfolio investment to equities and debt securities registered an outflow of \$47 bn, the accumulated banking inflow to Korea was of \$75 bn. On the other hand, there was a substantial increase in the stock of short-term external debt from \$114 bn to \$190 bn. With regard to the Korean experience, it is not possible to argue that its international reserves were “borrowed” reserves like Brazil, as they were accumulated before 2006 when the current account surplus was important in building up reserves. However, it can be argued that the dynamic of international reserves were shaped by the huge increase of short-term external debt. In the next sections, it is shown that this dependence become clear when the crisis hit Korea in the last quarter of 2008. The nature of the accumulated foreign reserves, whether “borrowed” or trade, is not important to the liquidity management by central banks. Monetary sterilization operations take the same form, and domestic banks can manage their balance sheet more effectively with those securities¹⁴.

In figures 8 and 9, it is possible to observe the performance of international reserves and exchange rate since 2004 in both economies. In Korea, after a pronounced movement in 2004, there is a gradual upward trend in the foreign reserves and appreciation of the Won until the end of 2007. During the first stage of the crisis, the reserves and exchange rate were quite stable. In Brazil, as it was pointed out previously, the IMF’s payments in 2005 had important effects on the process of reserve accumulation. As can be seen, this accumulation became more vigorous at the end of 2006. On the exchange rate side, there has been a clear trend of appreciation since the beginning of 2004, reversing only in September 2008.

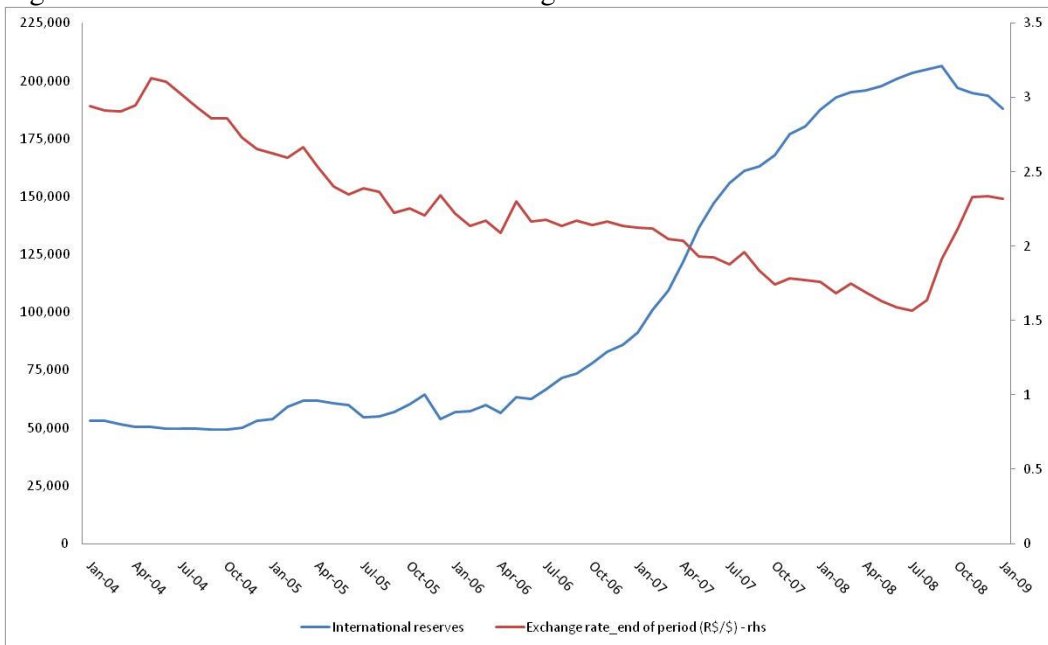
Figure 8: International Reserves (\$ millions) and Exchange Rate - Korea

¹⁴ For a measure in terms of costs of holding reserves to developing countries see Akyuz (2008). In this paper, there is a distinction between reserves coming from trade surplus and borrowed from international bonds markets.



Source: BOK (2009a).

Figure 9: International Reserves and Exchange rate – Brazil



Source: BCB (2009a).

Compared to the Korean experience, the most distinct aspect in Brazil was the huge increase of its international reserves and a considerable exchange rate appreciation during the first stage of the global crisis. It is also interesting to stress that the Korean reserves reached a peak of \$264 bn in March 2008 since when they

show a declining trend which is reinforced in the last quarter of 2008. This trend started exactly after Bear Stearns' bankruptcy which signalled serious problems in the global financial market. The possible reason could be found in the high level of integration of the Korean financial system. Thus, it can be argued the negative effects of the crisis on the reserve accumulation happened firstly in Korea than Brazil.

When the financial crisis hit the Brazilian and Korean economies in September 2008, there was a sharp fall in the capital flows due to the global portfolio adjustment, causing a powerful capital flight through the portfolio and banking investment accounts. In the last quarter of 2008, this flight reached \$42 and \$21 billion respectively in Korea and Brazil. In order to tackle the crisis, both governments took important measures, mainly through central banks' interventions, which are analysed in section 4. The next section develops a connection between the external and domestic aspects in both countries through the central bank liquidity management focusing on the dynamic of internal public debt.

3- Reserve Accumulation and its impact on the domestic financial system

It is possible to argue that the financialisation era has required a high level of international reserves from the emerging countries in order to allow them to participate properly in the global financial markets¹⁵. Those countries have been obliged to hold large international reserves, however this stock of reserves has not been sufficient to avoid the damage caused by the crisis. The Brazilian and Korean central banks have carried out interventions to support the banking flows, domestically and internationally, producing impacts on the domestic banks' balance sheets as discussed in the next section. It is also argued that the higher intervention of the Korean central bank during the crisis can be attributed to the higher level of financial integration of its economy in relation to Brazil.

This section analyses how the process of reserve accumulation has shaped the central banks actions in Brazil and Korea despite their different characteristics as highlighted in the previous section. This result is even clearer during the central banks interventions during the crisis. However, before discussing the effects of reserve accumulation on domestic financial conditions it is necessary to refer briefly to mainstream debates on the optimal level of international reserves. Three indicators are employed: first, the ratio of reserves to imports, second, the ratio of reserves to short-term external debt and, third, the ratio of reserves to the money supply (typically M2)¹⁶.

The first indicator focuses on reserves in connection with unexpected deteriorations on the balance of trade. Thus, it typically expects countries to keep reserves that could cover at least three months of imports. The second indicator, known as the Greenspan-Guidotti rule, emerged in the early 2000s as a response to the crises of the late 1990s, and focuses on short-term external debt. It expects that countries should have enough reserves to cover all of their short-term external debt. The third indicator is also a response to the crises of the late 1990s, but is broader than

¹⁵ See Paineira (2009: 22).

¹⁶ On the short-term external debt as target, see Bussiere and Mulder (1999), and Garcia and Souto (2004). For the effects on exchange rates, see Hviding et. al. (2005).

the second. It focuses on sudden capital outflows and expects that countries will keep reserves at least equal to 20% of their money supply (M2).

The third indicator is normally higher than the second, which is in turn higher than the first. This is because increases in financial activities (assets and liabilities) in recent years have far exceeded increases in trade. Since the third indicator necessitates a higher level of foreign reserves, it has been favoured by the international financial system. The indicator acts as a form of insurance for international capital entering developing and emerging countries. It is notable that in recent years the actual levels of reserves have been even higher than the third indicator in some countries.

Moreover, and most importantly to this paper, the last indicator claims a direct connection between the stock of foreign reserves and domestic financial conditions, as the other indicators are connected to trade balance and to external debt. In the recent literature, “when a country has open financial markets and desires exchange rate stability, it needs to hold reserves proportional to the size of its banking system.” (Obstfeld et. al. 2009: 3). Therefore, it is possible to establish that liquidity management by central banks has become more connected to the level of their international reserves than previously.

Links between the international and the domestic financial markets have become much closer in recent years and central bank operations in managing the domestic liquidity have been shaped by international capital flows. Therefore, domestic financial conditions have been dictated by the logic of capital flows. Following Marx’s arguments on world money as discussed in section 1, this paper argues that, in order to deal with the tensions between international and domestic spheres, central banks have favoured the international sphere in their operations. The Korean and Brazilian experiences can highlight this recent dynamic.

The reversal of reserve accumulation and its effects on the Korean public debt since 2003 can be seen in the figure 10. The monetary stabilisation bonds (MSBs) are debt securities used by Bank of Korea to undertake monetary sterilisation operations to avoid monetary expansion caused by capital inflows. Those operations can also be undertaken through issue Treasury bonds. Normally the maturity is higher in Treasury bonds than in MSBs. Between 2004 and the middle of 2006, there was an upward trend in the stock of MSBs. Since then, there has been a downward trend in the outstanding amount of MSBs¹⁷. When the crisis hit Korea, the downward trend was reinforced as the demand for foreign currency hugely increased, as foreign investors had to liquidate their domestic asset positions, including MSBs. Domestic banks which are the main holders of MSBs had also to attend this demand by selling MSBs in order to acquire foreign exchange reserves.

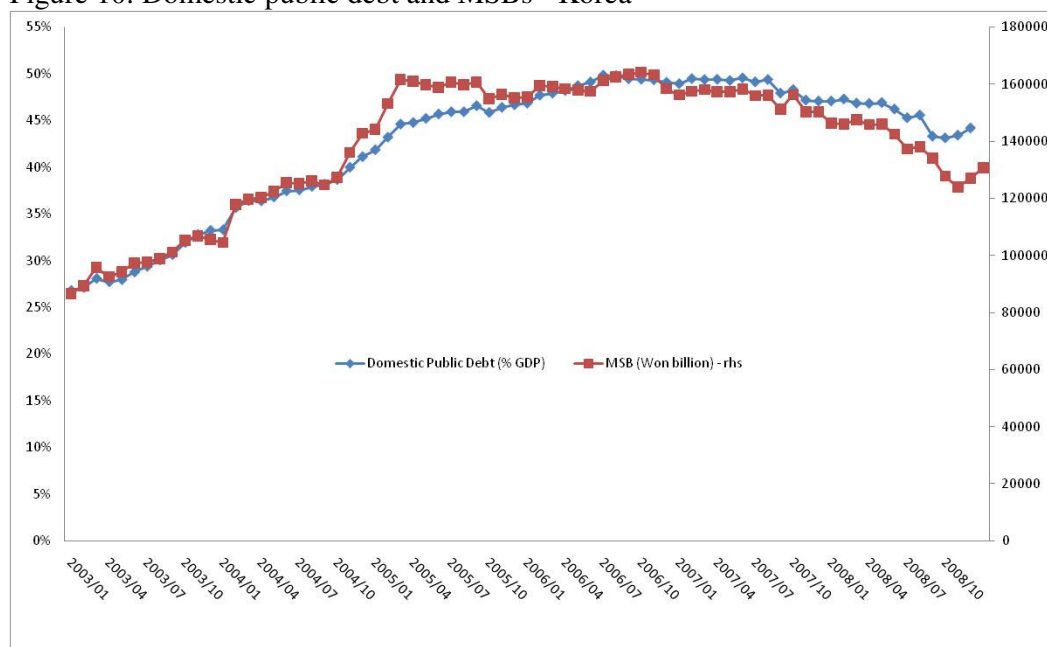
The domestic public debt in recent years has essentially followed the same pattern as MSBs. The huge increase in the domestic public debt is the counterpart of reserve accumulation in developing countries and one of the main characteristics of financialisation in those countries¹⁸. As a result it is possible to argue that the nexus between reserve accumulation and BOK’s liquidity management has become closer

¹⁷ The downward trend is intensified after September 2008 due to the BOK’s intervention in buying back MSBs.

¹⁸ On the rise this public debt in developing countries during the 2000s, see BIS (2007).

and the main driver of the domestic public debt dynamic has been monetary sterilization operations. Korean public debt rose from 27% in 2003 to 50% in August 2007, reaching 45% of the GDP at the end of 2008.

Figure 10: Domestic public debt and MSBs - Korea



Source: BOK (2009b).

An analysis of the relationship between capital flows and domestic capital assets from the point of view of foreign investors indicates that the main instruments have been the carry trade and arbitrage operations. In the carry trade, investors sell assets in a weak currency with relatively low interest rates, and then use those funds to buy assets in a strong currency, yielding higher interest rates. However, in practice, it is difficult to differentiate between the carry trade and arbitrage as they both speculate on capital gains in foreign currency, and not in domestic currency terms. It usually happens that they are undertaken mainly by foreign investors or investors with strong links to international markets in which their benchmark's return is measured in foreign (hard) currency.

It is important to highlight that though primarily used by foreign investors this does not preclude the domestic investors undertaking the same operations. According to IMF (2008), carry trade operations have been also used by domestic investors through international financial investors. In Korea, the carry operations have basically been carried out through acquisition of public debt securities, both MSBs and Treasury bonds, combined with foreign exchange operations in futures markets in order to reduce exchange rate risk. The arbitrage operations have occurred through the financial derivatives markets, mainly the forward exchange swap and currency swap markets, in connection with financial positions in public debt and money markets¹⁹.

As highlighted in section 2 the recent Korean experience is mainly characterised by the high level of capital inflow and outflow through portfolio and

¹⁹ See Kyungsoo Kim et. al. (2009).

banking investment accounts. Since the middle of 2006, and reinforced during the first stage of crisis, there was an increase in the banking investment inflow. There was also an increase in banks' short-term external debt. This is a result of their counterpart position in the futures markets with shipbuilders, and of their own speculative positions in foreign exchange and interest rates²⁰. Domestic banks, in order to match their portfolio needs, "procure these foreign currency needs via currency swap contracts with foreign bank branches and/or foreign investors wanting to exploit the arbitrage opportunity by buying Korean Treasury Bonds"²¹. Alternatively they have used offshore funding to finance these and other asset positions, such as mortgages, which in turn increase their external debt.

It is interesting to note that these operations increased after the crisis hit in 2007. The main factors behind this were the increase in the interest rate differential between the USA and Korean economies and the high level of Korean financial integration. The effects on the domestic financial system were caused by "the continued structural imbalance between supply and demand in the domestic forward exchange market as a result of massive forward exchange sales by shipbuilders and heavy industry exporters, and overseas portfolio investors have kept the swap rate much lower than the domestic/international interest rate spread." (BOK 2008: 1) Those foreign investors in turn invested in the Korean bond and money markets.

In Korea, because of its highly integrated financial system there has been a spread of arbitrage and speculative financial positions by banks, non-banking institutions and also non-financial corporation (mainly, shipbuilders), figure 7 above illustrates this dynamic. Although domestic public debt did not undergo a substantial increase in a way it provided "liquidity support" for those speculative operations in which the MSBs and Treasuries bonds had a fundamental role, being also a source of capital gains for foreign investors in their operations.

In Brazil, the domestic public debt securities have been more relevant than in Korea as they were the main counterpart to the short-term capital flows. Therefore, the short-term nature of capital flows shaped the central bank liquidity management as repos operations had very short-term maturities. This movement can be seen by the huge increase in repos, mainly during the first stage of crisis. In addition the BCB has also influenced the future markets through foreign exchange swap operations in recent years.

The effects of capital flows on the Brazilian economy, particularly in its domestic public debt, can be seen in figures 11 and 12. It is possible to establish a strong relation between reserve accumulation and domestic public debt as a result of monetary sterilization operations. Most importantly, the domestic debt accumulation has been facilitated through very short-term debt securities. Repos are used by BCB for the purpose of monetary sterilisation operations. As a consequence of the crisis in

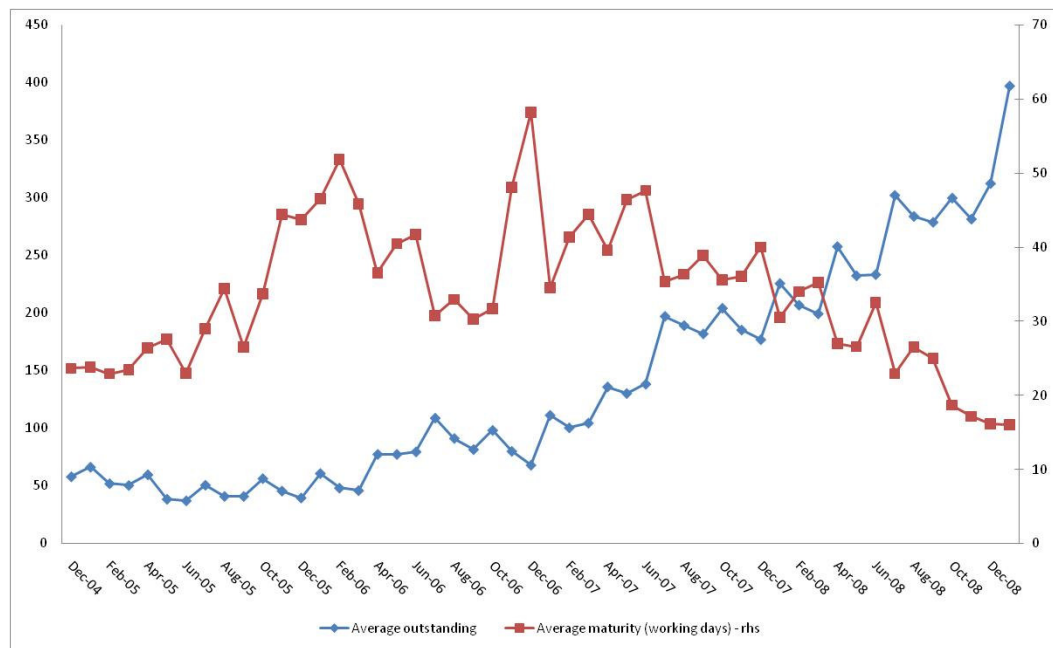
²⁰ The shipbuilders operations are done by selling dollar forward contracts guaranteed by their export revenues in order to hedge against the won appreciation. There was an increase to \$62 bn in 2007 from \$43 bn in 2006 in the amount of selling (short) of forward exchange contracts by shipbuilders. While only during the 1st half of 2008 there was \$40 bn. On the banks' side, the external debt increased from \$136 bn in the end of 2006 to \$221 bn in September of 2008, with the short-term debt went up from \$96bn to \$160 bn.

²¹ Kyungsoo Kim et. al. (2009: 22).

2007, there was a dramatic fall in the maturities over the period. The maturity was only 16 working days on January 2009. This very short maturity is connected to the short-term nature of international reserves, as discussed in the section 2. Through repos there is therefore, a transmission mechanism of the short-term nature of capital inflows which Brazil received, mainly after 2007.

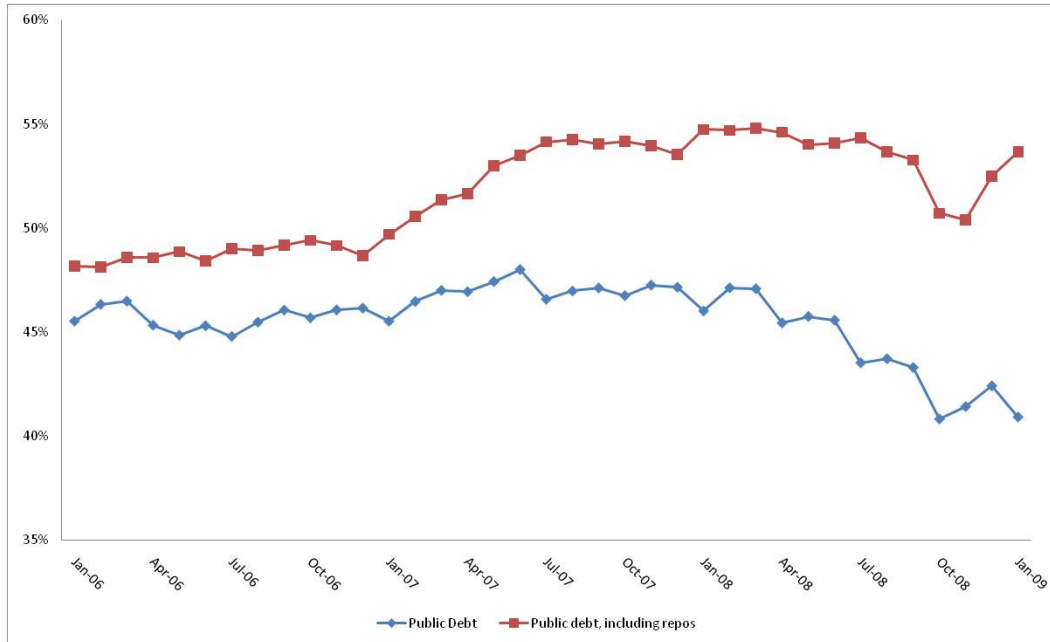
In Brazil, foreign investors previously undertook carry trade operations through repo trades and other financial assets, such as stock market and financial derivatives in interest and exchange rates contracts. All those assets have had short-term maturity, reflecting the nature of capital inflows. It is necessary to stress the fundamental role of public debt once those repos are the first financial asset to be acquired by the domestic banking system, and being free-risk assets and very liquid, they allow domestic banks to take other financial asset positions, and more importantly they can implement a better management of foreign investors' positions with them.

Figure 11: Repos Operations – R\$billion



Source: BCB (2009c).

Figure 12: Domestic Public Debt (as % GDP) - Brazil



Source: BCB (2009c).

The unfolding of the global financial crisis shows similarities and differences in the dynamic of capital flow in Korea and Brazil. Focusing on the period just before the crisis, it is interesting to note that the differences between the Brazilian and Korean economies are related to the level of financial integration, a fact which influences the manner in which the relation between reserve accumulation and domestic public debt has unfolded in recent years.

4- Financialisation in crisis and central banks' interventions

This section discusses the central banks interventions when the global crisis hit Brazil and Korea in the last quarter of 2008. The objective is to show that these interventions in both countries, in order to deal with the liquidity shortage in the money and foreign exchange markets, focused on the financial stability of their domestic banking system by supporting the increase in banking liabilities. More importantly, the central banks interventions in both countries have responded in a different manner from the previous foreign currency crisis in the late 1990s by increasing domestic liquidity as can be seen through the monetary aggregates and by keeping or lowering interest rates. The paper argues that this is because their economies have become more financialized domestically, and mainly more integrated to international financial markets in recent years.

Those interventions have also reinforced the central bank's bias towards to the international sphere against the domestic one (financial and productive sector included) by offering a broader liquidity in foreign currency in terms of amount and scope. From the Marxist perspective, as discussed in section 1, it is connected to the dual nature of central banks in relation to the domestic and international financial markets. The main central banks' measures to address the problems in the Korean and Brazilian financial markets can be seen in table I.

Table I - Central Banks' Responses to the Global Financial Crisis in the last quarter of 2008

Bank of Korea	Central Bank of Brazil
<p>1) Liquidity in Foreign currency:</p> <ul style="list-style-type: none"> - spot sales; - repo operations; - trade financing; <p>2) Liquidity in Domestic currency:</p> <ul style="list-style-type: none"> - Lowering the interest rate from 5.25% to 3%; - Outright purchases of MSBs and Treasuries bonds; - Creation of the Bond Stabilisation Fund <p>3) Access to International Liquidity:</p> <ul style="list-style-type: none"> - Currency swaps lines with monetary authorities from the USA, Japan and China. 	<p>1) Liquidity in Foreign currency:</p> <ul style="list-style-type: none"> - spot sales; - repo operations; - trade financing; <p>2) Liquidity in Domestic currency:</p> <ul style="list-style-type: none"> - Reserve requirements reduction; - Keeping the interest rate at 13%. <p>3) Derivatives market (foreign exchange swaps)</p> <p>4) Access to International Liquidity:</p> <ul style="list-style-type: none"> - Currency swaps lines with the USA central bank.

Source: BCB and BOK websites.

In Brazil, the role of the central bank as the main provider of liquidity to the markets became especially important when the crisis hit the country in September 2008. In order to allow a smoother and more rapid conversion of domestic currency into US\$, the monetary authority supplied a huge amount of foreign exchange and domestic currency to the market. The liquidity provision in foreign exchange consisted of FX spot sales, repos operations and trade finance loans. As a result, in January 2009 the total stock of foreign exchange liquidity supplied since September 2008 had reached a level of US\$26 bn²².

To provide liquidity in domestic currency, the central bank mainly lowered its reserve requirements. The amount of liquidity thus injected in the financial system had been around R\$ 99 bn up to January 2009. Further domestic liquidity was provided to the banks through the central bank's repo operations, which further increased the banks' flexibility to meet the demand for foreign currency in times of crisis. As a result, in the last quarter of 2008, the stock of repos remained quite stable around R\$290 bn. In the beginning of 2009, as capital flight in Brazil eased, the total stock of repos outstanding reached R\$ 380 bn, which shows the importance of these operations for the dynamic of Brazil's financial markets.

The central bank also intervened in the derivatives markets through foreign exchange swap contracts. In contrast to spot interventions, the FX swaps do not deplete international reserves as they involve an agreement of foreign currency sale by the central bank at determined future dates. During the crisis, the BCB changed its foreign exchange exposure from a long to a short US dollar position. This exposure in domestic federal debt and swap contacts passed from \$15 bn (long) to \$18 bn (short)

²² Of this US\$13 bn, US\$7 bn and US\$6 bn were of spot sales, repos and trade loans respectively.

between September and December 2008²³. In January 2009, the total amount of foreign exchange swap intervention was around US\$27 bn.

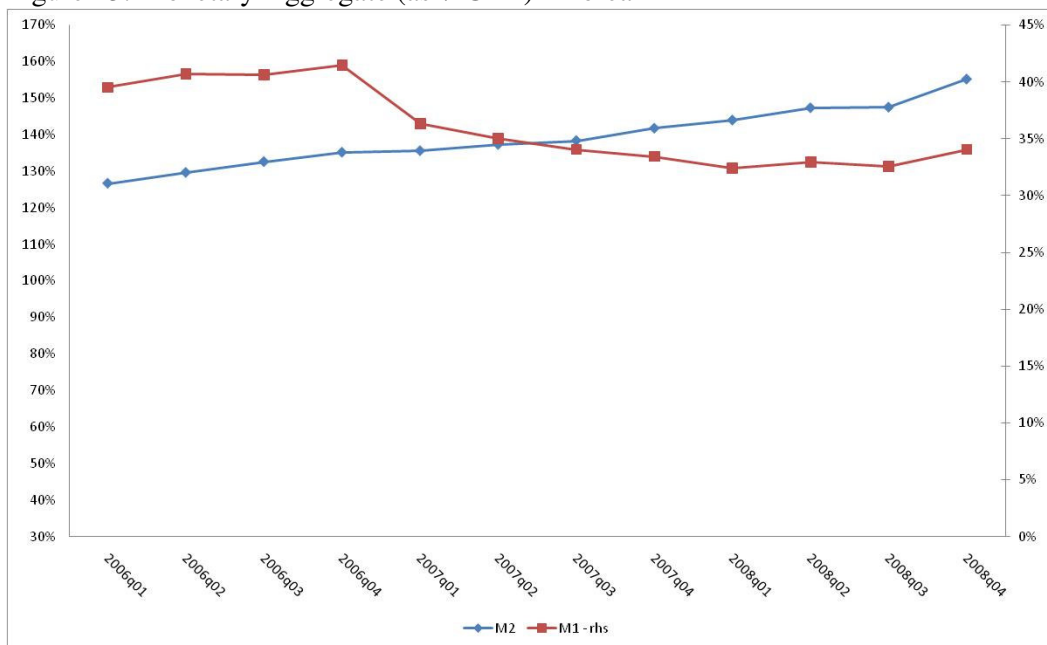
The BCB's actions in the crisis reinforced the short-term nature of domestic financial positions. First, as already mentioned above, through its sterilization operations, the central bank has provided very short-term securities in the form of repos to the market which provides room for manoeuvre in a time of crisis. Second, the short-term nature is also reflected in the outcome of the central bank's interventions to deal with the crisis. As such, the monetary aggregate (M2) – which reflects the banking system's liabilities – continued to increase during the crisis. Figure 14 shows that M2 rose from 35% to 38% of GDP during the last quarter of 2008.

Finally, the central bank's actions in derivatives markets also reinforced the short-termism of the financial assets. In January 2009, the maturity schedule of the dollar linked to domestic public securities was showing a short-term profile. From the total outstanding stock of foreign exchange swaps contracts, \$10.2 bn and \$7.1 bn were with maturities in February/09 and March/09, respectively. These maturities were equivalent to 84% of the total foreign exchange debt instruments and they were also a short position in US dollar. Those operations are connected to the dynamic of international capital flows. Thus, similarly to the intervention in the money market, this intervention in the derivatives markets through foreign exchange swaps also generated liquid assets with very short-term maturities.

Those measures are connected to the domestic financialisation and international financial integration as the main pillars of financialisation, along with the capital account convertibility, even during the huge capital flight which was the Korean case. The outcome of the central banks' interventions has been a huge increase of domestic liquidity, as can be seen in figures 13 and 14. In Korea, there was an increase of almost 10% of GDP only in the last quarter of 2008. The reasons for this large intervention can be found in the large foreign currency exposure of the Korean financial system, mainly banks, through short-term external debt and financial derivatives which were in turn linked to non-financial corporations and foreign investors positions as discussed in section 3. This large intervention can also be inferred through the drop in its international reserves from \$250 bn to \$201 bn, between July and December 2008. In this sense, the BOK's interventions were heavily shaped by those characteristics. Thus, insofar as the crisis of 2007-9 can be understood as a fully-fledged crisis of the financialisation era, it has presented new challenges for central banks. However, the central banks' interventions in both countries have reinforced the main characteristics of financialisation.

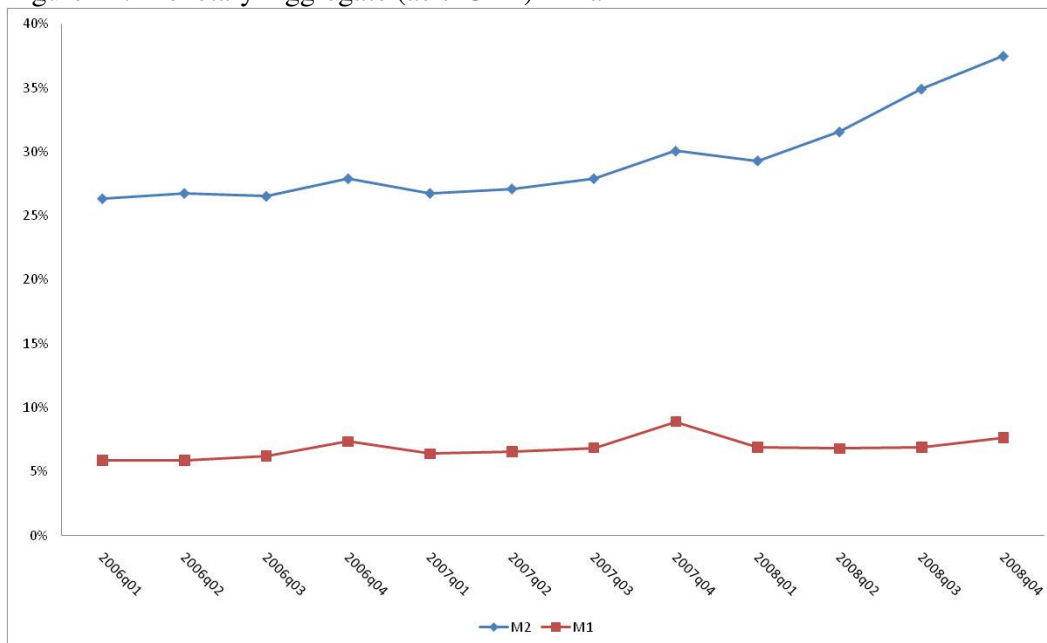
²³ See BCB (2009c: table 10).

Figure 13: Monetary Aggregate (as %GDP) - Korea



Source: BOK (2009c).

Figure 14: Monetary Aggregate (as %GDP) - Brazil



Source: BCB (2009d).

The higher M2 can be another indicator of how the Korean financial system is more integrated than the Brazilian one as the Korean indicator demonstrates a higher level of financial deepening in the economy. This level is normally associated positively to financial integration. This integration is the main explanation for why the Korean central bank's intervention had been higher than the Brazilian central bank's intervention. Moreover, the currency swaps lines with central banks from the USA, China and Japan by the Korean monetary authority also reinforced the extension of its intervention to guarantee the necessary liquidity to its domestic financial system. Brazil had only a currency swap line with FED. In this sense, it is possible to argue that those central banks interventions, in order to deal with the liquidity shortage in foreign and domestic currencies, addressed liquidity problems in the international and domestic spheres. However, those interventions were done in a manner which has promoted the international capital flows' interests by reinforcing the process of financial integration in each economy.

Conclusion

The paper has argued that the key reasons for the sharp contrast between central bank interventions during the foreign exchange crises of the late 1990s and of 2007-9 in the Brazilian and Korean economies can be found firstly, in the origins of the recent global crisis – in developed financial markets – which is different from the previous one which originated in emerging markets. Furthermore, the higher level of financial integration of both economies in relation to the late 1990s is a more important factor. In these economies, contrary to previous emerging markets crises in which central banks increased interest rates and constrained domestic liquidity in order to deal with sudden exchange rate depreciation, the recent central banks' interventions have lowered interest rates and have chiefly resulted in a large increase of domestic liquidity during the crisis in Brazil and Korea.

The Korean and Brazilian experiences have shown that the liquidity management by central banks has been conditioned by international capital flows, and more importantly central banks have reinforced this trend through their operations in spite of three major differences in the dynamic of capital flows, in their timing of reserve accumulation and in their level of financial integration. These dynamics can be predominantly observed during the significant central banks' interventions in both countries at the end of 2008 when in spite of the differences between the two countries; those interventions had the same logic and nature in favouring the international sphere through their guarantee on banking liabilities and by offering liquidity provision in foreign and domestic currencies.

By favouring the international dimension, the paper has also argued that those interventions of the monetary authorities can be explained by Marxist political economy analysis. This characteristic is fundamental as the connection between international capital flows and liquidity management has become closer in recent years.

Finally, it can also be argued that central banks' interventions during the recent global crisis have sustained the main pillars of financial liberalisation and a high level of extremely liquid financial assets in both economies. In this sense, the

actions of central banks in Brazil and Korea in dealing with the crisis have reinforced the main trends of financialisation, domestically and internationally. Moreover, it is also possible to establish that the liquidity provision during a global crisis would be expected to be higher in a more integrated financial system (Korea) than in a less integrated one (Brazil).

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