The financial crisis of 2007-9 and emerging countries: the political economy analysis of central banks in the Brazilian and Korean economies

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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. Analytical focus lies on the role of central banks during the crisis, considering both Brazilian and Korean experience. 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 as well as large exchange rate depreciation in developing countries.

Financialisation means 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.

In this paper, however, the focus is on aspects of the international dimension of financialisation in which financial liberalisation, mainly financial opening, has played a fundamental role. This process through liberalising the domestic financial system and opening the capital account has allowed an increase in the financial integration between developed and developing countries in the last decades. In doing so, 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 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 the macroeconomic management in key developing countries. Reserves accumulation have facilitated net transfers of capital from developing to developed countries, and have acted as a mechanism of exploitation of developing by developed countries, above all, the USA\(^1\). On the domestic side, it has shaped the domestic financial conditions in which central banking operations have a determinant role. This is because central banks as holder of foreign exchange reserves and responsible for the domestic liquidity management find themselves in conditions to deal with the tension between international and domestic spheres which, in this paper, is related to capital flows dynamic and 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 to the international sphere. Therefore, central banks are fundamental in the relation between international and domestic financialisation, mainly in middle income countries.

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\(^1\) For an account of this process and their consequences and benefits respectively for developing and developed countries, see Painceira (2009).
In the paper, this point is established through the 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 system and similar institutional arrangement for the central bank operations. The political economy analysis is done through central banks interventions in Brazil and Korea in the course of the global crisis. It is argued that the central banks interventions in these countries during the global crisis are very different from the previous foreign exchange crisis in the late 1990s when they had contracted domestic liquidity through rise in interest rates and other measures in order to deal with sudden exchange rate depreciation. They have responded in a different way by increasing liquidity because their economies have become more financialized domestically, and mainly more integrated to international financial markets in recent years. The focus lies on the unfolding of crisis looking at the relation between capital flows and their impacts on the domestic financial markets. Attention is paid to the relation between international capital flows and domestic public management by central banks.

The paper argues that in despite of some differences in the Brazilian and Korean capital flows dynamic and in their process of reserve accumulation, the nature of central banks interventions have had the same logic and characteristics since the moment the global crisis hit both economies in September 2008. The Brazilian and Korean central banks have intervened, through their respective management of liquidity, in a certain way which have promoted and reinforced the pillars of the 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 political economy of central banks and financialisation from a Marxist perspective. It highlights the connection of central bank with capital accumulation and 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 rise in internal public debt. Section 4 then shows that central bank interventions dealing with the consequences of 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, a high level of liquid financial assets and capital account convertibility. Section 5 concludes the paper.
1 The political economy of central banks and financialisation: some theoretical considerations

The unfolding of 2007-9 global financial crises has highlighted the enormous importance of central banks’ interventions not only to deal directly with the banking crisis but also with the consequences on the real economy. However, on the other hand, the central banks’ actions have reinforced the pillars of financialisation, more specifically those related to financial liberalisation in which has been pointed out by distinct theoretical perspectives as one of the main causes of present crisis (Include some references).

The financial crisis of 2007-9, as a fully-fledged crisis of the financialisation era, 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 responsible for the domestic liquidity management. This paper analyses the recent experience in Brazil and Korea in order to highlight that trend, considering the central banks’ interventions during the crisis in September 2008. Before discussing that it is necessary to take some theoretical considerations on the role of central banks. The theoretical understanding relies on the Marxist political economy approach in which the central bank connection with the capital accumulation can be grasped by its organic link to the banking system.

The full understanding of the role of central banks is based on their relations with the capitalist credit system as a whole, mainly the banking system. This structure takes form of a pyramid (from the top downwards), which is consisted by the money market, banking credit for any economic unit, mostly including the lending operations to enterprises and, in the bottom layer spontaneously emerging are the inter-company commercial credit, where are found trade credit relations among capitalist companies. The pyramid itself rests upon the process of capital accumulation. In this sense, the central banking operations are at the top of pyramid in direct connection with money markets.

This pyramidal structure shows only the domestic dimension of the credit system, and consequently the domestic one to the central banking relations. However, central banks have also an international dimension by hoarding the foreign exchange reserves, and then in having this function they are the pivot between domestic and international spheres. In the global capitalist market, the world-money is necessary development in the category 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 found it necessary to hoard of world money in order to participate in international transactions to any country.

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2 The banking system is the locus of transformations related to money and credit in the capitalism. Banks have also been fundamental in the changes taken place during the financialisation era.
3 This theoretical framework is developed by Itoh and Lapavitsas (1999) based on Marx’ analysis in the Capital and Lapavitsas (2003).
It is important to establish that this international dimension of central banks take place firstly through the foreign exchange markets which is the market where the country’s access to world money is established. In this sense, focusing on the role of central banks, there is a binary role of the pyramid which is primarily a domestic structure. Between domestic and international spheres, there is a tension because there are different interests involved in both spheres, in economic or/and financial terms among financial or non-financial industries which in turn might require differentiated level of connection and integration, creating possible areas of conflicts among them, and in the international level there are not the same institutional mechanisms as the domestic economies have developed during 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 become 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 manifested themselves in the monetary and financial have had different forms of appearance in the history of capitalism in which the universal form of value has had an important role. In relation to those spheres, in the Marxist theory, there is a trend to the central banks operate in favour to the international sphere as the reserves of world money are important to the access of domestic capitalists to world market, so it is necessary to hoard them adequately. More fundamental, it is connected to the inherent logic of the self-expansion of capital accumulation in order to become more global in which domestic constrains to this expansion tend to be overcome, not only in the productive sphere but also in the circulation sphere.

Thus central bank sits between international and domestic spheres in which there is a tension of both. Hence central bank hoards world money and, then it tends to favour the international against the domestic – other things equal. In this paper, 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) has focus on the world money issue through the relation international 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 has direct relation with 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 without many constrains in coming in and out of a country. As our discussion is on international capital flows, the concept of financial opening is more important.

According to Akyuz (1992), the financial opening of developing countries includes liberalising the inflow and outflow of capital as well as allowing easy

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4 Historically gold was the universal form of value, including in the Marx’s time, 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 as we had in the gold era.
convertibility of the domestic currency. Essentially, the inflow of capital refers to residents borrowing from foreign markets for reasons not connected to international trade, as well as non-residents offering credit in domestic financial markets. The outflow of capital refers to residents transferring capital and acquiring financial assets abroad, as well as 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 also 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, it has created new forms of external vulnerabilities in domestic economies. The following sections discuss in which way 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 dynamic. Finally, this closer financial integration had crucial influence on the central banks' interventions during the crisis in September 2008. It is showed that central banks through their liquidity management have opted between two spheres, and it has happened particularly during their interventions in crisis time in which central banks to preserve XXX.

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

This section discusses the unfolding of capital flows in the Brazilian and Korean economies in the last years. The objective is to analysis the main characteristics of the process of reserve accumulation in each country, highlighting also their differences and specifics. In order to show it, the general trend in the current and capital flows, the dynamic on portfolio and banking flows and the nature of foreign exchange reserves accumulated during the period are discussed in the section.

The analytical focus is on the immediate pre-crisis period before the bursting of 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 severely both economies through capital flight and exchange rate depreciation.

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

5 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).
It is well known that the decade of 2000s 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 on global finance during the 2000s, as developing countries have financed some key developed countries, mainly the US economy, in the last years. Brazil and Korea have been two of the largest holders of international reserves in recent years and they are also among the main emerging markets in the global economy. Moreover, both countries have important domestic financial systems and similar institutional arrangements for central banking operations, namely an inflation targeting regime. In this sense, the analysis of the political economy of central banks on reserve accumulation in these key countries can shed light for other emerging economies around the world.

Graphs 1 and 2 show the capital and trade flows in Brazil and Korea through the current and capital and financial accounts since 2003. By analysing the general trend of balance of payments between 2003 and 2005, the main points to be highlighted 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 financial 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. Through the financial 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 a more volatile trend in the capital flows, causing a negative capital flow of $12 bn during 2003 and 2005. Those factors had different impact 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 international reserves had a modest increase to $54 bn from $39 bn.

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6 The impact on the US yield curve during 2003-2006 was around 100-200 bp. For more details, see Painceira (2009: 14-6)
7 The data to the capital and current account flows in both countries are from the central banks, the Bank of Korea (2009) and the Brazilian Central Bank (2009).
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 had started in the Korean economy before Brazil. As we are going to analyse later on, this had different implications to the dynamic of capital flows and to the domestic liquidity management from the respective central banks. However, the central banks’ intervention had the same nature 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. Graphs 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 burst of global
banking crisis in the first stage of the financial crisis, the international capital flows presented different dynamics in the Brazilian and Korean economies. While the Brazilian economy received an astonishing capital flow of $71 billion during the crisis period, the Korean economy registered a negative capital flow. Nonetheless, 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 in both economies are discussed, portfolio and other investments. Because of its own characteristics the foreign direct investments (FDI) are more related (or connected) to the domestic productive structure and to the level of economic integration of each economy than the central banking operations. 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 leaving to the relation between reserve accumulation and the liquidity management by central banks which is discussed in the section 3 and 4.

The graphs 3 and 4 show the portfolio investment in Brazil and Korea during 2005 and 2008. Private portfolio investment has been important for both economies, but in a different manner. 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 dynamic 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 of $37 bn. However, in the first stage of the crisis, the Korean and foreign portfolio investment had the same pattern, i.e., both negative.

This aspect is related to the high level of international financial integration of the Korean financial system that facilitates a high capital inflow and outflow. In general, financial integration is more important and clear in the case of the international banking operations. It is also important to stress that the level of financial integration is related to the opening of domestic financial markets to foreign investors and linked to the liberalisation of the country’s capital account. Because a higher the 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

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8 In the Korean economy, there is a negative net flow of FDI mainly after 2007 represents the strong process of internationalisation of their multinational companies, such as Samsung, LG and Hyundai. On this process, see Mon and Geddis (2009). In the Brazilian economy, the FDI has showed an almost constant net inflow in despite of the Brazilian direct investment has been increased in the last years.

9 It is partially explained by the high correlation between the US and Korean stock markets and as a consequence of the crisis in the US financial markets there was a downwards trend in its stock market which was reflected in some other stock markets around the world, among them the Korean one. On this correlation, see BOK (2009a).
industry was 58% in September 2007 while in banks was of 85%. In Brazil, in the same time, the foreign shareholding was of 24% in the banking industry.\textsuperscript{10}

In Brazil, the portfolio investment flows have been essentially driven by foreign investment. After being quite stable during 2005, the net portfolio flow rose fast during 2006, also keeping a strong inflow even after the burst of financial crisis in August 2007. Between 2006 and the summer of 2007, there was net flow of $33 bn and during the first stage of financial crisis we had a net inflow of $41 bn when the crisis hit Brazil. 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, the Federal Reserve actions lowering the interest rates to deal with these problems, and central banks’ actions, raising the domestic interest rate during 2008.

\textsuperscript{10} See Financial Supervisory Service (2009) and BCB (2009b).
The other investment flows, which are basically banking investment, had a similar movement since 2007 in both countries, showing a net capital inflow up to September 2008. In the Korean economy, between 2005 and the middle of 2006, banking investment was basically driven by foreign flows, being responsible for $38 bn of the total cumulative net banking flow of $32 bn. However, similar to the performance of portfolio flow, the domestic investment has become increasingly important to the determination of banking flow as well. This importance rose dramatically during the first stage of financial crisis when the net banking flow was positive in $36 billion while the Korean banking investment showed a negative flow of $27 billion. This effect is related to the level of financial 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 the Brazilian payments to the IMF which caused a negative flow of $28 bn in 2005. In fact, the banking flow started to increase in the middle of 2006. Between the beginning of 2006 and middle of 2007, two points are worth highlight. First, there was a huge foreign banking flow of approximately $55 bn. Second, Brazilian banking investment had an enormous flow of $28 billion. In summer 2007, the second process was interrupted. Nonetheless, in contrast to the Korean experience, those banking investments are not linked to arbitrage operations but could be related to an attempt of internationalisation of the Brazilian banking system which was burst in summer 2007\textsuperscript{11}. During the first stage of the financial crisis, there was a huge net banking flow of $29 billion driven by foreign investment.

\textsuperscript{11}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. So it can be argued that the observed increase in banks’ balance sheets in 2007 reflected an investment flow made on behalf of the banks (see IMF IFS statistics).
The graph below on financial derivatives better shows the different dynamics of capital flows in Brazil and Korea during the last 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. Financial 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 financial crisis. In our case, financial derivatives are addressed to deal with or to take positions in foreign exchange exposure or interest rate risk. In Korea, the bulk of those operations were
done through forward exchange (FX) swaps and currency swap markets. In these markets there is a combination of financial transactions among different investors (domestic and foreign) dealing with exchange of currency exposition between domestic and foreign currencies according to with their respective market interest rates. The main factors to this dynamic were the rise in interest rates differential between the Korean and the US economies and the US dollar depreciation after the bursting of financial crisis in August 2007 and, the highly integrated Korean financial system. Moreover, those factors had also effect on the other capital flows, mainly in banking flows as banks (domestic and international) took financial positions during this time caused by this differential in interest rates and by the US dollar depreciation as it is shown in the next section.

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

The main differences in the capital flows dynamics between Brazil and Korea become more explicit when the effects on international 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 current account dynamic, however, the stock of international reserves increased by US$120 bn during the same period.

It follows, therefore, then the Brazilian exchange reserves accumulated during the final years before the crisis were essentially “borrowed” reserves, resulting from short-term financial operations 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 investment flow to equities and debt securities reached US$72 bn while the accumulated banking flow was of 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 (see graph 1). 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.

Through the financial account, while the accumulated portfolio investment to equities and debt securities registered an outflow of US$47 bn, the accumulated banking flow to country was of US$75 bn. On the other hand, there was a huge increase in the stock of short-term external debt from $114 bn to $190 bn. In the Korean experience, it is not possible to argue that its foreign exchange reserves were “borrowed” reserves like Brazil, as they were accumulated before 2006 when the current account surplus was important to build 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 showed that this dependence become clear when the financial 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 better their balance sheet with those securities\textsuperscript{12}.

In graphs 8 and 9, it is possible to observe the performance of international reserves and exchange rate since 2004 in both economies. In the Korean economy, 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 crisis, the reserves and exchange rate were quite stable. In the Brazilian case, as it is pointed out before, the IMF’s payments in 2005 had important effects on the process of reserve accumulation in the Brazilian economy. As can bee seen, this accumulation became more vigorous in the end of 2006. On the exchange rate side, there has been a clear trend of appreciation since the beginning of 2004 that only reverted in September 2008.

\textsuperscript{12} For a measure in terms of costs of holding reserves to developing countries see Akyuz (2008). In this paper, the author does a distinction between reserves coming from trade surplus and borrowed from international bonds markets.
Comparing 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 financial crisis. It is also interesting to stress that the Korean reserves reached a peak of $264 bn in March 2008 since then showed a decline trend which is reinforced in the last quarter of 2008 with burst of financial crisis in emerging countries. The decline trend started exactly after Bear Sterns’s bankruptcy. Thus, it can be argued the negative effects of the crisis on the reserve accumulation happened firstly in Korea. The approximated reason could be found in the high level of integration of the Korean financial system in relation to the Brazilian one which can be measured by the higher foreign shareholding in its domestic banking system.
When the global 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 of $42 and $21 billions, respectively in Korea and Brazil. In order to tackle the crisis, both governments have been taken important measures mainly through central banks’ interventions which are analysed in the 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 markets. Then, those countries have been obliged to hold large foreign exchange reserves. As it can be seen below, the chest of international reserves has not been enough to avoid the damage caused by the global financial crisis as the Brazilian and Korean central banks have carried out interventions to support the banking flows, domestically and internationally, producing also 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.

In this section is analysed how the process of reserve accumulation has shaped the central banks actions in Brazil and Korea even despite of their different characteristics just highlighted in the previous section. This result is even clearer during the central banks interventions during the crisis. However, before discussing the effects of the process of reserve accumulation on domestic financial conditions it is necessary to refer even 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).

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 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).

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14 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 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 the favourite of the international financial system. The indicator acts as a form of insurance for international capital entering in developing and emerging countries. It is notable that in recent years the actual levels of international 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 first indicator is connected to trade balance and the second one to external debt. In the very recent literature on it, “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 the liquidity management by central banks would be more connected to the level of their foreign exchange reserves. It happens as the links between the international financial system and the domestic financial markets have become much closer in recent years, and then central bank operations in managing the domestic liquidity have been shaped by international capital flows. Therefore, the domestic financial conditions have been dictated by the logic of capital flows. Then following the Marx’s arguments on world money, as discussed in section 1, this paper argues that central banks in order to deal with the tensions between international and domestic spheres have favoured the international one in their operations. The Korean and Brazilian experiences can highlight this recent dynamic.

Since 2003, the unfolding of reserve accumulation and their effects on the Korean public debt can be seen in the graphs 10 and 11. The monetary stabilisation bonds (MSBs) are debt securities used by Bank of Korea (BOK) to undertake monetary sterilisation operations to avoid monetary expansion caused by capital inflows. Those operations can also be done through Treasury bonds which has direct impact on the domestic public debt. 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 MSBs\(^\text{15}\). 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 in MSBs, and the domestic banks which are the main holders of MSBs had also to attend this demand by selling MSBs, mainly back to central bank, in order to acquire foreign exchange reserves.

The domestic public debt essentially had the same pattern at MSBs in the last years. 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 countries\(^\text{16}\). Then, it is possible to argue that nexus between

\(^{15}\) The downward trend is intensified after September 2008 due to the BOK’s intervention in buying back MSBs. This effect has also increased the money supply in the end of 2008 as we can be seen in the graph 11.

\(^{16}\) On the rise of domestic public debt in developing countries during the 2000s, see BIS (2007).
reserve accumulation and Korean central bank liquidity management has became closer as the main drive to the domestic public dynamic has been monetary sterilization operations. The Korean public debt rose from 27% in 2003 to 50% in August 2007, reaching 45% in the end of 2008.

By analysing the relationship between capital flows and domestic capital assets from the point of view of foreign investors, the main instruments have been the carry trade and arbitrage operations. Carry trade are operations when 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 those operations as both of them are betting
(have by objective) capital gains in foreign currency, and not in domestic currency terms. It happens as they are undertaken mainly by foreign investors or investors with strong link 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 it does not mean it precludes the domestic investors of taking those 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 happened through acquisition of public debt securities, as monetary stabilisation and Treasury bonds, combined with foreign exchange operations in futures markets in order to keep down the exchange rate risk. The arbitrage operations have existed through the financial derivatives markets, mainly the forward exchange swap and currency swap markets, in connection to financial positions in the public debt and money markets.

As highlighted in section 2 the recent Korean experience on international capital flows is characterised by the high level of capital inflow and outflow mainly through the portfolio and banking investment flows, but also by the huge net banking flows. Since the middle of 2006, and being reinforced during the first stage of crisis, the increase in the banking investment inflow and in the banks’ short-term external debt are because of their counterpart position in the futures markets with shipbuilders, and to their own speculative positions in movements of the exchange and interest rates. 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”, or have used offshore funding to finance those positions and other asset positions, such as mortgages, which in turn increase their short-term external debt as it can be seen in the footnote 18.

It is interesting to note that those operations had an increase after the burst of crisis in 2007. The main factors behind it were the increase in the interest rate differential between the USA and Korean economies and the high level of financial integration of its financial system. 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 securities in the bond and money markets.

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17 See Kyungsoo Kim et. al. (2009).
18 The shipbuilders operations are made 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 banks’ external debt increased from $136 bn in the end of 2006 to $221 bn in September of 2008, and most important the short-term debt went up from $96bn to $160 bn.
19 Kyungsoo Kim et. al. (2009: 22).
In Korea, because of a highly integrated domestic financial system there has been a spread of arbitrage and speculative financial positions by banks, non-banking institutions and also non-financial corporations (mainly, shipbuilders) in which the dynamic of capital flows through short-term capital has conditioned. Graph 7 above can be the best illustration of this dynamic in recent years. On the domestic public debt even did not presenting a substantial increase it was kind of “liquidity support” for those speculative operations in which the MSBs have fundamental role, and as 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 the repo operations, mainly during the first stage of crisis. In addition, central bank 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 graphs 12 and 13. It is possible to establish a strong relation between reserve accumulation and domestic public debt as we can see in graphs 6 and 10. It has happened as a result of the central bank operations of monetary sterilization. Most importantly, the domestic debt accumulation has been done through very short-term debt securities. The repos are used by the Brazilian central bank for purpose of monetary sterilisation operations. As a consequence of the crisis in 2007, there was a dramatic fall in the maturities over the period. This maturity was only 16 working days on January 2009. This very short maturity is connected to the short-term nature of foreign exchange reserve accumulated in recent years, as discussed in the section 2. Then there is a transmission mechanism through repo operations of the short-term nature of capital inflows which Brazil received, mainly after 2007.

In Brazil, the foreign investors used to take carry trade operations through repo operations 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, being reflective of the nature of capital flows which Brazil received in the recent years. 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 position, and more importantly they can hold and have better management of foreign investors’ positions with them.
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 2007-9 global financial crisis, it is interesting to note that the differences between the Brazilian and Korean economies are related to the level of international financial integration had influence on the manner in which the relation between reserve accumulation and domestic public debt has been unfold in the last 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 the central banks' 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 it 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) through a broader offer of liquidity in foreign currency in terms of amount and scope. In the Marxist perspective based on the pyramidal structure, 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 1.

Table 1 - Central Banks’ Responses to the Global Financial Crisis in the last quarter of 2008

<table>
<thead>
<tr>
<th>Bank of Korea</th>
<th>Central Bank of Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Liquidity in Foreign currency:</td>
<td>1) Liquidity in Foreign currency:</td>
</tr>
<tr>
<td>- spot sales;</td>
<td>- spot sales;</td>
</tr>
<tr>
<td>- repo operations;</td>
<td>- repo operations;</td>
</tr>
<tr>
<td>- trade financing;</td>
<td>- trade financing;</td>
</tr>
<tr>
<td>2) Liquidity in Domestic currency:</td>
<td>2) Liquidity in Domestic currency:</td>
</tr>
<tr>
<td>- Lowering the interest rate from 5.25% to 3%;</td>
<td>- Reserve requirements reduction;</td>
</tr>
<tr>
<td>- Outright purchases of MSBs and Treasuries bonds;</td>
<td>- Keeping the interest rate at 13%.</td>
</tr>
<tr>
<td>- Creation of the Bond Stabilisation Fund</td>
<td>3) Derivatives market (currency swaps)</td>
</tr>
<tr>
<td>3) Access to International Liquidity:</td>
<td>4) Access to International Liquidity:</td>
</tr>
<tr>
<td>- Currency swaps lines with monetary authorities from the USA, Japan and China.</td>
<td>- Currency swaps lines with the USA central bank.</td>
</tr>
</tbody>
</table>

In Brazil, the role of the central bank as the main provider of liquidity to the markets became especially important when the global crisis hit the Brazilian economy in September 2008. In order to allow a smother 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 bn\(^\text{21}\).

To provide liquidity in domestic currency, the central bank mainly lowered its reserve requirements, concentrating on demand deposits and saving deposits. The amount of liquidity thus injected in the domestic 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 crisis time. 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 data. During the crisis, the central bank changed its foreign exchange exposure from a long to short position in US$ dollar. This exposure in domestic federal debt and swap contacts passed from $15 bn (long) to $18 bn (short) between September and December 2008\(^\text{22}\). In January 2009, the total amount of foreign exchange swap intervention was around US$27 bn.

The Brazilian central bank’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 repo operations (many of them with overnight maturity) to the market which provides a large room of manoeuvre in the 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. As can be observed in graph 17, M2 rose from 35% to 38% of GDP during the last quarter of 2008.

Finally, the Brazilian 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 domestic public securities was showing a short-term structure in the maturities profile. From the total outstanding stock of foreign exchange swaps contracts, we had $10.2 bn and $7.1 bn 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, the central bank’s intervention in the derivatives markets through foreign exchange swaps also generated liquid assets with very short-term maturities.

\(^{21}\) Of this US$13 bn, US$7 bn and US$6 bn were of spot sales, repos and trade loans respectively.

\(^{22}\) See BCB (2009a: table 10).
Those measures are related to the domestic financialisation and international financial integration as the main pillars of financialisation, the capital account convertibility, even during the huge capital flight which is the Korean case. The outcome of the central banks’ interventions has been a huge increase of domestic liquidity, as we can see in graphs 11 and 12. 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 operations. This large intervention can also be inferred through the huge drop in its international reserves from $250 bn to $201 bn, between July and December 2008. In this sense, the Korean central bank intervention were heavily shaped by those operations and consequently by short-term capital flows.

As the crisis of 2007-9 could be understood as a fully-fledged crisis of the financialisation era, has presented new challenges for central banks. The central banks’ intervention in both countries have reinforced the main characteristics of financialisation, such as international financial integration, domestic financialisation and the level of capital account liberalisation.

23 In Korea some important measures have been taken such as the Capital market consolidation act which has been considered as the big bang of financial activities in the country. The allusion is to what happened in London in the end of 1980s.
The higher proportion of M2 in relation to GDP is another indicator of how the Korean financial system is more integrated than the Brazilian one. This integration is the main explanation for why the Korean central bank’s intervention had been higher than the Brazilian’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, had 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 showed that the main reasons for the unusual central banks’ interventions in Korea and Brazil can be found in the intensification of financialisation in both economies and in the higher level of financial integrations. Those factors have shaped the central bank liquidity management in these countries, mainly during their interventions in the crisis. Therefore, the connection between international capital flows and central banks’ liquidity management has become closer in recent years.

The paper argued that in despite of differences in the dynamic of capital flows, in their timing of reserve accumulation and in their level of financial integration, the Korean and Brazilian experiences have shown that the liquidity management by central banks has been conditioned by international capital flows, and more important they have reinforced through their operations this trend. This dynamic can be mainly
observed during the huge central banks’ interventions in both countries in the end of 2008 when those interventions had the same logic and nature in favouring the international sphere through their guarantee on banking liabilities and their liquidity injection in foreign and domestic currencies.

It has been shown that the central bank’s impetus in dealing with the consequences of the financial crisis in Brazil and Korea has resulted in a large increase of domestic liquidity. The paper argued that those interventions aim to sustain the main pillars of the financial liberalisation which are the financial opening (mainly, the capital account convertibility), financial integration, and mainly a high level of very liquid financial assets. In this sense, the central banks actions to deal with the crisis have reinforced the main trends of financialisation. Lastly, it also is possible to establish that the liquidity injection is expected to be higher in a more integrated financial system (the Korean) than in a less integrated one (the Brazilian).
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