Capital market inflation in emerging markets: The case of Brazil and South Korea

Bonizzi, Bruno

SOAS, University of London

September 2013

Capital market inflation in emerging markets: The case of Brazil and South Korea*

September 2013

Abstract

This paper aims to investigate the dynamics of capital markets in emerging markets in a period of financial integration. It takes the case of Brazil and South Korea, two key emerging markets in the global economy, to assess the relationship between capital flows and equity prices. This is analysed through Jan Toporowski's theory of "capital market inflation", which explains the movements of equity prices in relation to the inflows of funds into the capital market. The main argument put forward is that the foreign capital inflows into the emerging equity markets have substantially concurred to create the excess liquidity that gives rise to a process of capital market inflation. This contributes both to extend Toporowski's theory to the context of emerging financially open countries, and to give a new perspective to the debates over financial globalisation by proposing the theory of capital market inflation as a framework to understand the mechanics of capital flows to emerging markets. The empirical evidence available from Brazil and South Korea suggests that this is a consistent and instructive framework of analysis.

Keywords: Capital Market, Asset Price Inflation, Capital Flows, Emerging Markets, Financial Globalisation

JEL classifications: E12, F65, O16

*This is an Author's Original Manuscript of an article submitted for consideration in the Review of Political Economy [copyright Taylor & Francis]; Review of Political Economy is available online at http://www.tandfonline.com/toc/crpe20/current#.Unot95FhW-A

Introduction

The past decade has been characterised by the process of financial globalisation. The liberalisation of international financial transactions has given rise to a surge of international capital flows and external balance sheet positions. This reflects both the deepening of international financial relations but also the integration of more countries into the global financial system. In fact, while financial integration is more pronounced among core advanced economies, a group of countries, collectively known as "emerging markets", has become increasingly importantin the global financial markets.

Such processes have been subject of debate within academic and policy institutions, especially the IMF. While, according to standard theroies, international capital movements should be fundamentally beneficial, events, such as the East-Asian crisis in the late 90's, raised several questions about their actual impacts. The global financial crisis that started in 2008 has made this debate even more prominent, as arguably financial globalisation contributed to channel the crisis over the world very quickly.

This paper will engage with such debates, focusing on the remarkable expansion of equity markets in emerging markets following their opening to foreign investors, focusing on Brazil and South Korea. These two countries are among the biggest recipients of capital inflows within the emerging markets group. Moreover, before the 2008 global financial crisis, they did not have any form of capital controls, which have given a degree of policy autonomy to other emerging markets such as China and India. Their experience is therefore closely intertwined with the process of financial globalisation. This paper draws upon the theoretical framework proposed by Toporowski (2002), to evaluate whether the two countries have experienced "capital market inflation". The link with financial globalisation is provided by the consideration of whether international capital flows, rather than domestic private and institutional investors as in the original version of Toporowski's theory, are drivers of price inflation in the capital markets.

This paper is divided into four sections. The *first* section deals with the literature on financial globalisation and its most recent developments. Finally it will deal with some recent developments in the literature of financial globalisation, especially relating to the growing recognition of new patterns of financial globalisation and how these affect the impact of financial globalisation in emerging markets. Particular reference will be given to the idea that equity flows can in many case bring upward pressure to stock prices of emerging markets, and how these "valuation effects"

can have a considerable on impact on international assets (Akyüz, 2011; Prasad, 2011; Obstfeld, 2010, 2012).

The *second* section discusses the link between the theory of capital market inflation and financial globalisation. The central idea is that international investors can induce, in emerging markets, the same process of inflation typical of the "core" financial markets dominated by institutional investors. Foreign investors thus seeks capital gains from emerging markets stocks, creating the conditions of excess liquidity in the capital market that are necessary to inflate it. This makes the dynamics of emerging capital markets dependent more on global financial conditions, rather than "fundamentals". In fact the collapse in stock prices of emerging markets in 2008 was the result of capital outflows following financial turmoil in advanced countries (chiefly the U.S.) rather than problems in emerging markets. Similarly, there are risks associated

The *third* section will deal with the empirical evidence of Brazil and South Korea. Their fast and comprehensive financial integration into the global financial markets, along with no or little restriction on such integration, plus their considerable size both financially and economically justify the choice of these two countries as "cases". This section considers whether the experience of Brazil and South Korea is in line with the "new trends" of financial globalisation: capital flows size and composition. Differences among the countries' experiences will also be pointed out.

The *fourth* section will assess if the empirical evidence is consistent with the hypothesis of capital market inflation. Data regarding capital flows and equity prices will be considered, especially in relation to the impact of foreign investors and their behavior.

The final section concludes.

The *originality* of this paper lies in the connection between the literature on "financial globalisation" to the "theory of capital market inflation". This contributes on the one hand a new way of understanding financial globalisation, as driven by the international capital investors, that are seeking capital gain returns rather than investing long term in emerging market securities. On the other hand it contributes to the development of the "theory of capital market inflation", extending it to the case of emerging markets from a more international perspective.

1 Financial globalisation: stylised facts and debates

International financial integration has considerably expanded over the past twenty years. Between 1980 and 2010 global assets have increased from little more than 1 thousand billion to almost 44 thousands USD billions (Figure 1). Importantly, this figure almost tripled since 2002, suggesting that financial globalisation has increased its pace in the most recent years. This increase is mostly driven by advanced countries, with their international position effectively accounting for the overall expansion till 1999. However, since the beginning of the 2000's, emerging markets have increased their importance in ownership of global asset and liabilities position.

Flows data show a similar picture. Cross-border flows have increased overtime from 517 billion in 1980 to over 12.700 billion of USD in 2007. Again, the major part of it occurred in the five years between 2002 and 2007 (Figure 2). While all types of flows increased over this period, the most important increase can be found in portfolio and "other" flows (mainly banking flows). This seems to suggest that financial globalisation in recent years has been mainly driven by purely financial transaction, with no direct relation to real economic activities.

In the post 2000 period emerging markets have also become increasingly integrated, but the characteristics of their integration appear to be different from the global trends. As fig. 3 shows, in emerging markets it is mainly FDI and portfolio equity flows that expanded over time. After 2000, debt liabilities remained roughly constant, showing the decreasing reliance of emerging markets on international banking credit, previously the only relevant flows for the group as a whole. Debt flows restarted growing significantly after the crisis.

From a neoclassical perspective, the increasing integration of financial markets, especially for emerging markets, should be regarded positively for two basic theoretical reasons. The first is better resource allocation. Capital, as any other factor of production, if allowed to move freely, will flow to where it is relatively scarcer. In this way the international movement of capital removes the constraint on investment given by national savings in a closed economy. With the removal of capital flows restrictions, developing capital-scarce countries can borrow internationally to finance their investments, thereby generating economic growth. The second reason is related to diversification and consumption smoothing. The access to international capital markets will allow countries to be less affected by country specific shocks, as they can diversify their portfolio and/or borrow in times of difficulty. This will contribute to reduce sharp shifts in consumption, and the

resulting economic turbulences.

However, the series of financial crises that affected several key emerging markets in the late 90's and early 2000's raised many concerns among economists. As Stiglitz (2000, p. 1075) asserted, "it has become increasingly clear that financial and capital market liberalization - done hurriedly, without first putting into place an effective regulatory framework - was at the core of the problem". Moreover, the characteristics of financial globalisation pose further challenges to conventional theories. Firstly, capital, in net terms, has flown from emerging to advanced countries, in direct contradiction to neoclassical predictions (Prasad et al., 2007), and additionally, the empirical evidence shows that capital seem to flow to countries with smaller growth and investment (Gourinchas & Jeanne, 2007). This relates to another big issue, known in international financial economics as "global imbalances" (Blanchard & Milesi-Ferretti, 2009; Obstfeld & Rogoff, 2010), that is the growing current account unbalanced positions, with the US being in structural deficit and emerging markets as a whole and in China in particular having constant surpluses. Secondly, as Prasad et al. (2004) show in a comprehensive, vastly quoted, review of the empirical literature, there is in fact little evidence that financial globalisation positively affected growth and volatility.

Nevertheless, the consensus that emerged before the crisis still regarded financial globalisation as essentially good. Kose et al. (2006) argue that despite, the lack of evidence of its direct benefits, financial globalisation is still beneficial through indirect channels. Capital flows contribute to financial market development and promote an array of institutional improvements, such as better corporate governance and macroeconomic policy disciplining. This is linked to the broader concept of "financial development" (King & Levine, 1993; Levine, 1997), which is allegedly fostered by financial globalisation. This argument is also shared by Mishkin (2007, p. 287):

> "Financial globalization can play an important role in encouraging development of institutions so that financial markets can effectively perform the crucial function of getting capital to its most productive uses which is key to generating growth and reducing poverty".

Additionally, it is argued (Kose et al., 2006, p23) that "flows that have equity-like features—i.e., FDI and portfolio equity flows—are not only presumed to be more stable and less prone to reversals but are also believed to bring with them many of the indirect benefits of financial globalization such as transfers of managerial and technological expertise" and therefore the changing composition of

capital flows to emerging market should be seen as a positive development: a paper by the IMF research department (Mauro et al., 2008, p. 4) considers the fact that "foreign direct investment and other non-debt forms of international asset trade constitute a higher share of external financing today than in recent decades" suggest that "the impact of financial globalization may be more beneficial in coming years". Such an argument has remained almost unaffected by the crisis. As the main patterns of capital flows have remained unchanged after a temporary stop in late 2008, Prasad (2011, p. 29) argued that "financial globalization seems to proceeding along the right track" for emerging markets, as their liabilities are now "in forms that promote international risk sharing and make them less vulnerable to sudden shifts in sentiment".

There is however growing recognition that the new structure of financial globalisation may create new types of problems. Prasad (2011, pp. 24-25) acknowledges that these new composition of capital inflows may cause asset prices inflation and upward pressure on the exchange rate. The rethinking within the IMF about the feasibility of capital controls in certain situations has been precisely motivated by growing concerns of several emerging markets economies about the resurgence of capital flows (Ostry et al., 2010).

Obstfeld (2010, 2012) latest papers also underline the importance of price changes on international assets and liabilities. He argues that asset price inflation and deflation in emerging markets, along with exchange rate movements, have had important effects on the total value of assets held by US investors. Similarly, Levy-Yeyati & Williams (2011) suggest that asset price inflation goes a long way explaining the increase in foreign liabilities of emerging markets, and thus the claims of their increasing financial integration are vastly overstated: the increase of foreign investors' claims on emerging market equities is mainly due to stock market booms rather than actual financial integration.

From a more critical point of view, Akyüz (2011) points out that the recent boom of capital flows to emerging markets economies has changed the nature of the problems caused by financial globalisation. In several countries domestic financial markets are now dominated by foreign investors: while this has turned foreign liabilities to mostly local currency denominated securities and thus reduced the scope of potentially troublesome currency mismatches, it will make their dynamics dependent on financial and economic conditions abroad, independently from the national "fundamentals". Thereby, "tightened credit conditions in AEs can lead to a rapid withdrawal by highly

leveraged investors from DEEs, causing asset and currency declines, as observed after the collapse of Lehman Brothers" (p. 23). Such views are of course generally shared by recent developments in the "financialisation literature" (Lapavitsas, 2009; Kaltenbrunner & Painceira, 2009).

In conclusion, after a decade when the issue was not "whether financial globalization is inherently good or bad, but whether it can be done right" Mishkin (2007), there is now a general agreement that financial flows to emerging markets and developing countries, despite creating less external exposures than in the past due to their changed composition, may have adverse consequences to the functioning of financial markets. Equity market in particular may experience asset price booms as a result of inflows.

2 Capital market inflation and financial globalisation

The theory of capital market inflation was theorised by Toporowski (2002) and subsequently developed in later works (Toporowski, 1999, 2008, 2009, 2010). The analysis starts by considering the relation between corporate finance and the equity markets. Companies, it is argued, do not issue equity to finance new investments, because the instability of capital markets and the uncertainty of returns on productive capital investment make equity unstable as a form of stable financing of companies' activities. In fact, companies finance their fixed capital investments mostly through their liquid reserves, a concept that shows the influence of Kaleckian monetary economics on Toporowski's work. Financing on the capital markets is thus aimed at replenishing liquid reserves assets that are generally used to finance productive capital. Therefore "the book value of the stocks and shares of companies is more or less equal to the book value of the underlying fixed capital assets of those companies" (p. 26).

The actual capital market value, however, can differ significantly from the book value. This is because, there is no *a priori* mechanism for which the refinancing needs of firms will exactly match the supply of equity capital by investors:

> "In practice, the supply of finance is determined by income, the institutional arrangements affecting household saving, the financial accumulation of companies and transfers between the capital market and the other vehicles for long-term savings ... the demand for finance is determined, in the case of companies, by the size and na-

ture of their business and its circumstances, as well as the cost and convenience of alternative financing arrangements"

This means that capital markets will rarely be in equilibrium. Whenever the demand for equities is higher than the issuance of new equities plus the sum of equities other investors are prepared to sell, a net excess inflow of funds will circulate into the capital markets. This is, according to the theory, the source of inflation in the capital markets: this net excess inflows is traded within the capital market by financial intermediaries, inflating the price of securities. This process lasts "until effective prices reach a level that elicits the issue of sufficient new stock to take up the positive net inflow, or until the positive inflow ceases" (p. 34). Once the demand for equities becomes smaller than its supply and the cumulated excess inflows dry up, the rising illiquidity leads to deflation. Companies, unable to refinance their investments on the capital markets, are forced into debts, which in turn lead them to postpone investments, driving the economy into a recession (Toporowski, 2010).

The theory of capital market inflation thus contends that the idea that stock prices act as a clearing mechanism in the capital market and will thus bring supply and demand in equilibrium is flawed, and in any case empirically not valid in the context of modern financial markets. "Capital market inflation or deflation in fact adds to that price the 'externality' of a capital gain or loss" Toporowski (2010, p. 8), so that the supply and demand for equities will not be determined by the dividend yield - the value of the dividend with respect to the share price -, as generally assumed by conventional theories such as the Efficient Market Hypothesis, but will be increasingly related to the inflation or deflation of the capital market. Moreover, the theory of capital market inflation goes beyond the conventional idea of "rational bubbles", where investors are fully aware of the deviation from "fundamentals", but rationally buy shares in expectation of capital gains, hoping to sell them before the burst (Brunnermeier, 2009). Since net inflows drive equity prices, fundamentals, as Evans (2001) argues, play no role in Toporowski's theory, and therefore the price deviation from them can be substantial and last for prolonged periods. *A priori* this cannot be cause of a crisis, as long as the net excess inflows circulate in the markets and still exceed supply. To the contrary, "stock markets crash not because they are out of equilibrium, but because their disequilibrium has been insufficient" (Toporowski, 2002).

The historical process, according to Toporowski (2002), that firstly originated the process

of capital market inflation was the creation of funded pension schemes in the late 70's. The introduction of pension funds, especially in the US and the UK, created a huge and sudden inflow of funds into the equity markets. This inflow was in excess of the refinancing needs of firms, and thus, in accordance with the theory, pushed equity prices up. However, it is argued, such inflows of funds cannot ensure that the inflation process will last forever, due to their inherent volatility and especially their increasing pension "maturity", i.e. the situation by which the pensions expenses exceed the contributions. This could be avoided "in a steadily growing economy, in which pensionable employment is rising" (p. 69), but in contemporary advanced western economies, which are not growing fast and where wage inflation is generally repressed, this is unlikely to happen. This is further explained by Toporowski (2010), where he puts forward the idea that the demand for equities by pension funds is inelastic, since it depends almost entirely on regulation and the structure of respective institutions' liabilities. Therefore, assuming an initial state of equilibrium, there will be an increasing negative gap between demand and supply, so that firms will progressively find themselves unable to refinance in the capital markets and will incur in "forced indebtedness".

The theory of capital market inflation has been conjectured to explain the dynamics of the "core" capital markets. As the focus on the emergence of funded pension scheme shows, the analysis is in fact tailored to the situation typical of Anglo-Saxon countries. Toporowski (2002, pp. 77-81) however dedicates a section of his book to assess the inflation in "peripheral" capital markets. These markets, he argues, "are largely dependent upon attracting international funds in order to generate increases in securities prices and capital gains which will attract further funds" (p. 77). The liquidity that sustains price-inflation in these markets is even more ephemeral than in advanced markets, as a sudden change of mind of some large foreign investors can quickly bring price deflation in that country.

However this was written in 2000, before the "new" patterns financial globalisation took place. As said in the previous section, emerging markets are now important recipients of capital inflows in their equity markets. Moreover over the same period, their overall financial position has definitely improved, with many key emerging markets being in a structural current account surplus position and almost of all them accumulating foreign exchange reserves to reduce both the likelihood and the impacts of a financial crisis triggered by capital outflows (Prasad, 2011). Their position, in

sum, appears to be much less fragile than it was only ten years ago.

It is a contention of this paper, that the theory of capital market inflation can be adapted and extended to understand these new dynamics. In line with the original formulation of the theory, emerging markets lack a sufficiently large domestic institutional investor sector. The reasons underlying this may differ, depending on the country's general welfare and institutional setting: in lower income countries there are not enough wealthy people to create a functioning pension fund sector, or, for other historical country-specific reasons, wealth is not traditionally accumulated in equity assets, or, finally, countries may deliberately pursue a policy that promotes financial flows from abroad because, for example, a recent crisis has seriously undermined the domestic capacity to invest in the financial markets. This is arguably the situation of Brazil and South Korea, as it will be mentioned in the following section. However, differently from the "ephemeral liquidity" of "peripheral countries" described by Toporowski, foreign inflows in the period of financial globalisation inflate equity markets in a way that is more similar to the capital market inflation of "core" financial centres. Capital flows have been over the past decade more persistent and more conspicuous than in the past so that market liquidity and price inflation in some emerging markets look more like structural features of their capital markets. As a matter of fact, the size of the Brazilian and South Korean stock markets, as it will be shown in the next section, has become comparable to that of advanced countries stock markets. However, the conditions that give rise to inflation or deflation of the capital markets remain closely related to foreign inflows. This means that inflation and deflation may be possibly even more detached from "fundamentals", because financial troubles abroad may result in capital outflows leading to capital market deflation and the consequent problems, as it was the case with the 2008 crisis.

This approach gives an important contribution to the assessment of financial globalisation as it dissects the "black-box" of the impacts of capital flows on domestic asset markets. The theory of capital market inflation provides in fact "an explanation of how the balance between income and expenditure, that is, aggregate saving, and the institutional channels through which that saving occurs, determines the value of assets in the financial markets" (Toporowski, 2005, pp. 9-10). In the case of emerging markets, these institutional channels are the entrance of foreign investors, following the liberalisation of capital markets and the related policies that foster international financial flows.

The next section explores some empirical evidence, by means of descriptive statistics, to see whether the stylised facts of two key emerging equity markets, Brazil and South Korea, are consistent with the theory of capital market inflation.

3 Brazil and South Korea in the era of financial globalisation

We are now going to look at the experience of Brazil and South Korea. These countries can be considered good examples of "emerging markets". Their economic size is considerable and has increased in the past decade relative to the rest of the world. They are in fact considered key "emerging markets" by many different classifications. Brazil is considered, along with China, India and Russia, a BRIC, an acronym elaborated by Goldman Sachs scholars (O'Neill, 2001; Wilson & Purushothaman, 2003) to indicate countries that, thanks to their growing economic weight, will increasingly dominate the world political and economic scenario. South Korea is a member of the OECD, reflecting its more developed condition, but is frequently reported as major emerging market, thanks to its elevated economic growth performance: the same scholars that conjectured the BRIC concept (O'Neill et al., 2005) projected that South Korea will overtake many current advanced countries in terms of GDP, and will have the third highest per-capita income by 2050. Finally, and relevantly for this paper's purpose, they are considered emerging markets by the authorative MSCI classification, despite recent rumours of an upgrade for South Korea (MSCI, 2012).

Their financial history has also been relatively similar. Fig 4 and 5 show that the increase in financial inflows started only in the mid 90's. Both countries experienced, in this first phase, a temporary but sudden decline in capital flows: South Korea was heavily hit by the East Asian crisis in 1997-1998, and Brazil had its own currency crisis in 1999. However the prospects of financial liberalisation were not hampered by these crises. To the contrary, the push for further liberalisation came as part of the reforms that followed the crisis: both South Korea and Brazil removed restrictions on foreign investment in the domestic securities in the aftermath of their financial crises(Ahn, 2008; Carvalho & de Souza, 2009; Kalinowski & Cho, 2009; Kim & Yang, 2008; de Paula, 2010, chap 4 and 5). As a matter of fact, according to the Chinn & Ito (2008) index of de-jure openness, in 1998 both countries were considerably less open than their developed peers but have since then gradually opened their capital account (Table 1). The recent return of

capital controls on the emerging markets policy agenda may account for Brazil's index reduction in 2010, and may indeed cause further reductions across many emerging markets once the index is updated.

De-jure liberalisation came along with substantial *de facto* integration: as Figure 4 and Figure 5 show, capital restarted to flow into the countries in the first half of the 2000's and spiked in 2007, right before the global financial crisis. Furthermore, it appears that the 2008 crisis was a remarkable but only temporary stop in the ongoing process of integration, as both countries at the end of 2010 had a level of external liabilities comparable or even higher than they had in 2007 (Figure 6 and Figure 7). A noticeable fact about financial integration in the two countries is that, after the late 90's crisis, it appears to be driven mostly by equity securities: the share of equity-like liabilities to the total in both countries this has increased from about 30% to roughly 50%-60% in 2011.

In the same period, stock markets experienced a remarkable expansion. Between 2000 and August 2008, equity price indexes have risen by more than 5 times in Brazil and roughly tripled in South Korea (Figure 8). This performance is above the emerging markets average and greatly above advanced markets. Unsurprisingly, over the same period we can see a dramatic increase in stock market capitalisation, both in absolute terms and as a percentage to GDP (Table 2). In 2000, stock market capitalisation was about a third of GDP in South Korea and Brazil while the average of high-income countries was over 114%. In 2007 the same figure for the three countries was above 100%, effectively converging to levels similar to high-income countries. This is particularly noticeable, considering the good economic growth performance in the same period, and confirms hat the stock market expansion was indeed remarkable.

A first link between the strong equity performance and financial globalisation is given by the importance that foreigners had in the stock market over the same period. Figure 9 and Figure 10 show shareholding by foreign investors in the two countries. While the time frames are different the trends are roughly similar: in Brazil foreign holdings of stocks have constantly been rising constantly reaching a peak of more than 40% in 2006, and then decreased to about 35% in 2007, except a temporary fall in 2010; in South Korea, foreign holdings have strongly increased in the early 2000's, peaking at about 40% in 2004 and have since then slowly decreased to around 33% in 2007, and, a part from a drop in 2008, have remained in that range since then. Therefore in both countries foreign investors own about a third of the stock market value.

In conclusion, the experience of Brazil and South Korea since the late 90's is, generally speaking, in line with the global trends. Their integration in the global financial markets has increased both in policy terms, with the removal of several capital account restrictions, and in *de facto* expansion of external positions and capital flows, especially in the second part of the 2000's, briefly interrupted by the 2008 crisis. Most of this integration has taken the form of increased equity liabilities, both portfolio and FDI. Over the same period the countries seem to have experienced a process of "financial development" in their equity markets, as prices and stock market capitalisation have greatly increased, and foreign investors have grown to represent, as a category, about a third of the stock market. This fact suggests that stock price inflation may be related to the behavior of foreign investors.

Assessing whether the evidence may confirm this hypothesis is the purpose of next section.

4 Capital market inflation in Brazil and South Korea

This section assesses whether the empirical evidence is consistent with the theoretical approach outlined in section 3. This is done in four steps: the first subsection evaluates whether capital market inflation has taken place in the analysed countries; the second subsection appraises whether foreign investors have also benefited from equity appreciation; the third subsection considers the evidence that foreign investors were key drivers of such inflation; the fourth subsection assesses whether the behavior of foreign investors was coherent with the theory of capital market inflation.

4.1 Price inflation

The first step in this analysis is to assess the importance of equity price increase and its magnitude. As shown in the previous section, the price indexes of the countries have risen considerably in the past decade. While this, by definition, implies that stock prices have increased, it does not tell us whether this increase has been determinant in the expansion of stock market capitalisation.

Stock market capitalisation is the sum of market capitalisation of all listed companies, that is the total numbers of shares of a company times the price at which shares are exchanged. Therefore stock market capitalisation can increase if either there is a new issuance of equity, or if the price of existing shares rises. The "World federation of exchanges" publishes data of the amounts capital

raised since 1995. We can therefore decompose the changes in stock market capitalisation in new issued shares valuations changes.

Figure 11 shows the dynamics of Brazil's stock market capitalisation, cumulative issuance of shares[1], and the difference between the two. In the case of Brazil, clearly, stock market capitalisation and cumulative equity issued before 2002 do not depart too much from one another, whereas since 2002 the increase in stock market capitalisation greatly exceeds the increase in shares issued. On the other hand, it is evident that price dynamics have been closely related to the increase in stock market capitalisation over the whole period, and, after 2002 have clearly driven its dynamics (Figure 12): over the whole 1995-2010 period, valuation changes account for about 78% of the stock market capitalisation increase, a figure that increase to almost 86% if one considers the 1995-2007, thus not considering the effect of the crisis and the biggest share offering in history by the giant oil company Petrobras in 2010 (Economist, 2010).

The experience of South Korea is very similar. As we can see in Figure 13 and Figure 13, stock market capitalisation have substantially departed from cumulated issuances since 2002, along with the rise in the price index: over the 1995-2010 period valuation effects account for 85% of total changes in stock market capitalisation.

To check whether the valuation effect series is a good proxy for equity price increase the yearly increase in valuation effects and MSCI price index is calculated taking 1995 as a base year. Table 3 shows that, in both countries, the MSCI index is less volatile but follows the same trend as the valuation changes series. Calculating Pearson correlation coefficients between the yearly variation in valuation effects and MSCI indexes gives a correlation of 0.97 for Brazil and 0.98 for South Korea, both statistically significant. The valuation effects series thus measures very well the effect of equity price increase.

Finally, Figure 15 shows that daily average stock trading has massively increased over the whole period and, in particular, between 2004 and 2007, when the total value of trading increased by 2.5 times in South Korea and 4.5 times in Brazil. Trading activities has therefore increased in the periods of maximum price expansion, which is consistent with the concept of a net excess inflow circulating into the stock market as a source of price inflation[2].

In sum, in Brazil and South Korea, stock market inflation has taken place over the past 15 years and is the main driving force in the expansion of the stock market.

4.2 Foreign gains from capital market inflation

The performance of equity markets, as shown in the previous subsection, has been particularly strong since 2002 vastly outpacing the net issuance. This subsection is concerned with quantifying the impact of such a performance on foreign investors.

The most straightforward way of doing this is to decompose foreign equity liabilities by deducting portfolio equity inflows from total equity liabilities, thus obtaining the change in foreign liabilities due to valuations. Figure 16 and Figure 17 show the dynamics of portfolio flows and foreign equity liabilities for Brazil and South Korea. It can clearly be seen that the impact of valuation effects has been the driving force of portfolio equity liabilities since 2002, as foreign equity liabilities depart substantially from cumulative inflows. However, valuation changes not only reflect increases in equity prices, but, in the case of foreign investors, exchange rate dynamics[3]. Therefore, using the MSCI index in local currency terms for both countries, it is possible to calculate how would foreign equity liabilities increase if equity prices were the only driver. The result is shown as "price-adjusted equity liabilities" in the figure. Foreign equity liabilities present more volatility, generally in the same direction of equity price changes, suggesting that exchange rates may amplify pro-cyclical tendencies, but overall there seems to be a close relation between the two series. To further confirm this contention we calculate the Pearson correlation coefficient between yearly changes in foreign equity liabilities and MSCI price index in local currency: the results are respectively 0.77 and 0.80 for South Korea and Brazil, both statistically significant (Table 4). All this suggests the price changes are the most important drivers of equity liabilities.

There is therefore substantial evidence confirming that foreign investors have achieved capital gains, and that this has been the driving force of the swelling of their equity assets in Brazil and South Korea. Since the participation of foreigners in the domestic stock markets has not substantially increased during the period of major equity price increase, it could be argued that foreign investors have not been the driving force of such increase. Indeed, as Levy-Yeyati & Williams (2011) argue, the whole idea of financial globalisation in emerging markets being a structural new process may be ovestated: foreign investors could merely have accompanied the "more secular process of financial deepening", as the increase in foreign equity liabilities is more driven by an increase in the stock market size, rather than an increase in foreign participation. However, the fact that simple accounting ratios of foreign equity liabilities to stock market capitalisation have

not significantly increased over the past few years does not demonstrate that foreign inflows have been irrelevant for the dynamics of equity prices, it simply means that inflows have not increased at a faster pace than equity prices. As suggested in section three, the equity price increase may itself be the result of a disequilibrium of the capital market, that may be originated, or at least supported, by capital inflows. In other words the sizeable, even if not growing in respect to the capital market size, presence of foreign investors can generate the excess liquidity in the capital markets which drives prices up, and therefore originate capital gains. The next subsection will assess whether the evidence is coherent with this hypothesis.

4.3 Foreign investors driving equity prices

Has the stock market boom in Brazil and South Korea been driven by foreign investors? The theory of capital market inflation, as presented in section 3, posits that the price of equity rise and fall a result of a disequilibrium mechanism between the demand and the supply of equities: when the demand for new issues is higher than new stock issued or of sales existing stock, the net excess inflow of funds circulate driving stock prices up. To assess this theory we use two main indicators. Firstly, we compare the stock market inflows with the net cumulated inflows by foreign investors into the stock markets. Secondly we compare the issuance of shares by companies with the foreign purchase of equity. Looking at both these indicators we can understand whether the stock market price dynamics seem to move along with foreign inflows into the stock markets. Finally, we will look at stock trading by foreign investors.

Figure 18 and Figure 19 show the cumulated net inflow of funds into the market by foreign investors. The two countries seem to have experienced remarkably similar trends: the net cumulated inflows into the stock markets is positive and growing over the whole period, with the exception of the dramatic sudden fall in 2008. A rather striking fact is the seemingly simultaneous movement of the price index and the cumulated net inflows: foreign investors cumulated inflows and prices move along similar lines, with the partial exception of South Korea in late 2007. This gives credit to the idea that positive/negative cumulated foreign inflows into the stock markets give rise to price inflation/deflation. It is important to notice that these flows are already net of foreign subscription of newly raised capital, which may affect the value of net inflows into the stock market: for instance, foreign investors net balance into Bovespa in 2007 is moderately negative despite a

big surplus in portfolio equity inflows, because of the massive participation of foreign investors in public equity offer - 75.6% of the total capital raised (Bovespa, 2007). A further comparison between foreign supply of equity and demand might clarify this point.

Foreign inflows into the equity markets also look notable when compared to firms' issuance: Figure 20 shows the share of portfolio equity and total equity[4] - that is including FDI equity inflows - for Brazil and South Korea. In Brazil, the share of cumulated portfolio equity inflows to the cumulated equity issuance has been rather constant in the decade before the crisis at around 55-60%. Including FDI equity inflows brings more variability to this ratio, which increased after the crisis in 1999 to peak in 2005 at 330% and then steadily declined to 160% in 2010. In South Korea this ratio was consistently higher at 80-90% over the period between the 1997 crisis and 2007, when it decreased dramatically due to a fall in capital inflows further depressed by the crisis in 2008, and is now regaining share thanks to the massive capital inflows in 2009 and 2010. This ratio increases to about 130%-140% over the same period including FDI equities. It therefore appears that foreign investors have alone satisfied a great deal - more than half in Brazil, and almost entirely in South Korea - of firms' needs of equity financing, and more than covered them if one includes direct investment in companies. This indicates that foreign investors impact in the demand/supply equilibrium has been of high relevance over all the term.

Finally, Table 5 show that stock trading by foreign investors have been growing over time in both countries. In Brazil foreign investors trading represent more than a third of total transactions, while in South Korea this value had grown to about a quarter in 2006 and 2007, but have decreased since the crisis to about 20%. South Korea results less dependent on foreign investors activity, reflecting its more financially developed condition. Foreign investors remain however a very important component of liquidity in both countries.

There is, in sum, enough evidence to support the idea that foreign investors have been key players in the stock markets, in particular in driving or at least supporting, that excess liquidity that, according to the theory of capital market inflation, is the ultimate determinant of stock prices dynamics.

4.4 Capital gains and dividends

Are earning perspectives the most important factors driving equity investment? This subsection assesses whether income earnings or capital gain have played the most important part in delivering returns to investors.

Figure 21 and Figure 22 show P/E ratios for the two countries. While the ratios show considerable volatility, especially in South Korea, the trend-lines shows the since 2000's prices have grown more than earnings on average. Prices have therefore risen more than the actual expansion of firms' profit. P/E values reached maximum of about 17 in Brazil in late 2007 and 20 in South Korea in 2010. Figure 23 and Figure 24 show the dividend yields. In Brazil, dividend yields have slowly decreased overtime, particularly in 2006 and 2007, when the equity prices showed their maximum increase. In South Korea, the dividend yields of companies traded in the KOSPI market - the main stock market index - show considerable volatility, however the trend has been negative overtime. Moreover such a yield is small in comparison to other countries: for instance, the dividend yield of the London stock exchange was on average 3.1 over the 2000-2007 period according to the WFE, while in South Korea it reached a maximum in 2002 at 2.84. Despite this trend of declining and/or low dividends, foreign investors, as shown, have continued to invest in Brazilian and South Korean equities.

In sum, the evidence seems to support the idea that capital gains through trading rather than dividends are a driving force in determining the returns of foreign investors, and investors in general.

5 Conclusion

Understanding the relation between financial integration and capital markets is of central importance in today's financially interconnected world. In particular, the growing integration of emerging equity markets into the global financial markets deserves attention, since, despite reducing the possibility of a "traditional" balance of payment crisis, it may create concerns about domestic financial markets stability and international financial contagion. In fact, the important presence of foreign investors into emerging financial markets has clearly been a channel of transmission of the global financial crisis to those countries.

This paper has engaged with this debate by linking the theory of capital market inflation to financial globalisation. Emerging markets equity prices should be understood in relation to the supply and demand of equity capital, and the disequilibrium that may arise between the two. Such a disequilibrium in emerging markets is originated and sustained by foreign capital inflows.

The experience of Brazil and South Korea is consistent with such a framework. Over the past decade both countries have become significantly more integrated and have experienced a massive increase in the size and activity of their equity markets. The empirical evidence confirms the relation between these two trends, as foreign investors did substantially contribute to create the excess liquidity into the capital markets that resulted in a generalised rise in equity prices. Moreover, the evidence also suggests that capital gains, rather than dividends income, represent the most important part of investor returns.

In conclusion, the theory of capital market inflation represents a useful framework to assess the performance of emerging equity markets in a situation of increasing international financial integration. This paper has however only analysed the most evident aspect of capital market inflation, the rise in equity prices. Assessing the broader macroeconomic impact of capital market inflation in the context of emerging markets is an issue deserving further research. This could shed light on the process of financial globalisation, and, hopefully, contribute positively to the debates about how to manage it.

Notes

[1]This is the sum of initial public offerings, and equity issuance by already listed companies.

[2]It could be argued that rising trading values simply reflect the higher equity prices. However, price between 2004 and 2007 increased by 2.5 in Brazil and roughly doubled in Korea, thus by less than the increase in trading value.

[3]For example, for a US investor in Brazil, the appreciation of the Real against the dollar increase the Dollar value of his asset.

[4]The use of IMF BOPS in US dollars instead of equity inflows data from the BMF&Bovespa and KRX is due to ease of comparability, since the IMF publishes annual data in US dollars. Issuance data are only relative to the listed companies. While this limits the scope of the data, the process of capital market inflation mainly refers to listed companies.

Bibliography

Ahn, B. (2008). Capital flows and effects on financial markets in Korea: developments and policy responses. *BIS Papers chapters*, 44, 305–320.

Akyüz, Y. (2011). Capital flows to developing countries in a historical perspective: Will the current boom end with a bust? *Research Paper, South Centre*, 37.

Blanchard, O. & Milesi-Ferretti, G. (2009). Global imbalances: in midstream? *IMF Staff Position Note*, SPN/09/29.

Bovespa (2007). Bovespa divulga balanco de 2007 , (in portuguese).

Brunnermeier, M. K. (2009). *Bubbles: Entry in New Palgrave Dictionary of Economics*. Palgrave.

Carvalho, F. & de Souza, F. (2009). Financial regulation and macroeconomic stability in brazil in the aftermath of the russian crisis. *Documentos Técnicos ITF*.

Chinn, M. D. & Ito, H. (2008). A new measure of financial openness. *Journal of Comparative Policy Analysis: Research and Practice*, 10(3), 309–322.

de Paula, L. (2010). *Financial liberalization and economic performance: Brazil at the Crossroads*, volume 85. Routledge.

Economist (2010). Petrobras's record share issue. now comes the hard bit. *Economist*.

Evans, L. (2001). *What Drives Equity Values: Fundamentals Or Net Flows? : an Empirical Analysis of the 1982-1999 U.S. Stock Market Boom*. University of Massachusetts at Amherst.

Gourinchas, P. & Jeanne, O. (2007). Capital flows to developing countries: The allocation puzzle. *National Bureau of Economic Research Working Papers*, 13602.

Kalinowski, T. & Cho, H. (2009). The political economy of financial liberalization in South Korea: State, big business, and foreign investors. *Asian Survey*, 49(2), 221–242.

Kaltenbrunner, A. & Painceira, J. (2009). New forms of external vulnerability: Brazil in the global financial crisis. *Research on Money and Finance Discussion Papers*, (15).

Kim, S. & Yang, D. (2008). Managing capital flows: the case of the republic of Korea. *Asian development bank institute*, 88.

King, R. & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics*, 108(3), 717–737.

Kose, M., Prasad, E., Rogoff, K. S., & Wei, S. (2006). Financial globalization: A reappraisal. *IMF Working Papers*, 6189(200), 1–94.

Lane, P. & Milesi-Ferretti, G. (2007). The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970-2004. *Journal of International Economics*, 73(2), 223–250.

Lapavitsas, C. (2009). Financialisation embroils developing countries. *Research on Money and Finance Discussion Papers*, 14.

Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, 35(2), 688–726.

Levy-Yeyati, E. & Williams, T. (2011). Financial globalization in emerging economies: Much ado about nothing? *World Bank Policy Research Working Paper*, 5624.

Mauro, P., Dell'Ariccia, G., di Giovanni, J., Faria, A., Kose, M., Schindler, M., , & Terrones, M. (2008). *Benefits of financial globalization*, volume 264. International Monetary Fund.

Mishkin, F. (2007). Is financial globalization beneficial? *Journal of Money, Credit and Banking*, 39(2-3), 259–294.

MSCI (2012). MSCI announces the results of the 2012 annual market classification review.

Obstfeld, M. (2010). Expanding gross asset positions and the international monetary system. In *Proceedings of the 2010 Jackson Hole Symposium, Federal Reserve Bank of Kansas City*.

Obstfeld, M. (2012). Does the current account still matter? richard t. ely lecture. In *American Economic Association Annual Meeting, Chicago, Ill., January*, volume 6 (pp. 2012).

Obstfeld, M. & Rogoff, K. (2010). Global imbalances and the financial crisis: products of common causes.

O'Neill, J. (2001). Building better global economic BRICs. *Goldman Sachs Global Economics Paper*, 66.

O'Neill, J., Wilson, D., Purushothaman, R., & Stupnytska, A. (2005). How solid are the BRICs? *Goldman Sachs Global Economics Paper*, 134.

Ostry, J., Ghosh, A., Habermeier, K., Chamon, M., Qureshi, M., & Reinhardt, D. (2010). Capital inflows: The role of controls,". *IMF Staff Position Note*, SPN/10/04.

Prasad, E. (2011). Role reversal in global finance. *National Bureau of Economic Research Working Papers*, 17497.

Prasad, E., Rajan, R., & Subramanian, A. (2007). Foreign capital and economic growth. *National Bureau of Economic Research Working Papers*, 13619.

Prasad, E., Rogoff, K., Wei, S., & Kose, M. (2004). Effects on financial globalization on developing countries: Some empirical evidence. *IMF Occasional paper*, 220.

Stiglitz, J. (2000). Capital market liberalization, economic growth, and instability. *World development*, 28(6), 1075–1086.

Toporowski, J. (1999). Monetary policy in an era of capital market inflation. *Levy Economics Institute Working Paper 279*.

Toporowski, J. (2002). *The End of Finance: capital market inflation, financial derivatives and pension fund capitalism*, volume 25. Routledge.

Toporowski, J. (2005). *Theories of financial disturbance: an examination of critical theories of finance from Adam Smith to the present day*. Edward Elgar Pub.

Toporowski, J. (2008). The kalecki-steindl theory of financial fragility. In *"Crisis in Financialisation" Conference at the School of Oriental and African Studies, University of London, May*, volume 30.

Toporowski, J. (2009). The economics and culture of financial inflation. *Competition & Change*, 13(2), 145–156.

Toporowski, J. (2010). A theory of capital rationing. *SOAS Department of Economics Working Papers*, (166).

Wilson, D. & Purushothaman, R. (2003). Dreaming with the BRICs: The path to 2050. *Goldman Sachs Global Economics Paper*, 99.

Countries group

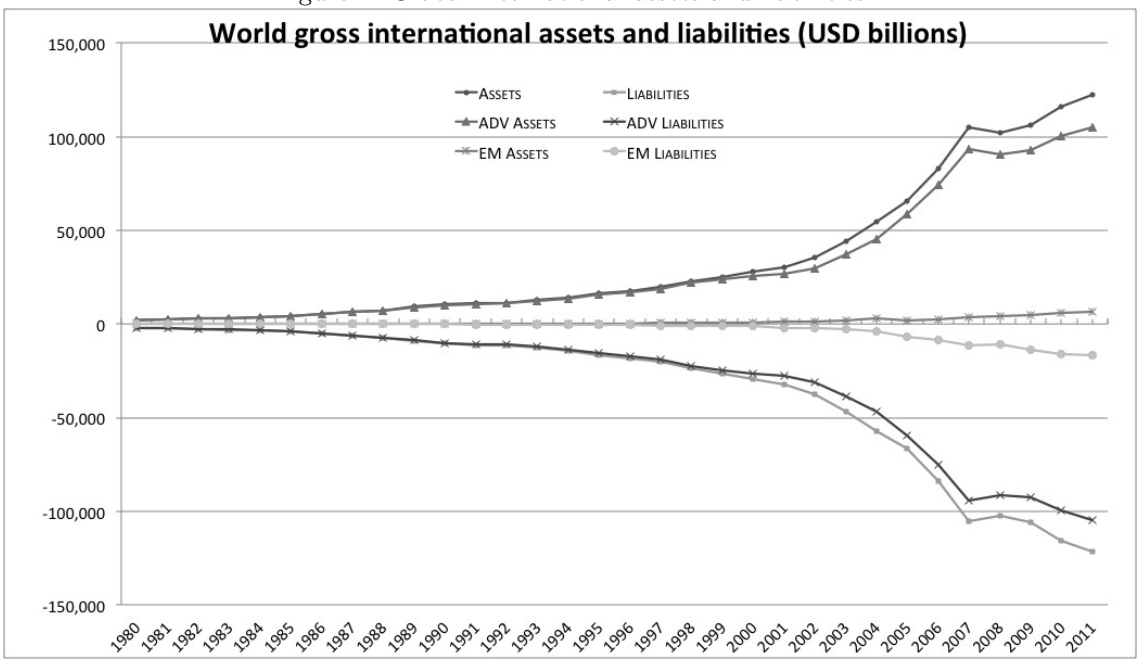
"Emerging markets" comprise: Argentina, Brazil, Chile, China, Colombia, Czech Republic, India, Indonesia, Korea (rep. of), Malaysia, Mexico, Peru, Philippines, Poland, Russian Federation, South Africa, Thailand, Turkey

"Advanced countries" comprise: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, United States

Nomenclature

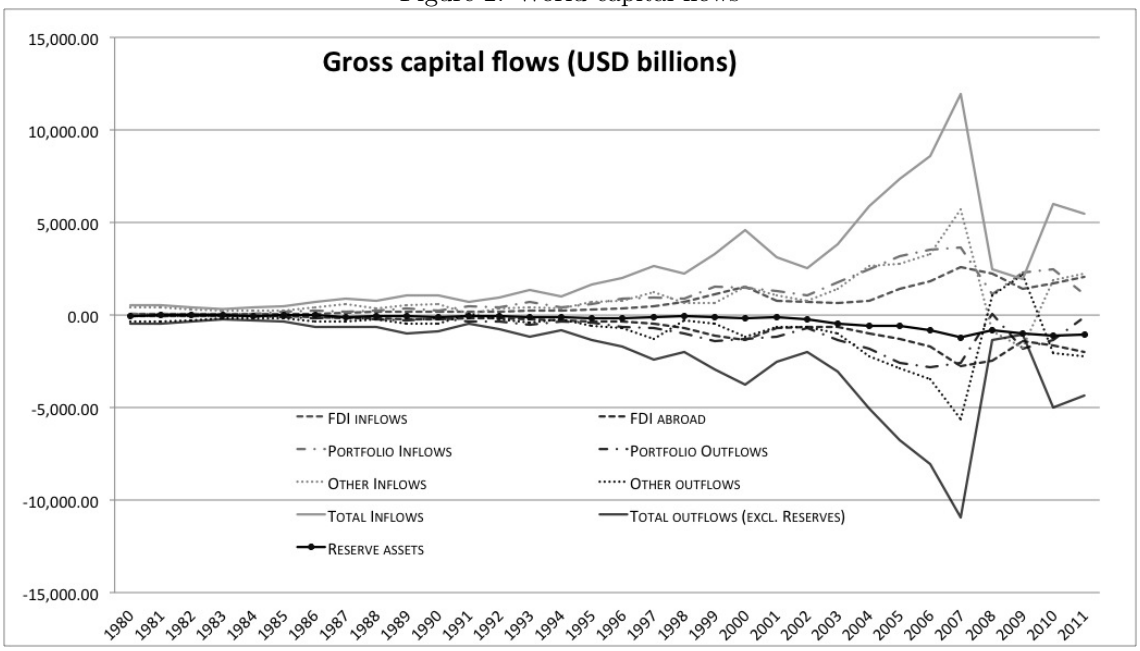
BMF&Bovespa	Bolsa de Valores, Mercadorias & Futuros de São Paulo
BOK	Bank of Korea
FDI	Foreign direct investments
IMF	International monetary fund
IMF BOPS	International monetary fund - Balance of payment statistics
KOSPI	Korea Composite Stock Price Index
KRX	Korean stock exchange
MSCI	Morgan Stanley Capital International
P/E	Price earnings ratio
WFE	World federation of exchanges

Figure 1: Global international assets and liabilities



Source: IMF BOPS

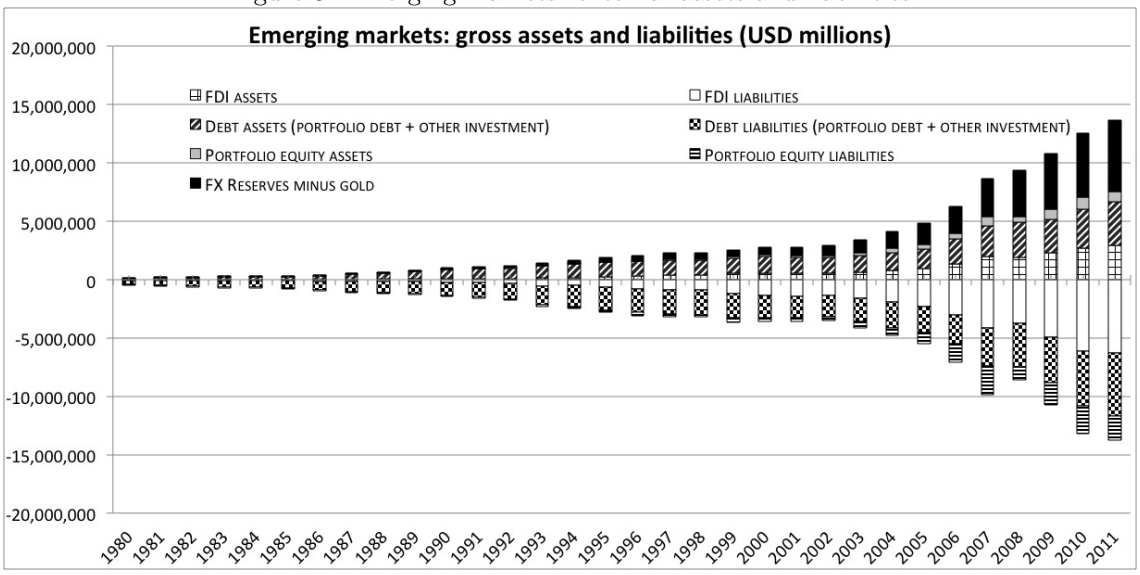
Figure 2: World capital flows



Source: IMF BOPS

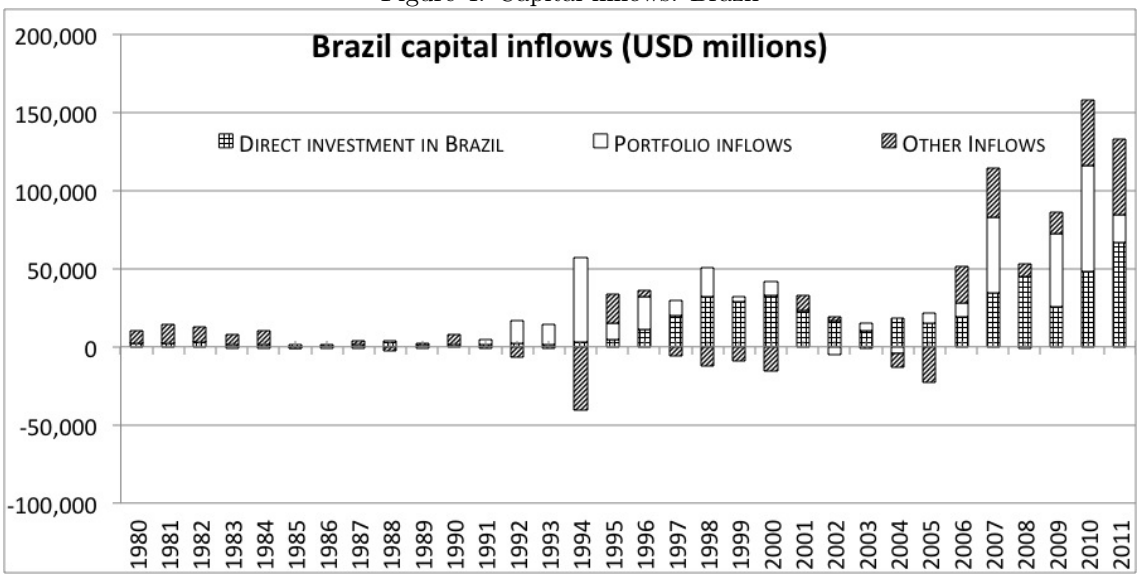
Note: Data for financial derivatives flows are omitted from the the total due to their incompleteness both over time and across countries.

Figure 3: Emerging markets: external assets and liabilities



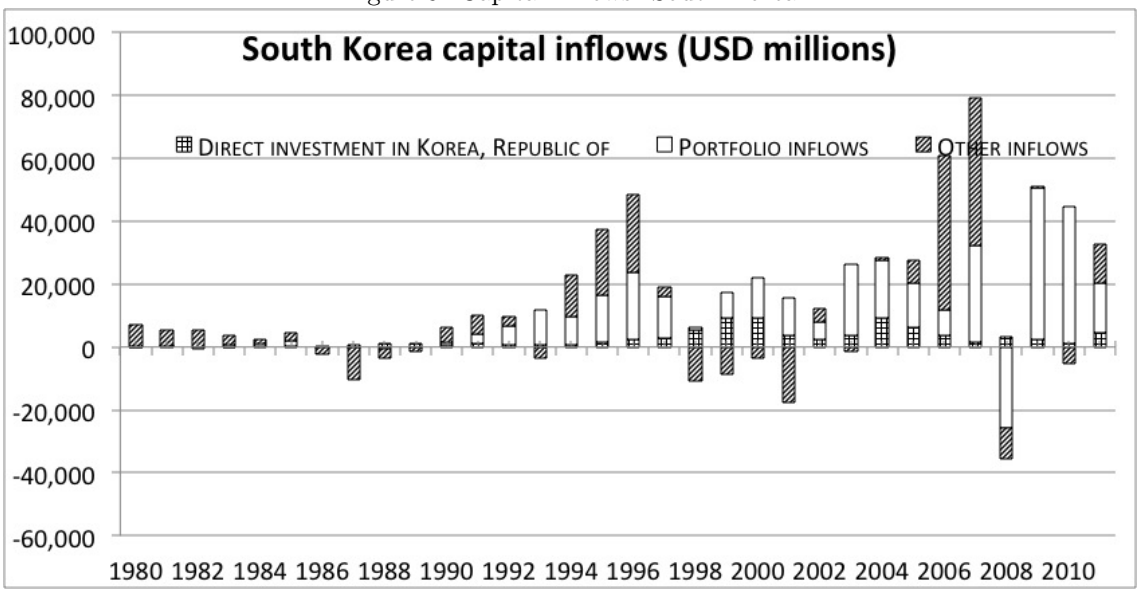
Source: Updated and extended version of dataset constructed by Lane & Milesi-Ferretti (2007) and IMF BOPS

Figure 4: Capital inflows: Brazil



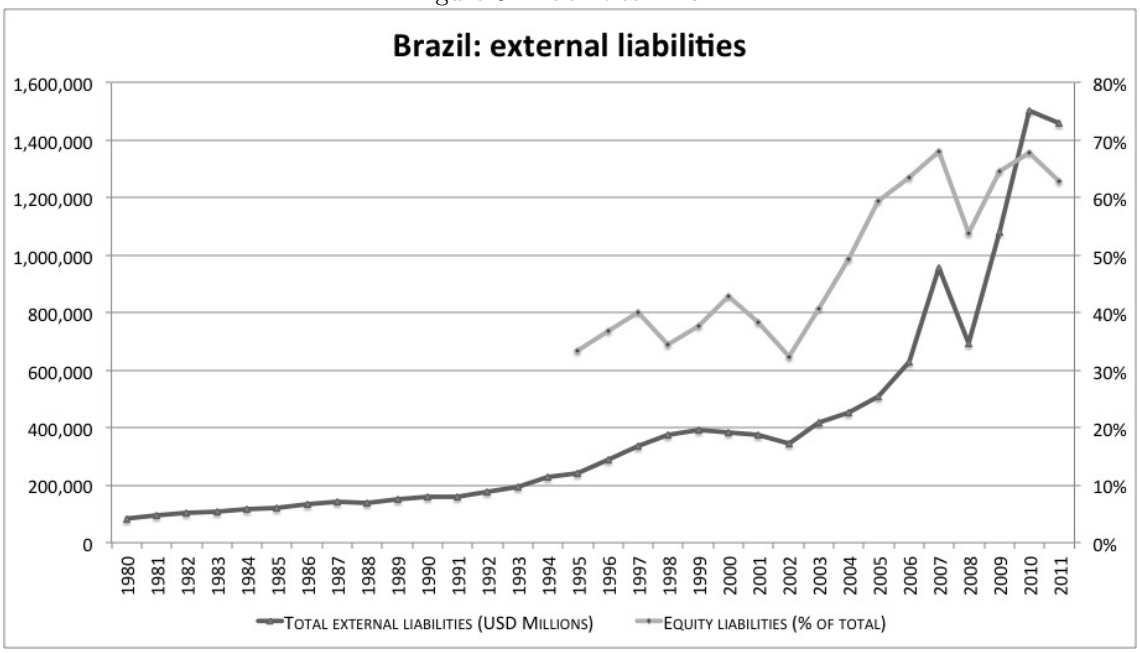
Source: IMF BOPS

Figure 5: Capital inflows: South Korea



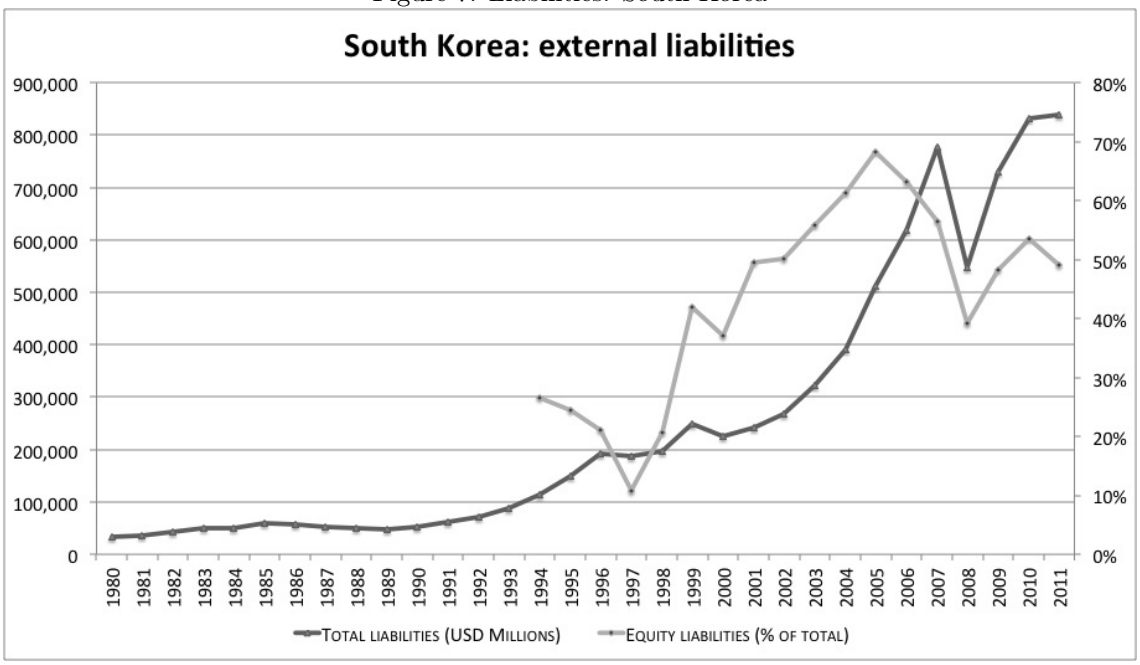
Source: IMF BOPS

Figure 6: Liabilities: Brazil



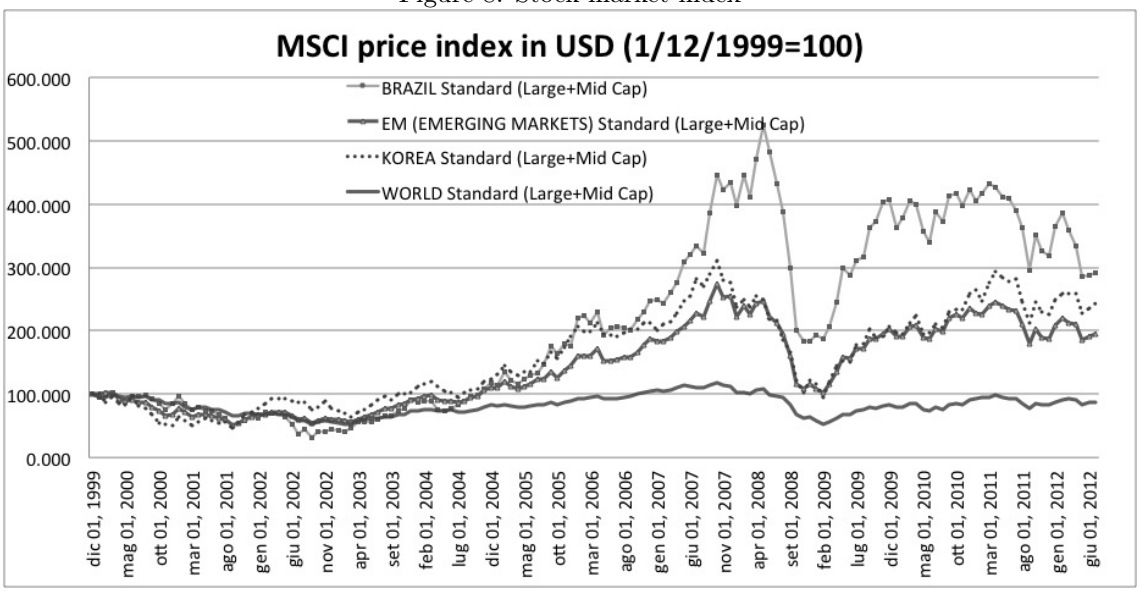
Source: IMF BOPS and (Lane & Milesi-Ferretti, 2007)
Note: IMF BOPS data are used when available

Figure 7: Liabilities: South Korea



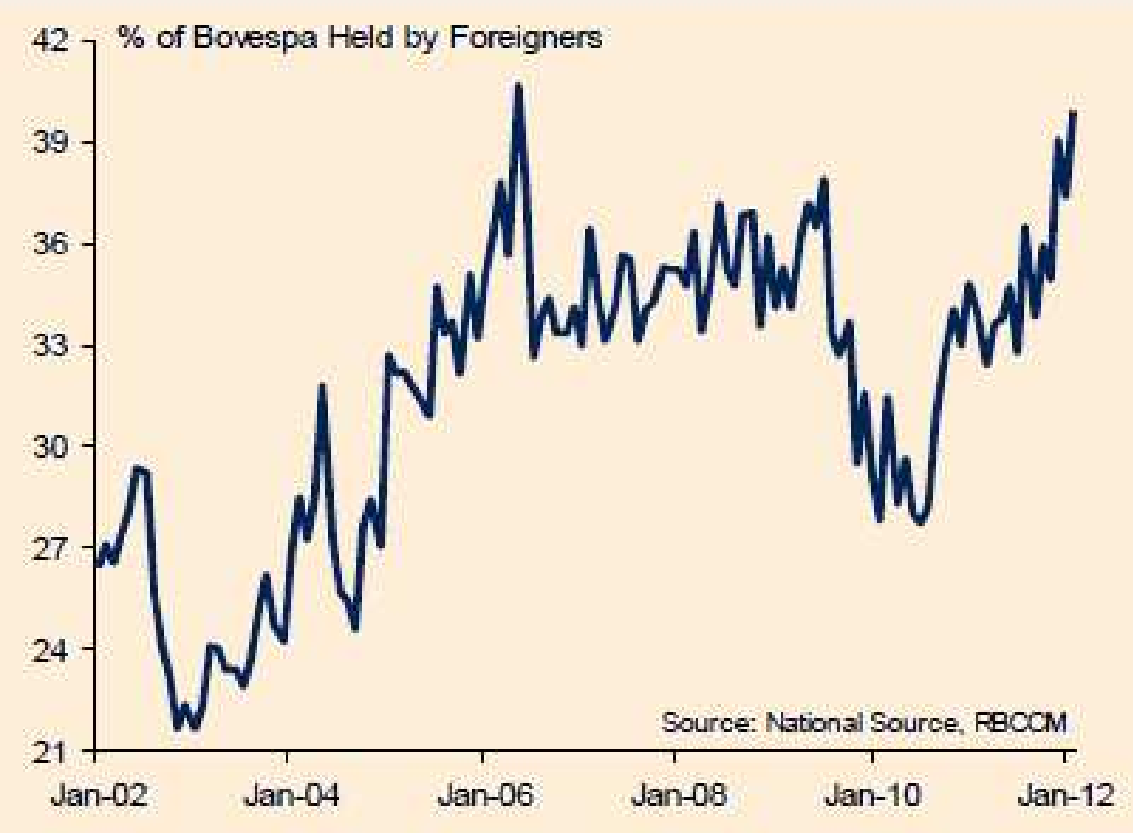
Source: IMF BOPS and (Lane & Milesi-Ferretti, 2007)
Note: IMF BOPS data are used when available

Figure 8: Stock market index



Source: MSCI

Figure 9: Foreign holdings: Brazil



Source: Financial Times

Note: Brazilian historical data on foreign ownership of the equity market are not publicly available we used a graph published on a Financial Times article (http://blogs.ft.com/beyond-brics/2012/04/10/ems-in-1q12-start-with-a-bang-end-with-a-whimper/).

Figure 10: Foreign holdings: South Korea

Source: KRX

Note: This the average of stocks held in both the main KOSPI and KOSDAQ, the Korean markets

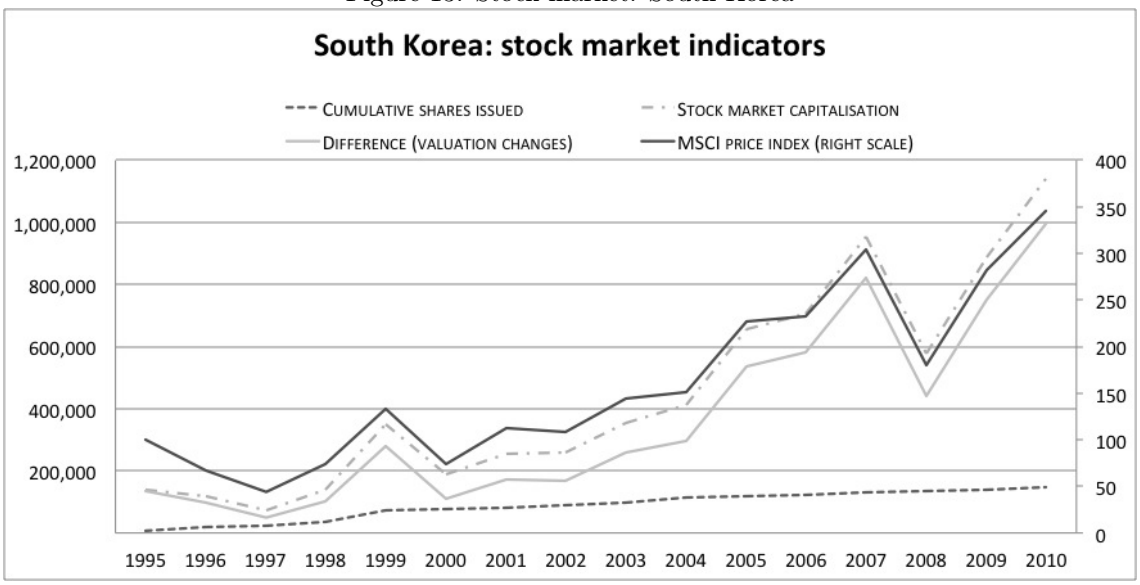
Figure 11: Stock market: Brazil

Source: WFE, BMF&Bovespa, MSCI, personal calculations
Note: All left scale data in BRL millions

Figure 12: Stock market changes breakdown: Brazil

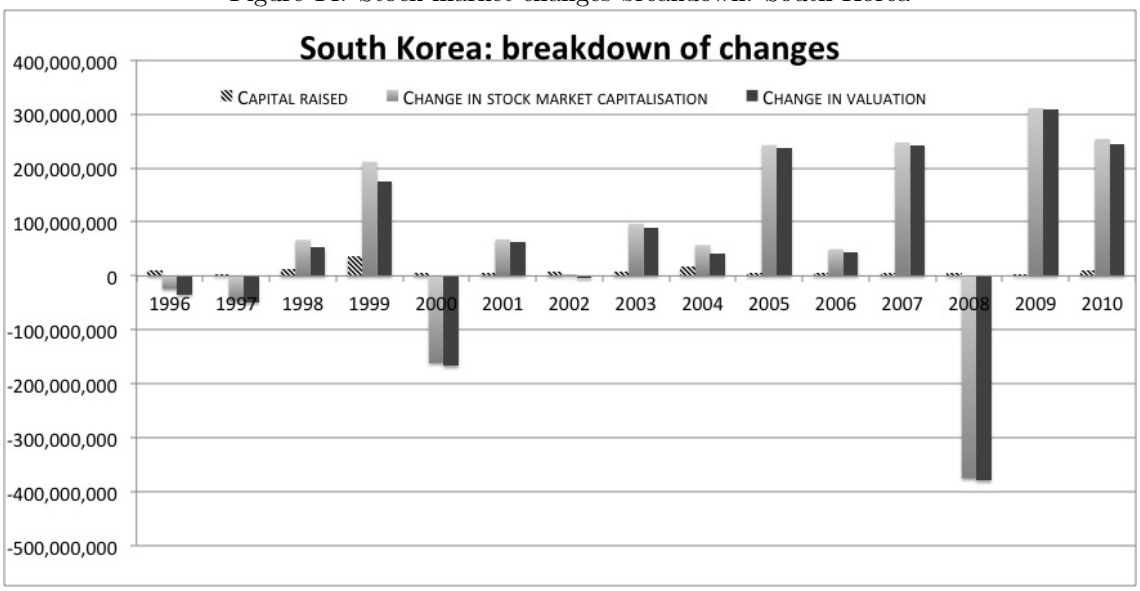
Source: personal calculations from BMF&Bovespa and WFE

Figure 13: Stock market: South Korea



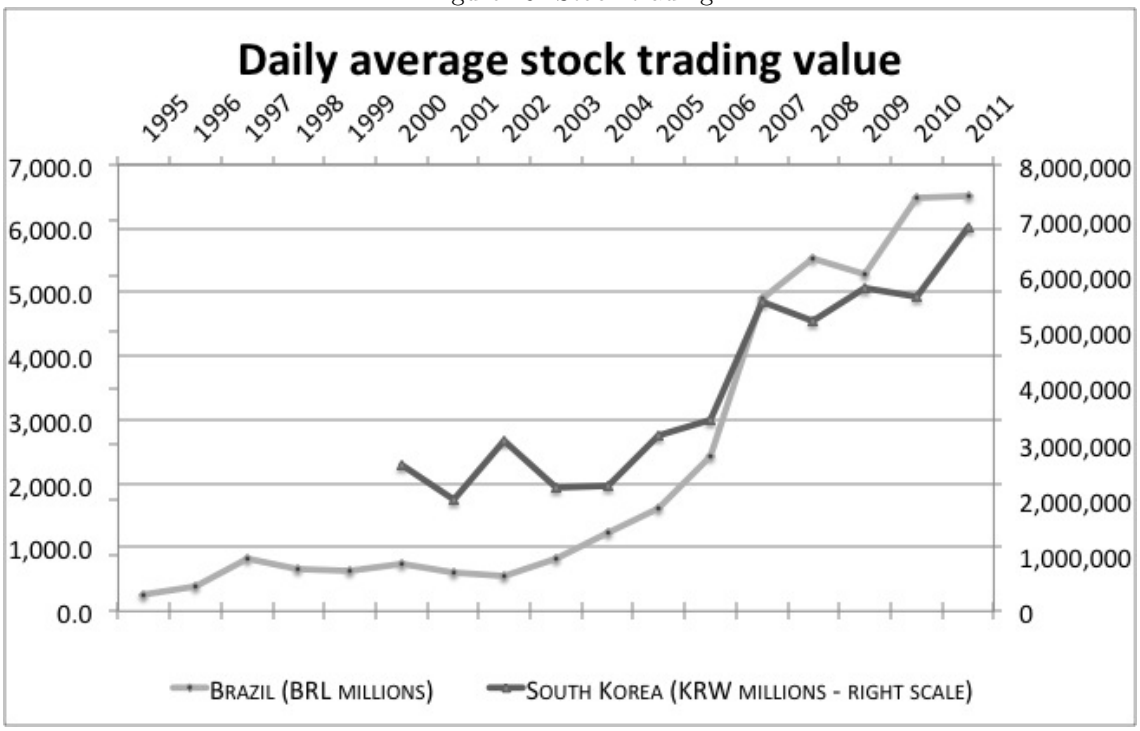
Source: WFE, BOK, MSCI, personal calculations
Note: All left scale data in KRW billions

Figure 14: Stock market changes breakdown: South Korea



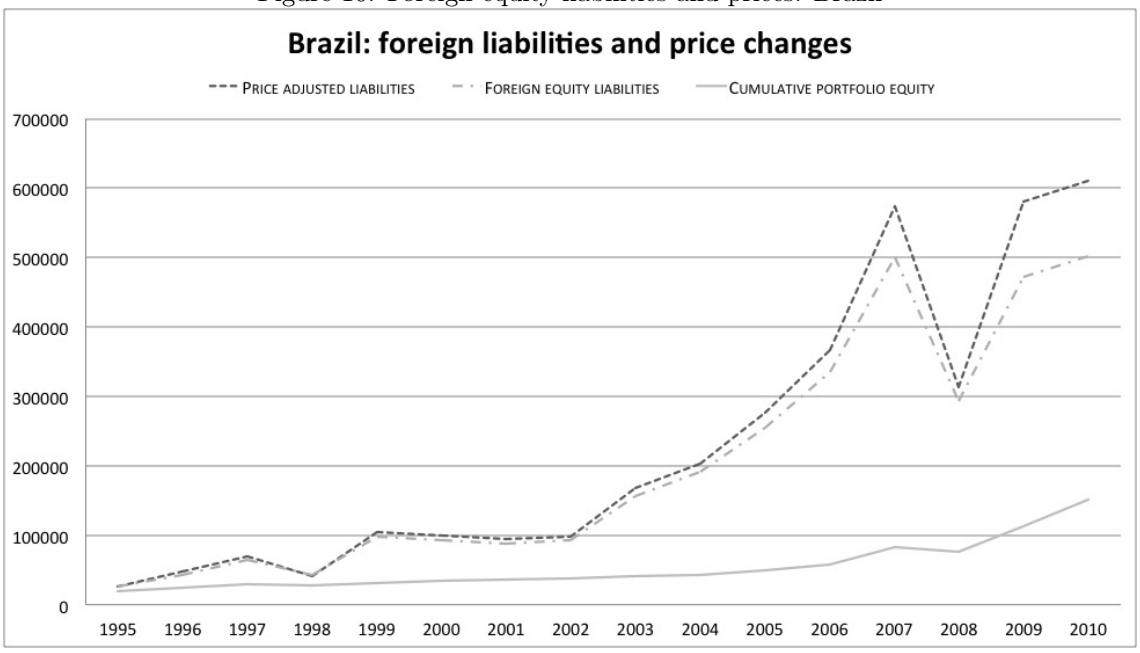
Source: WFE, BOK, MSCI, personal calculations

Figure 15: Stock trading



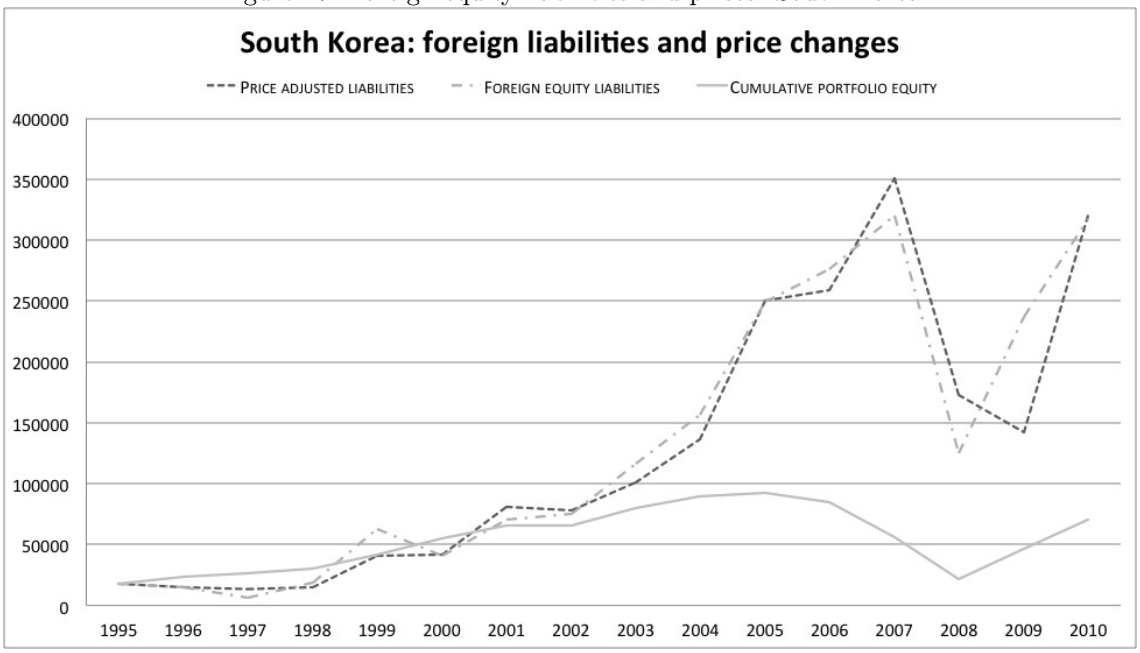
Source: BMF&Bovespa and BOK

Figure 16: Foreign equity liabilities and prices: Brazil



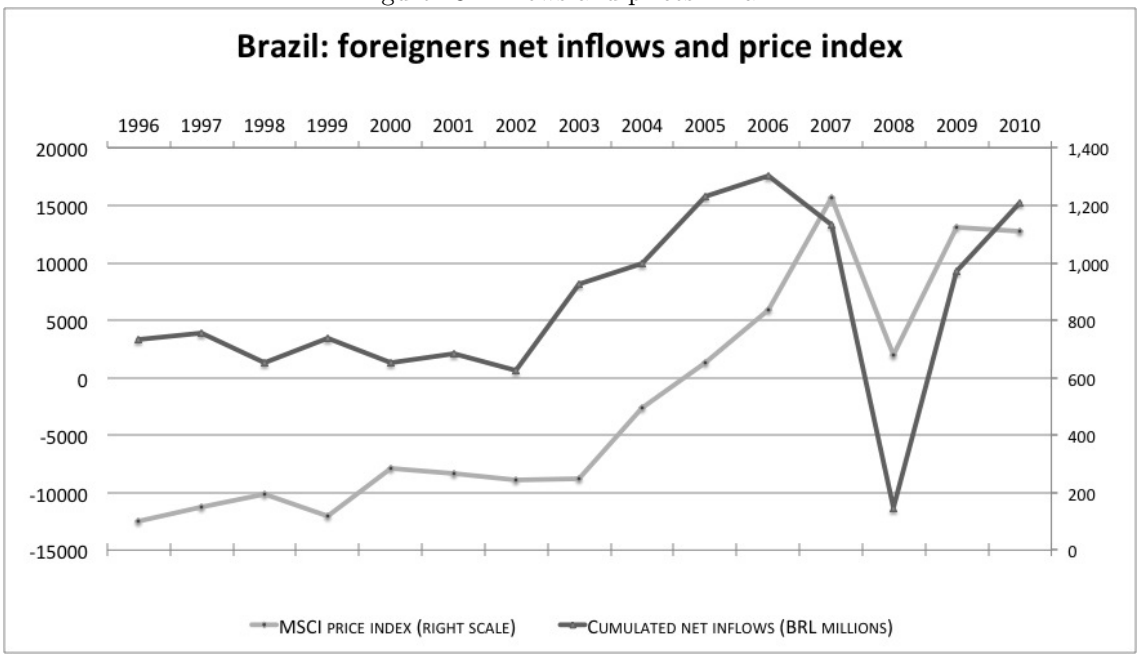
Source: IMF, (Lane & Milesi-Ferretti, 2007) and MSCI

Figure 17: Foreign equity liabilities and prices: South Korea



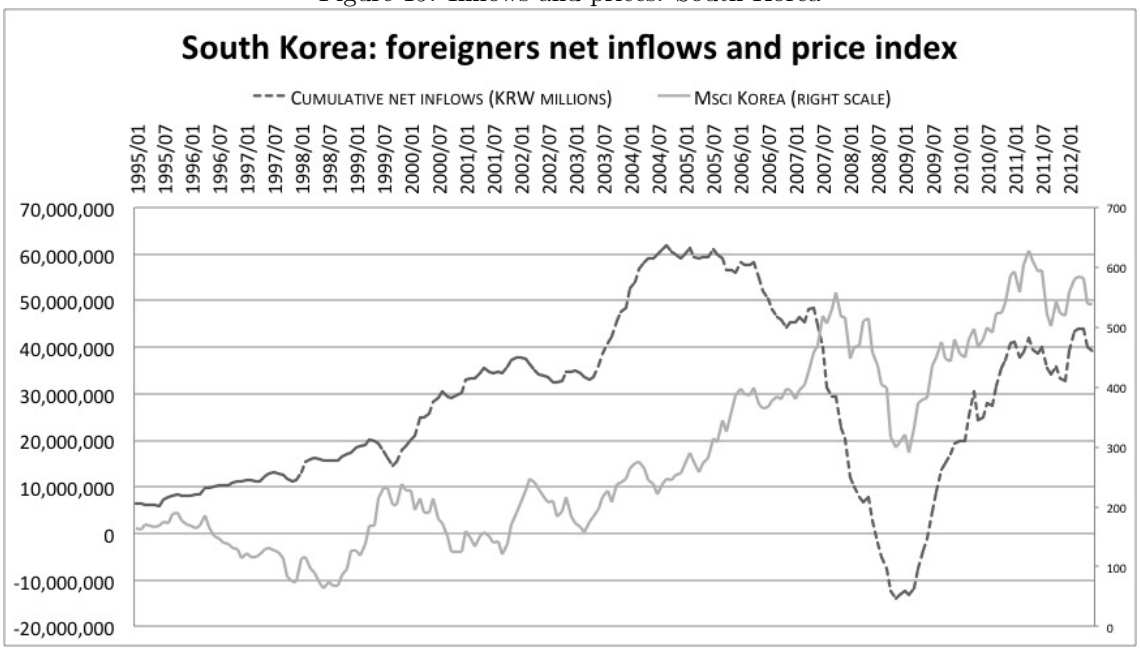
Source: IMF, (Lane & Milesi-Ferretti, 2007) and MSCI

Figure 18: Inflows and prices: Brazil



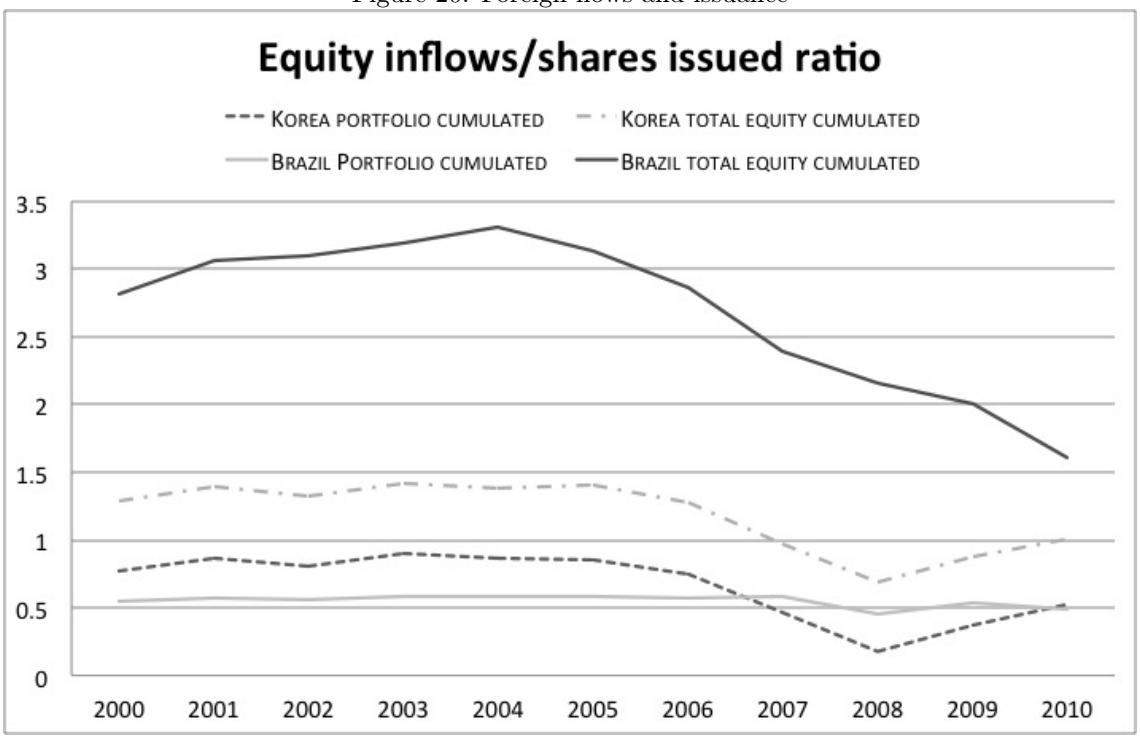
Source: MSCI and BMF&Bovespa

Figure 19: Inflows and prices: South Korea



Source: IMF BOPS and KRX

Figure 20: Foreign flows and issuance



Source: IMF BOPS, KRX and Bmf&Bovespa

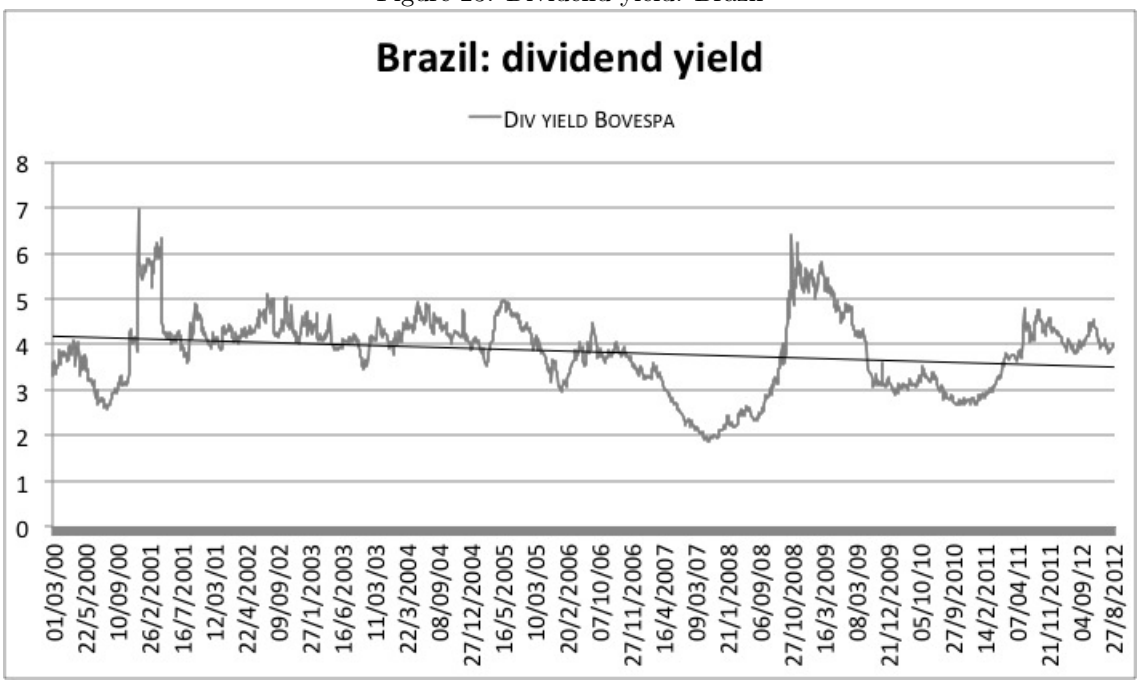
Figure 21: P/E: Brazil

Source: Datastream

Figure 22: P/E: South Korea

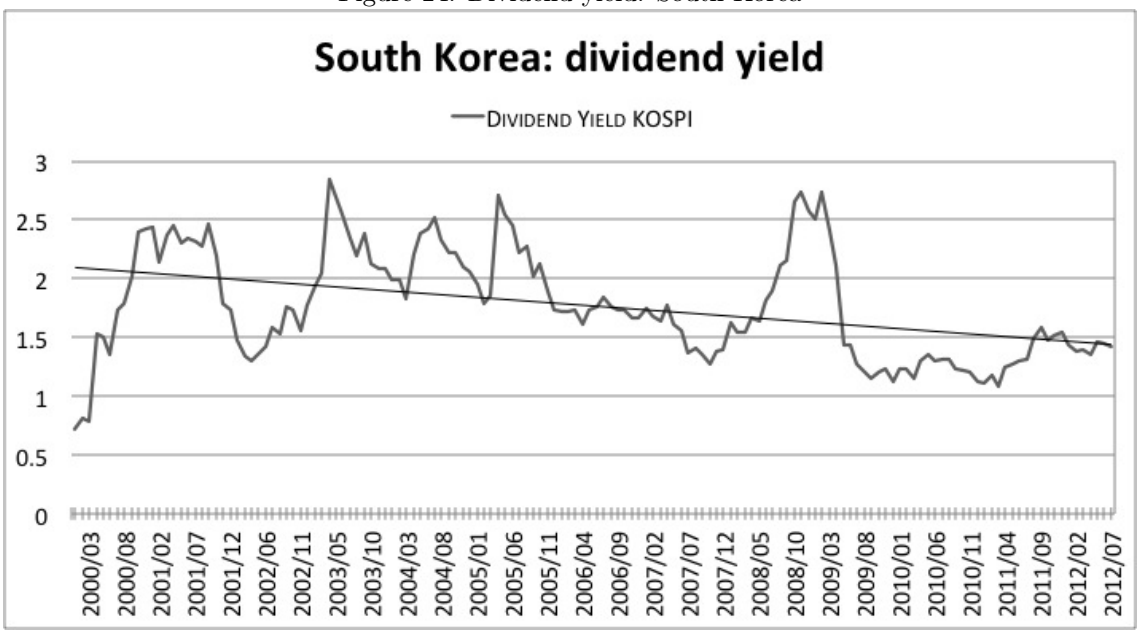
Source: Datastream

Figure 23: Dividend yield: Brazil



Source: Datastream

Figure 24: Dividend yield: South Korea



Source: KRX

Table 1: Chin-Hito index of de-jure openness

	Brazil	Korea, Rep.
1998	0.1615	0.1615
1999	0.1615	0.1615
2000	0.1615	0.4057
2001	0.1615	0.4057
2002	0.4057	0.4057
2003	0.4057	0.4057
2004	0.4057	0.4057
2005	0.4671	0.4057
2006	0.5285	0.4057
2007	0.5285	0.4057
2008	0.5285	0.4671
2009	0.5285	0.5285
2010	0.4671	0.5899

Source: (Chinn & Ito, 2008)
Note: the index is normalised between 0 and 1

Table 2: GDP and Stock market capitalisation

	Brazil			Korea, Rep.			High income
	GDP growth rate	Stock market cap USD millions	Stock market cap % of GDP	GDP growth rate	Stock market cap USD millions	Stock market cap % of GDP	Stock market cap % of GDP
1991	1.51	42,800	10.51	9.39	96,400	31.28	56.48
1995	4.42	147,636	19.20	9.17	181,955	35.19	66.49
2000	4.31	226,152	35.08	8.49	171,587	32.17	114.85
2005	3.16	474,647	53.80	3.96	718,180	85.01	108.76
2006	3.96	711,100	65.30	5.18	835,188	87.75	120.91
2007	6.09	1,370,377	100.32	5.11	1,123,633	107.09	121.02
2008	5.17	589,384	35.66	2.30	494,631	53.11	64.66
2009	(0.33)	1,167,335	71.98	0.32	836,462	100.29	88.24
2010	7.53	1,545,566	72.12	6.32	1,089,217	107.32	95.98
2011	2.73	1,228,969	49.62	3.63	994,302	89.08	74.98

Source: World Bank

Table 3: Valuation changes and price index

	Brazil				Korea			
	Yearly changes in valuation	Yearly changes in MSCI price index	Pearson's correlation coefficient	Test statistic	Yearly changes in valuation	Yearly changes in MSCI price index	Pearson's correlation coefficient	Test statistic
1996	50.58%	47.54%	0.9828	19.2019	-25.95%	-32.84%	0.9652	13.3167
1997	22.92%	32.53%		0.0000	-49.93%	-34.35%		0.0000
1998	-43.91%	-39.45%			107.37%	68.54%		
1999	140.85%	141.35%			170.28%	79.14%		
2000	6.23%	-7.31%			-60.08%	-44.55%		
2001	-4.26%	-7.31%			56.30%	51.56%		
2002	-2.14%	1.46%			-2.70%	-2.99%		
2003	67.67%	65.32%			52.41%	33.21%		
2004	37.72%	20.13%			15.64%	4.22%		
2005	24.87%	31.87%			79.76%	50.65%		
2006	38.50%	28.46%			8.30%	2.31%		
2007	62.10%	46.19%			41.53%	30.80%		
2008	-51.69%	-44.50%			-46.24%	-40.62%		
2009	81.76%	65.39%			69.86%	56.63%		
2010	2.97%	-1.18%			32.57%	22.11%		

Source: Personal calculations based on MSCI, BMF&BOVESPA, BOK and WFE.

Note: Values below the test statistics show the p-value, approximately 0 in both cases, showing strong evidence that the coefficient is different from 0.

Table 4: Foreign equity liabilities and price index: yearly changes and correlation

	Brazil				South Korea			
	Yearly changes in Foreign equity liabilities	Yearly changes in MSCI price index	Pearson's correlation coefficient	Test statistic	Yearly changes in Foreign equity liabilities	Yearly changes in MSCI price index	Pearson's correlation coefficient	Test statistic
1996	0.629	0.475	0.8003	4.8129	-0.249	-0.328	0.7713	4.3687
1997	0.348	0.325		0.0003	-1.347	-0.344		0.0007
1998	-0.462	-0.395			0.670	0.685		
1999	0.739	1.414			0.702	0.791		
2000	-0.088	-0.073			-0.554	-0.446		
2001	-0.246	-0.073			0.422	0.516		
2002	-0.262	0.015			0.075	-0.030		
2003	0.950	0.653			0.352	0.332		
2004	0.454	0.201			0.254	0.042		
2005	0.625	0.319			0.373	0.507		
2006	0.526	0.285			0.097	0.023		
2007	0.901	0.462			0.136	0.308		
2008	-0.589	-0.445			-1.568	-0.406		
2009	1.516	0.654			0.474	0.566		
2010	0.163	-0.012			0.253	0.221		

Source: Source: IMF, (Lane & Milesi-Ferretti, 2007) and MSCI

Table 5: Stock trading by foreigners/Total trading

	Brazil	South Korea
1995	0.264	0.049
1996	0.286	0.060
1997	0.259	0.067
1998	0.251	0.075
1999	0.223	0.052
2000	0.220	0.092
2001	0.251	0.105
2002	0.260	0.115
2003	0.241	0.155
2004	0.273	0.225
2005	0.328	0.205
2006	0.355	0.259
2007	0.345	0.245
2008	0.355	0.254
2009	0.342	0.170
2010	0.296	0.202
2011	0.347	0.183

Source: BMF&Bovepsa and BOK