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South Africa's experience with capital flows since the financial crisis – from measurement to analysis[1]

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[1] This paper was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

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Paper presented by Barend de Beer (South African Reserve Bank)

at the IFC satellite meeting during the 60th ISI conference

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1. Introduction

The nature of international capital flows revolves around optimal yield seeking behaviour – be it through longer term foreign direct investment[1] (FDI) or shorter term, more liquid, portfolio and other investment. Much of these flows are destined for emerging market economies (EME's) – in general there has been a significant surge in capital flows to EME's over the past decade. This provided these economies with access to foreign capital and the possibility to positively impact their real and financial development and hence economic growth. Yet, at the same time it has also introduced major challenges for policymakers in these economies, especially in times of heightened global uncertainty. The general consensus amongst EME's is that capital flows should be carefully monitored to understand their impact on the overheating of economies, loss of competitiveness and increasing vulnerability to swings in capital flows. In general, FDI inflows are preferable to other forms of capital given that these mostly entail investments in real economic activities and hence are longer-lasting and more productive given the increased potential for positive economic spill-over effects. There is also evidence to suggest it is less volatile than other capital flows. (Albuquerque, 2013)

This paper has two aims – firstly to briefly analyse South Africa's experience with cross-border capital flows since the recent financial crisis (section 2) and secondly to highlight certain positive methodological developments and future focus areas in the compilation of the South African cross-border capital flow data (section 3). The last section draws some conclusions.

2. South African capital flow developments within the international context

After a prolonged period of sanctions during the 1980's, South Africa re-joined the global financialisation drive after its first democratic elections in April 1994. Subsequent capital account liberalisations, and the fact that the country's stock of foreign liabilities was quite low as a result of the sanctions, have contributed to an increase in net capital inflows to South Africa, especially from 2003 onwards. Figure 1 depicts the balance on the financial account as a ratio of GDP – indicating that there were only two periods (2001 and 2003) where this ratio moved into negative territory. As South Africa expanded its international trade and investment relations these inflows proved instrumental in supporting the current account deficit and rebuilding the country's international liquidity position. The current account deficit reflects the shortfall in domestic savings to meet the investment needs of the economy, and hence the need for international capital to augment the shortfall. Between 2003 and 2014 South Africa's average domestic savings rate as a percentage of GDP amounted to 16,1 per cent which was significantly below the global average of 21, 2 per cent.

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[1] Generally FDI is considered to be of a longer-term nature; however certain activities between multinational parent and subsidiary institutional units can be of short-term nature, e.g. trade credits.

**Figure 1: Balance on financial account as a percentage of GDP**
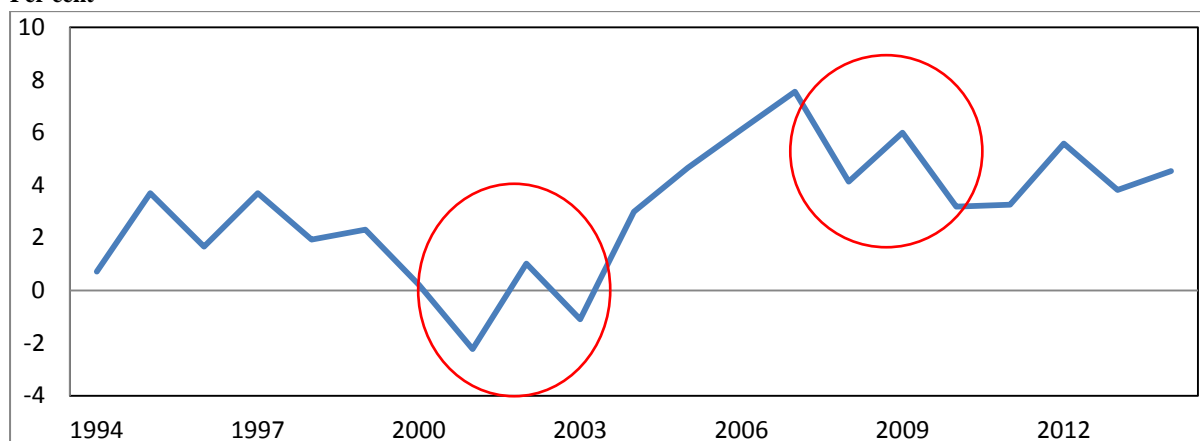
Per cent

Source: SARB

Over the same period South Africa's public sector debt as a ratio of GDP increased substantially from 31,6 per cent to 43,9 per cent – a significant increase, but still much lower than many other developed and developing economies. These developments have thus in effect meant that South Africa's domestic gross fixed capital formation – which is a key requirement for future growth sustainment - has become increasingly reliant on international capital inflows.

Figure 2: Financing South Africa's gross fixed capital formation (ratio to GDP)
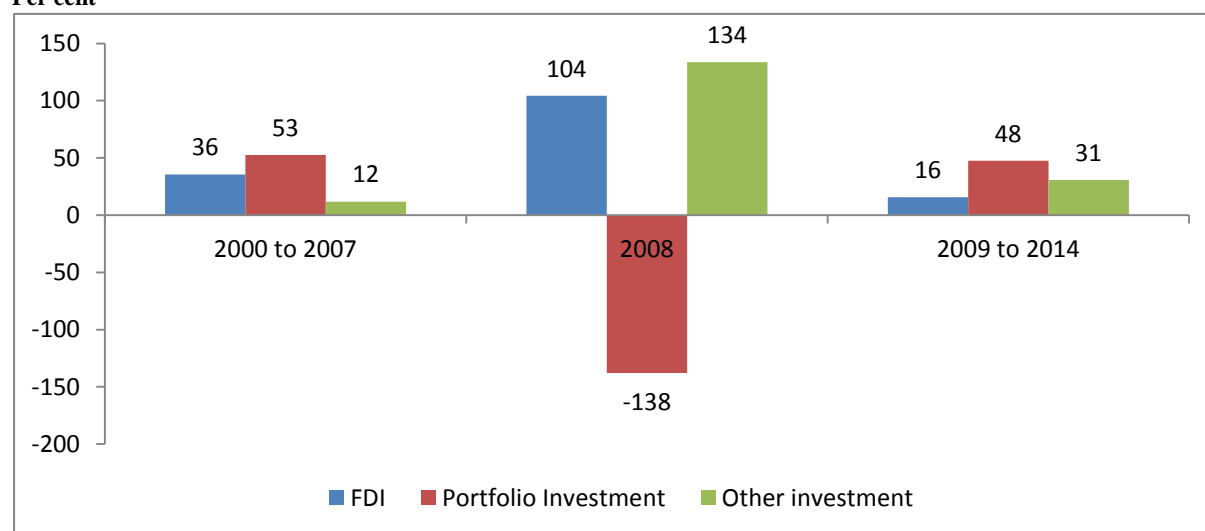
Per cent
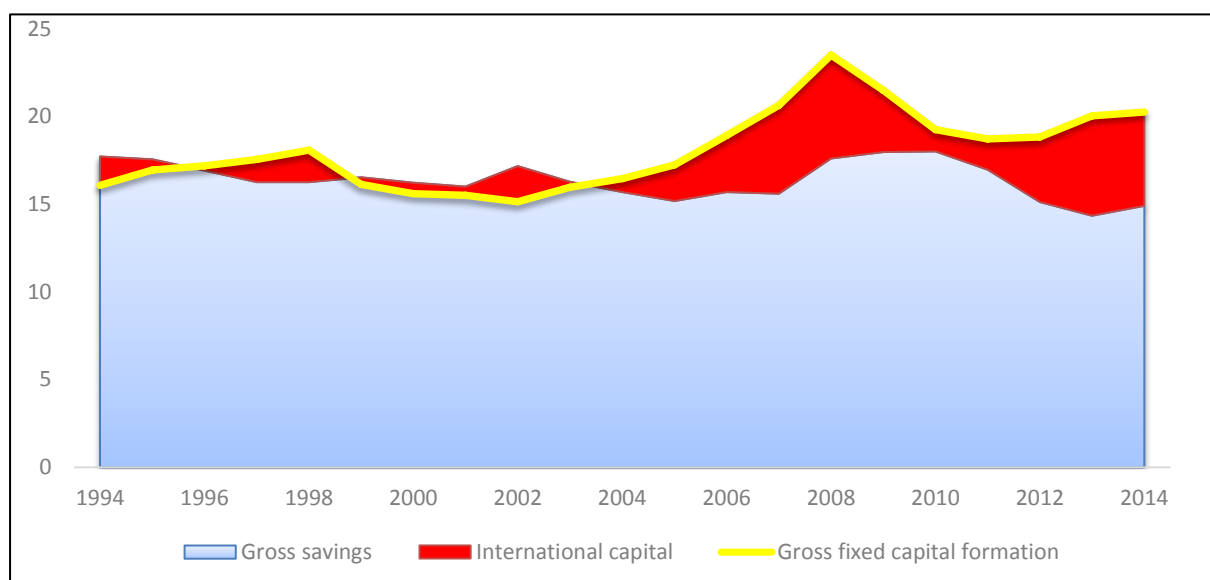
Source: SARB

In principle, access to foreign capital contributes to a country's ability to increase future income streams by undertaking investments whose prospective returns exceed the cost of finance and therefore better smooth consumption over time. Figure 2 illustrates that since 2003 South Africa has consistently, and to an increasing degree, become reliant upon international capital flows to sustain the internal capital investment drive. This in itself, is not

necessarily concerning because the optimal yield seeking behaviour within a global free market economic system should direct capital to those areas where investment opportunities will yield the highest return. It should result in optimal capital diffusion which should, in theory, address global liquidity requirements by providing essential financing to EME's. However, this is not necessarily always the case over the short run due to imperfections such as asymmetrical information structures and international capital markets that are very sensitive to sentiment - often driven by perceived national and international risk factors. Therefore the construct of the international capital liability stock position of an EME becomes critically important. These positions are the result of previous period flows and have a significant impact on future capital flows.

Figure 3: South African net financial flows by functional type[2]

Per cent

Source: SARB

Figure 3 provides an overview of the types of capital that have flowed through South Africa's financial account over the past 14 years. In the period 2000 to 2007 portfolio investment contributed 53 per cent of the total net inflows for the period with FDI second at 36 per cent and other investment relatively subdued at 12 per cent. This picture changes quite dramatically in 2008 – as the financial crisis erupted - when investor sentiment turned negative and portfolio investment recorded an outflow of 104 per cent of the balance on the financial account - this was however fully countered by other investment and FDI inflows. Other investment inflows increased, probably also in part due to South African investors repatriating some of their international funds during the crisis. Regarding FDI, South Africa recorded its highest annual attraction of FDI in 2008, ironically just as the world was entering a period of significant turmoil. This illustrates the relative fluidity of portfolio and to a lesser degree other investment in contrast to that of FDI. After the sharp reversal in portfolio flows in 2008, South Africa once again became primarily reliant on portfolio flows between 2009 and 2014 – representing approximately 50 per cent of the inflows recorded on the financial account. Equally significant is the increase in the share of other investment from 12 per cent

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[2] The period 2009 to 2014 does not add to 100 per cent because derivative flows have not been included here. These flows were not measured in the previous periods.

in the pre-crisis period to above 30 per cent in the post-crisis period. Of specific interest is the relative decline of the FDI contribution (from 36 per cent to 16 per cent) over the same period – as stated earlier this is probably the most stable contributory category which EME's generally seek to attract.

The above-mentioned developments in South African cross-border capital flows have taken place against the backdrop of macroeconomic factors that affect all EME's, such as investor sentiment, inflation expectations, interest rate differentials, commodity price cycles and exchange rate movements. Additionally, country-specific factors such as political stability, structural constraints (such as electricity supply, transport infrastructure and other broad infrastructural development) and growth prospects are key determinants of South Africa's ability to attract future cross-border capital flows as well as its ability to weather surges and reversals in these flows. Due to the fact that South Africa is a major commodity-producing country its economy is generally more exposed to the commodity price cycle than other EME's would necessarily be – with the resultant pass-through effect on capital attraction, growth and exports. (Gruss, 2014) Since the crisis, South Africa's growth has been disappointing, averaging 1,8 per cent between 2009 and 2014, broadly in line with dismal global growth which has been a key driver of the drop in commodity prices and the weakness of global trade volumes. The struggling global growth performance persists even while global monetary policy remains very accommodative with low interest rates and moderate inflation pressures. While there might be uncertainty regarding the timing of global interest rate tightening due to these factors, the USA is still expected to increase interest rates before the end of 2015 – which will decrease the real interest rate differential between South Africa and international markets, possibly adding pressure on South Africa's ability to sustain its attraction of cross-border capital flows and thereby increasing the pressure on the domestic currency.

Developments in the rand foreign exchange market since the financial crisis have also increased the focus on cross-border capital flows and the implications it has for a country's ability to deal with surges and reversals in cross-border capital flows. South Africa's exchange rate regime is one of the most flexible among EME's and foreign exchange intervention is rare. Reserves cover almost 5 months of imports and close to 80 per cent of gross external financing needs. (IMF, 2014). Since the sharp depreciation that accompanied the financial crisis the rand initially strengthened by 45 per cent against the US dollar between October 2008 and April 2011 (34 per cent against a trade-weighted basket of currencies). Since April 2011 the rand has however experienced sharp periods of depreciation with only momentary appreciation, on average depreciating by 44 per cent between April 2011 and May 2015 (35 per cent against a trade-weighted basket of currencies). See figure 4. The developments in the rand reflected both domestic as well as international developments. By the second half of 2011, amidst deteriorating international economic prospects, capital flows receded significantly and thereby eliminating much of the cumulated currency gains since the onset of the financial crisis. This left numerous EMEs with sharply depreciating currencies and the implications thereof. (Gosh et al, 2012) Additionally, domestic wage negotiations and labour disputes towards the end of 2011 and during 2012 contributed to the

rand depreciation as investor sentiment echoed concerns regarding this. However, since 2013, the developments in the rand exchange rate largely reflected global rather than specifically South African influences. According to a study by Investec (2015) the US dollar has strengthened in anticipation of possible monetary tightening in 2015, with higher US interest rates believed to be an indication of both stronger economic growth and stock market performance. This has spurred US dollar strength against the rand, with the rand depreciating by 4 per cent against the US dollar since the beginning of 2015, and 1,5 per cent on a trade weighted basis. Another contributory factor was the declining commodity prices. The further statistically significant influence has been the spread between long term US interest rates and their higher RSA equivalents – this reflects SA risk, or expected rand weakness. The interest rate spread also consistently adds rand / US dollar weakness (or strength when the interest spread narrows). (ZAeconomist, 2015). During periods of volatility South Africa continually resisted increasing capital control measures and has instead gradually built its gross international reserve asset position and international liquidity position, which stood at US$ 46,4 billion and US$41,5 billion at end of May 2015, respectively. Thus, the flexible exchange rate has helped

Figure 4: Movements in the rand exchange rate

Indices: 2010 = 100
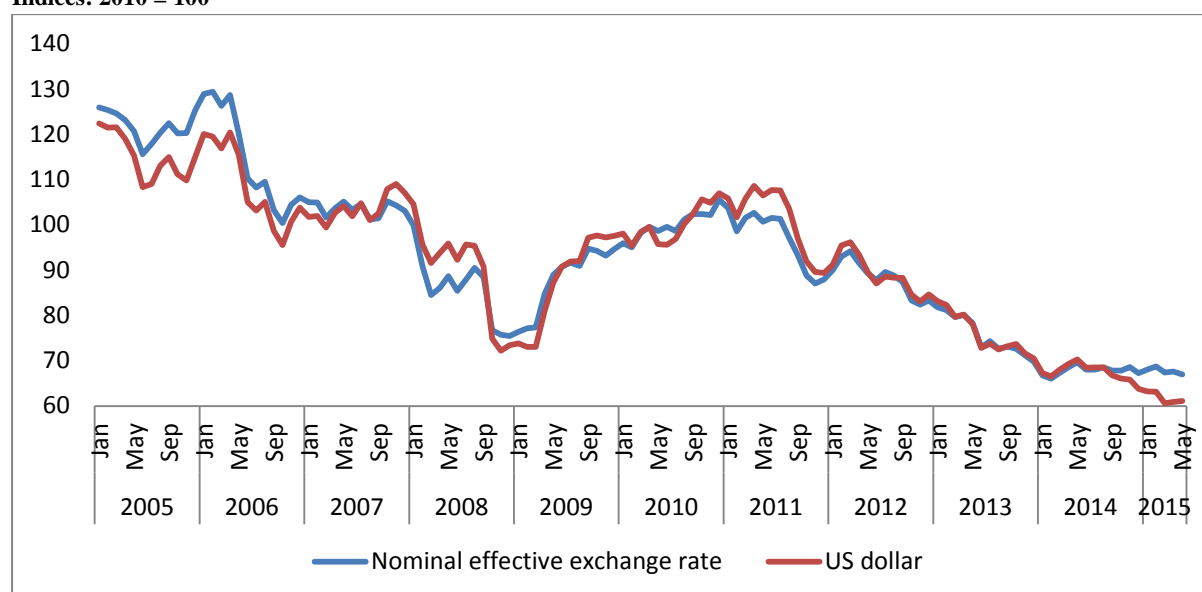
Source: SARB

South Africa manage volatile capital flows, and furthermore the gradual increase of foreign exchange and gold reserves is also aimed at buffering against surges in market volatility. This is in line with developments in various EMEs - many of which have recently increased reserves, taking advantage of renewed capital inflows (IMF, 2014). In addition to this, the BRICS' Contingency Reserve Arrangement would also enable South Africa to draw US$ 10 billion to further bolster the buffer.

Taking the above-mentioned into consideration, an analysis of the structure of the rand FX market based on the 2013 BIS Triennial Survey on Foreign Exchange and Derivative Market

Activity[3] (BIS Triennial Survey) proves very interesting. Results from the 2013 BIS Triennial Survey showed that the average daily turnover in the South African FX market increased by US$7 billion between 2010 and 2013, reaching US$21 billion in April 2013 (where after it continued to increase but at a much slower pace, reaching US$21,3 billion in April 2015). A comparison of the growth in FX turnover between the previous three surveys (2004, 2007 and 2010) shows that the 50 per cent increase between 2010 and 2013 was notably higher than the previous record increase of 40 per cent recorded between 2004 and 2007. Of particular interest is the fact that while the daily average turnover in the South African FX market reached US$21 billion in April 2013, the global daily average turnover in the USD/ZAR currency pairing reached US$51 billion, implying an increased rand market outside the borders of South Africa.

The increasing role of EME's in the global economy stands in contrast to the limited role of their currencies in international transactions – both trade related and financial. However, certain EME currencies have the potential to grow and in some cases have already grown their share of the global FX turnover. In this regard factors that are important for currency internationalisation include economic size, trade and financial networks, macroeconomic stability and policy support. The South African rand (ZAR) is one of the currencies that has the potential to grow its share of global turnover in future, having increased its share by 0,4 per cent in April 2013, and thereby surpassing the 1 per cent mark. (Figure 5)

Figure 5: Change between 2010 and 2013 in global FX market share of selected currencies[4]
**Per cent**
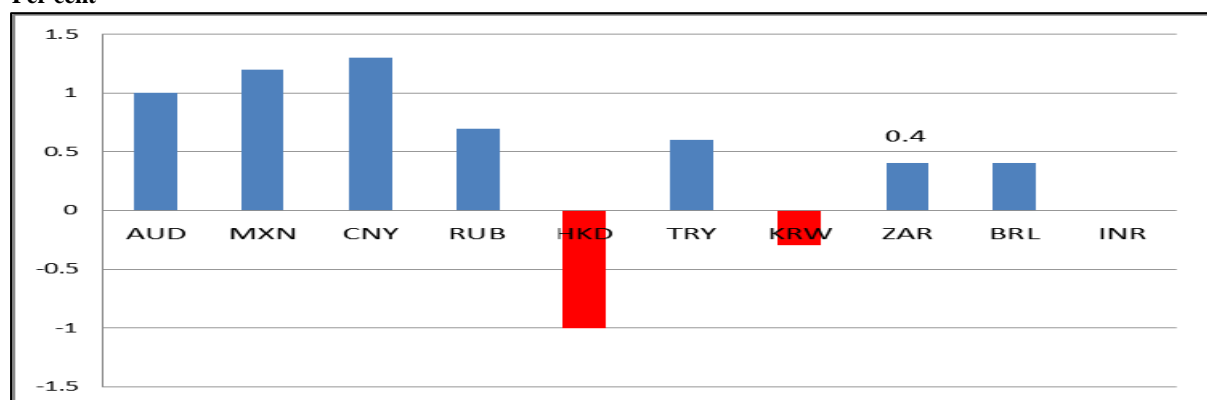
Source: BIS (2013 triennial survey – month of April)

The growing internationalisation of the rand is demonstrated when the share of the USD/ZAR currency pair as ratio of GDP is compared to that of selected countries. (Figure 6) The global turnover in USD/ZAR represented 13,3 per cent of GDP. The only countries that had a higher ratio were Hong Kong (26,2 per cent) and Australia (23,9 per cent).

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3 This international survey is conducted by the BIS every three years, commencing in 1995, with the next survey scheduled to be conducted in April 2016.
[4] AUD = Australia, MXN = Mexico, CNY = China, RUB = Russia, HKD = Hong Kong, TRY = Turkey, KRW = South Korea, ZAR = South Africa, BRL = Brazil, INR = India

Figure 6: April 2013 turnover of selected currencies against the US dollar as ratio of GDP
Per cent
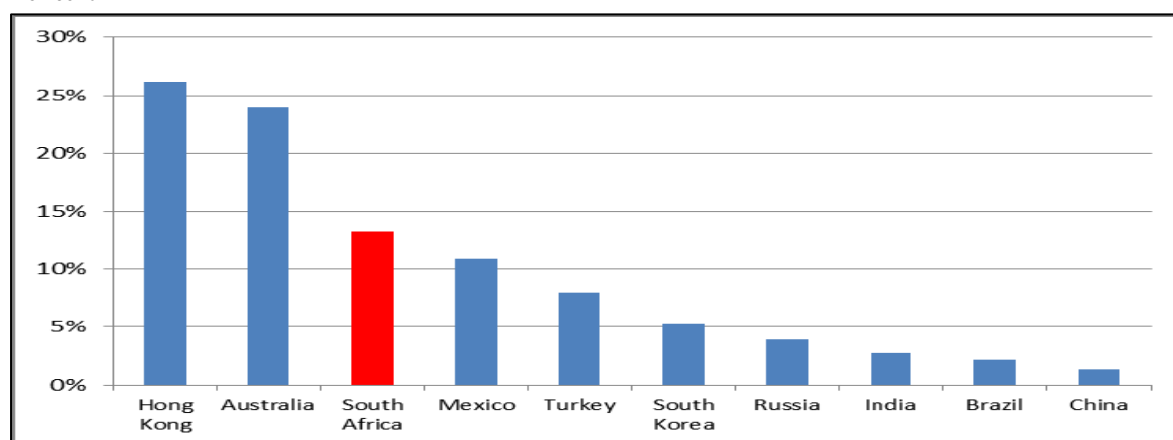
Source: BIS (2013 triennial survey – month of April)

The rand increased its ranking among the top 20 currencies, moving from 20th position in 2010 to 18th position in 2013. The data presented also provide more insight into the size of the rand market being traded outside South Africa. Possible reasons for this could include increased currency invoicing in local currency by South African exporters and also increased use in financial market transactions – e.g. holdings of rand by entities such as hedge funds for speculative reasons. The increased turnover in the JPY/ZAR currency pairing (US$4 billion per day in 2013) could also point to increased carry trade activity. Overall, the South African rand seems to be increasing in popularity as an EME currency of choice. Whilst this bodes well for the liquidity and depth of the rand market it also poses significant policy questions in periods of heightened international uncertainty and risk coupled with surges and reversals in capital flows.

The final part of section two takes into account the development of South Africa's capital flows vis-à-vis its peers. In a global capital market where EME's compete for investor funds it is necessary to analyse a specific country's development in comparison to that of its peers. How has South Africa fared vis-à-vis its international peer countries? A useful manner in which to conduct such a panel analysis is to link it to international credit ratings. In a longitudinal panel study[5] done in 2014 on South Africa's attraction of FDI relative to a panel of peer countries[6], it emerged that South Africa has fared relatively poorly in attracting FDI despite having a high potential to attract FDI. South Africa persistently recorded lower inflows of FDI as a percentage of GDP compared to the comparator countries. There were only two years within the review period that South Africa barely penetrated the inter-quartile range of the comparator group. As mentioned earlier, in 2008, against the backdrop of global FDI inflows recording their second largest annual level of US$1,7 trillion, South Africa experienced record FDI inflows of approximately US$12 billion. However, despite the record inflows, South Africa's inward FDI flows as a ratio of GDP of 3,3 per cent was still considerably lower than the average of 5,9 per cent for the comparator group. In 2009, a

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[5] de Beer and Rangasamy
[6] Panel based on Fitch credit ratings for period 2002, 2005 and 2010

similar situation prevailed with South Africa's FDI ratio of 1,9 per cent edging closer to the inter-quartile range but still significantly lower than the comparator group average of 3,1 per cent.

In a study on the determinants of net private capital inflows to EME's Ahmed and Zlate (2013) find that growth and interest rate differentials between EMEs and advanced economies and global risk appetite are statistically and economically important determinants of net private capital inflows. They also found that there have been significant changes in the behavior of net inflows from the period before the recent global financial crisis to the post-crisis period, especially concerning portfolio inflows – this is partly explained by the greater sensitivity of such flows to interest rate differentials and risk aversion. Figure 7 shows that after a sharp reversal during the global financial crisis of 2008-09, private capital flows to EMEs surged in the aftermath of the crisis to an all-time high of US$1,35 trillion in 2013, thereafter declining to just under US$1,1 trillion in 2014. As a ratio to emerging market GDP the sizeable post-crisis period flows could however not emulate the level seen in 2007, close to 8 per cent of EME GDP, oscillating between three and six per cent between 2009 and 2014.

Figure 7: Private capital flows to EME's

US$ billions   **Per cent of EME GDP**
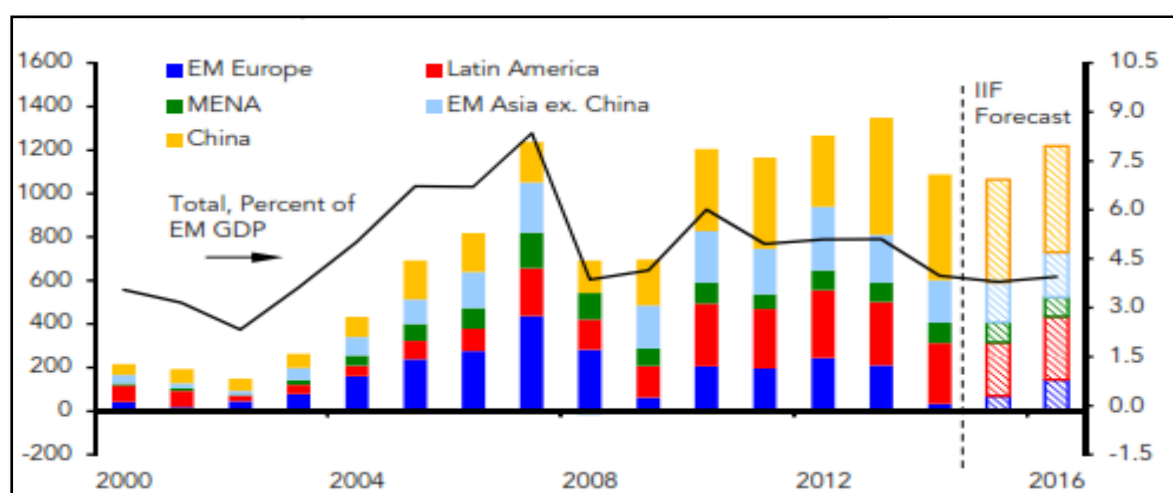

Source: IIF

The experience in South Africa was similar to that of the other EME's as is illustrated in figure 8. Net portfolio flows to South Africa as a ratio of GDP peaked at 8 per cent in 2006, reversed to negative 6 per cent in 2008, at the height of the financial crisis, and thereafter has not pierced levels above 4 per cent yet. This does not however diminish the fact that South Africa attracted significant levels of net portfolio inflows in the post-crisis period – an issue that, as in other EME's, has become a key policy debate due to the vulnerability to reversals accompanying it. Such a development would impact EME's through two channels – firstly through the repricing of their financial asset and liabilities and secondly through currency adjustment.

Figure 8: Net portfolio flows as per cent of GDP

Per cent
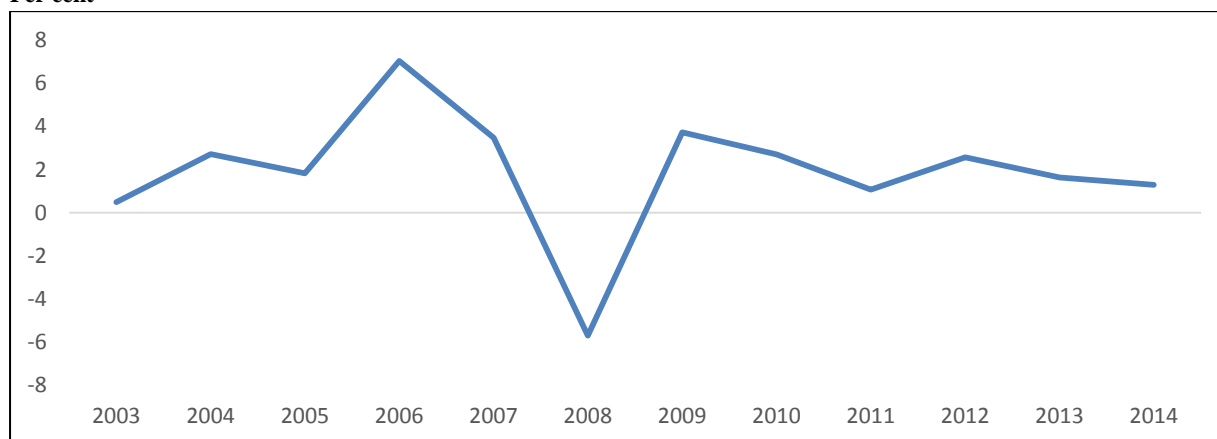
Source: SARB

The International Institute of Finance (IFF, 2015) identifies these vulnerabilities as a key issue for larger EME's that have become heavily reliant on portfolio capital inflows, for example if monetary tightening in large developed economies should commence. However, they believe that the countries which have in the recent past been identified as most vulnerable—Brazil, Indonesia, South Africa, and Turkey - should be able to handle such a tightening better than the 2013 reversal, in part due to some strengthening in policy frameworks and because these countries' financing needs have been reduced by lower oil prices. It is however reiterated that these economies remain exposed to an upwelling in risk aversion – as do other EME's – due to market sentiment relating to policy shifts in developed economies coupled with domestic policy credibility.

3. Closing data gaps and improving methodology

A key concept closely related to the analysis of international capital flows – such as the one in section 2 - is the compilation of the data used for such analysis. The processes, methodologies and structure used to compile international capital flow data, and economic statistics in general, form the bedrock upon which analysis and ultimately policy decisions are based. The country specific application of international guidelines has significant impacts on data consistency, availability and reliability. Thus, the compilation of data and analysis thereof are two different but closely related components of the overall statistics information model. These two components work towards one goal – namely to provide decision makers with the best framework within which to make policy decisions. Any country that subscribes to this model bases its reputation on the quality of the economic statistics produced by its official statistical agencies – typically the national statistical agency and national central bank. The responsibility it places on these organisations revolve around a dedication to actively promote ongoing improvements in their statistical production process in order to accurately measure and portray, economic developments as they evolve over time. Therefore it is not sufficient for a country to have a high quality statistical compilation and dissemination system, but it is also essential to share with users, the knowledge about the production and quality control processes that ensure the compilation of good statistics. (Eurostat, 2011)

In South Africa's case the South African Reserve Bank (the Bank) is responsible for the compilation of various sets of official statistics, one of which is the balance of payments (BoP), containing data on cross-border capital flows. There has been continual improvement and development with regards to the measurement of South Africa's capital flows, which have come about due to:

1.   Adherence to international developments in guidelines and reporting requirements;
2.   Internal statistical quality control improvements (quality and cross-checking); and
3.   Continually improving analysis of measured data and providing feedback to the compilation process.

One of the key objectives in this regard is to reduce, in a systematic and sound manner, the unrecorded transactions in South Africa's BoP. Figure 9 illustrates South Africa's unrecorded transactions as a ratio of GDP before and after certain methodological and measurement refinements were made. This shows that for all of the years since 2005

Figure 9: Unrecorded transactions as a ratio of GDP
Per cent
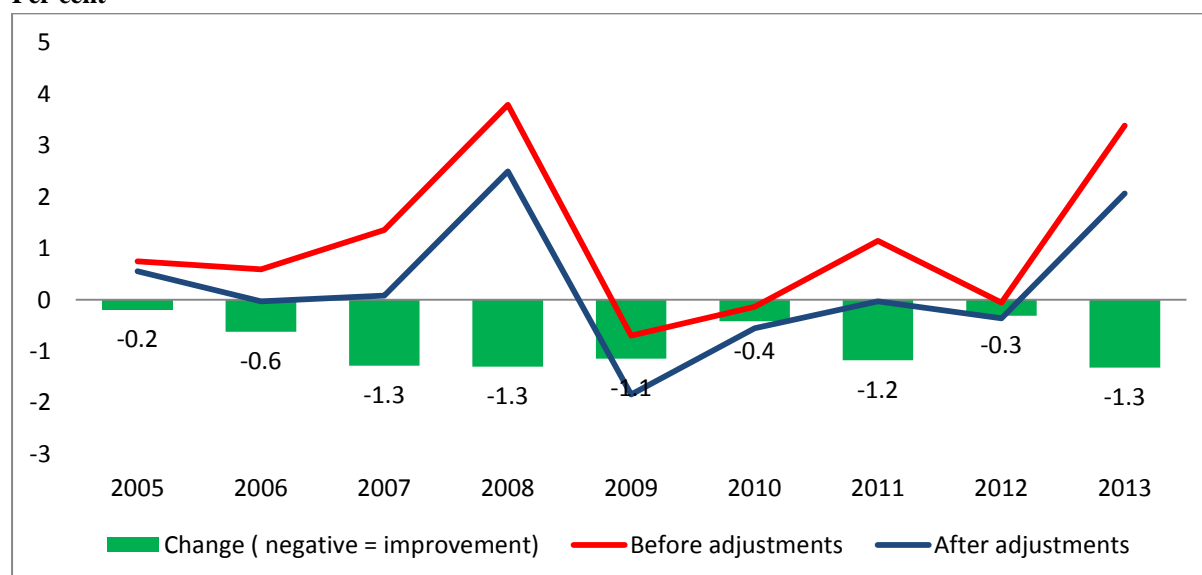
Source: SARB

the adjustments were positive, with the unrecorded transactions decreasing as a ratio of GDP. The improvement in the unrecorded transactions was the product of improvements in methodology and measurement techniques in various sub-components of the capital flows. The key areas of development will now be highlighted briefly.

3.1 Foreign direct investment

One of the areas that have received specific attention since the financial crisis is the methodology underlying the measurement of FDI. Due to the nature of FDI and the

infrequency[7] with which this type of transactions take place for a specific institutional unit it is difficult to measure. Unlike the other three categories which either have formal structures (e.g. exchanges) through which the data is measured or include instruments which generally appear in a relatively repetitive pattern like currency and deposits, trade credits, etc., the nature of Merger and Acquisition (M&A) type FDI transactions is such they are infrequent with regard to a specific institutional unit and could be quite complex. Often the detail and complexity of a transaction have to be understood in order to appropriately include the transaction into the BoP framework. Before the crisis the measurement component as well as the analysis of FDI data in South Africa left ample scope for refinement and extension – which presented a gap to be filled. In South Africa's case the FDI is presented in the traditional functional breakdown which only provides a high level overview between acquisition of assets and incurrence of liabilities. During 2013 the Banks' Balance of Payments Division developed an International Transaction Database (ITD) on FDI. This database measures quarterly FDI transactions via a survey form (Foreign Direct Investment Survey) with the target population being South African and international multinational groups with an FDI presence in South Africa. The type of data obtained from this survey allows for a much richer analysis of the FDI data, with breakdown categories such as:

- Sector of FDI originating multinational (in case of outward FDI);
- Geographical destination (origin) of outward FDI (inward FDI); and
- Type of FDI
  - Equity
  - Debt

This breakdown has for example shown that a significant portion of South Africa's inward and outward FDI is channeled through international financial centers which act as intermediaries, e.g. Mauritius. (SARB, 2014) In addition it has shown that whilst a significant component of South Africa's incurrence of liabilities is in the form of debt, the incurrence of assets rely much heavier on equities. This additional level of detail has for example allowed for the linked analysis of FDI flows in the financial account with dividend receipts and repayments on inward and outward FDI in the current account by geographical center. This analysis is of specific value to EME's where the asymmetrical flows from FDI returns (dividends paid versus dividends received) might pose a financial drain on the economy.

3.2 Portfolio investment

With continuous advancements, increased sophistication and growth of global financial markets, accompanied with market players' continuous system adjustments to accommodate growth, the Bank continually reassesses the methodology underlying the measurement of in- and outward portfolio investment flow statistics. This reassessment is in line with the Bank's aim at integrated statistical quality control and improvement. In 2014 the Bank initiated a project to improve and reconcile data pertaining to non-resident portfolio investment by more

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[7] Specifically related to M&A type FDI activity - because for example a gradual injection of capital by a parent company into a subsidiary or extension of short-term trade financing can occur more frequently and is easier to measure.

closely aligning portfolio flow statistics with that of non-resident stock holding data – a process aimed at narrower convergence with the balance sheet approach (BSA) which has gained prominence after the financial crisis. All relevant parties to the portfolio investment data were involved – these included transfer secretaries, banks, the national treasury, the Johannesburg Stock Exchange and the Central Securities Depository. These role players all contribute, directly or indirectly, to the facilitation of the transacting and accompanying booking processes and to the compilation and dissemination of records related to non-resident bond and equity investments. This significant methodological refinement exercise soon yielded positive results. The revisions effected to the non-resident bond investments data were released in the Bank's June 2014 Quarterly Bulletin and indicated that South Africa managed to attract more bond inflows on a net basis than previously measured and reported – the data was subsequently revised for years 2011 to present.

This exercise was extended to the equities portion of portfolio investments as well, and although still in the process of finalising and computing the net result, the preliminary indication is that more portfolio equity inflows were attracted than previously realised - especially for the year 2014. The reassessment of bond flow data resulted in a reduction in unrecorded transactions and it is foreseen that a similar result will be evident once the equities revision is finalised – a process which should be finalised with the results published towards the end of 2015.

3.3 Derivatives

In anticipation of the revised requirements of BPM6 the Bank mandated a task team to assess and measure the over the counter (OTC) derivatives market in South Africa. Due to the fact that the majority of the OTC derivatives market in South Africa is intermediated by the banking sector the task team commenced with the measurement of derivatives in the deposit taking corporations sector. This entailed the inclusion of additional reporting requirements in the existing balance sheet survey form submitted on a monthly frequency by banking sector institutions in South Africa. The banks were required to provide data from 2010 onward based on the BSA. This requires the banks to submit derivative data broken down by broad counterparty sector for the following categories:

- Opening stocks;
- Transactions;
- Revaluations;
- Other volume changes ; and
- Closing stock

Figure 10 illustrates the net derivative flows from the first quarter of 2011 to the first quarter of 2015. The inclusion of financial derivatives as a functional category in the financial account of the BoP

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Figure 10: Net derivative flows

R billions
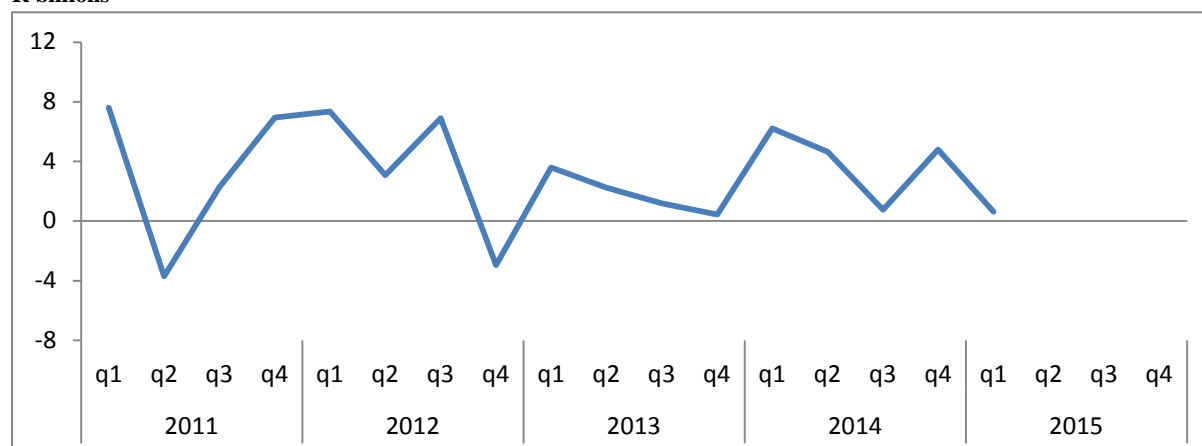
Source: SARB

has partly reduced the magnitude of the country's unrecorded transactions in recent years with the bulk of the flows being net inflows. The only exceptions were quarter two of 2011 and quarter four of 2012. A key future focus area will be the development of an appropriate set of analysis to extract optimal value from the OTC derivative data. This will also support the Banks participation in the BIS Triennial Survey.

3.4 Locational Banking Statistics data

In 2009 South Africa became the 43rd country to start compiling Locational Banking Statistics (LBS) data to be submitted to the BIS. The LBS data provides quarterly data on international financial claims and liabilities of bank offices resident in the BIS reporting countries broken down by currency, sector of counterparty, country of residence of counterparty, and nationality of reporting banks. In this dataset, both domestic and foreign-owned banking offices in the reporting countries report their outstanding positions, including those vis-à-vis own affiliates. The LBS data are compiled using principles that are consistent with BoP and offer rich analytical value which could augment current international capital flow data. In a study on international capital flows Milesi-Feretti et al (2010) utilized the LBS datasets for various countries in an effort to improve the understanding of cross-border financial linkages for the financial sector.

As part of the development of the analytical usefulness of the LBS data South Africa is currently in the process of developing an analytical suite for the LBS data which will focus on the following key areas:

3.4.1 Extension of monetary and credit aggregates

The current suite of monetary and credit aggregates will be expanded to include the following:

▪ In-depth analysis of balance sheet data, with particular focus on:

- Monitoring growth of aggregated and disaggregated (instrument, type of counterparty and residence of reporting institution) balance sheet data;
- Monitoring financial intermediation - measure the size, growth and structure of different market segments; and
- Peer group analysis of banks with common characteristics.

- Internal consistency and quality checks on monetary and credit aggregates by performing a reconciliation analysis between LBS data and other source data on monetary and credit aggregates;
- Contextualizing LBS data within other macroeconomic domains - identifying synergies with external debt and Balance of Payments data – in this regard the LBS data will provide very useful insights into the dynamics of the South African banks' international footprint, asset and liability exposures and currency structure which could be beneficial when analysing its contribution to international capital flows measured in the balance of payments.

3.4.2 Indicators of vulnerability

Data on cross-border exposure can greatly benefit the assessment and understanding of bank systemic risk by providing a benchmark vis-à-vis other countries in terms of both overall market share as well as categorisation provided in the data; such as lending and borrowing sectors and maturity and currency composition. In addition, it serves as a powerful tool for identifying economic trends that other banking statistics cannot capture adequately.

The analytical base will be developed in the following areas:

- Currency breakdowns and mismatches

  The rapid expansion of cross-border investment positions means that currency movements can potentially have large balance sheet effects. The impact of this will vary across countries, depending on the scale of its international balance sheet, its net value position as well as the currency composition of its assets and liabilities. The analytical developments in this component will focus on analysing the composition of the foreign currency exposure of South African banks; determining whether currency mismatches exist and determining the natural foreign currency hedge positions.

- Structural vulnerabilities

  In order to assess structural vulnerabilities of South African banks within an international context it is necessary to express the data in relative terms. The analysis suite will explore ratio analysis such as the size of the banking sector relative to GDP; foreign lending ratio; and borrower concentration ratio to analyse their usefulness in determining the potential impact of banking sector problems on economic activity, the vulnerability of the national banking sector to cross-country spill-over effects, and the diversification of banks' foreign exposure across other countries as indicator of banks' vulnerability to first-round contagion effects.

- Financial interconnectedness and implications for systemic risk

The network analysis perspective can provide a model to map financial interconnectedness and draw implications for system stability. The LBS data is well-suited for studying temporal patterns in financial linkages across countries. This development will draw on the rapidly expanding line of research on applying network analysis tools in order to capture bilateral relationships and describe the South African LBS data in a network context.

3.5. Integrated economic accounts

South Africa is in the process of construction a full set of integrated economic accounts (IEA) based on the guidelines provided in SNA 2008. The Rest of the World (ROW) data is compiled from the International Investment Position (IIP) and BoP data. The IEA is compiled from the BSA that records movements between two stock periods as follows:

$$Opening\ Stock_{T-1} + Transactions_T + Revaluations_T + Other\ Volume\ changes_T = Closing\ Stock_T$$

$$OS_{T-1} + T_T + R_T + OVC_T = CS_T$$

Currently the South African IIP and BoP are largely compiled from different sources and with the integration into the IEA model there will be a movement towards applying the BSA in the IIP and BoP data as well. This should provide improved methodological construct to the international capital flow data provided by these datasets.

In addition it will provide harmonization between ROW flows and stocks and the sectors of the national economy which is based upon the closer alignment between the SNA2008 and BPM6. Given the importance of international capital flows to the South African economy and the cross-checks built into the IEA data it identifies gaps that exist with respect to:

- Missing data; and
- Data methodologies that needs improvement

Thus apart from the refinements and developments done on the specific functional categories of the financial flows, the creation of the set of IEA's for South Africa as well as the development of the LBS data will benefit the overall compilation and analysis of South Africa's capital flow data.

3.6. Conclusion

Based on the above analysis and methodological discussion it is evident that these two different but closely linked components are equally important. The analysis of capital flows against the backdrop of a country's broader macroeconomic situation is of critical importance in the modern era where economies are much more exposed to international surges and reversals in capital flows. These can often be sudden and based on sentiment rather than

underlying macroeconomic construct. It is however also true that EME's need to identify and address their unique domestic developments that could impact negatively on their ability to attract and retain the appropriate type of capital flows. One of the unyielding pre-requisites is that a country that wishes to attract international capital should ensure that the methodological base upon which their statistics are built is sound and flexible enough to adjust to continual changes. This base should produce statistics that deliver a clear and accurate picture of the existing macroeconomic landscape and thereby allow investors to gain a true perspective on what the country has to offer and requires in return.

In this regard South Africa has continually made progress over the past years and has specifically sharpened its approach since the financial crisis - identifying and implementing various methodological refinements and developments to continually improve the accuracy, validity and ultimately the reliability of their international capital flows statistics. This is a key strategic focus for South Africa in order to provide the best possible service to its policy makers, broader statistics users in general and international investors that seek to base their investment decisions on sound, reliable and timeous statistics. If followed consistently and across countries, this approach will contribute to the improved understanding and analysis of international capital flows. With the global economy growing increasingly interlinked and interdependent with each passing year and thereby also becoming more susceptible to contagion and the consequences associated with that, it is imperative that macroeconomic statisticians spare no effort to ensure that the underlying methodology and quality of international capital flow statistics is above reproach.

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IFC Satellite meeting at the ISI World Statistics Congress on *"Assessing international capital flows after the crisis"*

Rio de Janeiro, Brazil, 24 July 2015

South Africa's experience with capital flows since the financial crisis – from measurement to analysis[1]

Barend de Beer, South African Reserve Bank

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[1]   This presentation was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.
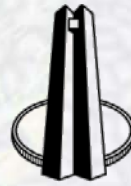
South Africa's experience with capital flows since the financial crisis

From measurement to analysis

Barend de Beer

IFC-BCB-CEMLA Satellite Meeting
24 July 2015
Rio de Janeiro
Brazil

Outline

- South Africa's capital flows within an international context;

- Methodological improvements and reducing data gaps;

- Conclusion

South Africa's capital flow developments within an international context

- Since the 1990s – South Africa generally experienced net capital inflows to finance a persistent current account deficit (currently around 5 per cent of GDP).
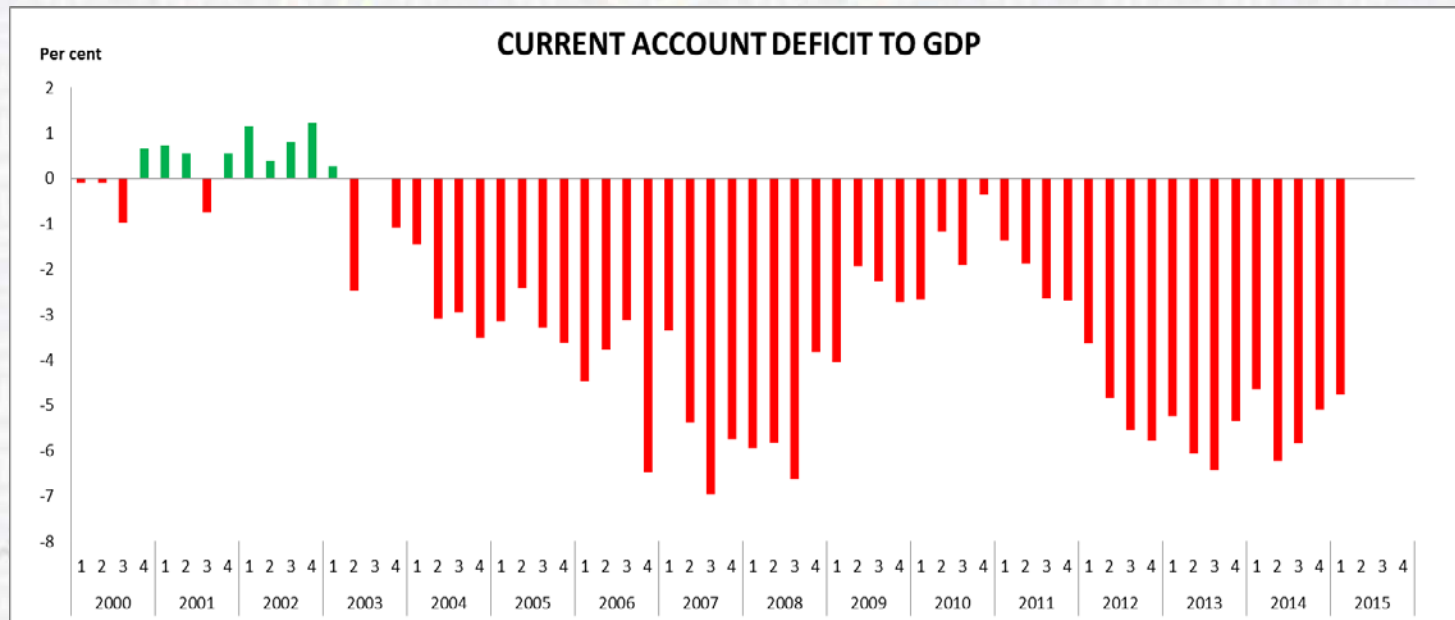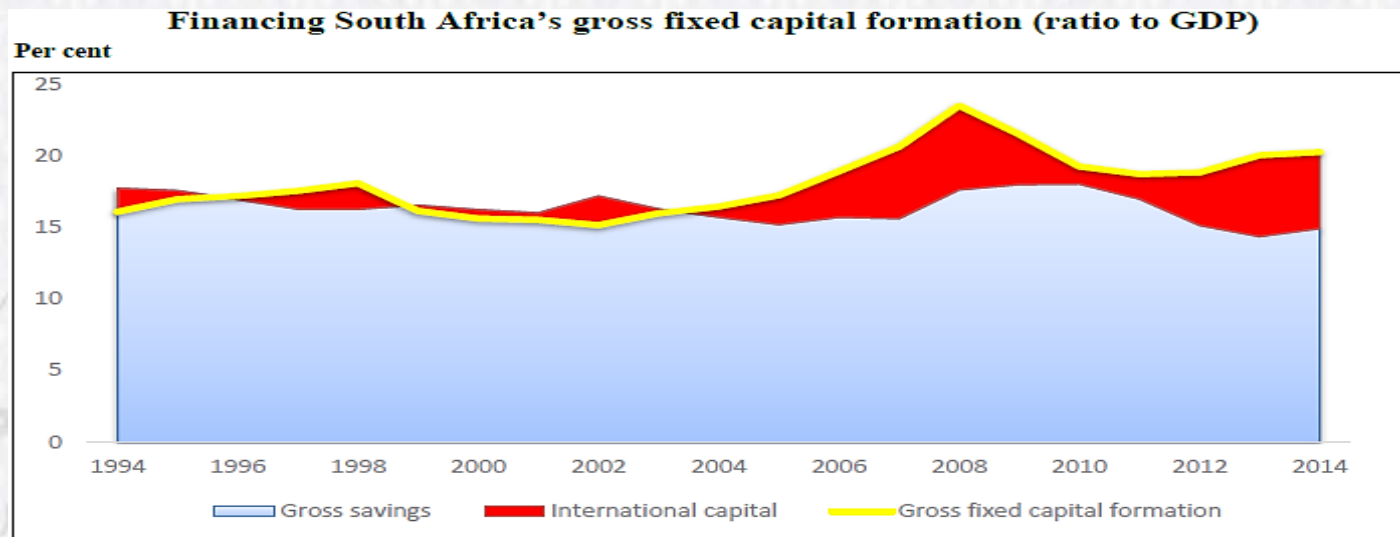

Source: SARB

- In part due to relatively low domestic savings rate – between 2003 and 2014 South Africa's average domestic savings rate as a percentage of GDP amounted to 16,1 per cent which was significantly below the global average of 21, 2 per cent.

- Over the same period South Africa's public sector debt as a ratio of GDP increased substantially from 31,6 per cent to 43,9 per cent – a significant increase, but still much lower than many other developed and developing economies.

- These developments have meant that South Africa's domestic gross fixed capital formation (a key requirement for future growth sustainment) - has become increasingly reliant on international capital inflows.

Financing South Africa's gross fixed capital formation (ratio to GDP)

Legend: Gross savings | International capital | Gross fixed capital formation

Source: SARB

South Africa's capital flow developments within an international context

- The balance on the financial account as a ratio of GDP indicates there were only two periods since 1994 (2001 and 2003) where this ratio moved into negative territory.

Balance on financial account as a percentage of GDP

Per cent
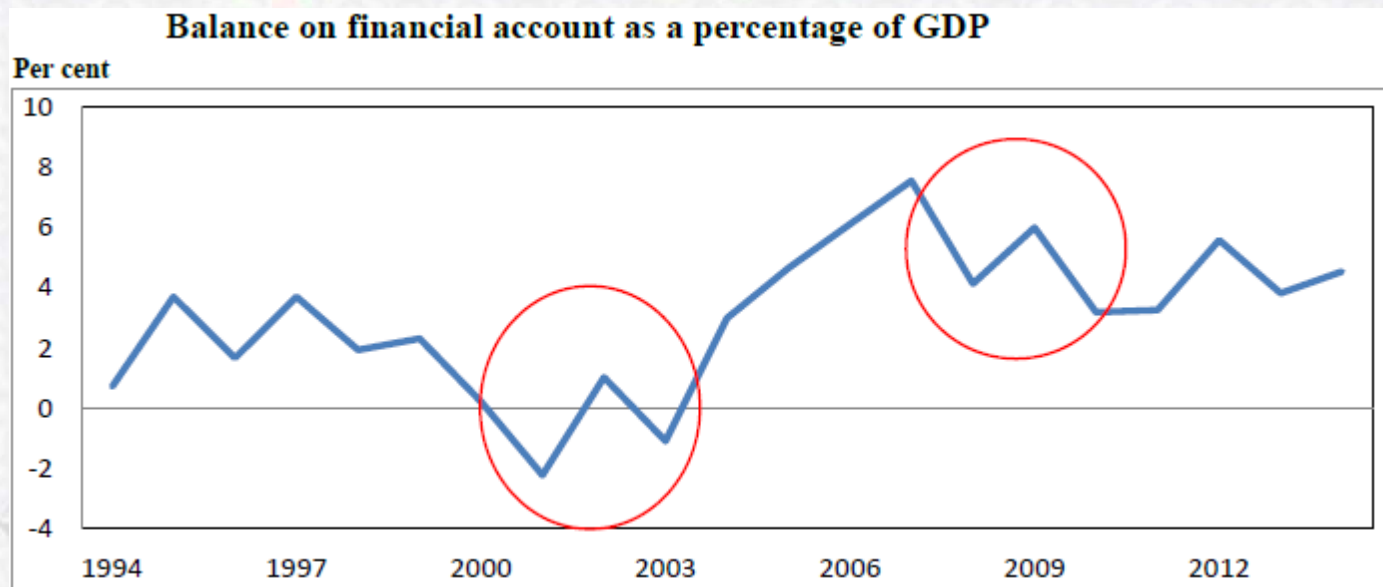
Source: SARB

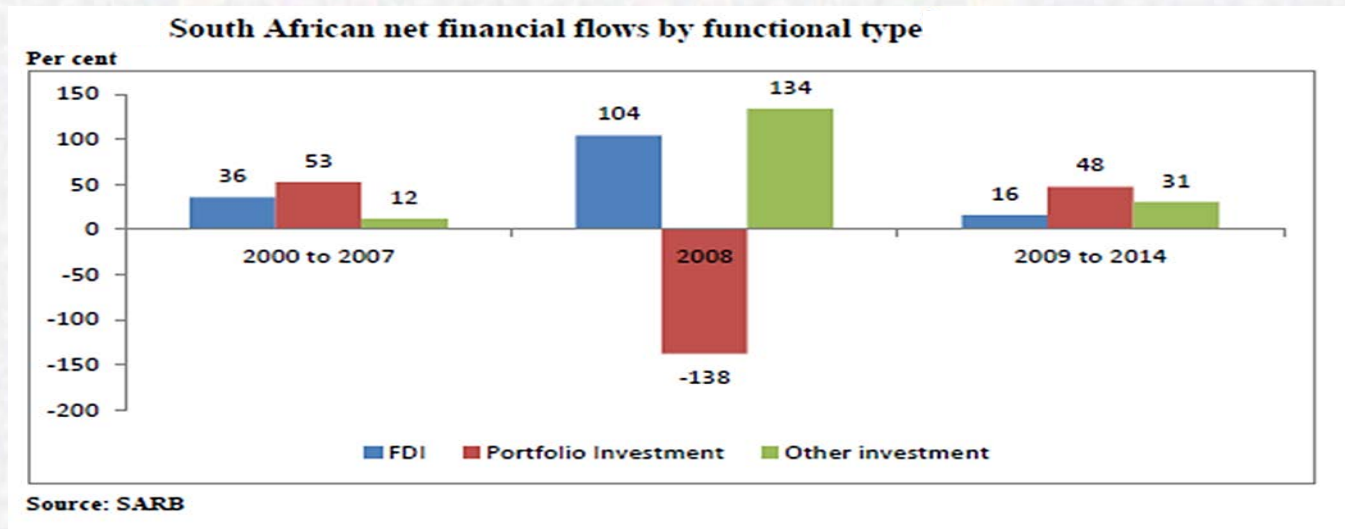# South Africa's capital flow developments within an international context

- So what has the composition of the capital flows to South Africa been since 2000?

South African net financial flows by functional type

Per cent

2000 to 2007: FDI 36, Portfolio Investment 53, Other investment 12

2008: FDI 104, Portfolio Investment -138, Other investment 134

2009 to 2014: FDI 16, Portfolio Investment 48, Other investment 31

Legend: FDI, Portfolio Investment, Other investment

Source: SARB

- Except for 2008, portfolio investment (PI) has been the major anchor in South Africa's international capital attraction;

- The 2008 PI capital reversal coincided with SA's record attraction of FDI which cushioned the sudden capital flow reversal to some extent;

- However, the reality of EME exposure to sudden reversals became very clear.

South Africa's capital flow developments within an international context

Composition of liability portfolio investment flows has changed significantly

Net incurrance of Portfolio Liabilities
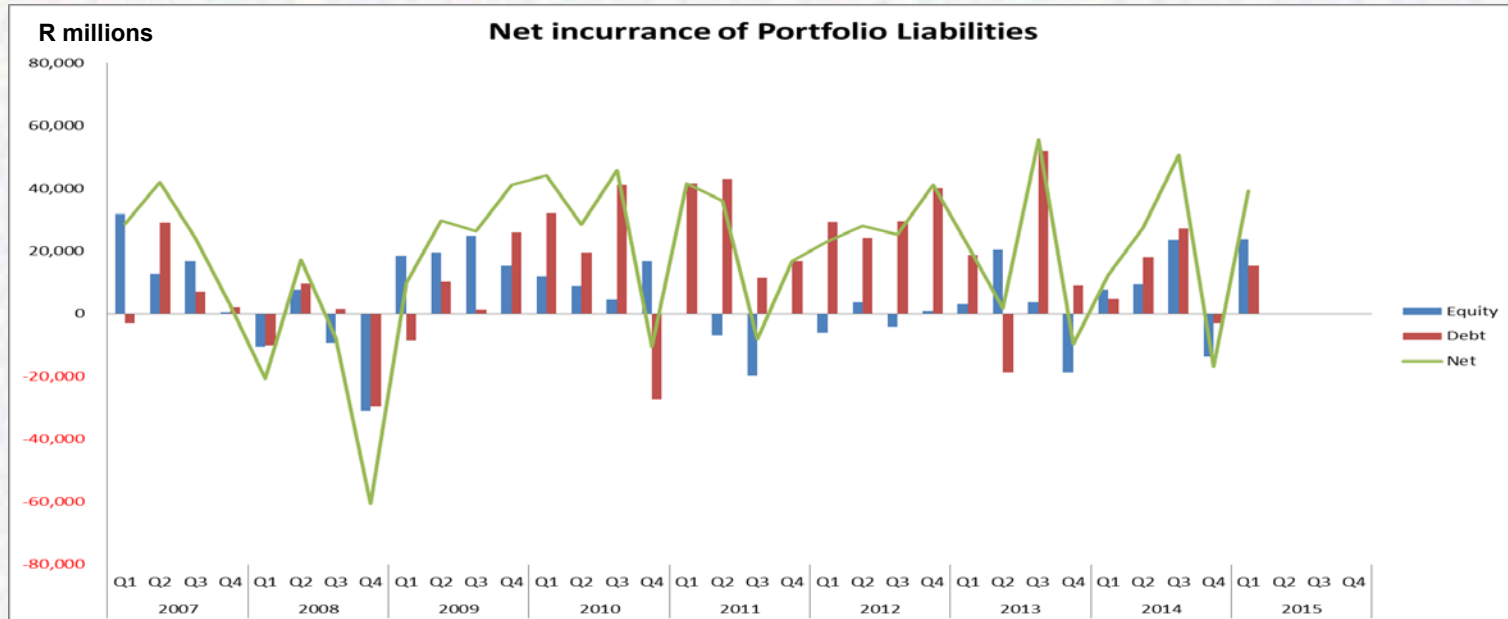
Source: SARB

Unit	Period	Liabilities			Assets		
		Equity	Debt	Net	Equity	Debt	Net
R millions	2000 - 2008	229,400	24,181	253,581	-157,439	-36,899	-194,338
	2009 - current	147,638	454,063	601,701	-122,323	-52,974	-175,297
Per cent	2000 - 2008	90%	10%	100%	81%	19%	100%
	2009 - current	25%	75%	100%	70%	30%	100%

South Africa's capital flow developments within an international context

- For first part of 2000's, mainly flows into the equity markets.

- Net flows into the bond market were small and often funded domestically;

- Since 2009, large inflows into the debt (bond) market by pension funds and long-term investors;

- South Africa constitutes 10 per cent of the Global Markets Local Currency Bond index (GEMEX), and since end Sept 2012 included in the Citibank World Government Bond index (WGBI);

- Low government foreign currency borrowing (around 10 per cent of GDP);

- Foreign ownership of rand denominated SA government bonds increased from just below 14 per cent in 2009 to around 36 per cent in 2014.

- What does this imply for vulnerability to capital flow reversals?

South Africa's capital flow developments within an international context

- In general, South Africa has a relatively low foreign currency exposure on balance sheets of government, households, banks, etc.;

- Banks are relatively less reliant on external funding – and net exposure limited as a result of prudential regulations;

- The country's net investment position is slightly negative.

- Foreign debt ratio of just above 40 per cent of GDP

- Rand denominated component = approximately 56 per cent

South Africa's capital flow developments within an international context

How does South Africa compare with other EME's?

- FDI: South Africa's attraction of FDI relative to a panel of peer countries seems to indicate that it has fared less well in attracting FDI despite having a high potential to attract FDI – resulting in increased reliance on PI capital flows;

- PI: As a ratio to emerging market GDP, the sizeable post-crisis period flows to EME's could not emulate the level seen in 2007 - close to 8 per cent of EME GDP, oscillating between three and six per cent between 2009 and 2014.

  The experience in South Africa was similar to that of the other EME's with net portfolio flows to South Africa as a ratio of GDP peaking at 8 per cent in 2006, reversing to negative 6 per cent in 2008, and thereafter it has not pierced levels above 4 per cent yet.

What about the currency and foreign reserve asset position?

▪ Developments in the rand foreign exchange market since the financial crisis have also increased the focus on cross-border capital flows and the implications it has for a country's ability to deal with surges and reversals in cross-border capital flows.

▪ South Africa's exchange rate regime is one of the most flexible among EME's and foreign exchange intervention is rare;

Movements in the rand exchange rate
Indices: 2010 = 100

Legend: Nominal effective exchange rate — US dollar

Source: SARB

South Africa's capital flow developments within an international context

- Since the sharp depreciation that accompanied the financial crisis, the rand initially strengthened by 45 per cent against the US dollar between October 2008 and April 2011;

- Partially in response to low global interest rates and quantitative easing;

- Since April 2011, the rand has however experienced sharp periods of depreciation with only occasional appreciation - on average depreciating by 44 per cent between April 2011 and May 2015 (35 per cent against a trade-weighted basket of currencies).

South Africa's capital flow developments within an international context

- During periods of volatility, South Africa resisted increasing capital control measures;

- Instead it gradually built its gross international reserve asset position and international liquidity position - US$ 46,4 billion and US$ 41,5 billion at end of May 2015, respectively;

- Reserves cover almost 5 months of imports and close to 80 per cent of gross external financing needs;

- This is in line with developments in various EMEs - increased reserves, taking advantage of renewed capital inflows; and

- BRICS' Contingency Reserve Arrangement would also enable South Africa to draw US$ 10 billion to further bolster the buffer.

Concerns:

- Loss of competitiveness in periods of real appreciation;

- Consequences of excessive volatility;

- Asset price bubbles and credit booms during periods of strong inflows; and

- Vulnerability to sudden stops and reversals associated with balance sheet effects.

South Africa's capital flow developments within an international context

April 2013 turnover of selected currencies against the US dollar as ratio of GDP
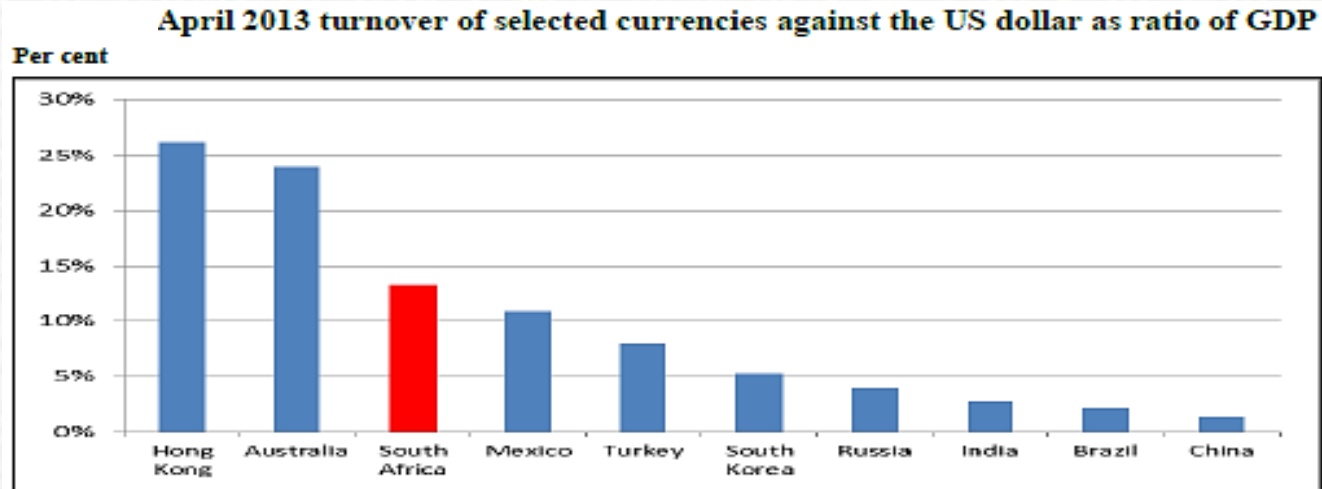
Per cent

Source: BIS (2013 triennial survey – month of April)

- South African FX market increased by US$7 billion between 2010 and 2013, reaching US$21 billion in April 2013, a 50 per cent increase between 2010 and 2013 (deep and liquid market by EME standards);

- Daily average turnover in the South African FX market was far exceeded by the global daily average turnover in the USD/ZAR currency pairing which reached US$51 billion, implying an increased rand market outside the borders of South Africa;

- Implications for currency volatility and management during periods of capital reversals?

South Africa's capital flow developments within an international context

Summary of post-crisis capital flows

- Relatively hands-off approach (no direct controls put in place) because of difficulty to predict usefulness in South African market (difficult to discriminate between good and bad capital);

- In fact, further relaxation of controls on resident outflows (prudential limits act as natural stabiliser);

- No new controls on banks – prudential requirements effective, low foreign funding and strict rules on open position exposure;

- Future stance on intervention will be based on circumstances;

- Deep and liquid FX market – the flexible exchange rate has helped South Africa manage volatile capital flows, and furthermore the gradual increase in pace of foreign reserve asset accumulation is also aimed at buffering against surges in market volatility - foreign reserve assets still below IMF metric;

- Openness , currency volatility and relatively low foreign reserves exposes South Africa;

- Reality - low FDI attraction means reliance on PI;

- Policy has been very vigilant of exchange rate pass-through to inflation;

- Difficult to predict ER movements and inflation impact (challenge for policy);

- During strong inflows – little real sign of credit or asset market bubbles.

Methodological improvements and reducing data gaps

- The processes, methodologies and structures used to compile international capital flow data and economic statistics in general, form the bedrock upon which analysis and ultimately policy decisions are based.

- There has been continual improvement and development with regards to the measurement of South Africa's capital flows, which have come about due to:

  - Adherence to international developments in guidelines and reporting requirements;

  - Internal statistical quality control improvements (quality and cross-checking); and

  - Continually improving analysis of measured data and providing feedback to the compilation process.

Methodological improvements and reducing data gaps

| Component	Development	Implication
1. Foreign Direct Investment	Improved measurement of FDI and creation of International Transaction Database on FDI	1) More accurate measurement of FDI; 2) Richer sectoral and geographical analysis; 3) Improved analysis with other areas – e.g. Capital Account (dividend flows)
2. Portfolio Investment	Closer alignment between portfolio stock positions and flows through targeted measurement intervention with data suppliers	1) Improved data accuracy; 2) Increased awareness of PI importance; and 3) Reduction in unrecorded transactions
3. Derivatives	Comprehensive measurement of SA OTC derivative market (banking sector)	1) Closing data gaps; 2) International alignment; 3) Reduction in unrecorded transactions; and 4) Cross-pollination of other intl. datasets (BIS triennial survey)

Methodological improvements and reducing data gaps

Component	Development	Implication
4. Locational Banking Statistics (LBS) Data	Increasing the analytical usefulness of the LBS data by developing an analytical suite	1) Extension of monetary and credit aggregate data analysis; and 2) Developing indicators of vulnerability - Currency breakdowns and mismatches; - Structural vulnerabilities; - Financial interconnectedness and implications for systemic risk (network analysis); 3) Improved analysis of "Other investment " category of Balance of Payments
5. Integrated Economic Accounts (IEA's)	SA is in the process of constructing a full set of IEA's based on the guidelines provided in SNA 2008 and in fulfilment of G20 requirements	1) Development of balance sheet approach for SA BoP/IIP - closer alignment of stocks and flows; 2) Harmonisation between ROW and other economic sectors (BPM6 and SNA2008 alignment); and 3) Improved analysis (WTW, FOF)

Methodological improvements and reducing data gaps

Ultimate purpose?

- Reduced unrecorded transactions

- More refined classification of identified capital flows

- Enhanced policy usefulness of capital flow statistics and analysis

Unrecorded transactions as a ratio of GDP

Source: SARB
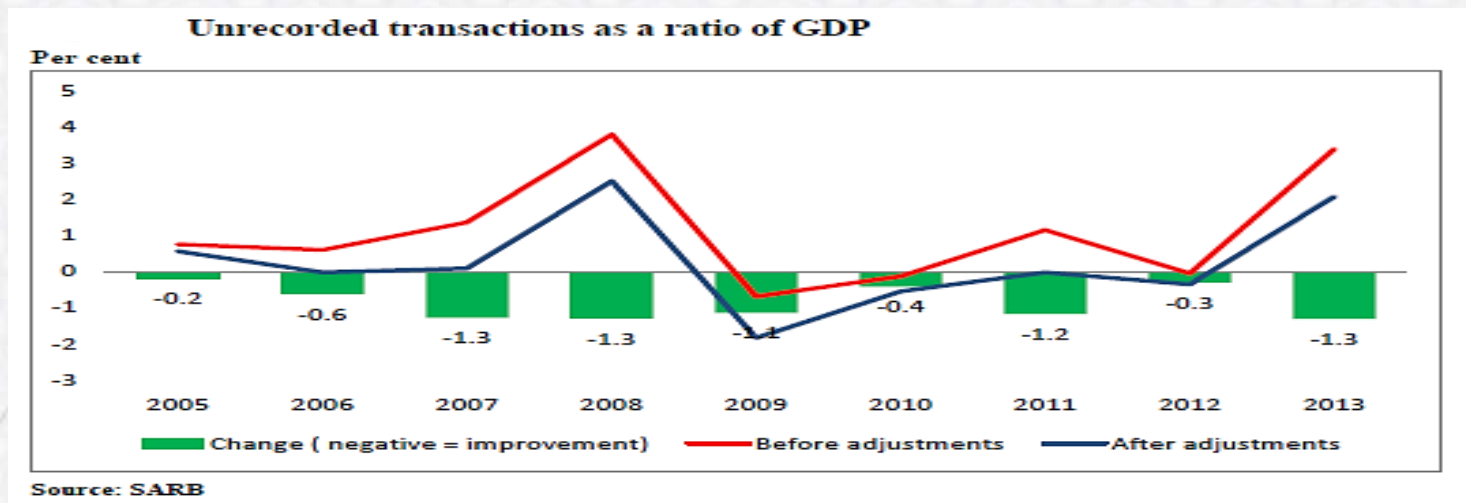
- For all of the years since 2005, the adjustments were positive, with the unrecorded transactions decreasing as a ratio of GDP due to improvements in methodology and measurement techniques in various sub-components of the capital flows.

Conclusion

In summary our view is that…

Policy usefulness

Analysis

Capital flow statistics should be:

1) based on <u>sound statistical techniques and methodology</u>;

2) which is aligned with <u>international guidelines but also</u>;

3) Addresses <u>national requirements</u> and conventions

Accurate analysis based on sound statistics should provide policy focused output

Only useful if based on sound data and development of analysis needs must feed back to required statistics

Process of continual rejuvenation and improvement