A perspective on the South African flow of funds compilation – theory and analysis

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1.   Introduction

The National Financial Account (NFA), also known as flow of funds (FoF), is a financial analysis system that shows the **uses** of savings and other **sources** of funds as well as borrowings of funds by institutions to finance real or financial investment through financial instruments. It represents the systematic recording of financial transactions between different sectors of the economy, with the aim of assisting policymakers in assessing the financial position of the national economy as well as subsectors of the economy. The NFA is an extension of the national income and production accounts, as it provides information on financial flows in addition to real economic activity. The South African Reserve Bank (SARB) is the official compiler of South Africa's NFA.

South Africa has a complex financial system[4] that consists of several institutional sectors. For the purposes of compiling the FoF, economic activity and transactions between resident and non-resident units must be recorded. The rest of the world is defined as the foreign institutional sector while resident institutional units are grouped into the private sector and the public sector. The private sector consists of institutional units not controlled or owned by institutional units in the general government sector. The public sector consists of institutional units in the general government sector and corporate institutional units in the financial and non-financial sectors owned or controlled by units in the general government sector. The public sector therefore consists of the public financial business enterprises, public non-financial business enterprises and the general government.

This paper seeks to analyse how intersectoral FoF lending/borrowing positions have developed since 1992 – focusing on cash, credit, fixed interest securities and shares as the main funding instruments. The ultimate aim is to better understand the financing of South Africa's current account deficit using the intersectoral FoF approach. Intersectoral relationships are analysed among five major sectors, namely, foreign, monetary authority, financial intermediaries, government, non-financial corporations and household. The paper begins by defining the theoretical framework of FoF. A brief outline of FoF compilation in South Africa (the balance sheet approach) and in other countries follows. Finally, relations and developments among various sectors are analysed using major instruments before drawing conclusions.

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[4]   "Financial system" refers to the financial institutions, processes, rules and regulations forming the South African financial sector.

2. FoF theoretical framework

The South African FoF framework presents the data in two dimensional matrices where rows (*x*) represent transactions and columns (*y*) represent sectors. Net increases (positive values) or decreases (negative values) are shown at each cell (*xy*) to represent flows in transaction *x* by sector *y* at a specific point in time. Most countries use this format, differing only in the number of transactions and/or sectors presented.

The FoF framework used by the SARB is similar to the one suggested by the International Monetary Fund in the System of National Accounts (SNA) and Monetary and Financial Statistics Manual (MFSM). The main difference is that the SARB analyses its data using the balance sheet approach as opposed to the transaction approach. The balance sheet approach calculates flows based on changes in balance sheet positions of institutions, while the transaction approach calculates flows based on detailed transaction data.

The data are presented in terms of **sources** and **uses** of funds. These data pieces are seldom equal, hence the need to process individual data pieces during compilation. Since June 2009 the SARB has published the quarterly FoF tables in its Quarterly Bulletin every quarter with a lag of two quarters, and the full preceding year is published every June. Only the flow data as opposed to stock data are currently published.

The FoF consists of five main economic sectors (labelled A–E below), which are subdivided into 22 institutional groupings or 11 sectors (labelled 1–11 below) of the economy. It covers 32 non-financial and financial transaction items. Source data formats include hard copies, spreadsheets, time series data and electronic reporting systems. The following is a detailed breakdown of the FoF structure in South Africa:

A. *1.* **Foreign sector**

B. **Financial intermediaries**

    2. *Monetary authority*

        2.1 South African Reserve Bank

        2.2 Corporation for Public Deposits

    3. *Other monetary institutions (banks)*

        3.1 Land bank

        3.2 Private banks

        3.3 Mutual and post office savings banks

    4. *Public Investment Corporation (PIC)*

    5. *Insurers and retirement funds*

        5.1 Long-term insurers

        5.2 Short-term insurers

        5.3 Public pension funds

        5.4 Private pension funds

    6. *Other financial institutions*

        6.1 Trust companies

        6.2 Unit trust

        6.3 Finance companies

        6.4 Participation bond schemes

3.　　　FoF compilation in South Africa and abroad

A contra-entry accounting method is used to record transactions. Each of the 22 institutions is first balanced within itself before the two closely related processing steps (discussed below) are performed. This compilation procedure is not highly followed around the world (see case studies below). The balanced individual institutions are consolidated into 11 sectors. The data are then transferred manually to a final processing spreadsheet. The final processing spreadsheet is a semi-automatic macro-driven tool for aligning transactions and making alterations to figures that may have been wrongly recorded in the database from source files. The two FoF processing steps are discussed below.

Step 1 of the processing involves making sure that corresponding sectors have the same sources and uses by using the macro-driven spreadsheet. In order to balance the data between any two sectors for any transaction, the following information should be taken into account (the tables need not balance to zero during this phase):

> *Which of the compared sectors is actively involved, as part of its main business activity, in the transaction in question?*

> *How much is the deviation of each sector's data piece from the guide figures as published in the SARB* Quarterly Bulletin *balance sheets? (A guide document with specific item-by-item notes and reminders is used during the data processing phases.)*

> *Since it is impossible to have a perfectly balancing economy due to many factors including timing in reporting and general errors, the data may need to be adjusted using financial market performance trends, source data integrity of the sectors and economic intuition of the compiler(s).*

Step 2 of the processing involves incorporating savings and investment data into the final spreadsheet. While step 1 deals with the financial sector data or bottom-up calculation of the net lending/borrowing position, step 2 deals with the real sector data or top-down calculation of the net lending/borrowing position. The detailed data processed in step 1 must therefore agree with the new data brought in during step 2. There are always some minor adjustments made in the balancing items. In the South African case the error has historically been

corrected in the financial sector data (step 1 data)[5]. The tables must balance to zero after step 2 has been completed.

The two kinds of problems that are encountered during the processing of the FoF are natural drawbacks and artificial drawbacks. Natural drawbacks are inherent problems that may not be detected or may only be picked up late in the processing stage. These problems may reveal that the data used are incomplete or incorrect, eg related to accuracy of data and reporting timing. Artificial drawbacks are problems that may be resolved and/or reduced before or during processing. If resolved, these problems may translate into improved final published information and may enhance data coverage as well as asset revaluation.

South Africa benefited from the experiences of other countries (particularly first-world countries) and improved the compilation of its own flow tables, as these countries have been publishing their flows for many decades. Case studies from the United Kingdom (UK), Sweden, Canada and Portugal are briefly examined below, outlining how they have been compiling their flows over time.

In the case of the United Kingdom, the Office of National Statistics (ONS) prepares the flows. Its FoF unit specializes in coordinating the data received. Sources of data include the Bank of England, *Annual inquiry on foreign direct investment and other financial institutions*. There is an act that compels institutions to submit information to the ONS.

The structure of the tables corresponds to the structure of the source data forms. Stock data levels and flow data levels are shown in separate tables. The flows are compiled and presented in a roll-up format in a tailor-made database system called WinCSDB. Data and calculations can be done and viewed online. During compilation, missing data points are derived. Several meetings involving all parties concerned are held to reconcile data and to investigate large data movements. A possible drawback in the UK system is that data collection and FoF compilation are done by different parties. This may lead to data being wrongly adjusted during the "cleaning up" process.

In the case of Sweden, the sources of data provided to the Statistika Centralbyrån (SCB) are mostly supervisory institutions, eg the Tax Board, National Debt Office, etc. The data collection unit is separate from the data processing unit. Non-responding institutions are kept constant. Some industries are sampled while others are surveyed fully. Institutions are compelled by law to submit information and may even lose their licences if they refuse to do so. Although calculations on the data can be updated if desired, the system used is relatively inflexible and it may take some time to update data.

Data processing takes place in Excel. All data queries are done via Access. PAX (PC-Axis) is used to check trends in the data. Several meetings involving all parties concerned are held to confirm the data. Revaluations are done to shares, bonds and all assets linked to shares. Although discrepancies between the financial and the real sectors are not corrected, the national accounts data are accepted as official. Residuals or balancing items are calculated only in the yearly tables and not quarterly. Again a possible drawback in this system is the separation of FoF compilers and data collectors. Furthermore, keeping forms constant may lead to incorrect statistics.

In the case of Canada, sources of data for Statistics Canada include the financial and non-financial private corporation sector, the public institution division (public enterprise and government) and the income and expenditure accounts (quarterly and annual samples). The FoF unit specialises in coordinating the data received. Although some data are sampled, most of the surveys are universal. Legislation compels institutions to submit information. The

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[5]   This is not set in stone – the error can be corrected on either side of the compilation.

data are presented in annual and quarterly tables and data updates are done easily and quickly.

Data processing takes place in a system called FAME. The balancing of sectors in the master database depends on the credibility of data sources. Some data are accepted without any changes, while others are brought into line with previous trends. Several meetings involving all parties concerned are held to confirm the data and adjustments can be made on either the real or the financial side of the data (which is more in line with FoF compilation principles). Stock-to-stock figures are calculated or derived if they do not exist. A drawback is that stock-to-stock analysis may be difficult if detailed transactions are not available.

In the case of Portugal, the national financial accounts are compiled by the Bank of Portugal. The FoF unit specializes in coordinating the data received. There are several legislative arrangements and understandings with other institutions, such as the National Statistical Office (Instituto Nacional de Estatística – INE), that are in place to assist in compelling respondents to submit information. The in-house security-by-security database enhances the sector identification process significantly. Data processing takes place in a system developed in-house called Mascot. Estimating counterparty information is an important aspect of the compilation. The data are presented in monthly, quarterly and annual tables and are published at the level of five main economic sectors. A drawback is that estimated data require constant revisions.

4. Intersectoral relationships in the South African FoF

Between 1992 and 2007, South Africa had only three surplus current account positions. This is not too surprising, given the developing state of the country and its future infrastructural requirements. The nature of financial and macroeconomic reforms since the 1990s entailed measures aimed at reducing the budget deficit, gradual relaxation of exchange controls and increased global participation by institutional investors as well as enhanced market entry of foreign banks in South Africa. These and other similar developments gave rise to South Africa's current account deficits. There was a brief interruption in 2002 owing to financial outflows, probably as a result of the 11 September 2001 crisis. However, deficits have widened further since 2003 as net foreign liabilities have increased.

Figure 1

South Africa's net lending/borrowing position
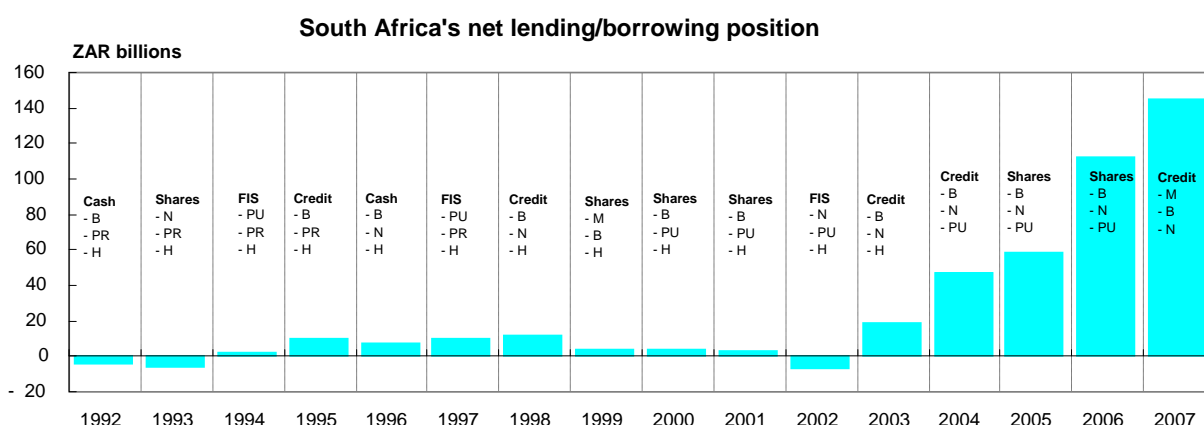
Legend: FIS = fixed-interest securities (see section 4.3); F = foreign; M = monetary authority; B = banking; N = non-banking financials (B and N form financial intermediaries); G = government; PU = public non-financial enterprises; PR = private non-financial enterprises (PU and PR form non-financial business enterprises); H = households.

Throughout the period covered in Figure 1, the developments in the net lending/borrowing position have been driven by robust issuance of shares by public non-financial enterprises and strong credit extension by banks. Naturally, non-bank financials played an important intermediation role in this process.

The following sections investigate the role of cash, credit, fixed-interest securities and shares in financing the country's mostly net borrowing position. This role is analysed across the main sectors in the economy, namely, foreign, monetary authority, financial intermediaries, government, non-financial corporations and households.

4.1 Cash

Cash plays an integral part in the smooth functioning of any economy. It is a basic building block of any financial system. For the purposes of this analysis, cash is made up of the following subcategories:

- Cash and demand deposits

- Short/medium-term deposits

- Long-term deposits

- Deposits with other financial institutions.

Figure 2

Total net borrowing/lending – cash

■ Foreign sector ■ Monetory authority ■ Financial intermediarie ■ Corporate business enterprises
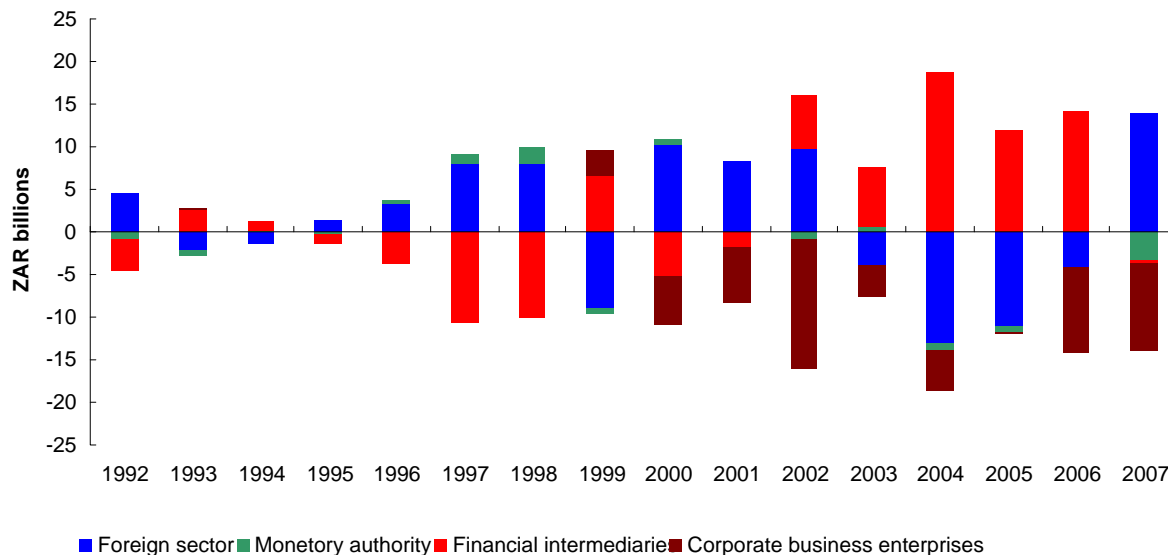
As depicted in Figure 2, the main sectors that participated in the use of this instrument were the foreign sector, financial intermediaries and private non-financial enterprises. From 1992 to 2007 the foreign sector recorded net inflows of cash for seven out of the 16 years. This net inflow to the foreign sector was reversed in 2007, partly reflecting the increased activity in the operations of South African banks and non-financial corporations since 2002. This was in line with the increased globalisation of business operations in which South African entities fully participated during this period.

Deposit activities often form the foundation of cross-border investment strategies – direct or portfolio – and this increase across the four sectors since 2000 supports the evidence of an expanding emerging economy, both within and outside the borders of the Republic. Since the turn of the century, emerging economies like South Africa have reported record economic growth rates as world demand increased and productive assets were mobilised in these economies to meet this demand. A key component of such an expanding economic period is sustainable and sufficient levels of liquidity. The FoF data on cash supports this view, reflecting increased liquidity levels both between domestic sectors and the foreign sector and among domestic sectors. Once the international credit crunch period is over, the intersectoral FoF data will probably show a different picture following the drying-up of liquidity and the infrastructure expansion problems that followed. Early indications are that this is partly revealed in the 2008 FoFanalysis, and more is expected in the 2009 FoF data.
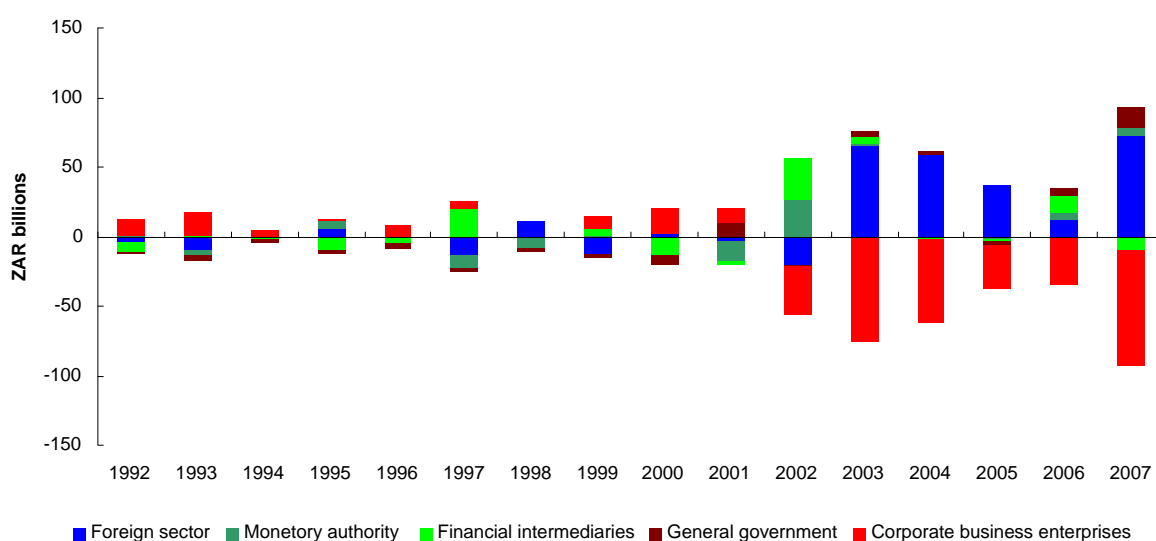
4.2   Credit

The extension of various forms of credit to facilitate real and financial transactions is the second major building block in the modern capitalist economy. For the FoF analysis, credit is made up of the following subcategories:

- Bank loans and advances
- Trade credit and short term loans
- Long-term loans
- Mortgage loans.

Within the intersectoral FoF analyses, this instrument category forms an integral part in understanding how the major domestic sectors of the economy and the foreign sector finance their positions. Since 2000, the South African economy has been expanding at a fast pace and participating fully in the high rate of global integration. As domestic savings and investment were not sufficient to support this level of expansion, the foreign sector played an instrumental role in facilitating the exceptional growth that was witnessed. Figure 3 supports this view.

Figure 3

**Total net borrowing/lending – credit**

Since 2005, the foreign sector contributed ZAR 246 billion worth of net inflows to the South African economy in the form of credit to the domestic sectors. A significant portion of these

inflows were in the form of trade credit provided to South African non-financial corporations to facilitate their expanding operations. A significant portion of this was extended by large multinational enterprises to their South African subsidiaries as part of a drive to increase their global footprint via decentralised production and operation facilities. Another important component of this drive was increased global merger and acquisition activity where multinational corporations actively restructured their portfolio of companies to suit their core focus areas. Credit extension plays an integral part in such a process and numerous South African companies participated in this process, both as targeted companies and as acquirers. A good example of this is the drive of private equity funds to establish, grow and restructure their portfolio of South African companies since 2003, intensively utilising some form of credit across various sectors of the economy.

4.3   Fixed-interest securities

Fixed-interest securities are defined as investments which pay a fixed rate of interest and include investments in government or institutional bonds, treasury bills and other loan stock and preference share instruments. Following macroeconomic policy adjustments and the political transition in 1994, investment opportunities prevailed in South Africa and economic agents diversified their portfolios over various asset classes. At a time when globalisation was gaining momentum in the early 1990s, foreign direct investment improved in South Africa. Between 1992 and 1999, the general government and non-financial business enterprises recorded a net borrowing position of ZAR 74 billion, which was mainly incurred by issuing fixed-interest securities.

Figure 4

Total net borrowing/lending – fixed-interest securities
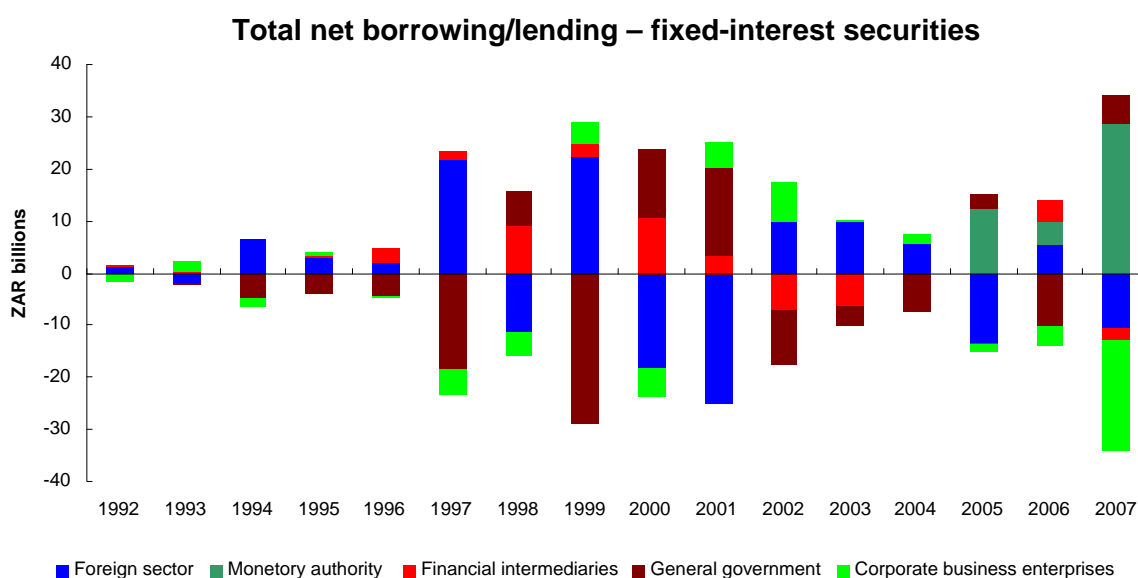
The main instrument used to finance the deficit position of South Africa in 1994 and 1997 was the issuance of long- and short-term government bonds by general government, while non-financial business enterprises issued bills and reduced debt. From 1992 to 1997 foreign investment inflows into fixed-interest securities amounted to ZAR 35 billion, supporting the average domestic economic growth of 2.1 per cent between 1992 and 1997.

Similarly, following the introduction of the inflation targeting framework in 2001, recovery in the exchange rate and brief periods of declining inflation and interest rates, the demand for domestic fixed-interest securities by the foreign, monetary and financial intermediaries

sectors remained buoyant in line with declining bond yields. From 2000 to 2007, the foreign, monetary and financial intermediaries sectors purchased fixed-interest instruments in the amount of ZAR 31 billion, ZAR 45 billion and ZAR 18 billion, respectively. Overall, the net acquisition of fixed-interest instruments by the foreign, monetary and financial intermediaries sectors accounted for 0.6 per cent of GDP. The main issuers were the general government and non-financial business enterprises.

4.4   Shares

Shares are defined as risky asset investments that generate income through dividend payments as determined by the stock price and include ordinary shares. The foreign and financial intermediaries sectors provided the main source of funding for South Africa through their acquisition of shares issued by non-financial business enterprises.

Figure 5

Total net borrowing/lending – shares
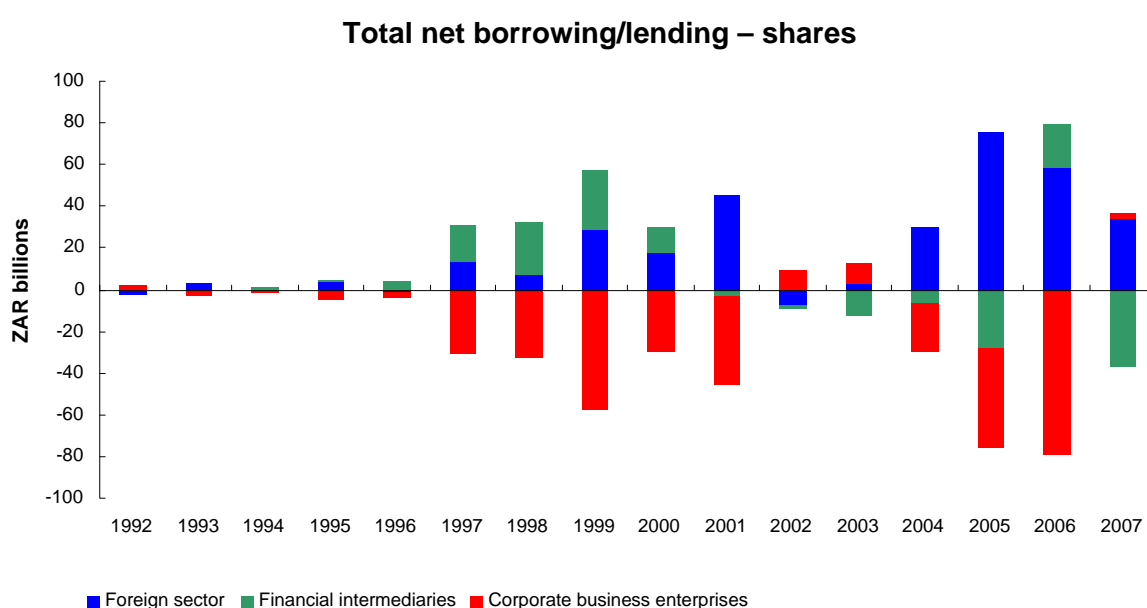
The domestic non-financial business enterprise sector used a window of opportunity provided by access to international financial markets to obtain funding by issuing shares. The bulk of the share issue was acquired by the foreign and financial intermediaries sectors, providing funds in the amount of ZAR 320 billion and ZAR 110 billion, respectively, over the period 1992–2007 and representing 2.1 per cent and 0.7 per cent of GDP. Notwithstanding the emerging market crisis in 1998, the foreign sector played a vital role in equity investment in South Africa, as global financial markets deepened and economic growth gradually improved.

The non-financial business enterprise sector's issuance of shares amounting to ZAR 353 billion, or 2.4 per cent of GDP between 1992 and 2007, makes it a significant net borrower of funds in South Africa. During the period 1992–2007, portfolio capital flowed into South Africa in line with significant increases in share market turnover associated with buoyant commodity prices and stronger international markets. However, the foreign sectors' role in equity funding decreased by 41.7 per cent from 2006 to 2007, mainly as a result of the financial crisis in developed financial markets. Subprime mortgage lending in the United States imposed capacity constraints and prohibited access to credit markets, and as share prices fell, foreign investor behaviour changed. Economic agents reallocated their financing surpluses towards relatively less risky asset classes such as cash and bonds.

5.   Conclusion

The compilation of the South African FoF matrices is a complex exercise, but it has benefited from the experiences of other countries and has improved over time. The intersectoral FoF approach was used to analyse the net lending/borrowing positions of the main sectors in South Africa, thereby offering a perspective on the financing of the current account position. Of the four main instruments analysed, namely, cash, credit extension, fixed-interest securities and shares, the issuance of shares by non-financial business enterprises and credit extension by financial intermediaries have been strong drivers of the net lending/borrowing positions of domestic sectors, and this has largely mirrored the current account position of the balance of payments in South Africa.

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