

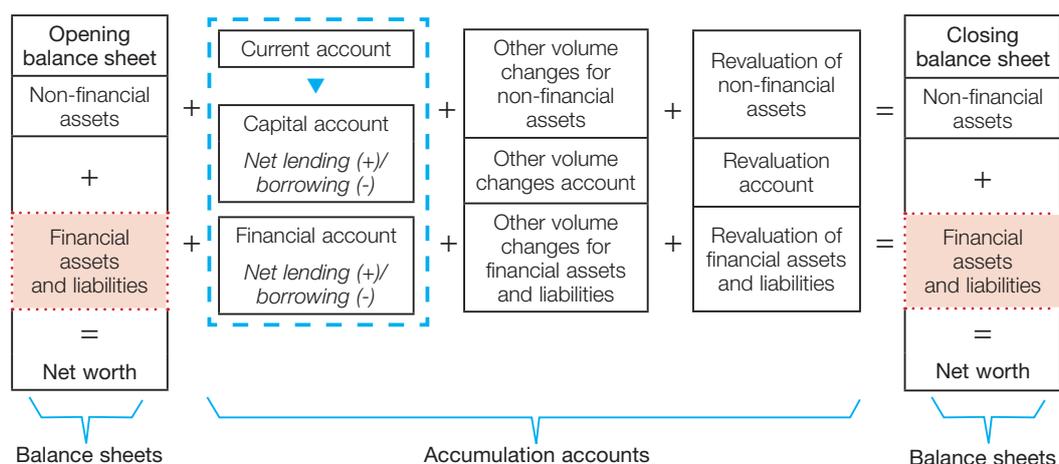
# The further development of sectoral financial balance sheets for South Africa's integrated economic accounts<sup>1</sup>

by B de Beer and M Kock<sup>2</sup>

## 1. Introduction

The South African Reserve Bank (SARB) has been advancing the development of sectoral balance sheet statistics for the South African economy within the context of the integrated economic accounts (IEA) framework. These statistics will extend the range of macroeconomic aggregates available for national policy formulation and contribute towards the fulfillment of South Africa's international statistical commitments. The methodological approach used is aligned with the Group of Twenty (G20)<sup>3</sup> Data Gaps Initiative (DGI), in particular recommendation 8 of the second phase of the DGI (DGI-2), which specifically focuses on sectoral balance sheets, flows, and a from-whom-to-whom analysis of stocks and transactions. The goal is to compile a complete and integrated set of sectoral balance sheets and accumulation accounts for South Africa covering the main institutional sectors and financial instrument categories<sup>4</sup> as proposed in the *System of National Accounts, 2008* (SNA 2008). This note focuses on the progress made with the sectoral financial balance sheet component of the IEA as indicated by the red dotted lines in Figure 1.

Figure 1 Integrated economic accounts\*



\* The focus of the *current account* is on real economic activity. The *capital account* records acquisitions and disposals of non-financial assets as a result of transactions with other economic units, internal bookkeeping transactions linked to production (such as changes in inventories and consumption of fixed capital) and the redistribution of wealth by means of capital transfers. The *financial account* records acquisitions and disposals of financial assets and liabilities, also through transactions. The *other volume changes account* records changes in the amounts of the assets and liabilities held by institutional units or sectors as a result of factors other than transactions; for example, the destruction of fixed assets by natural disasters. The *revaluation account* records those changes in the values of assets and liabilities that result from changes in market prices, also referred to as holding gains and losses.

Source: System of National Accounts, 2008

1 This note is the second in a series highlighting the development of sectoral financial balance sheets as part of South Africa's integrated economic accounts. The first note titled 'The further development of integrated economic accounts for South Africa – institutional sector balance sheets' was published in the December 2016 *Quarterly Bulletin*. This note provides the inter-sectoral balanced view of the estimated size of harmonised sectoral financial balance sheets. The intention is to compile and publish IEA data on a quarterly basis at some future date. At this stage, the data published and discussed in this note should be treated as preliminary and provisional.

2 The views expressed are those of the authors and do not necessarily reflect the views of the SARB.

3 The Group of Twenty is an international forum for ministers of finance and central bank governors of 19 of the largest advanced and emerging economies as well as the European Union.

4 Please refer to the first note in the series for a full delineation of institutional sector and financial instrument coverage.



## 2. Methodology

The expansive nature of sectoral financial balance sheets demands a systematic and methodological compilation approach that can be broken down into two major components, comprising *data sourcing* and *data harmonisation*.

The *data sourcing* component firstly comprises the identification, sourcing and collation of all the basic asset and liability information pertaining to the various financial instruments for all the institutional sectors, and secondly data validation through analysis to uncover and rectify (where necessary) any anomalies and classification issues related to both financial instruments and sectors to ensure integrity and consistency. These processes then serve as input for all further calculations in order to render harmonised stock positions and accumulation account flows for financial assets and liabilities. To ensure a consistent methodological approach and coherent outcomes, the data processing uses IEA templates based on those proposed by the International Monetary Fund (IMF) and the G20 DGI-2 working group, subject to adjustment for country-specific circumstances. Source data are mapped per institutional sector into these templates, rendering counterparty information, inter-sectoral stock positions and flow linkages between the different domestic sectors of the economy as well as the rest of the world (ROW) at detailed financial instrument asset and liability level. In addition to the requirement of harmonised inter-sectoral stock positions, there is also the very demanding requirement to generate disaggregated accumulation account data that entails accounting for changes in balance sheet stock positions from one period to the next. The accumulation account requires a detailed breakdown into transactions, other volume changes and revaluations. In the case of South Africa, this is particularly demanding as most of the available sectoral data only covers stock positions. Thus, in the absence of actual transaction data, this needs to be derived after estimating revaluations and accounting for other volume changes.

The *harmonisation component* in the IEA framework refers to the horizontal harmonisation of financial asset and liability instruments across sectors as well as the vertical harmonisation between the real and the financial components of the IEA.

The vertical harmonisation covers two areas. The first area is the vertical harmonisation of stocks, which aims to integrate the non-financial assets with the financial assets to obtain total assets. Thereafter, net worth is derived as the difference between total assets and financial liabilities. The second area relates to the integration or harmonisation of net lending/borrowing as derived from the current and capital account, with the net lending/borrowing as derived from the financial account. In this note, the provisional results of the first area are shown in Table 1 after harmonising the sectoral financial balance sheets horizontally for all financial asset and liability instruments across all sectors in the prescribed international templates. The second area will be addressed in future work when the complete IEA is published, integrating the current and capital account with the financial account.

In order to generate harmonised sectoral financial balance sheet positions, the process commences with unharmonised sectoral financial balance sheets of all sectors, with the matrices per sector representing the data of the specific sector as obtained through data sourcing. These unharmonised sector financial balance sheet positions are then integrated and harmonised with one another to form a cohesive and harmonised set of sectoral financial balance sheets for the South African economy as a whole. Key issues in progressing from unharmonised to harmonised sectoral financial balance sheets relates to achieving inter-sector coherence. The anchoring principle of inter-sector coherence is satisfied when the financial assets of sector A vis-à-vis sector B equate the financial liabilities of sector B vis-à-vis sector A.

The horizontal harmonisation entails two different but interlinked steps: firstly harmonising financial stocks and thereafter ensuring that the flows equate to the difference between opening and closing stock positions. A hierarchy of sources is used to harmonise stock positions whereafter a revaluation process is used to harmonise and disaggregate the flows.



The hierarchy of sources is based on aspects such as coverage, data quality and data reliability of each sector's data at the detailed 32 financial instrument levels, and each sector-by-sector financial asset and liability position is evaluated before rendering the harmonised outcome. Owing to the dynamic properties of financial instruments as well as improvements in data sourcing, the hierarchy of sources and equations to generate harmonised stock positions is reviewed each quarter. These harmonised stock positions, together with detailed price indices, facilitate the revaluation process which renders two key components of the accumulation accounts, namely estimated revaluations of financial assets and liabilities, and thereafter derived transactions.

### 3. Analysis of preliminary sectoral financial balance sheet asset and liability stock positions<sup>5</sup>

An overview of total assets, broken down between non-financial and financial assets as well as total liabilities for the total domestic economy by institutional sector and the ROW 'sector', as at 31 December 2011 is provided in Table 1.

**Table 1 Summary balance sheet by institutional sector at market prices, 31 December 2011**

R trillions

	Non-financial corporations*		Financial corporations		General government		Households		Total domestic economy		Rest of the world	
	A	L	A	L	A	L	A	L	A	L	A	L
Non-financial assets**	4.1		0.5		1.9		2.8		9.3			
Financial assets and liabilities	1.9	6.4	11.2	11.2	1.4	1.5	5.7	1.5	20.2	20.6	3.2	2.7
Net worth***		-0.4		0.5		1.8		7.0		8.9		
<b>Total assets and liabilities</b>	<b>6.0</b>	<b>6.0</b>	<b>11.7</b>	<b>11.7</b>	<b>3.3</b>	<b>3.3</b>	<b>8.5</b>	<b>8.5</b>	<b>29.5</b>	<b>29.5</b>	<b>3.2</b>	<b>2.7</b>

A = assets

L = liabilities

\* Private non-financial corporations' data are not directly sourced but derived from counterparty positions. This should therefore be treated as preliminary as it will be revised when administrative data sources are incorporated.

\*\* Total produced assets, including underlying land

\*\*\* Total assets minus total liabilities

Source: SARB

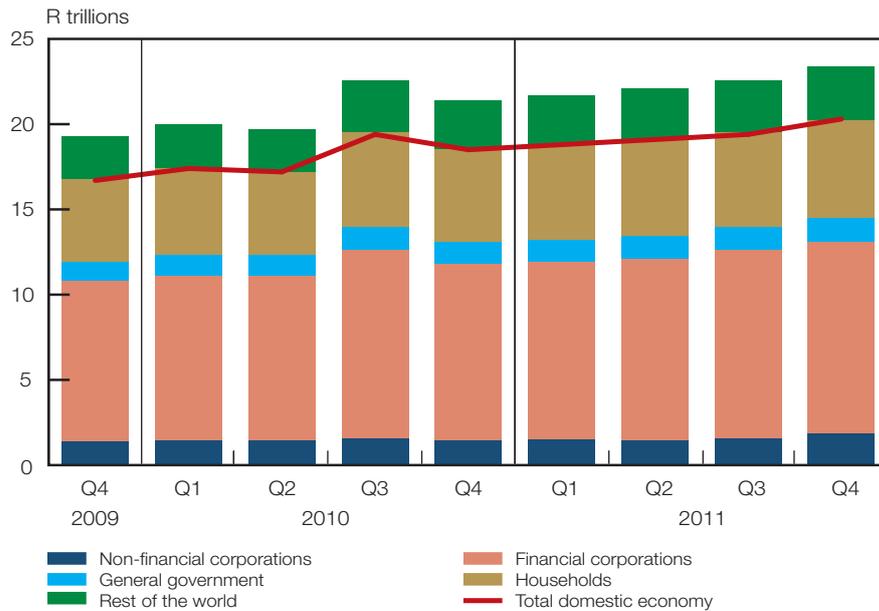
Total assets of the domestic economy of R29.5 trillion comprised non-financial assets of R9.3 trillion and financial assets of R20.2 trillion, which rendered a net worth of R8.9 trillion, given total financial liabilities of R20.6 trillion as at 31 December 2011. Furthermore, the non-financial corporations sector held 44% of South Africa's non-financial assets and only 9% of its financial assets. The financial corporations sector held 56% of the financial assets, with almost an equal financial liability exposure – this is to be expected given their role as financial intermediaries. The household sector accounted for 79% of the net worth in the economy at R7.0 trillion. The ROW had a positive net financial asset position of R0,5 trillion vis-à-vis the domestic sector's. The remainder of this section focuses on the analysis of the harmonised quarterly financial asset and liability stock positions as referenced in Figure 1 by the red dotted blocks for the period 2010–2011.

The market value of the stock of total financial assets of the South African economy increased from R16.7 trillion from the end of December 2009 to R20.2 trillion at the end of December 2011, as shown in Figure 2. This represents an increase of R3.5 trillion. Financial corporations contributed R1.9 trillion to the increase, while on average accounting for 56% of total financial assets. The second-largest contribution to the change in total financial assets came from the household sector at R0.9 trillion – this sector on average accounted for 29% of total financial assets. Non-financial corporations and general government on average accounted for 8% and 7% respectively of total financial assets.

5 These are experimental results subject to adjustment.



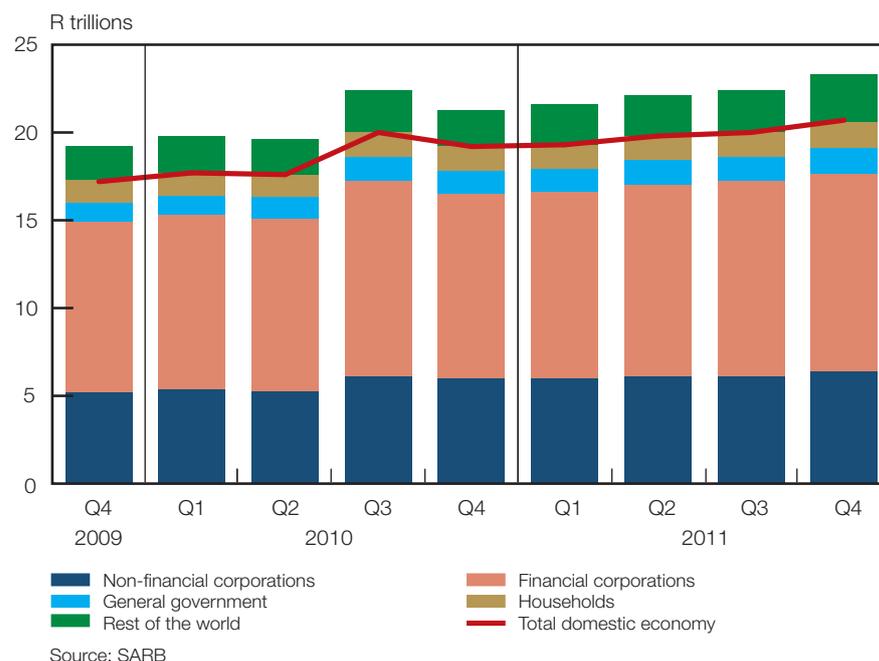
Figure 2 Market value of total financial assets per institutional sector



The financial assets of the ROW vis-à-vis the domestic sectors of the economy increased from R2.5 trillion at the end of December 2009 to R3.2 trillion at the end of December 2011.

The market value of the stock of total financial liabilities of the South African economy similarly increased by R3.4 trillion, from R17.2 trillion at the end of December 2009 to R20.6 trillion at the end of December 2011, as shown in Figure 3. The financial asset and liability positions of financial corporations were of fairly similar magnitude over the period. The household sector's contribution to total financial liabilities on average only amounted to 7.3%, significantly less than their contribution to total financial assets, as is to be expected given their significant retirement assets. Non-financial corporations' contribution to total financial liabilities, on average 30.6%, dwarfed their contribution to total financial assets. This divergence between their financial assets and liabilities reflect their reliance on leveraged funding to finance real economic activity and non-financial assets.

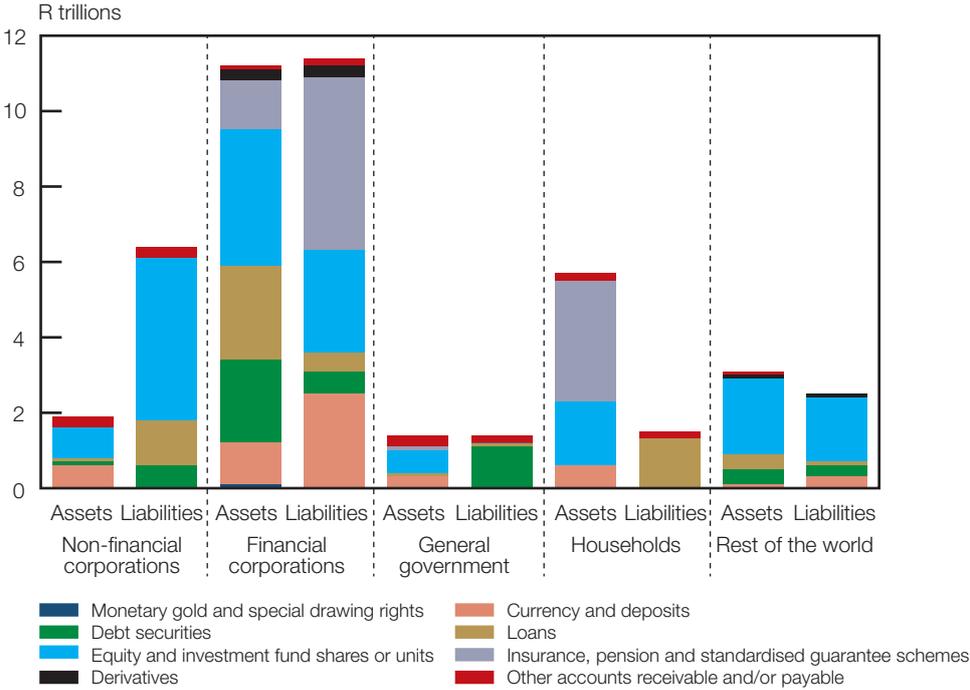
Figure 3 Market value of total financial liabilities per institutional sector



The analysis now shifts to a more detailed breakdown of financial instruments included in the financial asset and liability positions of the different institutional sectors as at 31 December 2011, as shown in Figure 4. The contribution of different financial instruments to the individual sectors' overall financial asset and/or liability position provides some insights specific to each institutional sector.

*Equity and investment fund shares or units* featured prominently in the non-financial corporations sector's financial liabilities, with a large exposure of R4.3 trillion at the end of December 2011 that accounted for approximately 67% of this sector's financial liabilities. The ROW had the second-largest proportional financial liability exposure in this instrument, at 64%. Financial corporations, which include subsectors such as non-money market fund investment funds, had the largest counterparty financial asset position in this financial instrument at 32% of total financial assets. *Loan* assets also featured prominently in the financial corporations sector and contributed approximately 23% to its total financial assets. As financial corporations include pension funds and insurers, the financial instrument *insurance, pension and standardised guarantees* constituted a significant part of this sector's financial liability position, at 41%. Most of the financial asset positions in this financial instrument resided with the household sector where it accounted for 55% of households' total financial asset position. With general government financing its deficit through the issuance of debt securities, this sector's financial liability position had a 74% exposure to *debt securities*.

Figure 4 Market value of total financial assets and liabilities by institutional sector and financial instrument, 31 December 2011

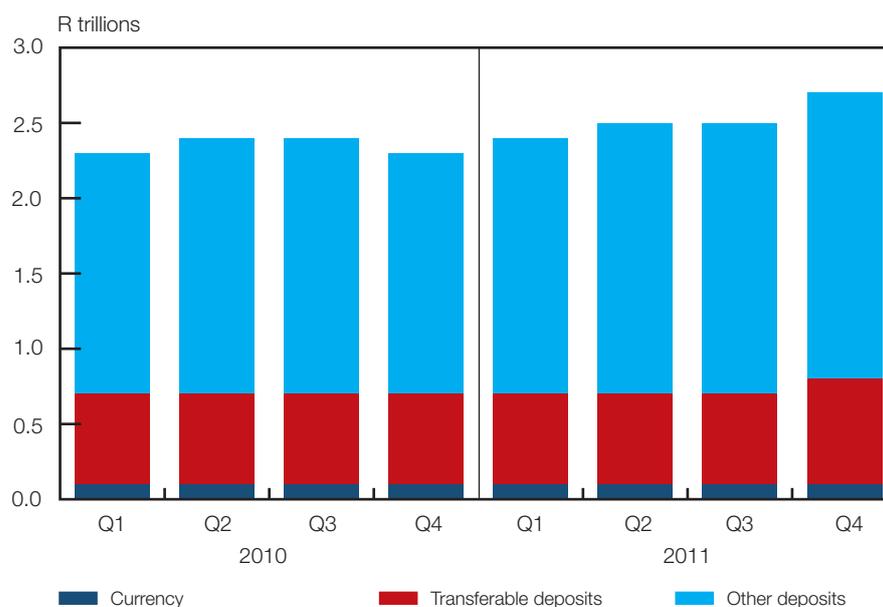


Source: SARB

In order to highlight the level of detail contained within the sectoral financial balance sheets, the analysis now focuses on two of the financial instruments, namely currency and deposits as well as debt securities.

A breakdown of the financial instrument *currency and deposits* into its constituent parts, as shown in Figure 5, reveals that *other deposits* contributed on average 71% to the total from the first quarter of 2010 to the fourth quarter of 2011. *Transferable deposits* and *currency* contributed 26% and 3% respectively.

Figure 5 Components of currency and deposits



Source: SARB

The financial instrument *other deposits* is shown on a from-whom-to-whom basis in Table 2. The horizontal view (rows) provides the total asset positions in other deposits of the relevant institutional sector vis-à-vis the institutional sector against which the claims are held, that is, the vertical view (columns) provides the equivalent liability position. The total financial asset and liability positions of other deposits amounted to R1.9 trillion as at 31 December 2011. For example, of the R1.8 trillion for other deposit liabilities of financial corporations, the same sector held other deposit assets of R700 billion and the household sector held R440 billion. As is to be expected, the only two sectors recording liabilities in this financial instrument are financial corporations and the ROW.

Table 2 From-whom-to-whom market value of other deposit assets and liabilities between resident institutional sectors as well as the rest of the world, 31 December 2011

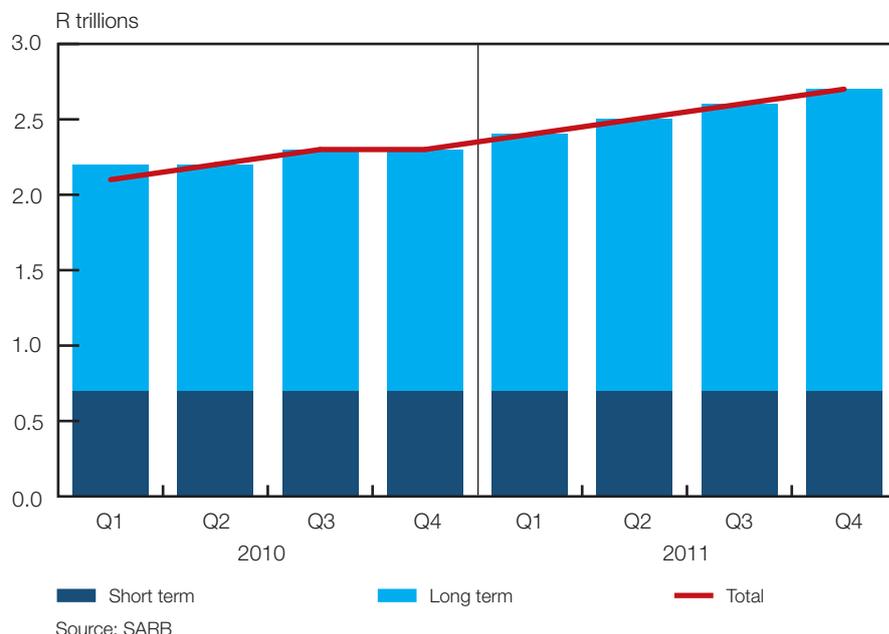
R billions

Institutional sectors	Other deposit liabilities per institutional sector					
	Non-financial corporations	Financial corporations	General government	Households	Rest of the world	Total
Non-financial corporations	–	407	–	–	1	408
Financial corporations	–	700	–	–	88	788
General government	–	197	–	–	–	197
Households	–	440	–	–	–	440
Rest of the world	–	78	–	–	–	78
<b>Total</b>	–	<b>1 822</b>	–	–	<b>89</b>	
						<b>1 911</b>

Source: SARB

A longitudinal view of the financial instrument *debt securities* by short- and long-term maturity is presented in Figure 6. The stock of debt securities at market value increased from just over R2 trillion at the end of March 2010 to approximately R2.7 trillion at the end of December 2011. Over the period under review, long-term debt securities contributed on average 71% and short-term debt securities the remaining 29%.

Figure 6 Maturity split of debt security stock



A from-whom-to-whom analysis of stock positions at market value of debt securities as at 31 December 2011 is presented in Table 3. The horizontal view (rows) provides asset positions in this instrument and the vertical view (columns) the liability positions. The main contributor to the R2.7 trillion liability position was the general government sector at R1.1 trillion, which represented approximately 42% of the total debt securities liability position.

Table 3 From-whom-to-whom market value of debt security assets and liabilities between resident institutional sectors as well as the rest of the world, 31 December 2011

R millions

Institutional sectors		Debt security liabilities per institutional sector					Total
		Non-financial corporations	Financial corporations	General government	Households	Rest of the world	
Debt security assets per institutional sector	Non-financial corporations	–	52 806	11 199	–	0	64 005
	Financial corporations	535 718	514 071	785 348	–	337 444	2 172 580
	General government	280	1 525	68	–	–	1 873
	Households	445	325	11 539	–	3 604	15 913
	Rest of the world	77 884	25 622	313 472	–	–	416 978
	<b>Total</b>	<b>614 327</b>	<b>594 349</b>	<b>1 121 626</b>	<b>–</b>	<b>341 048</b>	<b>2 671 350</b>
<b>2 671 350</b>							



Given their intermediary function, the main investors in debt securities were financial corporations which held R2.2 trillion, or 81%, of the issued debt. Of this total, the financial corporations' holdings of general government debt securities amounted to R785 billion. The ROW invested R417 billion in debt securities, of which R313 billion was in general government debt.

#### 4. Conclusion

The preliminary experimental results presented in this note reflect the progress made with the sectoral financial balance sheet component of the IEA. The methodological approach followed to compile sectoral financial balance sheets is based on international best practices subject to South African circumstances, and has been validated by international experts. Future work will focus on the development of accumulation accounts and linking the respective balance sheet stock positions between quarters as well as the vertical harmonisation of the complete IEA. Once completed, the IEA will provide a rich set of information facilitating analysis from various new vantage points.