

The further development of integrated economic accounts for South Africa – institutional sector balance sheets¹

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1. Introduction

The 2008 global financial crisis and the adverse economic conditions in its wake, which are still felt today, illustrate the extent of integration between real economic activity and financial markets, both within an economy and among countries. Although significant bodies of economic and financial statistics existed at the time, there were crucial areas that were poorly covered. The limited availability and comparability of time series data across countries compounded the problem, making it difficult to track the interconnectedness of global economic and financial activity. On a global scale, economic agents have financial positions with each other which create a link for contagion, contingent upon the structure of national institutional sector balance sheets and concomitant exposures. This is further exacerbated by the existence of complex financial instruments both on and off balance sheet which create serious financial stability risks. The scarcity or non-existence of data on the network of domestic and international financial positions contributes significantly to inherent economic and financial stability risks.

From this realisation emerged the Group of Twenty (G-20)³ Data Gaps Initiative (DGI). This initiative constitutes a set of 20 recommendations on the enhancement of economic and financial statistics. The intention is to close the identified data gaps through the development of new data sourcing methods and the improvement of existing ones. The focus is on broadening and improving the scope of available and comparable economic and financial data as well as the early monitoring of stress within institutional sectors to inform appropriate policy intervention. The first phase of the Data Gaps Initiative (DGI-1) commenced in 2009. Recommendation 15 is of specific importance to this article as it deals with sector accounts focusing on standardised institutional sector coverage of national balance sheet and from whom-to-whom, including flow-of-funds data. In September 2015, the second phase of the Data Gaps Initiative (DGI-2) was endorsed with sector accounts now dealt with in recommendation 8. The integrated economic accounts in the System of National Accounts (SNA 2008) provide ample scope and guidance for the compilation of integrated and harmonised stock positions and accumulation accounts for an economy to partially address some of the identified data gaps. The compilation of integrated sector accounts has therefore become a key priority on the international statistical agenda. All the G-20 member economies have already developed or are in the process of developing these statistics. The South African Reserve Bank established a project to further develop the integrated economic accounts for the South African economy in 2015. This is in the interest of providing reliable and relevant statistics for national policy formulation and to fulfill South Africa's international statistical commitments.

The main focus of the integrated economic accounts project thus far has been the development of institutional sector balance sheets, financial assets and liabilities as well as non-financial assets. The first preliminary and experimental results rendered the following high-level institutional sector balance sheets at market prices as at 31 December 2011, as shown in Table 1. The total balanced asset position of the resident institutional sectors of the domestic South African economy amounted to R28,3 trillion, or approximately 9 times the gross domestic product (GDP) recorded for the year.

1 This article serves as the inaugural publication of newly developed experimental institutional sector balance sheet data sets for the South African economy. This provides the first harmonised view of the estimated size of the balanced financial institutional sector balance sheets and stock positions of selected non-financial assets. The intention is to compile and publish this data as well as accumulation accounts on a quarterly basis at some future date. At this stage, the data published and discussed in this article should be treated as preliminary and experimental.

2 The views expressed are those of the authors and do not necessarily reflect the views of the South African Reserve Bank.

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 and the European Union.



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* | 4,2 | | 0,3 | | 2,2 | | 2,7 | | 9,4 | | | |
| Financial assets and liabilities..... | 2,0 | 5,6 | 10,7 | 10,7 | 0,9 | 1,6 | 5,4 | 1,4 | 18,9 | 19,3 | 3,1 | 2,7 |
| Net worth** | | 0,6 | | 0,3 | | 1,5 | | 6,7 | 9,0 | | | |
| Total assets and liabilities | 6,2 | 6,2 | 11,0 | 11,0 | 3,1 | 3,1 | 8,1 | 8,1 | 28,3 | 28,3 | 3,1 | 2,7 |

A = assets

L = liabilities

* Total produced assets, including underlying land

** Total assets minus financial liabilities

The total assets of the domestic economy consisted of non-financial assets of R9,4 trillion and financial assets of R18,9 trillion. The liability side comprised financial liabilities of R19,3 trillion and net worth (non-financial and financial assets minus financial liabilities) of R9 trillion. The non-financial corporate sector held 45 per cent of non-financial assets while the financial corporate sector accounted for more than half of total financial assets and liabilities. The household sector had the largest net worth position at R6,7 trillion. The rest of the world sector had assets in South Africa of R3,1 trillion while South African sectors had claims on the rest of the world of R2,7 trillion.

2. Project overview

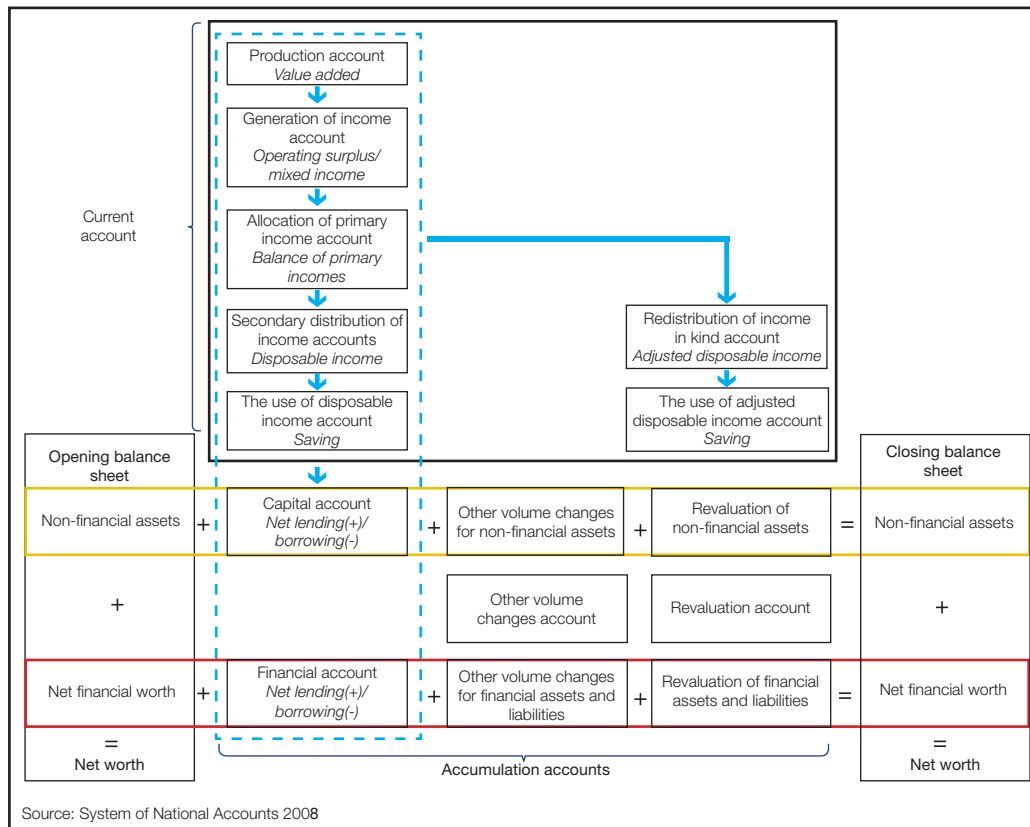
In South Africa, the further development of the integrated economic accounts entails a harmonised set of macroeconomic accounts that link the real and financial spheres of the economy. These additional data sets are intended to provide quarterly data for the period from 2010 to the present.

2.1 The integrated economic accounts framework

In the integrated economic accounts, the real economy is represented by current and capital accounts as well as non-financial asset and accumulation accounts. The current account comprises the production, generation and allocation of income, distribution and redistribution of income accounts, as well as its utilisation. Currently, only these accounts and high-level financial assets and liabilities as well as the non-financial assets of households are published on an annual basis. However, this information needs to be extended in terms of institutional sector breakdown as well as to a quarterly frequency. The coverage of the financial sphere of the economy is obtained through the development of a full set of financial balance sheets and accumulation accounts.

The components of the integrated economic accounts are illustrated in Figure 1. The black block represents the components of the current account. The blue dotted line represents the transactional accounts, commencing with the production account through to the financial account. The orange block represents the non-financial asset accounts, from the opening balance sheet position through the accumulation accounts to the closing balance sheet position. The red block represents the financial balance sheets and accumulation accounts, beginning with the opening stock positions of financial assets and liabilities, on a gross basis, through the accumulation accounts to the closing financial balance sheet.

Figure 1 Integrated economic accounts



4 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 nominal holding gains and losses.

The net financial worth of an institutional sector is calculated by subtracting the sector's financial liabilities from its financial assets. The net worth of an institutional sector is obtained by either adding the stock of non-financial assets to its net financial worth at a specific point in time or as total assets minus financial liabilities, as in Table 1. The accumulation accounts record flows that give rise to changes in entries in the balance sheets from the start to the end of the accounting period. There are four accumulation accounts: the capital account, the financial account, the other volume changes account, and the revaluation account.⁴

The focus of the current accounts is on real economic activity; it does not describe any financial operations. There is, however, a close interconnection as financial activities tend to mirror real economic activity. This is the case when economic agents either lend to others in instances where they do not spend all their revenue or borrow from others when outlay requirements surpass their resources. The household sector is a good example of this as this sector typically consumes less than its income while additional funds are saved through investment in specific assets, both non-financial and financial. In contrast, the non-financial corporate sector usually needs additional resources to invest in fixed assets and has to borrow funds from other sectors. This borrowing can be in the form of a loan from a bank or issuing debt and/or equity.

2.2 Institutional sectors

One of the anchor parameters underlying the project is institutional sector delineation. For the integrated economic accounts to be harmonised with the broad suite of macroeconomic analysis, the aggregate activities of similar institutions are grouped into institutional sectors, some of which are divided into subsectors. Each institutional sector and subsector groups together the institutional units with a similar type of economic behaviour.

Table 2 Institutional sectors

| Main institutional sectors | Subsectors | | |
|--|-----------------------------------|--|---|
| Non-financial corporations | Public | | |
| | Private | | |
| Financial corporations | Monetary financial institutions | Monetary authority | Central bank Corporation for Public Deposits |
| | | Other monetary financial institutions | Deposit-taking corporations (banks) Money-market funds |
| | | Non-money-market investment funds | |
| | Other financial corporations* | Other financial intermediaries** | |
| | | Financial auxiliaries | |
| | | Captive financial institutions and money lenders | |
| Insurance corporations and pension funds | Insurance corporations | | |
| | Pension funds | | |
| General government | Central and provincial government | | |
| | Local government | | |
| Households*** | | | |
| Rest of the world | | | |

* Except monetary financial institutions as well as insurance corporations and pension funds

** Except insurance corporations and pension funds

*** Including non-profit institutions serving households

Source: System of National Accounts 2008

The institutional sector delineation applied in the integrated economic accounts is obtained from a combination of delineation contained in the SNA 2008 as well as national requirements. The subsectors of the five main institutional sectors are shown in Table 2. Currently, various data sources are used for the different institutional sectors, except for the private non-financial corporate sector which is measured using derived data from the other counterparty sectors.

2.3 Non-financial assets

Non-financial assets consist of both produced and non-produced assets. The produced non-financial assets in turn comprise fixed assets used in production, inventories and valuables (see Table 4). Valuables are not included in the scope of the project due to data constraints. The market value of fixed assets is derived as the sum of gross fixed capital formation of such assets (i.e. expenditure on fixed assets) less the consumption of fixed assets (i.e. depreciation) revalued to market prices. Fixed assets in turn consist of dwellings, buildings other than dwellings, other structures, machinery and equipment, cultivated biological resources and intellectual property. The market value of total inventory holdings in the domestic economy is derived from inventory holdings at constant prices adjusted for end-period prices.⁵

⁵ Excluding military inventory



Non-produced non-financial assets consist of natural assets and assets created through legal agreement from which the owners can extract economic benefits. Natural assets include land and mineral reserves whereas leases, licences and permits are created through legal agreements. Natural resources consist of land, mineral and energy resources, non-cultivated biological resources, other natural resources and radio spectra. Currently, only the market value of land underlying dwellings, buildings other than dwellings and other structures is reported. The market value of land underlying assets is derived as a ratio of the value of the non-depreciated produced asset situated on the land.

The market value of land – whether residential, industrial or different types of farmland – differs markedly and sufficient price data are not available to make accurate estimations. The market value of South Africa’s various national parks and other recreational holiday retreats as well as other land belonging to general government further complicates estimations. Data constraints also inhibit the estimation of mineral and energy reserves.

2.4 Financial instruments

The eight main financial asset and liability categories in the financial balance sheets and accumulation accounts are shown in Table 3.

Table 3 Financial instrument delineation in the financial balance sheets and accumulation accounts

| Financial instrument | Description |
|---|---|
| Monetary gold and special drawing rights | Monetary gold is gold to which monetary authorities have title and which is held as reserve assets. Special drawing rights are international reserve assets created by the International Monetary Fund which are allocated to its members to supplement existing reserve assets. |
| Currency and deposits | Currency and deposits refer to currency in circulation and deposits, both in national currency and in foreign currencies. |
| Debt securities | Debt securities are negotiable financial instruments serving as evidence of debt. |
| Loans | Loans are created when creditors lend funds to debtors. |
| Equity and investment fund shares or units | Equity and investment fund shares or units are residual claims on the assets of the institutional units that issued the shares or units. |
| Insurance, pension and standardised guarantee schemes | Insurance, pension and standardised guarantee schemes items include: a) non-life insurance technical reserves; b) life insurance and annuity entitlements; c) pension entitlements, claims of pension funds on pension managers, and entitlements to non-pension funds; and d) provisions for calls under standardised guarantees. |
| Financial derivatives and employee stock options | Financial derivatives are financial instruments linked to a specified financial instrument, indicator or commodity through which specific financial risks can be traded in financial markets in their own right. Employee stock options are agreements made on a given date under which an employee has the right to purchase a given number of shares of the employer’s stock at a stated price either at a stated time or within a period of time immediately following the vesting date. |
| Other accounts receivable and/or payable | Other accounts receivable and/or payable are financial assets and liabilities created as counterparts to transactions where there is a timing difference between these transactions and the corresponding payments. |

Source: System of National Accounts 2008

3. Preliminary results⁶

The further development of the integrated economic accounts into all their dimensions is a project that will stretch over an extended period of time. The first milestone, to develop a high-level quarterly core dataset for 2010 and 2011, has been achieved. This section expands the discussion of the data contained in Table 1.

⁶ These are experimental results subject to future adjustment.

3.1 Non-financial assets

A key statistical objective is to gauge the overall size of the market value of the stock of total produced non-financial assets in the South African economy. Total produced non-financial assets amounted to R7,5 trillion in the fourth quarter of 2011, or about 2,5 times the GDP recorded for the year.

Within produced fixed assets, the market value of dwellings, without underlying land, amounted to R2,2 trillion as at the end of 2011 for the domestic economy as a whole, with the household sector owning 77 per cent of that total. Due to data constraints, this excludes motor homes, boats, caravans and other items utilised as permanent residence. The market value of buildings other than dwellings and other structures, also excluding underlying land, amounted to R3,2 trillion as at the end of 2011. Of this, the non-financial corporate sector owned 53 per cent, followed by general government with 39 per cent. The market value of machinery and equipment amounted to R1,4 trillion as at the end of 2011, with 76 per cent owned by the non-financial corporate sector. Machinery and equipment consists of transport equipment, information technology equipment, other machinery and equipment, and weapon systems. This is the third-largest asset group and accounts for 18 per cent of total produced non-financial assets. The market value of cultivated biological resources amounted to only R23,4 billion as at the end of 2011, with 63 per cent owned by the household sector. This consists of animal and plant resources yielding repeat products. The market value of intellectual property products amounted to R157 billion as at the end of 2011 and accounted for only 2 per cent of total produced non-financial assets. Intellectual property products consist of research and development, mineral exploration and evaluation, and computer software. Databases, entertainment, literacy and artistic originals as well as other intellectual property products like new information and specialised knowledge are not part of the compilation at this stage due to data constraints.

Table 4 Non-financial asset stock positions at market prices, 31 December 2011

R millions

| | Non-financial corporations | Financial corporations | General government | Households | Total domestic economy |
|---|----------------------------|------------------------|--------------------|------------------|------------------------|
| Total produced assets | 3,673,489 | 294,319 | 1,660,095 | 1,905,073 | 7,532,976 |
| Total fixed assets | 3,112,793 | 278,497 | 1,656,494 | 1,872,662 | 6,920,446 |
| Dwellings | 243,334 | 10,070 | 237,628 | 1,660,831 | 2,151,863 |
| Buildings other than dwellings | 733,769 | 113,287 | 312,168 | 66,309 | 1,225,533 |
| Other structures | 983,612 | 7,198 | 938,444 | 68,365 | 1,997,619 |
| Machinery and equipment | 1,042,563 | 119,189 | 141,076 | 62,126 | 1,364,954 |
| Cultivated biological resources.... | 8,781 | - | - | 14,659 | 23,440 |
| Intellectual property | 100,734 | 28,753 | 27,178 | 372 | 157,037 |
| Inventories | 560,696 | 15,822 | 3,601 | 32,411 | 612,530 |
| Non-produced assets | | | | | |
| Total underlying land | 563,191 | 33,113 | 525,811 | 760,363 | 1,882,478 |
| Dwellings | 85,424 | 5,331 | 114,941 | 744,668 | 950,364 |
| Buildings other than dwellings and other structures | 477,767 | 27,782 | 410,870 | 15,695 | 932,114 |
| Total real estate* | 2,523,906 | 163,668 | 2,014,051 | 2,555,868 | 7,257,493 |
| Dwellings | 328,758 | 15,401 | 352,569 | 2,405,499 | 3,102,227 |
| Buildings other than dwellings and other structures | 2,195,148 | 148,267 | 1,661,482 | 150,369 | 4,155,266 |
| Total produced assets, including underlying land | 4,236,680 | 327,432 | 2,185,906 | 2,665,436 | 9,415,454 |

* Fixed assets and underlying land

Within produced assets, the market value of total inventory holdings in the domestic economy amounted to R613 billion or 8 per cent of total produced non-financial assets as at the end of 2011. Of this amount, the non-financial corporate sector held 92 per cent.

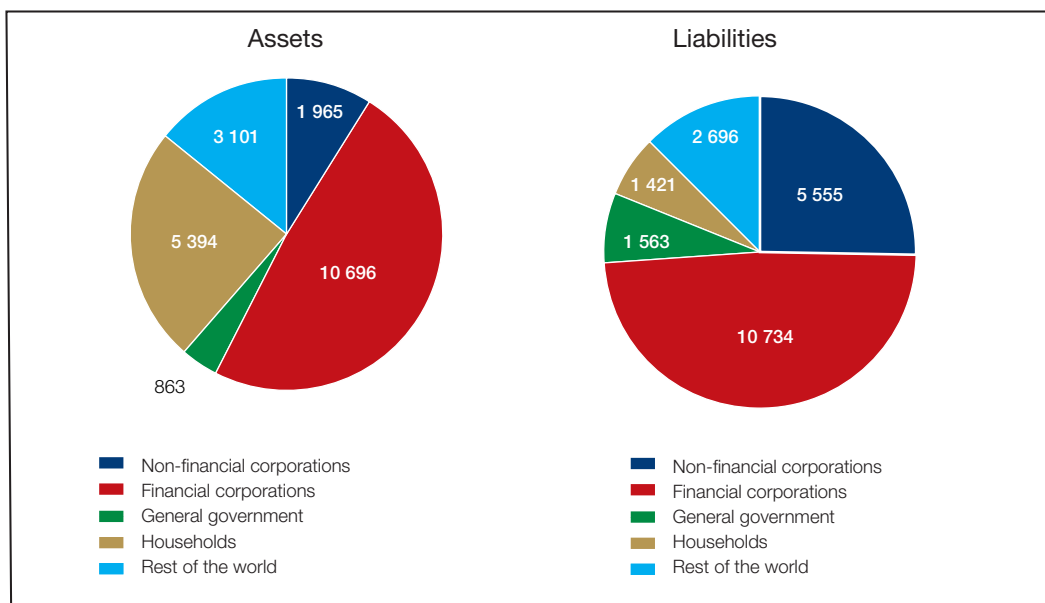
The market value of underlying land amounted to R1,9 trillion as at the end of 2011, with 51 per cent related to dwellings and 49 per cent to buildings other than dwellings and other structures. The total value of real estate comprising both fixed assets and underlying land amounted to R7,3 trillion as at the end of 2011, with underlying land contributing 26 per cent. The real-estate value of dwellings accounted for 43 per cent and that of households 33 per cent. In aggregate, total produced assets and underlying land as measured amounted to R9,4 trillion.

3.2 Financial assets and liabilities

The overall size of the market value of the balanced stock of financial assets and liabilities held by both residents and non-residents in the South African economy amounted to R22 trillion as at 31 December 2011, as shown in Table 5, or about seven times the GDP recorded for the year. The distribution by value of financial assets and liabilities per institutional sector is shown in Figure 2.

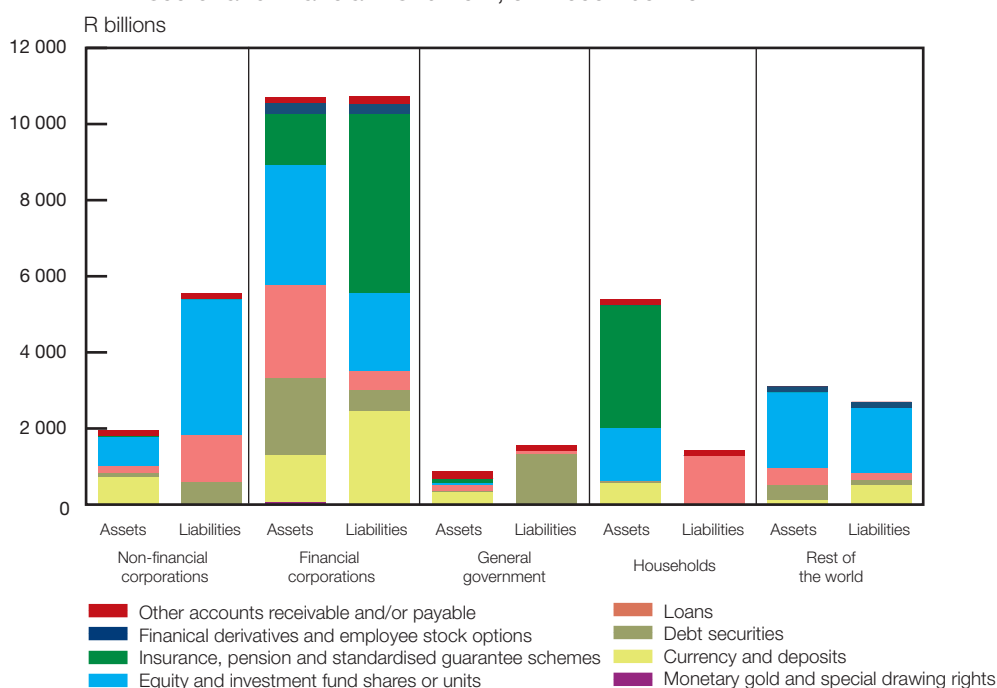
Figure 2 Market value of total financial assets and liabilities per institutional sector, 31 December 2011

R billions



Three important observations emerge from viewing the financial asset and liability data sets. The first is that the overall values of the financial assets and liabilities of the financial corporate sector are fairly similar. The second observation is that the financial liabilities of the household sector are significantly less than its financial assets. Thirdly, the financial liability position of the non-financial corporate sector is markedly larger than its financial asset position.

Figure 3 Market value of total financial assets and liabilities by institutional sector and financial instrument, 31 December 2011



Additional insight into the financial instrument-specific make-up of the financial assets and liabilities of the institutional sectors as at 31 December 2011 is provided in Figure 3. From this analysis, it is evident that the majority of the financial liabilities of the non-financial corporate sector is vested in equity and investment fund shares or units – approximately 64 per cent. This is to be expected as this instrument provides the majority of the funding for private non-financial corporations. The second-largest liability instrument for non-financial corporations is loans – at 22 per cent. On the asset side, equity and investment fund shares or units as well as currency and deposits account for 39 per cent and 37 per cent of the asset position respectively. For the financial corporate sector, equity and investment fund shares or units and then loans represent the largest asset categories – 30 per cent and 23 per cent respectively. The high exposure to equity and investment fund shares or units represents investment by financial intermediaries such as unit trusts in equity, while loans represent a significant asset for deposit-taking corporations (banks). On the liability side, the majority of the value consists of insurance, pension and standardised guarantee schemes as well as currency and deposits – 44 per cent and 23 per cent respectively. Of the 44 per cent allocated to insurance, pension and standardised guarantee schemes, a significant amount relates to household interests in pension funds. The 23 per cent related to currency and deposits to a large extent reflects the deposits by various institutional sectors with banks. On the liability side of general government, debt securities represent 84 per cent of the total value. This is to be expected as national government has an extensive debt security issuance programme to finance its activities. The majority of household assets is in the form of pension claims on the financial sector, which represent about 60 per cent of the total household asset position. As is to be expected, 90 per cent of the household liability position is made up of loans. For the rest of the world sector, the equity and investment fund shares or units represent the bulk of its asset and liability position – approximately 64 per cent on each side.

3.3 From-whom-to-whom positions

The analysis done thus far is necessary but not sufficient as it provides only an assessment of the absolute size of institutional sectors in the economy and their positions as net lenders or borrowers. This analysis does not reveal any information on institutional sector-by-sector linkages or the extent of these linkages. As alluded to earlier in this article, it is precisely these linkages that are of importance to understand the possible implications for financial stability.

Thus, what is needed is thorough from-whom-to-whom information. Due to the application of the underlying principles of the SNA 2008 to the development of the financial balance sheets, it could be extended to incorporate a from-whom-to-whom analysis.⁷

The balanced financial asset and liability stock positions of the four domestic institutional sectors as well as the rest of the world, on a from-whom-to-whom basis, as at 31 December 2011 is shown in Table 5. For the resident institutional sectors, aggregated (i.e. non-consolidated) data are presented. This means that intra-sectoral positions, transactions, nominal holding gains and losses as well as other volume changes are not eliminated.

Total financial assets amount to just more than R22 trillion, with total financial liabilities amounting to just less than R22 trillion. The difference of R51 billion relates to the monetary gold assets of the central bank which does not have a counterparty liability.

The horizontal view of Table 5 provides the total financial assets of each institutional sector vis-à-vis the institutional sector against which these claims are held. For example, of the R10,7 trillion financial assets of the financial corporate sector, R2,5 trillion represents claims against the non-financial corporate sector and R4,1 trillion represents claims against the financial corporate sector itself. Similarly, the vertical view of Table 5 provides an institutional sector counterparty breakdown of an institutional sector's liabilities.

Table 5 From-whom-to-whom market value positions of total financial assets and liabilities between resident institutional sectors as well as the rest of the world, 31 December 2011

R billions

| Institutional sectors | | Liabilities by resident institutional sector and residency | | | | | Total |
|---|----------------------------|--|------------------------|--------------------|--------------|-------------------|--------------|
| | | Non-financial corporations | Financial corporations | General government | Households | Rest of the world | |
| Assets by resident institutional sector and residency | Non-financial corporations | 60 | 966 | 15 | 77 | 848 | 1 965 |
| | Financial corporations | 2 525 | 4 075 | 1 002 | 1 270 | 1 773 | 10 696 |
| | General government | 162 | 537 | 89 | 74 | 1 | 863 |
| | Households | 1 070 | 4 149 | 102 | 0 | 73 | 5 394 |
| | Rest of the world | 1 738 | 1 007 | 355 | 0 | 0 | 3 101 |
| | Total | 5 555 | 10 734 | 1 563 | 1 421 | 2 696 | -405* |
| 21 969 | | | | | | | 51** |

* This value is equal to the net international investment position excluding monetary gold which has no counterparty classification in the financial balance sheets.

** This is the value of the monetary gold held by the South African Reserve Bank as at 31 December 2011; it equates to the difference between the balanced assets and liabilities because monetary gold has no counterparty classification in the financial balance sheets.

Important to note is that the rest of the world sector is compiled from the perspectives of foreign economies – which basically results in the inverse of South Africa's international investment position. The financial assets of the rest of the world issued by the rest of the world are not covered and will thus always be zero due to the fact that this data are not relevant from South Africa's perspective. The holdings of financial instruments by non-residents (vis-à-vis resident sectors as debtors) are shown as South African liability positions (rest of the world asset positions) in the rest of the world balance sheet, while acquisitions and disposals by non-residents of

7 Apart from the analytical value obtainable for the construction and depiction of the financial balance sheets on a from-whom-to-whom basis, it is also an important compilation tool for enhancing the quality and consistency of data. The advantage of this approach is that it allows for the cross-validation of information among debtors and creditors and as such enhances the consistency of reported data.

financial instruments issued by residents are shown as financial transactions in the rest of the world financial account. Similarly, the holdings of financial instruments by residents vis-à-vis non-residents are shown as South African asset positions (rest of the world liability positions) in the rest of the world balance sheet. Thus, the rest of the world financial asset position of R3,1 trillion and financial liability position of R2,7 trillion in Table 5 reflect the inverse of South Africa's international investment position. The positive difference of R0,4 trillion indicates South Africa's negative international investment position.

4. Conclusion

The data shown and discussed in this article are the outcome of the project thus far and should be treated as preliminary and experimental. In addition, it should be noted that certain source data need to be broadened and improved to close material data gaps. Future development work will focus on the utilisation of the balanced asset and liability stock positions to estimate nominal holding gains and losses at detailed financial instrument level whereafter financial transactions will be derived as the residual. This data set will facilitate detailed from-whom-to-whom accounts of stock positions, transactions (flow of funds), revaluations and other volume changes.

The further development of integrated economic accounts for South Africa is an ongoing process. The first phase, discussed above, has laid the foundation and the subsequent phases will build on this. The first priority is to expand the data set to cover the period from 2012 to 2016. Further effort will be directed at expanding the institutional sector and financial instrument coverage as well as improving the data coverage and quality. There is a significant advantage in using the sector accounts approach contained in the SNA 2008 framework as it ensures data consistency and international comparability. This allows for a systematic understanding of the important relationships in the South African economy, such as the relationship between economic flows in the real and financial spheres as well as the issue of financial interconnectedness and linkages among the various components in the economic value chain.