Improved measurement of cross-border positions, exposures and flows in South Africa using data obtained from banks and formalised exchanges

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Introduction

During the financial crisis problems in many instances spilled over from one jurisdiction to another, and did so very rapidly. This has underlined the need for close monitoring of cross-border positions and flows, and for minimising the time lags involved. This paper describes some of the progress on this front which has been made in South Africa, which should be relevant to the theme of this conference – "Initiatives to address data gaps revealed by the financial crisis."

To provide context to the discussion, the impact of the financial crisis on South Africa is reviewed in the next section of the paper. Thereafter the participation of South Africa in the BIS locational banking statistics is described. This is followed by a review of the use of data obtained from the bond and share market in South Africa. A few examples of the kinds of analysis which can be done utilising the data are also provided.

However, addressing data gaps should not be seen as a panacea for all possible ills in the financial system; limits regarding the contribution which economic statistics can make are briefly touched upon, before concluding.

Impact of the financial crisis on South Africa

While progress has been made in measuring external exposures and flows in South Africa, this should be seen in context. South African financial institutions had very little <u>direct </u>exposure to the financial instruments and markets where the turbulence erupted most forcefully. In several mature economies an overly enthusiastic expansion of securitisation activity and accumulation of complex derivative instruments was observed in the run-up to the crisis, largely aligned to overoptimistic views about prospects for the fixed property market. By contrast, in South Africa banks and other financial institutions expanded their activity briskly and profitably from 2004 onward focusing on conventional business. During the past decade nominal interest rates in South Africa never declined to such extreme lows as in some of the mature economies where the "search for yield" stood central in financial strategies. However, a growing economy, rising income levels, backlogs in housing and a high propensity to consume were reflected in strong demand for credit, particularly from 2004 to 2008. Accordingly, credit extension expanded strongly in South Africa alongside a buoyant economy and

booming property market, without a need to venture into exotic financial products.

A handful of South African financial institutions did have some exposure to the troubled assets of the northern hemisphere, mainly through their foreign subsidiaries or associates. However, the overall amounts involved were quite modest. Much more important was South Africa's <u>indirect</u> exposure to the crisis; the contraction in global output and international trade was forcefully transmitted to the South African economy, culminating in real gross domestic product declining by 1,8 per cent in 2009. This weakened firms' turnover, cash flow and confidence, lifted banks' impaired advances, and resulted in a weakening of both the supply of and the demand for credit.

South Africa therefore did not participate in the excesses which were at the core of the international financial crisis. However, the crisis again underlined how interconnected the global financial system had become, and how much the South African economy had become integrated with that of the world since the first fully democratic election in South Africa, held in April 1994. It also demonstrated that individual country responses to shocks and turbulence can differ markedly, posing risks of their own. The magnitude of the exposure of a country to every other country individually therefore is of considerable importance.

Participation in BIS locational banking statistics

South Africa did not decide to participate in the compilation of BIS locational banking statistics because of the international financial crisis. The decision to participate dates back to well before the turbulence of 2007-2009. However, the timing was influenced by the pressures on banks and bank regulators to implement the Basel II framework. In South Africa the Basel II framework was implemented in January 2008, with a considerable amount of preparation in the year before and aftercare in the year following that date. This left both the regulators and the regulated stretched to the point where simultaneously starting the reporting of locational banking statistics would have been extremely difficult.

Final preparation for participating in BIS locational banking statistics began early in 2009, when the Basel II oriented systems had been in place for about a year and the addition of further reporting requirements could be accommodated. The dedicated work of the banks and compilers culminated in South Africa becoming a reporter of locational banking statistics from September 2009.

Previously South Africa's external position data on a geographical basis – by individual country – was compiled as at year-end and disseminated with a lag of one calendar year. External position data by country for the end of 2008 was for instance published in December 2009. It had the advantage that the positions not only covered the banks, but all sectors with foreign assets and liabilities. However, the lag was long.

For the banks only, data on external assets on a geographical basis could previously be obtained on a monthly basis from the DI 500 return which dealt with credit risk. However, the geographical areas identified were broad, as shown in the accompanying table.

Table 1: Geographical areas identified in reporting South African banks' assets on the DI 500 credit risk return

Area
South Africa
Other African countries
Europe
Asia
Russian Federation/former USSR
North America
South America
Oceania and other

Source: South African Reserve Bank, Bank Supervision Department, DI 500 credit risk return. Available on www.resbank.co.za

Much more detailed analysis, detailing data by individual country with quarterly frequency, became possible when South Africa joined the locational banking statistics. Those familiar with BIS locational banking statistics will know that several data dimensions are covered by the datasets. Banks' international claims and liabilities are broken down by broad instrument group; currency; sector; country of residence of counterparty; and nationality of reporting banks. Only some illustrative extracts are included in this paper. Summary data on South African reporting banks' international claims and international liabilities vis-à-vis each country are provided in an appendix table. Table 2 below condenses the lengthy country-by-country table by focussing on the major country groupings identified by the BIS.

From Table 2 it is clear that South African banks conduct the bulk of their international business with counterparties in the developed countries. Before the international financial crisis that would probably have been considered a strong point. Furthermore, the South African banks' international claims exceed their international liabilities by a significant margin. While the table shows the "net claims" of South African banks on each country grouping, it is likely that the debtor and creditor parties in each country grouping are different entities, so that if difficulties should arise, very little netting of positions would be possible. In other words, the gross exposure to each country or country grouping would be the important variable to monitor, should there be concerns regarding the financial health of that country or group of countries.

Table 2: International claims and liabilities of South African banks: Major country groupings, end March 2010

Million US dollar

Vis-à-vis country	Claims	Liabilities	Total business	Net claims
Developed countries	47082	34034	81116	13047
Offshore centres	2294	4808	7103	-2514
Developing Europe	29	3	32	26
Developing Latin America&Caribbean	901	23	924	878
Developing Africa and Middle East	1593	4220	5814	-2627
Developing Asia and Pacific	334	615	949	-281
International organisations	3	0	3	3
Unallocated	483	0	483	483
All countries	**52718**	**43703**	**96421**	**9014**

Note: The table should be interpreted as follows: at the end of March 2010 South African banks had claims on parties in developed economies amounting to US$47082 million (having extended loans to those parties, having acquired debt securities issued by them or having other claims on them). At the same time South African banks owed parties in developed countries US$34034 million (having attracted deposits from them, having issued own debt securities to them or having other liabilities to them). A similar interpretation applies to the other country groupings. "Total business" is the sum of "claims" and "liabilities", and "net claims" is the difference.

Source:South African Reserve Bank locational banking statistics dataset in respect of 31 March 2010

Within the major country groupings of Table 2, individual countries may experience divergent conditions and pose different levels of risk. In Table 3 the twelve most important countries are identified, based on total business (claims plus liabilities) with South African banks. The dominance of the United Kingdom stands out, well above Germany and the United States which take the second and third place. South African banks report significantly more claims on parties in the United Kingdom than liabilities to the same country. The reverse is true in the case of the Isle of Man, Namibia and China. However, as mentioned above, the gross claims and gross liabilities vis-à-vis a country are probably more relevant than net claims when fathoming the riskiness of banks' exposure to that country.

Table 3: International claims and liabilities of South African banks: Top twelve countries, end March 2010

Million US dollar

	Claims	Liabilities	Total business	Net claims
United Kingdom	27432	18320	45752	9112
Germany (including ECB)	6951	6181	13132	770
United States	5913	5150	11064	763
Isle of Man	1270	4594	5864	-3324
France	1904	1053	2957	851
Switzerland (including BIS)	1080	1063	2143	18
Canada	650	633	1283	17
Netherlands	847	432	1280	415
Namibia	143	1034	1177	-892
Ireland	610	358	969	252
Brazil	899	0	899	899
China	109	500	609	-391

Source:South African Reserve Bank locational banking statistics dataset in respect of 31 March 2010

It is possible to provide various further disaggregations of the locational banking statistics. For instance, total international claims can be subdivided into three broad categories. For the South African banks, loans is the largest category on the asset side of the balance sheet, as can be seen in Table 4.

Table 4: International claims of South African banks by type, end March 2010

Million US dollar

International claims: Loans	26,596
International holdings of debt securities	1,732
Other international assets	24,390
All claims	**52,718**

Source:South African Reserve Bank locational banking statistics dataset in respect of 31 March 2010

Statistical and supervisory authorities usually restrict the information made available to the public to aggregate data or data combined in such a way that the numbers for any single institution cannot be inferred. This is also the case with the BIS locational banking statistics. However, for internal analyses of risk in the central bank the data for individual institutions can be utilised – for instance to establish if a specific bank is increasing or decreasing its exposure to a specific country at a pace which seems exceptional.

All in all, participation in BIS locational banking statistics has made it possible to undertake a country-by-country analysis of external positions for the domestic banking sector on a quarterly basis. It serves to track the development of external positions in more detail than before and adds a further tool to enhance the compilation of the balance of payments. With the Special Data Dissemination Standard (SDDS) of the International Monetary Fund also set to require quarterly reporting of international investment position data in four years' time (Financial Stability Board and International Monetary Fund 2010, p8), this may be a helpful data source to already have in place.

Utilising data from formalised exchanges to improve measurement of cross-border flows

The South African bond and share markets are liquid and are underpinned by a well-developed infrastructure. The exchanges and the central bank have cooperated over many years to establish efficient mechanisms for the transfer of relevant data to facilitate analysis of the bond market.

As a consequence, it is possible to disaggregate the transactions flowing through the bond and share market using a variety of perspectives. Transactions between residents and non-residents can be identified since the trading system captures the necessary classification codes for buyers and sellers.

There are many perspectives which can be investigated using the comprehensive sets of data from the formalised exchanges. The full underlying datasets include all dimensions required to administratively carry through each transaction, from the specific instrument traded, the quantity, price and relevant dates to the details of the buyer and seller. The extracts below are illustrative only, and analysts and compilers can pursue further dimensions as required. The compilers of the South African balance of payments and the flow of funds accounts have intensified the analysis of data from the exchanges in order to improve measurement and understanding of what is measured in this area, picking up exceptional transactions and pursuing the story behind them.

Table 5 shows the purchases and sales of shares and bonds by non-resident parties in respects of the second quarter of 2010, based on the data obtained from the formalised exchanges. The gross and net amounts are substantial, as is

clear when expressing the various transaction flows as a percentage of gross domestic product. In linking it to the balance of payments, however, one should be careful not to assume that the net purchases amounts are matched by a net inflow of foreign currency into the South African economy. In many instances non-residents have rand deposit accounts in South Africa, and may for instance buy shares from South African residents drawing down those deposits. In such cases, while there may be a net inflow of *portfolio capital*, it would be matched by an outflow of *other capital* as the deposit liabilities of the domestic banking sector to non-residents are reduced. This is not to deny that sustained net purchases of shares and bonds by non-residents at some point have to be funded (or prefunded) by net inflows of foreign currency into the country. However, there could be substantial lags involved.

Table 5: Non-resident transactions on the South African share and bond markets, 2nd quarter 2010

	Purchases	Sales	Net purchases
R millions:			
Shares	113 019	104 207	8 812
Bonds...	469 188	449 081	20 107
Percentage of GDP:			
Shares	17,7%	16,3%	1,4%
Bonds...	73,3%	70,2%	3,1%

Source: South African Reserve Bank, Capital Market and Flow of Funds Division, based on underlying data obtained from JSE Limited; and author's estimates

The South African bond market is very liquid, with overall turnover in six to eight weeks equal to one year's gross domestic product. Typically non-residents account for around 10 to 15 per cent of total turnover in this market. A further notable feature is the importance of repurchase transactions in the bond market. On a monthly basis, repurchase transactions typically constitute between 50 per cent and 72 per cent of total turnover in this market (Coetzer & Tlali 2009, p 87).

For Table 6 the bond market dataset was used to show non-resident activity, split between outright and repurchase transactions. The table shows that, as for all (resident plus non-resident) bond market transactions, non-residents' repurchase transactions also constitute a larger part of total turnover than the outright transactions which they enter into. Repurchase transactions are essentially collateralised lending over money-market time horizons – typically from one day to two or three months. The purchase and repurchase prices are such that they yield a money-market rate of return, although the underlying bond may have a very long maturity. With current money-market interest rates in South Africa

around 6,5 per cent per annum and such rates in the mature economies much lower – even close to zero – there is a fair amount of interest by non-residents in the South African repurchase market.

Table 6: Outright and repurchase transactions by non-residents on the South African bond market, 2nd quarter 2010

R millions

	Purchases	Sales	Net purchases
Bonds: Repurchase transactions............	277 059	277 248	-189
Bonds: Outright.......................................	192 129	171 833	20 296
Bonds: Total..	469 188	449 081	20 107

Source: South African Reserve Bank, Capital Market and Flow of Funds Division. Based on underlying data obtained from JSE Limited

Table 7 provides more particulars regarding the countries from which non-resident participants in the South African bond market operate. For both repurchase and outright transactions, the United Kingdom is overwhelmingly the most important counterparty country. This is not unexpected, given the historical linkages between South Africa and the United Kingdom and the fact that so many institutions from various countries have offices in London through which they conduct a significant part of their financial business. Namibia, Belgium and the United States are also responsible for significant transaction values in the bond market.

It follows from the above remarks that it is possible for an institution in, say, the United Kingdom to purchase South African bonds, but in fact to be doing so on behalf of an ultimate beneficiary in another country. Since the transaction is booked from the United Kingdom, the South African bond exchange information would not reveal that. For this reason data from an exchange should be treated with some caution, as compilers would know. The ideal, of data revealing the country of the ultimate beneficiary in each and every instance, is unlikely to be met by data from exchanges.

Table 7: Non-resident transactions on the South African bond market by residency

R millions

	Purchases	Sales	Net
Repurchase transactions			
United Kingdom.................................	269 459	269 640	-181
Namibia...	6 685	6 694	-9
United States of America..................	915	914	1
Total	**277 059**	**277 248**	**-189**
Outright transactions			
United Kingdom	182 795	165 895	16 900
Belgium	3 628	2 177	1 451
Namibia...	3 212	2 184	1 029
United States of America	1 838	1 411	428
Ireland	399	0	399
Lesotho	138	19	118
Euro countries not elsewhere	0	105	-105
Mauritius	63	11	52
France..	52	30	22
Swaziland..	2	1	1
Switzerland	0	1	-1
Unidentified (invalid country code)..	3	0	3
Total	**192 129**	**171 833**	**20 296**

Source: South African Reserve Bank, Capital Market and Flow of Funds Division. Based on underlying data obtained from JSE Limited

Limits to the contribution which economic statistics can make

In dealing with and preventing financial crises, one should be careful not to underplay but also not to overplay the role which economic statistics can play. There are great benefits in consistent, reliable and timely data, compiled utilising the guidance provided in the major international statistical frameworks such as the *System of National Accounts* and the *Government Finance Statistics Manual*. Sensible improvements are also underway in the area of financial soundness indicators, following recent work and initiatives.

Economic statistics will always be crucial in getting the facts on the table and analysing events. And when a particular data series escalates or declines very rapidly, it is well worth investigating, usually to gain an understanding of the forces driving the trend and sometimes to initiate corrective action, provide guidance, issue warnings, revisit regulations etc.

Nevertheless, one should not expect economic statistics to reveal each weakness and pre-empt each crisis. However detailed the classification system and rigorous the analysis of the data, there are micro-details which are not revealed by the data. For instance, even if derivative instruments are split into the most detailed classes with transactions and balances being reported timeously, the individual contracts are likely to require detailed micro-examination to establish their health or otherwise, before coming to a conclusion. Even then some risks may evade detection. Furthermore, elements somewhat removed from economic and financial statistics, such as the conduct of policymakers and of financial regulators themselves during a period of high systemic risk, may be of a more crucial nature in preventing certain types of financial crises.

One should be mindful that economic data are generally not good at revealing the true underlying motives of transactors. For instance, investment in long-term securities by an institution managing long-term savings seems to imply a long-term investment time horizon. However, in the presence of secondary markets, which are nowadays no longer confined to the mature economies, it is possible for such investment to be liquidated very quickly – and perhaps despite the initial intention having been to keep the investment until maturity.

A related issue is the escalation of reporting burden and compliance cost. A balance needs to be struck here, too. While it seems ideal to know everything about everything and develop elaborate reporting systems with this in mind, there is a real cost to pushing the reporting boundary further and further out. One unintended consequence is increasing the attractiveness of disintermediation, pushing business previously done through regulated financial institutions to unregulated ones or to direct transactions between ultimate savers and ultimate borrowers. It seems sensible to make special efforts so that that true cost of compliance is revealed to regulators and compilers of economic statistics, before making changes to the reporting boundary.

Conclusion

The South African authorities have recently enhanced the monitoring of cross-border positions and flows, while at the same time reducing the time lags involved. Enhancements include the compilation of BIS locational banking statistics and more detailed analysis of the comprehensive datasets obtained from the South African bond and share markets. These enhancements form part of a general drive to embrace good practices and meet international statistical standards, but are of course helpful in the context of the various initiatives in the

wake of the international financial crisis. The crisis strongly demonstrated the highly interconnected nature of the global financial system, and the importance *inter alia* of information regarding the magnitude of the exposure of each country to every other country.

However, addressing data gaps – whether revealed by the crisis or by the perpetual drive to improve economic statistics – should not be seen as a panacea for all possible ills in the financial system. Economic statistics can make a significant contribution towards financial stability and sound policy-making, but there are limits to it, and the reporting boundary should be determined with due regard to both the costs and benefits involved. The South African authorities are satisfied with the ratio of benefits to costs of the statistical initiatives described in this paper, and a few more in the pipeline.

References

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Appendix Table A1: International claims and liabilities of South African banks: All countries, end March 2010

Million US dollar

Vis-à-vis country	Claims	Liabilities	Total business	Net claims
Austria	192	19	211	173
Belgium	370	52	422	318
Denmark	334	102	437	232
Finland	3	8	11	-5
France	1904	1053	2957	851
Germany (including ECB)	6951	6181	13132	770
Greece	0	18	18	-18
Iceland	15	0	15	15
Ireland	610	358	969	252
Italy	140	12	152	128
Luxembourg	18	235	253	-217
Netherlands	847	432	1280	415
Norway	10	10	20	0
Portugal	48	5	53	43
Spain	56	3	59	
Sweden	22	6	28	16
Switzerland (including BIS)	1080	1063	2143	18
United Kingdom	27432	18320	45752	9112
Australia	149	50	198	99
Canada	650	633	1283	17
Japan	71	43	114	28
New Zealand	2	2	4	0
United States	5913	5150	11064	763
Residual developed countries	262	277	539	-15
Developed countries	**47082**	**34034**	**81116**	**13047**
Bermuda	0	3	3	-3
Cayman Islands	3	19	22	-16
Guernsey	59	22	81	37
Hong Kong SAR	167	26	193	141
Isle of Man	1270	4594	5864	-3324
Jersey	1	2	3	-1
Macao SAR	0	1	1	-1
Mauritius	332	114	446	218
Netherlands Antilles	13	3	16	10

Singapore	335	18	353	317
West Indies	0	6	6	-6
Residual offshore centres	114	0	114	114
Offshore centres	**2294**	**4808**	**7103**	**-2514**
Estonia	1	0	1	1
Russia	5	1	6	4
Serbia	0	1	1	-1
Turkey	21	0	21	21
Ukraine	1	0	1	1
Developing Europe	**29**	**3**	**32**	**26**
Brazil	899	0	899	899
Chile	0	1	1	-1
Haiti	1	0	1	1
Paraguay	0	16	16	-16
Uruguay	0	6	6	-6
Venezuela	1	0	1	1
Developing Latin America&Caribbean	**901**	**23**	**924**	**878**
Algeria	0	1	1	-1
Angola	52	518	570	-466
Benin	1	0	1	1
Botswana	52	76	128	-24
Burundi	0	2	2	-2
Cameroon	1	1	2	0
Congo	23	11	34	12
Congo Democratic Republic	82	0	82	82
Cote d'Ivoire	0	3	3	-3
Egypt	27	7	34	20
Eritrea	0	3	3	-3
Ethiopia	1	21	22	-20
Gabon	1	1	2	0
Ghana	99	7	106	92
Iran	0	469	469	-469
Israel	3	3	6	0
Jordan	0	1	1	-1
Kenya	66	100	166	-33
Lesotho	10	488	499	-478
Libya	0	2	2	-2
Madagascar	6	2	8	4
Malawi	26	16	42	10

Mozambique	161	99	260	63
Namibia	143	1034	1177	-892
Niger	1	0	1	1
Nigeria	84	134	218	-50
Qatar	50	0	50	50
Rwanda	2	0	2	2
Saudi Arabia	2	102	104	-100
Seychelles	7	1	8	6
Swaziland	22	554	576	-533
Tanzania	97	39	136	58
Uganda	39	17	56	22
United Arab Emirates	10	11	21	-1
Zambia	111	58	169	52
Zimbabwe	204	76	280	128
Residual Africa and Middle East	208	358	567	-150
Developing Africa and Middle East	**1593**	**4220**	**5814**	**-2627**
Afghanistan	1	0	1	1
China	109	500	609	-391
Chinese Taipei	3	72	75	-69
India	74	19	93	54
Indonesia	0	1	1	-1
Kazakhstan	24	0	24	24
Malaysia	20	1	21	19
North Korea	1	0	1	1
Pakistan	1	4	5	-3
South Korea	0	8	8	-8
Thailand	101	8	109	93
Residual Asia and Pacific	0	1	1	-1
Developing Asia and Pacific	**334**	**615**	**949**	**-281**
International organisations	3	0	3	3
Unallocated	483	0	483	483
All countries	**52718**	**43703**	**96421**	**9014**

Note: Countries where South African banks have no claims or liabilities have been excluded from the table. Components may not add to totals due to rounding.

Source:South African Reserve Bank locational banking statistics dataset in respect of 31 March 2010