

## **A financial Ratio Analysis of Commercial Bank Performance in South Africa**

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### **Abstract**

*This paper investigates the performance of South Africa's commercial banking sector for the period 2005- 2009. Financial ratios are employed to measure the profitability, liquidity and credit quality performance of five large South African based commercial banks. The study found that overall bank performance increased considerably in the first two years of the analysis. A significant change in trend is noticed at the onset of the global financial crisis in 2007, reaching its peak during 2008-2009. This resulted in falling profitability, low liquidity and deteriorating credit quality in the South African Banking sector.*

### **1. Introduction**

Commercial banks in South Africa have undergone immense regulatory and technological changes since the attainment of constitutional democracy in 1994. South African banks are faced with increasing competition and rising costs as a result of regulatory requirements, financial and technological innovation, entry of large foreign banks in the retail banking environment and challenges of the recent financial crisis. These changes had a dramatic effect on the performance of the commercial banks. Most studies on bank performance in South Africa have focused on branch performance [see Oberholzer and Van der Westhuizen (2004); O'Donnell and Van der Westhuizen, (2002); Okeahalam (2006)]. More recently, Cronje (2007) and Ncube (2009) studied the efficiency of South African banks using Data Envelopment Analysis (hereafter DEA), studying the periods 1997-2007 and 2000-2005 respectively. This study evaluates bank

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performance for the period 2005-2009 using financial ratio analysis (hereafter FRA). The present study is different from earlier studies in two ways: sample coverage and methodology. Covering South Africa's big banks in the period both prior to, and after the 2007 subprime meltdown highlights important changes that have occurred in the banking industry and tease out appropriate policy for improving bank performance. Compared to extant literature we favour FRA because it is effective in distinguishing high performing banks from others, tends to compensate for disparities and controls for any size effect on the financial variables being studied (Samad, 2004). Additionally, financial ratios enable us to identify unique bank strengths and weaknesses, which in itself inform bank profitability, liquidity and credit quality. The rest of the paper is organised as follows: the next section offers background information on the financial system in South Africa. Section 3 outlines the past studies in bank performance. The methodology and data used are described in section 4. Section 5 presents and analyses the results and section 6 concludes.

## **2. Banking in South Africa**

While ranked in the top 20 of world economies by size, the South African economy remain relatively small accounting for less than 1 per cent of global GDP (Baxter, 2008). Despite being small by global standards, South Africa is the economic powerhouse of Africa, leading the continent in industrial output and mineral production and generating a large proportion of Africa's electricity (Brand, 2009). South Africa's economic performance during the first decade of freedom was impressive, with favourable external environment and strong domestic demand helping raise GDP growth to 5 % on average in 2004–2007 and lowering the unemployment rate by 5% (Ramcharan, 2009).

The consistent performance ensured by a prolonged economic expansion, supported by prudent economic policies and improving macroeconomic fundamentals resulted in low inflation, high commodity prices and increased investor confidence. In such favourable economic conditions, the banking sector played an essential role in the economic growth of the country. However, the global financial crisis of late 2007 sharply changed the outlook for an already slowing economy and South Africa was not immune to the impact of the global financial crisis-induced economic slowdown (Baxter, 2008). Slower economic growth in key export markets, lower commodity prices and a slowdown in capital flows to developing countries had a negative impact on the South African economy. Negative growth was experienced in the fourth quarter of 2008 and

the South African economy officially entered into a recession in the first quarter of 2009 (SARB, 2009). The table below shows the South African economic indicators for the period 2005-2009. The real GDP growth has been increasing since 2000. The growth rate was 5.3% for 2006 before falling to 5.1% in 2007 when the financial crisis started. However as can be seen, the growth rate then drastically fell to 3.1% for 2008 before settling on a negative 1.8 % in 2009 reflecting the above mentioned effects of the financial crisis on the South African economy GDP growth. Inflation, which has remained outside the 3–6 % target band since 2007, peaked to 11.5% in 2008 as shown in table 1.

Table 1: South Africa’s Key Economic Indicators

	2005	2006	2007	2008	2009
Real GDP	5.0	5.3	5.1	3.1	-1.8
CPI (annual average)	3.4	4.7	7.1	11.5	7.4
CPIX (end of period) 1	4.0	5.0	8.6	10.3	Na
Unemployment rate (percent)	26.2	25.5	22.7	21.9	24.9
Broad money (end of period)	20.5	22.5	23.6	14.8	7.9
National government budget balance (percent of GDP)	-0.6	0.4	0.8	-0.7	-4.4
National government debt (percent of GDP)	35.2	33.0	28.5	27.3	30.2
External current account balance (percent of GDP)	-4.0	-6.3	-7.3	-7.4	-4.4
External debt (percent of GDP)	19.0	22.1	26.6	25.9	27.3
Gross reserves	2.9	3.1	3.7	4.6	4.5
US Dollar exchange rate (rand per u.s. dollar)	6.33	6.97	6.81	9.53	Na

Sources: South African Reserve Bank; IMF, International Financial Statistics; and IMF Staff projections. Since January 2009, a reweighed and rebased CPI replaced the previously used CPIX (the consumer price index excluding the interest on mortgage loans) as the targeted measure of inflation.

Despite the apparent worsening of the economic indicators, South Africa maintained strong macro-fiscal stabilization measures and had progressed on several socio-economic fronts before the crisis<sup>1</sup> hence the economy’s resilience to the global financial crisis. Consequently, for an open economy intricately woven into the ‘fabric’ of the global economy, South Africa weathered the global

crisis relatively well compared to other countries in the region (Baxter, 2008).

South Africa's 1994 transition from apartheid to constitutional democracy has been one of the most important political achievements of its time. The safe political and business environment resulting from the attainment of democracy opened up opportunities for new domestic entrants to the banking system (Van der Walt, 1998). The biggest increase in new bank registrations was in 1996, when registrations rose from 35 to 44. However, this was followed by the biggest shakeout during 1999 when these banks faced liquidity pressures which saw them exiting the banking system (Mboweni, 2004). Between 1996 and 2004 more than half of these banks disappeared, including Saambou in 2002 when, like a few other small banks, it was denied access to lender-of last resort facilities (Gilbert *et al*, 2009). Mboweni, (2004) has argued that the downward spiralling of the small and medium banks was due to consolidation in the banking sector rather than failure of the small and medium banks. A fact also supported by Gilbert *et al*, (2009:68) who states that the change in the banking scene was as a result of the "rationalisation of the banking system whereby organisational specific, functional specialisation was replaced by functional diversification within multifunction institutions".

The socio-political changes led to structural changes in the banking sector as well as the delivery of financial services. The political transformation, relaxation of exchange controls and liberalisation of the economy resulted in South Africa increasingly becoming an important financial centre (Mboweni, 2004; Murinde, 2009). Such financial liberalisation did not only bring greater competition for traditional domestic banks but also improved the quality and availability of financial services in South Africa. In September 2004 Barclays announced its intention to acquire a majority shareholding in ABSA, South Africa's second largest bank. This event signalled the UK banking giant's return to banking in South Africa having been forced out by economic sanctions and political instability in 1986. These events signified the reintegration of the South African domestic economy into the global environment evidenced by the relaxation of the exchange controls and the provision of financial services to the poor, non-white population that was practically excluded from the formal financial services in the apartheid era (Napier, 2006).

The South African banking industry is also characterised by international links through correspondent banking relations with off-shore banks and international institutional investments in domestic banks. Therefore, regulation

and supervision of banking is still an issue, especially with respect to financial innovations such as derivative instruments and in light of the 2007-2009 global financial crisis (Murinde, 2009). The 1990 Banks Act was amended in 2008, to align the South African banking legislative framework with the principles of Basel II. Banking regulation is aimed at a balance between enhanced stability of the banking sector and the costs of reduced competition, struck by successive rounds of bank regulation (Gilbert *et al*, 2009). Generally, South Africa's approach to financial system stability places considerable reliance on private and market forces to achieve financial system stability with Rossouw (2009) arguing that any government intervention would be at the minimum level and only needed to contain systemic risk.

At the heart of the South African banking system is the South African Reserve Bank (SARB), established in 1921. As at the end of 2009 the banking sector consisted of 12 locally controlled banks, 6 foreign controlled banks and 2 mutual banks (SARB, 2009). Further, the banking sector has 42 international banks with authorised representative offices in South Africa. The banking sector is highly concentrated with the largest four banks holding 86.4% of the total industry assets (SARB, 2009; Greenberg and Simbanegavi, 2009). Most economists would analyse the level of concentration in a banking industry using indicators such as Herfindahl–Hirschman Index, N-firm concentration ratio and Learner's index of monopoly (Calem and Carlino, 1991). An H-index above 0, 18 represents a highly concentrated industry that goes some way to indicating the presence of an oligopoly. An 'oligopoly' can be defined as an imperfectly competitive market structure in which a few institutions dominate the industry. Such a description may fit the South African banking industry whose index has been above 0.18 since 2005 (SARB, 2009).

Although the South African banking sector has been relatively insulated from the direct impacts of the global financial-sector crisis through appropriate monitoring and supervision of the domestic banking sector, the negative contagion effects of the crisis had a negative effect on bank balance sheets (SARB, 2008: 2009). The aggregated balance sheet of the banking sector in South Africa equalled R1 677 billion in 2005. The sector's balance-sheet size then grew to R3 177 billion 2008 (135, 4 % of GDP), followed by a decline in asset growth during 2009, ending the year at R2 967 billion (118, 5 % of GDP). Banking sector assets comprise mainly loans and advances, followed by derivative financial instruments. Home loans and term loans represent

approximately 52% of the total assets while commercial mortgages represent 9.7%. On the liabilities side, deposits constitute a significant percentage of banking-sector liabilities amounting to 79, 6 % in 2008 and 85, 4 % in 2009. Deposits by corporate customers which constitute the largest portion of banking-sector deposits amounted to 42, 5 % in 2009, followed by retail customers and bank deposits, which accounted for 22, 3 % and 13, 7 %.

### **3. Previous research on bank performance**

The measurement of bank performance particularly commercial banks is well researched and has received increased attention over the past years (Seiford and Zhu, 1999). There have been a large number of empirical studies on commercial bank performance around the world (see Yeh, 1996; Webb, 2003; Lacewell, 2003; Halkos and Salamouris, 2004; Tarawneh, 2006). However, little has been done on bank performance in South Africa. However, with the deteriorating health of the banking institutions and the recent surge of bank failures as a result of the current global financial crisis, it is justified that bank performance receives increased investigation from both scholars and industry specialists.

There are two broad approaches used to measure bank performance, the accounting approach, which makes use of financial ratios and econometric techniques. Traditionally accounting methods primarily based on the use of financial ratios have been employed for assessing bank performance (Ncube, 2009). However, the limitations of this method coupled with advances in management sciences have led to the development of alternate methods such as non-parametric DEA and parametric Stochastic Frontier Approach (hereafter, SFA) (Berger and Humphrey, 1997).

Berger & Humphrey (1997) assert that the whole idea of measuring bank performance is to separate banks that are performing well from those which are doing poorly. They further indicated that, “evaluating the performance of financial institution can inform government policy by assessing the effects of deregulation, mergers and market structure on efficiency” (p175). Bank regulators screen banks by evaluating banks’ liquidity, solvency and overall performance to enable them to intervene when there is need and to gauge the potential for problems (Casu *et al*, 2006). On a micro-level, bank performance measurement can also help improve managerial performance by identifying best and worst practices associated with high and low measured efficiency.

This brief review will focus upon studies on South Africa and other

emerging economies. When looking to improve their performance, banks compare the performance of their peers and evaluate the trend of their financial performance over time. Tarawneh (2006) in his study measured the performance of Oman commercial banks using financial ratios and ranked the banks based on their performance. The study utilised FRA to investigate the impact of asset management, operational efficiency and bank size on the performance of Oman commercial banks. The findings indicated that bank performance was strongly and positively influenced by operational efficiency, asset management and bank size.

In the Gulf, Samad (2004) investigated the performance of seven locally-incorporated commercial banks during the period 1994-2001. Financial ratios were used to evaluate the credit quality, profitability, and liquidity performances. The performance of the seven commercial banks was compared with the banking industry in Bahrain which was considered a benchmark. The article applied a Student's *t*-test to measure the statistical significance for the measures of performance. The results revealed that commercial banks in Bahrain were relatively less profitable, less liquid and were exposed to higher credit risk than the banking industry, in which wholesale banks are the main component.

Kiyota (2009) in a two- stage procedure investigated the profit efficiency and cost efficiency of commercial banks operating in 29 Sub-Saharan African countries during 2000-2007. The article employs the SFA for the estimation of profit and cost efficiency, financial ratios and the Tobit regression to provide cross-country evidence on the performance and efficiency of African commercial banks. The findings based on a range of performance ratios as well as stochastic cost and profit frontier estimation, suggest that foreign banks tend to outperform domestic banks in terms of profit efficiency as well as cost efficiency. The results are also in line with the research by Kirkpatrick *et al* (2007) who used a sample of 89 banks from Sub-Sahara African countries for the period 1992-1999 and found that banks are on average 67% profit efficient and 80% cost efficient, as indicated by the results from both the distribution free approach and SFA methods.

O'Donnell and Van der Westhuizen (2002) measured the efficiency of a South African bank at branch level. Their main focus was investigating branches which were performing well and those that were doing badly, where efficiency could be improved. They found that many branches were operating on a scale that is too small and could increase their operational scales thereby improving the overall efficiency of the bank. In a similar approach, Okeahalam (2006)

used the Bayesian SFA to assess the production efficiency of 61 bank branches in nine provinces of South Africa. The findings of the study points to the fact that although every branch is operating at increasing returns to scale, the bank branches can reduce their cost by 17% if they improve the level of efficiency. Overall the article concludes that the bank branches are less efficient than they should be and could obtain cost reductions by increasing output.

Further, Oberholzer and Van der Westhuizen (2004) investigated the efficiency and profitability of ten banking regional offices of one of South Africa's larger banks. This study demonstrates how conventional profitability and efficiency analyses can be used in conjunction with DEA. Although their study concentrated on banking regions, their findings confirm those of Yeh (1996) that DEA results as an efficiency measure have a relationship with both profitability and efficiency ratios. The conclusions were that there are significant relationships between conventional profitability and efficiency measures and allocative, cost and scale efficiency and no significant relationship with technical efficiency.

Most of the above mentioned studies concentrated on branches of a single bank, one of the studies that investigated the entire South African banking sector is Cronje (2007) who employed the DEA method and a sample of 13 South African banks to provide a measure of the efficiency of the South African banks. His findings show that out of the 13 banks, the three largest banks are efficient and serve as a standard for the banks classified as inefficient. The fourth largest bank showed a slight inefficiency. Overall, seven banks were classified as inefficient and the article recommends target areas for the banks to improve their efficiencies with guidelines that bankers in inefficient banks could use to increase their sustainable profitability. The results of this study are in sharp contrast to studies in the UK where Drake (2001) and Webb (2003) found the larger banks less efficient. This difference could be attributed to the differences in operating environment as South Africa is an emerging economy with a different political and economic history where as UK is a developed country.

Another study that provides a brief but interesting account of bank performance was conducted by Ncube (2009) who uses the stochastic frontier model to analyse the cost and profit efficiency of four large and four small South African banks. The results of the study show that South African banks have significantly improved their cost efficiencies between 2000 and 2005 with the most cost efficient banks also being most profit efficient. However, efficiency

gains on profitability over the same time period were found not to be significant.

#### 4. Methodology and Data

This paper uses a descriptive financial ratio analysis to measure, describe and analyse the performance of commercial banks in South Africa during the period 2005-2009. Additionally, to examine whether the difference in performance of the banks in 2005-2006 is statistically different from that of 2008-2009 a student's *t*-test is employed to test the hypothesis that the means of the two periods are the same on the seven variables as detailed in section 4.1.

The following hypothesis has been tested:

$$H_0: \mu_1 = \mu_2,$$

Where  $\mu_1$  is the mean for 2005-2006 and  $\mu_2$  is the mean for 2008-2009. Inferences about the hypothesis are made by looking at test statistics and critical values associated with the mean. If *P*-value  $\leq \alpha$ , reject the null hypothesis. If *P*-value  $> \alpha$ , do not reject the null hypothesis. The results of the test are to be handled with caution as there are very few observations and the statistical tool might not be very effective when the sample is small.

The selection of the FRA method for this study is motivated by the fact that from the review of past studies on banking in South Africa and to the researchers' knowledge, no researcher has used FRA to measure the performance of commercial banks in South Africa during 2005-2009. Authors Oberholzer and Van der Westhuizen (2004) used the method in measuring branch performance however, the authors concentrated on branches of a single large bank. The main advantage of FRA is its ability and effectiveness in distinguishing high performance banks from others and the fact that FRA compensates for disparities and controls for any size effect on the financial variables being studied (Samad, 2004). Additionally, financial ratios can be used to identify a bank's specific strengths and weaknesses as well as providing detailed information about bank profitability, liquidity and credit quality policies (Hempel *et al*, 1994; Dietrich, 1996). FRA permits a historical sketch of bank returns and risks which Hempel *et al*, (1994) suggests presents an opportunity to evaluate the past performance of the bank which is an important step for planning for future performance. Although accounting data in financial statements is subject to manipulation and financial statements are backward looking, they are the only detailed information available on the bank's overall activities (Sinkey, 2002). Furthermore, they are the only source of information for evaluating the management's potential to generate satisfactory returns in future.

The population for this research comprise of all the banks operating in South Africa between 2005 and 2009. A sample of the top five commercial banks was selected based on the value of their total assets at the end of the 2009 financial year end. These are the banks that dominate the sector with the top 4 banks controlling 84.6% of the total industry assets which makes them systemically important banks. The fact that all banks could not be included in the study constrains the validity of the study. However, only the five largest South African banks (FirstRand Bank, Absa, Nedbank, Standard Bank and Imperial bank<sup>2</sup>) offer a comprehensive variety of financial services right through South Africa, all the other banks are aimed at niche markets or confined to geographical operations. The data was obtained from Bankscope and the bank's financial statements and websites.

#### 4.1 The Variables

##### A. Profitability Performance

The most common measure of bank performance is profitability. Profitability is measured using the following criteria:

**Return on Assets (ROA) = net profit/total assets** shows the ability of management to acquire deposits at a reasonable cost and invest them in profitable investments (Ahmed, 2009). This ratio indicates how much net income is generated per £ of assets. The higher the ROA, the more the profitable the bank.

**Return on Equity (ROE) = net profit/ total equity.** ROE is the most important indicator of a bank's profitability and growth potential. It is the rate of return to shareholders or the percentage return on each £ of equity invested in the bank.

**Cost to Income Ratio (C/I) = total cost /total income** measures the income generated per £ cost. That is how expensive it is for the bank to produce a unit of output. The lower the C/I ratio, the better the performance of the bank.

##### B. Liquidity performance

Liquidity indicates the ability of the bank to meet its financial obligations in a timely and effective manner. Samad (2004:36) states that "*liquidity is the life and blood of a commercial bank*". **Financial liabilities are attracted through retail and wholesale distribution channels. Retail generated funding is**

**considered less interest elastic and more reliable than deposits attracted from wholesale distribution channels** (Thygeson, 1995). The following ratios are used to measure liquidity.

**Liquid assets to deposit-borrowing ratio (LADST) = liquid asset/customer deposit and short term borrowed funds.** This ratio indicates the percentage of short term obligations that could be met with the bank's liquid assets in the case of sudden withdrawals.

**Net Loans to total asset ratio (NLTA) = Net loans/total assets** NLTA measures the percentage of assets that is tied up in loans. The higher the ratio, the less liquid the bank is.

**Net loans to deposit and borrowing (NLDST) = Net loans/total deposits and short term borrowings.** This ratio indicates the percentage of the total deposits locked into non-liquid assets. A high figure denotes lower liquidity.

### **C. Asset Credit Quality (Credit Performance)**

While it is expected that banks would bear some bad loans and losses in their lending activities, one of the key objectives of the bank is to minimize such losses (Casu *et al*, 2006). Credit performance evaluates the risks associated with the bank's asset portfolio i.e. the quality of loans issued by the bank. Several ratios can be used for measuring credit quality however, not all information on the loans is always available. Non-performing loans is not available for all banks therefore this paper use the following ratio:

**Loan loss reserve to gross loans (LRGL) = Loan loss reserve/gross loans.** This ratio indicates the proportion of the total portfolio that has been set aside but not charged off. It is a reserve for losses expressed as a percentage of total loans.

## **5. Results**

This section presents and discusses the results.

### **5.1 Profitability Performance**

In banking the risk-reward trade off is constantly present. Risk taking generates higher expected earnings through various mechanisms. For example

granting high margin loans to risky customers may increase earnings in the short term but it also increases the credit risk profile and the probability of future losses (KPMG, 1998). Figure 1 shows the profitability performance of the South African commercial banking sector for the period 2005-2009. Profitability is measured in terms of ROA, ROE, and Cost-to-Income (C/I).

**Figure 1: Profitability Trend**

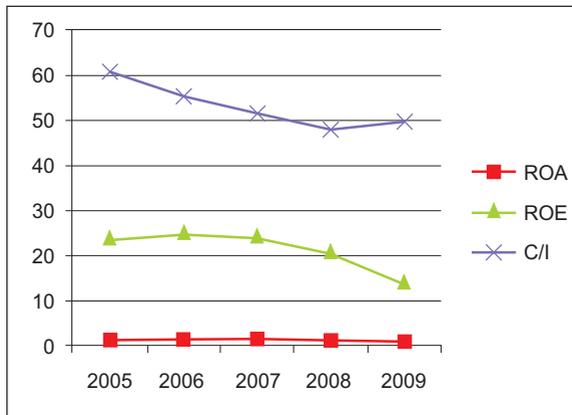


Figure 1 shows an increasing profitability trend from 2005 to 2006 with a slight decrease in 2007. Return on assets increased by 5.14 % from 1.36% in 2005 to 1.43% in 2006 before slightly falling to 1.40% in 2007. The SARB believes that the banks' profitability remained favourable during 2005-2006 due to strong asset growth as the total assets grew from R1, 474 billion in 2005 to R1, 847 billion in 2006 registering an increase of 25.3%. Loans and advances were the main contributors to the increase in assets mainly due to increase in mortgage loans. The higher ratios indicate a better prospective as the high net interest margin was feeding through greater net income thus boosting ROA and ROE.

However, at the onset of the economic downturn bank performance deteriorated slightly. ROA decreased from 1.40% for the year 2007 to 1.17% in 2008 before finally settling on a low 0.80% for the year 2009, a consequence of the global financial crisis and a slowing down in the domestic economy. The downward trend is also reflected in the ROE, which decreased from 24.01% in 2007 to 20.33% in 2008 before drastically decreasing to 13.65% in 2009, reflecting a decline of 35.56%. The downward trend is attributable to a decrease

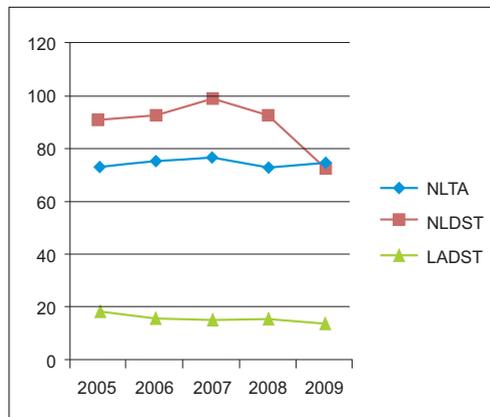
in loans and advances to customers as well as increased credit impairments owing to defaults which negatively impacted profitability.

The trend reflected by ROA and ROE is also reflected in the cost to income ratio, which improved by 9.2% from 60.93 in 2005 to 55.32 in 2006 indicating better efficiency and profitability performance. The ratio continued to show signs of improvement, it strengthened by 6.79% from 51.53 in 2007 to 48.03 in 2008. The steady improvements in cost to income are mainly ascribed to increasing net income reported by the banks which rose by 63% from R 17813 million in 2005 to R 29038 million in 2006 consequent of the lower loan loss provisions and relatively lower operating expenses experienced by the large banks during that period. The decline in the C/I ratio is as a result of cost efficiency levels which Ncube (2009) in his study of efficiency levels in South African banks found to have significantly improved. However, from 2008 the C/I ratio continued to fall at a decreasing rate and eventually increased to 49.65 in 2009.

## ***5.2 Liquidity Performance***

Liquidity performance measures the ability to meet financial obligations as they become due and is crucial to the sustained viability of banking institutions. What began as credit concerns for the US sub-prime market developed into concerns in global credit markets with unknown financial exposures and potential losses (ABSA, 2009). The resultant uncertainty made financial market participants exceedingly risk averse, such that they were unwilling to invest in any markets or financial instruments other than 'safe havens'. This severely reduced the levels of liquidity in the global financial markets (SARB, 2009). South Africa was not immune to such developments and this is reflected in the liquidity ratios. South African banks rely on customer's deposits and their current balances with the South African Reserve bank for their liquidity. These banks are required to hold an average daily amount of liquid assets that shall not be less than 5% of adjusted liabilities<sup>3</sup>. Figure 2 shows the liquidity trend in terms of average net loan to total assets ratio (NLTA), net loan to deposit and short term borrowing ratio (NLDST), and liquid assets to deposits and short term borrowing ratio (LADST).

**Figure 2: Liquidity Trend**



\*\* Imperial Bank data missing in NLDST and LADST for 2009 at the time of data collection

In as much as the ratio of net loans to total assets does not directly measure liquidity, it gives an indication of how much of the bank assets are tied into illiquid loans. From the trend displayed by Figure 2, NLTA increased by 2.84% from 73.00 in 2005 to 75.08 in 2006 and increased again to 76.48 in 2007 when favourable economic conditions and preparations for the World Cup 2010 increased the demand for loans from businesses and allowed banks to grow their loan portfolios. Loans to customers increased by 30% from R1, 005 billion in 2005 to R1, 285 billion in 2006 while total assets increased from R1, 474 billion in 2005 to R1, 847 billion in 2006 and increased by 21.67% to R2, 247 billion at the end of 2008.

In 2008 NLTA dropped to 72.94 before finally increasing again to 73.99 in 2009. The change in the trend signifies the slowing down in loans to customers and a continued increase in impaired loans leading to a decrease in net loans and in total assets which consequently decreased by 4.78% to R2, 673 billion at the end of 2009. Generally, a higher NLTA may indicate possible liquidity problems for banks in a tight credit market in the face of a large deposit withdrawal or in case of unexpected withdrawals. However, the increase in NLTA for the five banks did not pose any liquidity problems as South African banks could still access the cash reserves that they held in excess of the minimum requirement with the reserve bank.

The LADST ratio has been gradually falling for the period under review

indicating reduced liquidity for the banks. The ratio decrease by 14.56% from 18.06 in 2005 to 15.43 in 2006 indicating a fall in the amount of customer and short term funds that could be met if they were suddenly withdrawn. The ratio however slightly increased by 2.03% in 2008 as the amount of liquid assets held by the banks increased by 20% during 2009 as banks increased their investments in instruments qualifying as liquid assets (SARB, 2009). The ratio then decreased from 15.06 to 13.40 in 2009 indicating a further deterioration in liquidity. Therefore in as much as banks have been increasing their percentage of liquid assets that mainly consist of current accounts/reserves with the SARB and other banks, customer deposits and short term funding have also been increasing such that the overall trend continued to show reduced levels of liquidity.

NLDST followed a similar trend increasing by 2.16% from 88.02 in 2005 to 89.93 in 2006 and subsequently increasing by 8.55% to 97.62 in 2007. The increasing trend indicate deteriorating liquidity in the banking sector as more and more assets, customer deposits and short term funding are tied into loans which are classified as illiquid assets. The liquidity of the banks contracted most between the years 2006-2007 when the banks were aggressively increasing their loan portfolios during the country's preparation for World Cup 2010. The variation in the ratio from 2007 onwards is ascribed to changes in both loans to customers and changes in deposit and short term funding. The banks tightened lending standards later in 2008 in response to the global financial crisis such that credit expansion slipped by 2.6% from R1, 842 billion in 2008 to R1, 794 billion in 2009 eventually reaching very low levels and zero growth by the end of the year. The lower rate may also be attributed to a tighter monetary policy stance and the implementation of the stringent risk based lending criteria by the banks as a result of the introduction of the National Credit Act of 2007. While bank loans and advances contracted during 2009, the contraction in credit extension had both demand-side and supply-side elements (SARB, 2009). On the demand side, it would appear that households continued to be reluctant to incur more debt leading to a fall in demand for loans, while on the supply side lending standards have remained tight and led to the slowing down in the growth of loans and advances to customers.

Financial stability issues lie at the profitability-liquidity nexus therefore a decline in liquidity is associated with an increase in profitability, since low liquidity means larger percentage of assets and total deposits are tied with loans. Under normal circumstances rapid loan growth tend to result in higher

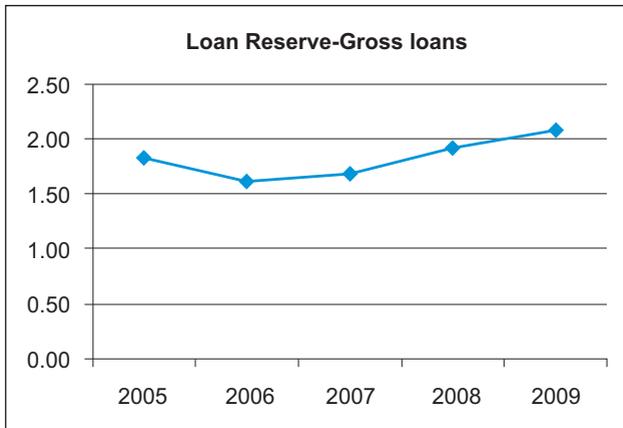
returns and higher risks. However, Saunders and Cornett (2006) argue that rapid growth in assets (loans) than in deposits is indicative of banks using borrowed funds excessively. This seems to highlight the position of the South African commercial banks. There has been a growing trend in loans and advances to customers; however, this increase has not been met by an equal increase in customer deposits. This may then mean South African commercial banks have been turning to purchased liquidity in the form of money market instruments to fund the increase in loans. However, this remains uncertain as the data contained in Bankscope is not adequate to be able to back up the information with detailed ratios. Furthermore, a closer inspection of the balance sheets shows that retail deposits represent only about 25% of total deposits in the South African commercial banking system, while deposits with less than one year maturity represent close to 80% of total deposits (IMF, 2008).

It is therefore worth noting that as a result of the above mentioned issues concerning the composition of the deposits, the South African banking system faces long-standing structural risks rooted in the sector's reliance on short-term wholesale deposits. The IMF has recommended that the SARB explore ways to reduce the risks associated with the banks' reliance on short term wholesale deposits. One of the recommendations is implementing a deposit insurance system to counter such risks and provide the added benefit of inducing household saving to migrate from unguaranteed liquid financial instruments to competing bank deposits, thus strengthening the retail base of banks.

### **5.3 *Asset Credit Quality (Credit Performance)***

Credit performance is concerned with the examination of the risk associated with a bank's asset portfolio. Figure 3 shows a fairly stable trend in the loan reserve to gross loans ratio between 2005 and 2007. However, 2008-2009 shows a significant deterioration in the credit quality. The ratio registered a decline of 12% from 1.83 to 1.61 during 2005-2006 before slightly increasing from 1.61 to 1.68 in 2007. The slight improvement was due to continued growth in loans to customers as well as growth in non performing loans which continued on a downward trend.

**Figure 3: Credit Quality Trend**



Data for imperial bank for LRGL for 2009 was missing at the time of data collection

The loan portfolio deteriorated in 2008-2009 as the ratio increased by 8.33% from 1.92 in 2008 to 2.08 in 2009. Credit risk ratios increased during 2008 indicating the deterioration of the quality of the loan portfolio as compared to 2005. For the period 2008 to 2009 nonperforming loans and advances increased from 2.8% in July 2008, to 5.5 % in August 2009, as a result of the crisis and the period was also marked by an increase in credit losses in line with the tougher market conditions. This is because the banks were more exposed to increased credit risk as risky loans given during the 2005-2006 period began to go bad and the banks reported higher charge off or additional provision for loan losses. Hence South Africa's banks are facing increased credit risk, especially in their home loan portfolios, in the face of record household indebtedness and a mounting debt service burden.

Overall, although risk appetites were adjusted in line with challenging economic conditions and caution was exercised with regard to lending, the operating environment continued to be under pressure during 2009 as evidenced by increased credit impairments and resultant lower profitability levels. This resulted in the quality of the loan portfolio sharply deteriorating during 2008-2009.

### **Hypothesis Testing**

To examine whether the difference in performance of the banks in 2005-2006

is statistically different from that of 2008-2009 a student's *t*- test is employed to test the hypothesis that the means of the two periods are the same on the seven variables. The table below provides a summary of a student's *t*- test results for the two periods under review.

Table 2: Student's T- Test Results

		Mean 2005-2006	Mean 2008-2009	P value	Decision
Profitability	ROA	1.395	0.986	0.006	Reject
	ROE	24.149	16.99	0.009	Reject
	C/ I	58.125	48.842	0.0009	Reject
Liquidity	NLTA	74.04	73.465	0.666	Accept
	NLDST	91.686	82.319	0.391	Accept
	LADST	16.746	14.226	0.207	Accept
Credit quality	LRGR	1.719	1.997	0.542	Accept

With regard to profitability, ROA and ROE shows banks performed better in the period 2005-2006 compared to 2008-2009. As shown in Table 2, the mean for ROA was 1.395 for 2005-2006 compared to the 0.986 for 2008-2009. ROE shows a similar trend with the mean for 2005-2006 being 24.149 compared to 16.99 for 2008-2009. This indicates that the banks significantly progressed in profitability during 2005-2006. The P- values for ROA and ROE are 0.006 and 0.009 respectively, therefore the differences between the performances for the two periods are statistically significant as the P-values are below 0.05 and therefore the null hypothesis has to be rejected leading to the conclusion that profitability deteriorated during 2008-2009. The C/I ratio shows a similar trend, the difference in the C/I means is statistically significant at 95% confidence level as the P-value is 0.0009 and therefore less than 0.05 the null hypothesis is therefore rejected. However, in terms of C/I ratio an improved bank performance is highlighted for the period 2008-2009 as opposed to ROA and ROE which showed better performance for 2005-2006.

Liquidity levels have been falling as a result of the financial crisis. However, the null hypothesis of equality of means for the two different time periods cannot be rejected for NLTA and NLDST as the P-values are 0.666 and 0.391 respectively. This implies that statistically, there is no significant difference between the liquidity performance of the banks in the two periods in terms of

NLTA and NLDST. The means for the LADST shows a different trend with the mean for 2005-2006 being 16.746 while the one for 2008-2009 is 14.226. This indicates that banks have been more liquid in 2005-2006 compared to 2008-2009 in terms of LADST. However, with the P-value being 0.207, the differences are not statistically significant. The improved liquidity is a consequence of more stringent lending procedure and tightening of credit extension procedures in response to the financial crisis.

With respect to credit quality the mean for loan reserve to gross loan ratio is 1.719 for 2005-2006 and 1.997 for 2008-2009 indicating that the loan portfolio deteriorated in 2008-2009. However, the difference is not statistically significant as the P-value is 0.542. Therefore, the null hypothesis cannot be rejected.

From the results of the student *t*-test, it can be argued that despite the financial turmoil that engulfed the global economy and affected financial institutions around the world, statistically significant differences were only observed in profitability performance of the South African commercial banks. On the contrary, no significant differences were observed between the overall performances of the commercial banks in South Africa during the two periods in terms of liquidity and credit quality. This is supported by the null hypothesis of the equality of the means being accepted on liquidity and credit quality and rejected on all three profitability ratios. Although the student's *t*-test is showing a mixture of results on the overall performance, the overall results are consistent with recent literature (See Baxter, 2008; Mminele, 2009) and shows that South Africa side-stepped the worst of the crisis and has been resilient to the global financial crisis. This is mainly because South African commercial banks had no direct exposure to the sub-prime mortgage market, while the banks' international franchises had very limited exposure (SARB, 2009).

## **6. Summary and Conclusion**

This paper measured the performance of South Africa's commercial banking sector over the period 2005-2009. The results indicate that the overall bank performance in terms of profitability, liquidity, and credit quality has been improving since 2005 up to and including 2007. Banks increased the size of their loan portfolios during the period as the country prepared for World Cup 2010. Although the banks aggressively increased their loan portfolios, sound and effective credit risk management policies have been in place so that the lending behaviour could still be contained. This is reflected in the downward trend in

nonperforming loans. However, bank performance deteriorated during 2008-2009 as the banks' operating environment deteriorated due to the global financial crisis and a slowing economy. The analysis has also uncovered that the illiquidity levels in the South African commercial banks has reached extreme levels. This is exacerbated by the banks' dependence on wholesale markets and the fact that deposits with less than one year maturity represent close to 80% of total deposits. Despite these alarming features, South African banks have managed to continue with their normal day to day business during the global financial crisis. South African banks' low leverage, high profitability, and limited exposure to foreign assets and funding allowed them to remain liquid and well-capitalized; obviating any need for extraordinary liquidity or state support.

We also found significant differences in profitability performance for the period 2005-2006 and the period 2008-2009. The results indicate that profitability deteriorated during the later period. There might be several reasons for the significant deterioration in profitability. One of the reasons could be increasing bank operating costs and reduced incomes amid the global financial crisis. Furthermore in these recessionary times, when corporate and private clients find it hard to service their debts, the level of the provision for loan losses and bad debts increased. In contrast, no statistically significant differences were observed between bank performance during the two periods in terms of liquidity and credit quality. The comparable performance results in terms of liquidity and credit quality between these two periods may be as a result of the fact that South Africa entered the downturn with a sound macro/fiscal position, enabling aggressive counter-cyclical fiscal and monetary responses. Notwithstanding the turmoil experienced in international financial markets and the domestic cyclical economic developments during 2008-2009, the South African banking system remained stable; banks were adequately capitalised and profitable. South African banks remained in a sound position weathering the global financial storm, as they benefited from limited exposure to foreign currency debt and the fact that assets at the epicentre of the crisis were minimal in South Africa (SARB, 2008).

## Notes:

1. <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/SOUTHAFRICAEXTN>
2. Investec Bank has been omitted from the sample as it is an investment bank rather than a commercial bank. Capitec Bank, Teba Bank and African bank

have been excluded on the basis that they are micro financing institutions with different profiles from the five banks in the sample.

- Adjusted liabilities' refers to total liabilities reduced by (1) funding received from head office or from other branches within the same group; and (2) amounts owing by banks, branches and mutual banks in South Africa.

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