

Securitisation and bank liquidity in South Africa

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Abstract:

Asset securitisation can be defined as the process where pools of loans, receivables or debt instruments are packaged in the form of securities the credit rating of the securities enhanced and distributed to investors. Asset securitisation developed in the USA in response to the savings and loan crisis of the 1970s and early 1980s. Savings and loan institutions in the USA experienced a squeeze of interest rate margins due to short-term liabilities funding long-term assets, which subsequently led to liquidity problems as depositors withdrew their deposits for fear of losses. While the South African banking industry is regarded as having a high degree of soundness and sophistication, it has also experienced its fair share of liquidity problems during the past seven years. A lack of liquidity led to the fall of New Republic Bank (1996), FBC Fidelity (1999), Regal Treasury (2001) and Saambou Bank (2002). The question that this article intends to address is whether asset securitisation can be implemented in the South African banking realm to reduce the liquidity risk faced by these institutions. This article therefore aims to indicate how securitisation can be applied by South African banks to improve their liquidity ratios or indicators and access to liquidity. To reach this goal, case studies will be presented and the results indicate that the liquidity ratios do improve after asset securitisation, but the degree of improvement depends on the application of the funds obtained through the process.

1. BACKGROUND

“Liquidity is the key to financial self-help.”

-Martin Feldstein
(A Self-Help Guide for Emerging Markets)

The early origin of securitisation can be traced to the 1934 National Housing Act in the United States (Feeney, 1995:95). The housing credit market collapsed during the Great Depression and this Act was designed to reduce the reliance of financial institutions on core (stable) deposits (Elmgren, 1995:3). It did not, however, increase the supply of mortgage finance in the United States. In 1938 the Federal National Mortgage Association (FNMA or Fannie Mae) was established to buy and sell federally insured mortgages in an attempt to develop a secondary mortgage market. But in the early 1960s still less than 5% of all new mortgages were sold in the secondary market. In 1968 Fannie Mae was split into two corporations, namely a privately owned FNMA and a new federal agency namely Government National Mortgage Association (GNMA or Ginnie Mae) (Feeney, 1995:95). In 1970, the Federal Home Loan Mortgage Corporation (FHLMC or Freddie Mac) was established as a government-chartered corporation, but it became a private corporation in 1989 (Hayre *et al.*, 2001:575).

During the 1970s the demand for home finance grew substantially in the United States, due to the baby boomers that reached home buying ages. Housing was funded by the thrift industry (US associations, formerly known as savings and loans associations), which borrowed money from depositors (savings) at floating rates and lent this money at fixed rate to homebuyers. The question started to arise whether the thrift system would be able to finance the growing demand for mortgages (Ranieri, 1996:31).

The development of the secondary market in mortgages in the late 1960s and securitisation (backed by mortgages) in the early 1970s in the United States can be attributed to two main factors:

- ⇒ The mismatch of funds due to regional imbalances, with people moving to the West Coast (the sunbelt states) (Feeney, 1995:95) and interstate banking regulation that prevented banks and savings institutions (such as thrifts) to lend money outside their State boundaries. East Coast surplus funds could therefore not be used at the West Coast where funds were needed (Cox, 1990:3).
- ⇒ Interest rate regulations of thrift institutions required a 3% spread between the cost of funds and the rate at which mortgage loans are advanced (Feeney, 1995:94). Interest rate mismatch occurred because mortgage loans were made at fixed rates, while thrifts had to obtain funds at floating rates, causing an erosion of earnings in inflationary times (Cox, 1990:3).

Disintermediation due to rising market interest rates, illiquid loan portfolios and mounting losses of thrifts led to the federal agencies' (namely Fannie Mae, Ginnie Mae and Freddie Mac) involvement in

mortgage funding. Within short time, securitisation substituted thrifts as the primary vehicle for mortgage lending in the United States (Ranieri, 1996:33-35). The activities of these agencies in the market, contributed to the creation of a liquid secondary mortgage market (Feeney, 1995:95).

The market soon evolved to include non-mortgage receivables as collateral for security issues. Credit card receivables, auto loans, equipment leases, commercial properties and small businesses and other bank loans and even bonds are common assets underlying securitisation transactions (Fabozzi *et al.*, 2001:19-20). Although it remains the largest securitisation market in the world, securitisation is not restricted to the USA alone. It has spread to Britain (the second largest market), the rest of Europe, the East, Australia and to Latin America.

2. PROBLEM STATEMENT

Asset securitisation developed in the USA in response to the savings and loans (or thrift) crisis of the 1970s and early 1980s. Savings and loan institutions in the USA experienced a squeeze of interest rate margins when, during 1979-1981, interest rates rose sharply due to short-term variable rate liabilities (deposits) funding long-term fixed rate assets (loans). This subsequently led to liquidity problems for the thrift institutions as depositors withdrew their deposits for fear of losses. Capital losses caused the thrifts to no longer hold mortgage portfolios on their books, but to on-sell them in the secondary market to Fannie Mae and Freddie Mac (Sharma & Paris, 2001:27; Coles & Hardt, 2000 and Deacon, 2000:402).

The last nine years have seen a number of major changes in the South African banking industry. With South Africa rejoining the world economy, the domestic banking sector was forced to liberalise. New foreign competitors were admitted, domestic financial markets had to be developed and the national payment, clearing and settlement system had to be upgraded (Metcalf, 1999:2). Over and above that, the 1998 Asian crisis caused a fundamental restructuring of banks throughout the world and emphasised the importance of a sound banking system (The Banking Council, 1998:5).

Although the 1997/98 emerging market crisis proofed that the banking industry in South Africa has a high degree of sophistication relative to other emerging market banking systems (The Banking Council, 1999:15), the South African banking community has experienced its fair share of banking problems since 1995. Financial mismanagement (African Bank in 1995), decreased profits (Real Africa Durolink (RAD) and Mercantile Lisbon Bank in 2000) and over-exposure to bad creditors (The Business Bank in 2000 and Unibank {part of ABSA} in 2002) are all banking problems experienced the past eight years. The most serious problem experienced by South African banks, which led to a number of bank closures and take-overs, was by far liquidity. New Republic Bank (1999), FBC Fidelity (1999), Regal Treasury Private Bank (2001) and Saambou Bank (2002) all experienced large-scale withdrawals by depositors – the so-called run on the bank. Although still solvent, these banks had to close their doors due to a lack of access to funds to finance these withdrawals, i.e. a lack of liquidity. The liquidity crisis at Saambou spilled over to Bank of Executors (BoE) and other small banks including Brait Merchant and Corpcapital. To prevent a large-scale banking crisis, the Minister of Finance and the Governor of the Reserve Bank had to step in (Manual & Mboweni, 2002). Louw (2000:3) therefore indicated correctly that the main risk facing small banks in South Africa is the liquidity risk. Failure of one small bank can result in a liquidity squeeze on all small banks, irrespective of the financial position of those banks.

In banking, the demand for funds stems mainly from two sources, namely depositors withdrawing funds and credit requests from customers. Funds are also needed to repay borrowings made by the bank (Rose, 1999:348). Liquidity risks can be defined as the risk of not being able to generate sufficient cash in order to meet financial commitments and operate normally (Finansbank, 1991:78 and Uyemura & Van Deventer, 1993:5). The difficulty in obtaining funds, either through borrowing or by selling

assets, leads to variations in the bank's net income and market value of equity (Koch & MacDonald, 2000:957).

Liquidity risk is mainly due to a faulty balance sheet structure – no cushion of resources is present in the structure of the bank's assets and liabilities to provide cash to handle unexpected events (Finansbank Limited, 1989:78 and Kelly, 1993:348). Excessive liquidity problems are therefore an indication of deeper-lying problems and are usually preceded by excessive risks taken by the bank, i.e. interest rate risks (mismatching asset and liability maturities or durations) and credit risks (non-performing loans due to credit extended to risky borrowers) (Koch, 1995:483).

To obtain funds, banks can either sell assets or borrow funds (Burns, 1984:185). Liquidity sources (also called liquidity instruments) consists both of assets, in which excess funds can be invested and which will have matured in time or be saleable before maturity without material loss, and liabilities, which include ways in which banks can borrow or otherwise obtain funds (Crosse & Hempel, 1980:148).

The main asset liquidity sources include cash and due from banks, lending in the interbank market, investments in short-term government securities, commercial paper, bankers' acceptances, negotiable certificates of deposits and other marketable short-term securities, as well as securities purchased under agreement to repurchase (repos). Liability liquidity sources include borrowing from the Reserve Bank, borrowing on the interbank market, securities sold under agreement to repurchase, large negotiable certificates of deposits, the sale of loans and asset securitisation as well as the issue of commercial paper and longer-term securities (see Rose, 1999, Hempel *et al.*, 1994, Luckett, 1984 and Crosse & Hempel, 1980).

A bank's ability to borrow at reasonable rates depends on the market's view of the quality of its assets and its capital base. Smaller banks often have restricted access to markets and their usage of borrowed funds is therefore limited (Hempel *et al.*, 1994:167, 169). They are therefore more reliant on assets for liquidity, while larger banks have better access to liability liquidity sources. Securitisation is for this reason investigated as a source of liquidity, since the bank access markets based on the strength of its underlying assets, and not only on its reputation.

Securitisation not only influences the bank's access liquidity, but also the liquidity and safety of the financial system of a country. The American Federal Reserve governor, Alan Greenspan, endorsed this; he indicated that through securitisation the risks taken by a bank is spread and this leads to a safer financial system. Due to the unique role that banks play in the payment system and distribution of liquidity, they are more prone to systemic risk. It is therefore better to spread the bank's risks. A good example of the increase in bank resilience due to securitisation was the only modest, and not devastating, effect that the 2001/2002 corporate bankruptcies had on the big banks in America (Anon, 2003).

The question that this article intends to address is whether asset securitisation can be implemented in the South African banking realm to reduce the liquidity risk faced by these institutions. This article therefore aims to indicate how South African banks can apply securitisation to improve their liquidity ratios or indicators and access to liquidity.

The remainder of this article is structured as follows: Section 3 discusses the methodology used in the research; Section 4 presents a brief description of the securitisation process; in section 5 the case studies are discussed and this article concludes in section 6.

3. METHODOLOGY

The methodology used includes literature surveys on the measurement of liquidity and the mechanics of a securitisation transaction. A summary of the results of the literature survey on the mechanics of securitisation are presented in section 4 of this article, while the methodology used to measure bank liquidity is subsequently discussed. In addition to the literature surveys, two case studies are presented where securitisation has been applied. The effect of securitisation on the key liquidity indicators is determined and the case studies are presented in section 5 of this article.

a) *The data*

All calculations used are based on the DI 900 returns, which are submitted to the South African Reserve Bank by each bank and which are available to the public (SARB, 2002). The DI 900 return presents a maturity breakdown of the assets and liabilities of a bank. It is a detailed balance sheet and one of the main sources of information used by the South African Reserve Bank in compiling the monetary and credit aggregates for the economy (IMF, 2002).

b) *Measurement of bank liquidity*

The liquidity position of 12 different banks as well as that of the total banking sector in South Africa are calculated, including 10 small banks (or A2-rated banks) and two large banks (rated A1). The small banks include both banks that have a formal relationship with a large bank as well as banks that have not been taken-over by large banks by January 2002. The sample also includes investment banks. Two months' information was used, namely June 2001 and January 2002 to ensure that one of the months was not an abnormal month. The different liquidity ratios that were calculated are described below.

The most widely used ratios to measure the bank's liquidity position include the loan-to-deposit ratio, the loan-to-liability ratio, the liquid asset-to-liability ratio as well as the volatile dependency ratio (see Crosse & Hempel, 1980; Burns, 1984 and Hempel *et al.*, 1994). The results are indicated in Table 1, Appendix A.

- ⇒ In determining the loan-to-deposit ratio, the categories of loans included in the analysis (as specified in the DI 900 return) are loans and advances within the same group (line I101), instalment debtors (I113), mortgage advances (I118), credit card debtors (I126), other overdrafts and loans to the public sector (I154) and other private sector loans and advances (I163). The deposits include deposits over all terms and to all counterparties (I1). A higher loan-to-deposit ratio indicates lower liquidity.
- ⇒ To determine the loan-to-liability ratio, the loans identified above were applied again and the total liabilities were calculated as the sum of total funding-related liabilities to the public (I63), outstanding liabilities on behalf of clients (I64) and other liabilities (I65). A higher ratio indicates lower liquidity.
- ⇒ In determining the liquid asset-to-liability ratio, all the items that can easily be turned into cash were viewed as liquid assets. These assets include central bank money and gold (I86), SA bank group funding, including NCDs (I96), SA interbank group funding, including NCDs (I102), loans granted under resale agreement (I109), liquid bills, notes and acceptances (I131), deposits with and advances to the Reserve Bank (I142), deposits with and advances to SA banks (I143), marketable RSA government stock (unexpired maturity of up to three years), other public sector interest-bearing securities (I187) and debentures and other interest-bearing security investments (I194). A lower ratio indicates to lower levels of liquidity.
- ⇒ The volatile dependency ratio is the difference between volatile liabilities and liquid assets, relative to earning assets. The liquid assets were again inclusive of all the above-mentioned items, while the volatile liabilities were calculated as the sum of cash managed, cheques and transmission deposits (I1.1), other demand deposits (I1.2), short-term savings (I1.3) and other short-term deposits (I1.4). Earning assets are the sum of deposits, loans and advances (I95) and the investments (I176) of the bank. A negative sign indicates more liquid assets than volatile liabilities.

In addition to the above-mentioned general measures of liquidity, liability liquidity measures can also be calculated. As indicated in section 2, liability liquidity refers to the bank's ability to raise liquid funds through borrowings in the money market (Rose, 1999:354). Three liability liquidity ratios for the 12 selected South African banks were calculated. These ratios include the total deposit-to-total liability ratio (as a measure of the bank's assets composition), the equity-to-total assets ratio (as a measure of the capital base) and the percentage composition of deposits (see Graddy *et al.*, 1985:176 and Koch, 1995:487). The results are indicated in Table 2, Appendix A.

- ⇒ In determining the total-deposit-to-total liability ratio, the total deposit number from the DI 900 returns (I1.8) was used and the total liabilities were calculated as the sum of total funding-related liabilities to the public (I63), outstanding liabilities on behalf of clients (I64) and other liabilities (I65). Higher ratios indicate more reliance on deposits.
- ⇒ The capital and reserve funds of the bank (line I71) was divided by the total assets of the bank (as specified in line I224 in the DI 900 return), to calculate the equity-to-total asset ratio. Higher equity-to-total asset ratios indicate that the bank has more capital relative to its asset base. Otherwise stated, a low ratio indicates that capital is applied more effectively.
- ⇒ In calculating the percentage composition of deposits, the different types of deposits were determined relative to the total deposit value (I1.8) of each bank. Cash managed, cheque and transmission deposits (I1.1) and other demand deposits (I1.2) were added to derive the value of total demand deposits. Short-term deposits are the sum of short-term savings (I1.3) and other short-term deposits (I1.4). Medium-term deposits are the sum of medium-term savings (I1.5) and other medium-term deposits (I1.6), while long-term deposits are specified separately in the DI 900 return (I1.7).

Another approach in determining a bank's liquidity position is to calculate its net liquid assets, which is the difference between liquid assets and volatile liabilities (Uyemura & Van Deventer, 1993:235-236). The net liquid assets for the 12 selected South African banks are indicated in Table 3 (Appendix A). The same methodology was used to calculate the volatile liabilities and the liquid assets as above. A positive net liquid asset figure points to the importance of assets as a source of liquidity for these banks.

4. LITERATURE REVIEW: SECURITISATION PROCESS

Securitisation can, broadly stated, be defined as the practice of structuring and selling negotiable investments in order to spread a risk that is normally taken by a single lender or syndicate over a broad group of investors (Donaldson in Henderson & Scott, 1988:2). More narrowly defined, securitisation is the process where pools of individual loans, receivables or debt instruments are packaged in the form of securities, the credit status or rating of the securities are enhanced and distributed to investors (Cox, 1990:2 and Kendall, 1996:1-2). In short, it involves turning assets into marketable securities (Gardener & Revell, 1988:17) and therefore transferring the rights to an existing asset to investors (Lipe, 1998).

Lieske and Blumenfeld (1999:8) illustrates a typical securitisation process in six steps:

Step 1:

The lender, also called the originator (typically a financial institution) makes a loan to a borrower (the obligor) (Lieske & Blumenfeld, 1999:8). The originator is the entity that provides the assets subject to the securitisation (Sargent, 1995:109). Fergus & Jacobs (2000:17) indicates that the success of the securitisation depends on the originator's ability to provide new assets of a similar or better quality on an ongoing basis.

Step 2:

The loan is warehoused until the lender has a sufficient volume of loans to securities (Lieske & Blumenfeld, 1999:8).

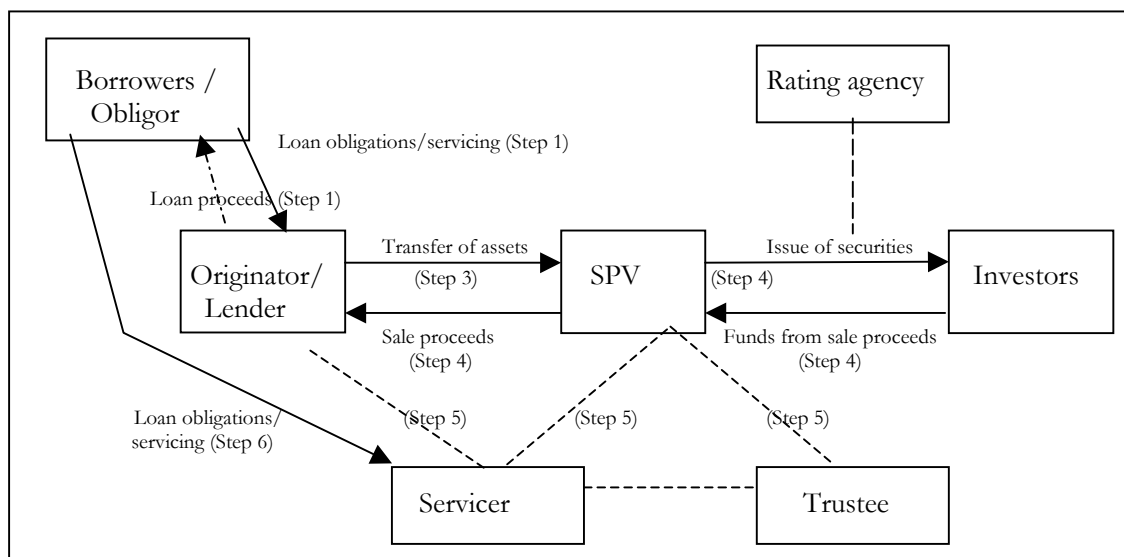
Step 3:

The lender sells the loans to a special purpose vehicle (SPV) (Lieske & Blumenfeld, 1999:8); the special purpose vehicle (SPV) is an independent, specially formed, single-purpose entity that purchases the loans from the originator (Wood, 1995:46). It is organised for a specific purpose and its activities limited to those necessary to accomplish such purpose in the transaction (Taplin, 2001). The SPV houses the underlying assets and issues the relevant asset-backed instruments to the investors. Depending on the accounting and legal regulations, the SPV can take on the form of a company or a trust (Oliver & Sallis, 2000:23). The SPV must be insulated to ensure that events that happen to the originator, such as bankruptcy, do not affect the SPV. This is referred to as making the SPV 'bankruptcy remote'. Secondly, it must be ensured that the transfer of funds from the originator to the SPV cannot be interfered with, which is achieved through a 'true sale' of receivables (Schwarcz, 1991:23).

Step 4:

The special purpose vehicle (SPV) pays for the loans by simultaneously selling certificates, representing ownership of the loans, to investors. A credit rating agency rate the securities issued by the SPV (Lieske & Blumenfeld, 1999:8) and this reflects the quality of the securitisation issue (Fergus & Jacobs, 2000:18). The rating agency also continues to assess the performance of the assets in the portfolio and credit enhancement levels throughout the life of the transaction, through which comfort is provided to the trustee.

Figure 1: Securitisation Process



(Adapted from: Lieske & Blumenfeld, 1999:8 and DCR, 1999:6)

Step 5:

A servicer is appointed, which provides administration for the duration of the issue (Lieske & Blumenfeld, 1999:8). Its duties entail normal cash collection on the underlying assets, management of arrears and client relationship management. The originator normally performs this function, but there must also be a 'back-up servicer' (unrelated to the originator) in place who would be able to take over this function if the originator is unable to continue this task due to, for example, bankruptcy (DCR, 1999:5). A trustee can also be appointed to ensure that investors are paid in accordance with the terms of the securities and to monitor the performance of the servicer (Lieske & Blumenfeld, 1999:8). The trust is established for the benefit of the investors in the paper issued by the SPV and the trustee is responsible for protecting the rights of the investors (Oliver & Sallis, 2000:24).

Step 6:

The borrower is instructed to make payments to the servicer and direct all enquiries to the servicer (Lieske & Blumenfeld, 1998:8)

Additional parties that may be involved in the process include legal counsel, to assist in the legal documentation and interpretation of the applicable laws, and an external credit enhancer (discussed below) (Baums, 1994:4).

The quality of the assets and the rating that the originator wants to achieve, determine the level of credit enhancement in a securitisation transaction (Lin, 2000a:10). Through credit enhancement, a better rating can be achieved. Credit enhancement may be provided internally by the originator, or externally by an independent third party (Oliver & Sallis, 2000:24). The transaction normally uses a combination of internal and external credit enhancement techniques. Internally provided credit enhancement techniques include:

- ⇒ Cash collateral or a cash reserve account where a cash deposit (also referred to as a reserve fund) is kept in the structure of the securitisation transaction to absorb losses due to cash flow delays or defaults (DCR, 1999:6).
- ⇒ Excess spread, which is the difference between interest generated on the securitised assets over the cost of the funds, namely the yield on the notes issued. It represents the value of the interest income minus the interest expense (Lin, 2000b:11-12).
- ⇒ Securities subordinate to A-class securities in principal and interest payment may also be issued (DCR, 1999:6). Each successive class has a lower rating than the preceding one, indicating higher credit risk (Lin, 2000b:11). A higher rate of interest is applicable to subordinate securities, to compensate for the additional credit risk (DCR, 1999:6).
- ⇒ Over-collateralisation means that the face value of the pool of assets exceeds the securities issued from the pool. Any early amortisation of some of the assets creates additional cash flows, which are kept within the SPV to serve as a buffer against possible losses (Elmgren, 1995:16-17).
- ⇒ Securitisation triggers are events that are defined to protect senior securities holders. Such an event may include, for example, that if the value of the collateral falls below a certain specified level, all payments to junior note holders will be stopped to ensure that enough cash is available to honour payments to senior note holders (Behr, 2001).
- ⇒ Early amortisation events trigger the immediate repayment of investors on their occurrence (DCR, 1999:7). For example, if the level of assets falls below a certain level, the securitisation should wind up and investors should be paid off immediately (Behr, 2001).

The following external credit enhancement techniques are available:

- ⇒ Pool insurance may be taken out on the assets that produce the cash flow in the securitisation transaction (Jennett, 2001).
- ⇒ The liquidity facility is designed to provide the SPV with the necessary liquidity to meet short-term cash requirements (Deacon, 2000:351). The facility is provided by another institution and is used to make timely payments to senior note holders in the event of short-term liquidity shortfalls. It is set at a fixed amount or percentage, for example the value of the next payment to senior note holders or 5 per cent of the assets in the pool (Behr, 2001).
- ⇒ The liquidity facility may also take on the form of a credit line when short-term commercial paper is issued at regular intervals by the SPV. The liquidity line is a promise by a highly rated financial institution to purchase the new commercial paper issue in the event of a market-wide disruption where issuance would otherwise be impossible (Lin, 2000b:12).
- ⇒ A credit wrap is a financial guarantee that is provided by a third party. The third party guarantees to step in and meet the obligations of the SPV to investors if the SPV is unable to do so (Jennett, 2001).
- ⇒ A third party, such as a highly rated bank, may provide a letter of credit that promises to cover losses of the SPV up to a maximum amount (Elmgren, 1995:17).

5. APPLICATION OF SECURITISATION IN SOUTH AFRICA

Two case studies are presented. In the first case study, the bank in question has a large number of mortgage loans that can serve as underlying asset, while the bank in case study 2 has a large number of instalment debtors.

a) Case study 1

The bank used in case study 1 is a small bank and a brief summary of its balance sheet, as in January 2002, is presented in Table 4 (Appendix B). The liquidity ratios for the bank in the case study (as calculated earlier) are indicated in Table 5. The Table shows that the bank has loan-to-deposit and loan-to-liability ratios of close to 1, a low liquid asset-to-liability ratio as well as a low equity-to-total asset ratio. These ratios indicate towards low levels of liquidity. The bank also has a negative net liquid asset value, which indicates that its volatile liabilities exceed its liquid assets by far. This is also evident from the percentage of demand and short-term deposits as a percentage of total deposits (59 per cent).

For this bank it would therefore be worthwhile to have an additional source of liquidity in case of a short-term demand for cash. The question is whether securitisation can offer this additional source, since the only asset this bank possesses in large volumes (exceeding R1 billion) is mortgages (see Table 4, Appendix B). The bank faces two choices, namely creating its own securitisation vehicle or using an existing securitisation vehicle, such as a Ginnie Mae or Freddie Mac.

Table 5: Liquidity ratios of case study 1

Ratio	Value
Loans: deposits	0.98
Loans: liabilities	0.97
Liquid assets: liabilities	0.09
Volatile dependency	0.45
Total deposits: total liabilities	0.99
Equity: total assets	0.10
% demand deposits	29%
% short-term deposits	30%
% medium-term deposits	19%
% long-term deposits	23%
Net liquid assets	-2 795 336

Suppose the bank creates its own securitisation vehicle. Mortgages are sold to the vehicle and the vehicle issues securities on an ongoing basis. If the sale is a true sale, the securitised mortgages are removed from the balance sheet of the bank. Suppose the bank starts with an initial securitisation of R500 million. The loan-to-deposit ratio as well as the loan-to-liability ratio will immediately improve, but the way in which the other ratios are influenced in the longer-term, depends on the bank's use of the additional R500 million. The bank has the option to use the additional funds to extend mortgage finance, or to restructure its balance sheet in terms of asset composition.

The bank could, for example, use the R500 million to diversify its investments, obtain more liquid assets, to acquire new loans or a combination of the above-mentioned. While the acquisition of more loans will not alter the ratios significantly, the income position of the bank is improved, since service income is earned on the securitised assets. In addition to this, the bank's access to a liability liquidity source decreases its dependence on assets for liquidity. The effective securitisation programme can also enhance the bank's standing within the banking community, opening up other sources of liquidity that have not been accessible previously.

The other options lead to an improvement of the bank's liquidity ratios. If, for example, an additional R100 million is invested in liquid (interest-bearing) assets, R100 million in other interest-bearing securities, and the other R300 million is again used to obtain loans, the liquidity ratios will be influenced

as illustrated in Table 6. The Table shows that the bank's loan-to-deposit, loan-to-liability and volatile dependency ratios improve to indicate an improvement in the liquidity position of the bank.

Table 6: Liquidity ratios of case study 1 after securitisation

Ratio	Value (before)	Value (after)
Loans: deposits	0.98	0.92
Loans: liabilities	0.97	0.91
Liquid assets: liabilities	0.09	0.11
Volatile dependency	0.45	0.44
Total deposits: total liabilities	0.99	0.99
Equity: total assets	0.10	0.10*
% demand deposits	29%	29%
% short-term deposits	30%	30%
% medium-term deposits	19%	19%
% long-term deposits	23%	23%
Net liquid assets	-2 795 336	-2 695 336

*excluding additional revenue from service fees

In addition to the improvement in the liquidity ratios, the bank's profitability may also increase due to the additional source of income, namely service fees earned on the securitised assets and the other above-mentioned benefits are also applicable. Increased profitability is however not a necessary outcome when securitisation is mainly done for liquidity reasons (see Saayman & van der Walt, 2003). With securitisation a higher rating can be achieved through credit enhancement, which reduces the price of the funding source (in terms of basis points above the risk-free benchmark). But this decrease in cost is often absorbed by the costs of the credit enhancement (such as insurance policies, non-interest earning spread accounts and even the price of over-collateralisation). The benefit lies therefore more in the spillover effect where the cost associated with other sources of funds may reduce due to the bank's improved liquidity position.

To serve as a source of liquidity for the bank and to maximise the benefits, securitisation should be carried out on a continuous basis. Through securitisation the bank is provided with the additional liquidity when it is needed and this source may be tapped into when the demand for cash increases.

This second option, namely selling the mortgages to an existing vehicle, does currently not exist in South Africa and the influence on the liquidity ratios of the bank would be the same in both cases. The existence of such a vehicle would however, offer additional benefits to the bank. Firstly, smaller numbers of mortgages may be sold on an even more continuous basis, improving the accessibility of funds as the need for short-term funds arises for the bank in question. Secondly, the cost of credit enhancement does not have a direct impact on the bank's cost of funds. In this instance, the sale of mortgages to an existing SPV may indeed reduce the cost of funds for the bank.

b) Case study 2

The bank in case study 2 is again a small South African bank and its balance sheet in June 2001 is summarised in Table 7 (Appendix B). The liquidity ratios (as calculated earlier) for the bank in question are summarised in Table 8. As in the previous case study, this bank has very high loan-to-deposit and loan-to-liability ratios with a low liquid assets-to-liability ratio and more volatile liabilities than liquid assets, as indicated in Table 8. More than 90 per cent of the bank's deposits can be withdrawn easily. Again, it would be worthwhile for this bank to have an additional source of liquidity due to the nature of its deposits and the scope of its liquid assets.

Table 8: Liquidity ratios of case study 2

Ratio	Value
Loans: deposits	1.25
Loans: liabilities	1.02
Liquid assets: liabilities	0.07
Volatile dependency	0.62
Total deposits: total liabilities	0.82
Equity: total assets	0.12
% demand deposits	89%
% short-term deposits	3%
% medium-term deposits	3%
% long-term deposits	5%
Net liquid assets	-2 888 079

This bank's largest loan category is instalment debtors (see Table 7, Appendix B). The bank can create a securitisation vehicle and sell its instalment debtors to the vehicle, which issues asset-backed securities to finance the purchase. Again a true sale situation is visualised where the assets are removed from the bank's balance sheet.

The bank may also start with an initial securitisation of R500 million and continue to sell assets to the vehicle as the need arises. Like the previous case study, the influence that the initial sale will have on the liquidity ratios of the bank depends on the bank's application of the R500 million. If the same scenario is taken where R300 million is used to obtain more loans, R100 million is invested in liquid (interest-bearing) assets and R100 million invested in other interest-bearing securities. The bank's liquidity ratios will change as indicated in Table 9.

Table 9: Liquidity ratios of case study 2 after securitisation

Ratio	Value (before)	Value (after)
Loans: deposits	1.25	1.16
Loans: liabilities	1.02	0.95
Liquid assets: liabilities	0.07	0.10
Volatile dependency	0.62	0.60
Total deposits: total liabilities	0.82	0.82
Equity: total assets	0.12	0.12*
% demand deposits	89%	89%
% short-term deposits	3%	3%
% medium-term deposits	3%	3%
% long-term deposits	5%	5%
Net liquid assets	-2 888 079	-2 788 079

*excluding additional revenue from service fees

Table 9 shows that the loan-to-deposit and loan-to-liability ratio, as well as the liquid asset-to-liability and the volatile dependency ratio of the bank improved. The bank may also choose to only apply the R500 million in obtaining new loans, which would not affect the liquidity ratios in the long run, but will reduce the liquidity pressure in the short run.

In both cases, securitisation firstly offers the benefit that the bank's profitability may improve due to the additional service income earned from servicing the securitised assets. Secondly, the bank's access to a liability source makes it less dependent on assets for liquidity. Thirdly, having a successful securitisation programme, where assets can be sold on a continuous basis to the SPV to obtain funds, improves the bank's access to liquidity sources and the market's perception regarding the liquidity position of the bank. This may again, increase the bank's accessibility to other sources of liquidity that were previously not available to the bank. Finally, the cost of other sources of liquidity may decrease due to changing perceptions regarding the liquidity position of the bank.

6. CONCLUSION AND RECOMMENDATIONS

The aim of this article was to indicate how South African banks could apply securitisation to improve their liquidity ratios or indicators and access to liquidity. Data obtained from the DI 900 reports of banks were used, and based on the theoretical indicators of liquidity, the liquidity ratios and measures were determined for various South African banks. Two case studies of South African banks were presented. Based on the pre-requisites and designs of a securitisation transaction, the effect of securitisation was determined.

The case studies indicated how securitisation might be applied at a small bank and the influence that this might have on the liquidity ratios as well as the sources of liquidity available to the bank. The bank, which considers securitisation for liquidity reasons, should however, keep the following in mind to maximise the liquidity benefits from securitisation:

- a) Continuous programme: While the once-off securitisation of assets may offer certain advantages, a continuous securitisation programme is necessary to relieve the liquidity pressures of the bank and to lead to a true diversification of liquidity sources. The once-off securitisation may be used to restructure the balance sheet in order to improve liquidity ratios or to bring temporary liquidity relief, but it does not offer a continuous source of liquidity. Once-off securitisations are also more expensive than securitisation on a continuous basis, since the initial set-up costs remain the same in both circumstances.
- b) Listing *versus* private placement: Placing the issue privately or listing the issue, depends on the cost of listing *versus* the benefit obtained from listing. Whether the benefits of listing smaller size transactions (of less than R500 million) will exceed the cost is questionable and therefore private placement is an option for small transactions.
- c) Size of the transaction: The size of the transaction plays an important role in determining whether the transaction will be listed and also whether the issue will be liquid. Transactions of less than R500 million are perceived to be illiquid. Low liquidity increases the cost of securitisation. The small bank should therefore try to issue at least R500 million in the first tranche to obtain liquidity and subsequent tranches may then be less than R500 million in size. The larger size of the transaction makes it worthwhile to list the security on the Bond Exchange of South Africa, which also improves the bank's access to liquidity on a continuous basis.
- d) Maturity and pricing: The pricing of the issue, fixed versus variable, depends on the term of the transaction, which depends mainly on the nature of the underlying assets. The three to five year term is viewed as the most liquid by market players, since liquid hedging instruments exist in the three to five year maturity band. Variable rate as well as fixed rate securities can be issued in this maturity band. This could therefore be the term at which the bank in case study 2 issues its asset-backed securities. The SA Home Loans (SAHL) issue presents a benchmark for longer-term transactions involving long-term assets (such as mortgages). Issues exceeding five years should rather be issued at a fixed rate to ensure more certainty to investors. The SAHL maturity and rate could serve as a benchmark for the bank in case study 1.
- e) Announce the securitisation programme: To maximise the benefits from the alternative source of liquidity, the bank should make it publicly known that it has access to a liability source of liquidity through securitisation. This could influence the market perception regarding the liquidity position of the bank and influence the price at which it may access other sources of liability liquidity.
- f) Multi-seller transaction: For the small bank that cannot offer a large number of loans, a multi-seller transaction could improve its liquidity position. In such a transaction more than one small bank acts as originator, which sells assets to one communal SPV. The securities issued by the SPV may be sufficient to list the transaction on BESA and to access a wider range of investors, which the small bank would not have been able to achieve on its own. The creation of such an SPV by a few small banks could improve the liquidity position of the banks and offer them access to liquidity on an ongoing basis.

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APPENDIX A

Table 1: Liquidity ratios of South African Banks

	Loan : deposit		Loan : liability		Liquid assets : liability		Volatile dependency	
	June	Jan.	June	Jan.	June	Jan.	June	Jan.
Total sector	0.99	0.84	0.79	0.65	0.23	0.21	0.29	0.31
Large bank 1	0.71	0.99	0.61	0.81	0.15	0.10	0.39	0.41
Large bank 2	0.86	0.84	0.70	0.67	0.18	0.23	0.40	0.36
Small bank 1	3.10	2.98	1.23	1.15	0.13	0.12	-0.01	0.02
Small bank 2	0.85	0.74	0.61	0.54	0.21	0.28	0.17	0.19
Small bank 3	0.99	0.98	0.98	0.97	0.09	0.09	0.42	0.45
Small bank 4	0.86	0.84	0.27	0.30	0.48	0.40	-0.22	-0.34
Small bank 5	1.16	1.65	1.02	1.33	0.24	0.11	0.69	0.61
Small bank 6	0.41	0.31	0.22	0.17	0.38	0.44	-0.12	-0.07
Small bank 7	1.25	1.19	1.02	1.13	0.07	0.08	0.62	0.69
Small bank 8	0.81	0.69	0.51	0.37	0.43	0.67	0.03	-0.17
Small bank 9	0.89	0.97	0.87	0.96	0.15	0.11	0.15	0.22
Small bank 10	1.29	1.23	1.11	1.11	0.07	0.09	0.19	0.19

Table 2: Liability liquidity measures for selected South African banks

	Deposit : liability	Equity : assets	% demand dep.	% short-term dep.	% medium term dep.	% long-term dep.
Total – June	0.80	0.10	49	19	18	14
- Jan	0.77	0.09	49	19	21	12
Large bank 1 – Jun	0.85	0.07	43	20	21	15
- Jan	0.82	0.07	45	17	27	10
Large bank 2 – Jun	0.81	0.90	56	16	17	11
- Jan	0.81	0.10	59	14	17	9
Small bank 1 – Jun	0.40	0.31	20	7	51	23
- Jan	0.39	0.25	24	13	40	23
Small bank 2 – Jun	0.72	0.26	58	1	16	25
- Jan	0.72	0.25	55	17	23	5
Small bank 3 – Jun	0.98	0.08	26	28	28	17
- Jan	0.99	0.10	29	30	19	23
Small bank 4 – Jun	0.32	0.23	50	16	14	20
- Jan	0.30	0.20	24	20	14	42
Small bank 5 – Jun	0.88	0.11	72	27	0	1
- Jan	0.80	0.17	97	1	0	2
Small bank 6 – Jun	0.55	0.08	31	17	32	20
- Jan	0.53	0.08	56	14	15	14
Small bank 7 – Jun	0.82	0.12	89	3	3	5
- Jan	0.94	0.21	96	0	0	4
Small bank 8 – Jun	0.63	0.40	54	21	13	12
- Jan	0.54	0.31	57	24	15	4
Small bank 9 – Jun	0.98	0.07	14	17	29	40
- Jan	0.98	0.08	11	23	10	56
Small bank 10 – Jun	0.86	0.16	25	8	15	52
- Jan	0.90	0.15	25	8	13	55

Table 3: Net liquid assets of selected South African banks

	Net liquid assets – June R'000	Net liquid assets – Jan. R'000
Total	-251 677 578	-295 404 473
Large bank 1	-65 104 747	-79 193 301
Large bank 2	-46 234 770	-47 511 508
Small bank 1	74 236	-114 001
Small bank 2	-449 616	-446 859
Small bank 3	-2 135 838	-2 795 336
Small bank 4	802 126	749 114
Small bank 5	-3 243 925	-2 092 140
Small bank 6	1 094 396	869 007
Small bank 7	-2 888 079	-3 942 998
Small bank 8	-77 386	536 875
Small bank 9	-2 442 179	-3 488 877
Small bank 10	-1 034 445	-1 136 376

APPENDIX B

Table 4: Balance sheet of case study 1

Liabilities:	R'000	R'000
Deposits	5 681 426	
Loans and advances	<u>0</u>	
<i>Total funding-related liabilities to the public</i>		5 681 426
<i>Other liabilities</i>		61 184
Equity:		
<i>Capital and reserve fund</i>		<u>12 404</u>
TOTAL CAPITAL AND LIABILITIES		6 355 014
Assets:		
<i>Central bank money and gold</i>		133 301
SA bank group funding (including NCDs)	105 546	
SA inter-bank funding (including NCDs)	81 827	
Instalment debtors, suspensive sales and leases	816 179	
Mortgage advances	4 511 921	
Liquid bills, notes and acceptances	199 639	
Redeemable preference shares	94 873	
Other private sector loans and advances	83 322	
Less provisions i.r.o. loans and advances	<u>(22 889)</u>	
<i>Deposits, loans and advances</i>		5 870 418
Marketable RSA government stock	258 736	
Other listed equity	5 000	
Derivative instruments	6 233	
Other investment	<u>49 688</u>	
<i>Investments</i>		319 657
<i>Non-financial and other assets</i>		<u>31 638</u>
TOTAL ASSETS		6 355 014

Source: SARB, 2002

Table 7: Balance sheet of case study 2

Liabilities:	R'000	R'000
Deposits	3 485 389	
Loans and advances	<u>0</u>	
<i>Total funding-related liabilities to the public</i>		3 485 389
<i>Other liabilities</i>		769 826
Equity:		
<i>Capital and reserve fund</i>		<u>575 894</u>
TOTAL CAPITAL AND LIABILITIES		4 831 109
Assets:		
<i>Central bank money and gold</i>		87 560
SA bank group funding (including NCDs)	0	
SA inter-bank funding (including NCDs)	66 470	
Instalment debtors, suspensive sales and leases	2 956 711	
Mortgage advances	1 067 207	
Liquid bills, notes and acceptances	87 316	
Redeemable preference shares	66 049	
Other private sector loans and advances	332 805	
Less provisions i.r.o. loans and advances	<u>(95 564)</u>	
<i>Deposits, loans and advances</i>		4 480 994
Marketable RSA government stock	73 714	
Other private sector interest-bearing securities	257	
Other investment	<u>73 058</u>	
<i>Investments</i>		147 030
<i>Non-financial and other assets</i>		<u>115 525</u>
TOTAL ASSETS		4 831 109

Source: SARB, 2002