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# The New Financial Architecture: South African Supervisors, Banks and the New Basel Accord

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## LIST OF ABBREVIATIONS

PD	Probability of default
LGD	Loss given default
IMF	International Monetary Fund
FSF	Financial Stability Forum
FSAP	Financial Sector Assessment Program

BIS	Bank for International Settlements
IRB	Internal ratings based
SARB	South African Reserve Bank
QIS	Quantitative Impact Study
PD	Probability of default
LGD	Loss given default
EAD	Exposure at default

## ABSTRACT

The new international financial architecture has its roots in the financial crises that shook emerging-market economies in the 1990s – Mexico in 1994-5, and East Asia in 1997-8. The problems there, as well as in Russia in 1998, in Brazil in 1998-9, and more recently in Turkey and Argentina, underscored the importance of strengthening the international financial architecture.

These crises generated a broad consensus that fundamental reforms were required in the international financial system.

The international community has launched a series of initiatives – referred to collectively as the new international financial architecture – to strengthen the operation of the global financial system. A focal point of this architecture is the prevention of crises.

Work on strengthening the international financial architecture is being undertaken on several fronts simultaneously. The major building blocks of this undertaking are transparency and accountability, international standards and codes, the strengthening of financial systems, capital account issues, sustainable exchange rate regimes, the detection and monitoring of external vulnerability, private sector involvement in forestalling and resolving crises, and IMF facilities.

This paper focuses on one of these building blocks: the strengthening of financial systems. In the search for increased international financial stability and possible measures to prevent future periods of systemic risk, concerns have grown that international financial markets *themselves* may be increasingly important sources of financial instability.

The implementation of the proposed Basel Accord on capital adequacy is another important initiative of the new financial architecture. By more closely aligning regulatory capital charges and banks' risk profiles, the adoption of the proposed Accord could substantially strengthen banking systems, thereby increasing the overall stability of the financial system. In the current environment of globalisation and increasing competition in the financial services industry, risks are larger in scope and scale than ever before. Keeping pace with the changes in the risk environment, as well as with the newest developments in risk-management practices, poses significant challenges to regulators and banks alike. For supervisors, the most important challenge involves developing an approach to capital regulation that works in a world of diversity and near-constant change. Financial institutions face the challenge of implementing advances in risk modelling in a coherent and systematic fashion, and of coping with conceptual difficulties regarding model specification and data limitations. The new capital adequacy framework proposed by the Basel Committee is an attempt to address these challenges. However, implementing the proposed Accord creates additional challenges, especially in an emerging-market context.

This paper gives a perspective on the new financial architecture from the viewpoint of banks, and concentrates on the effect of the implementation of the Basel Accord on the South African banking system. A secondary aim of the paper is to identify the

challenges posed by the implementation of the proposed capital adequacy framework to South African banks and bank supervisors and to see how prepared they are for these challenges.

Although a review of annual reports of South African banks suggests a relatively sophisticated approach to credit risk management and the use of internal credit risk ratings, it is likely that the rating systems of South African banks do not meet all the requirements set out by the Basel Committee for the internal ratings-based approach to setting regulatory capital requirements. Recent problems at Saambou and Unifer also point to potential shortcomings in the credit risk management processes of certain South African banks.

Against the background of South Africa's sophisticated and efficient financial markets – and yet its vulnerability as an emerging market – an overview is given of the structure of the South African banking sector. This includes quantitative indicators of financial system soundness, like various indicators of credit risk and capital adequacy. An overview is given of the risk management practices of South African banks, as well as of the supervisory approach of the South African Reserve Bank. All of this is compared to international “best practice” policy guidelines.

## **EXECUTIVE SUMMARY**

The new international financial architecture has its roots in the financial crises that shook emerging-market economies in the 1990s – Mexico in 1994-5, and East Asia in 1997-8. The problems there, as well as in Russia in 1998, in Brazil in 1998-9, and more recently in Turkey and Argentina, underscored the importance of strengthening the international financial architecture.

These crises generated a broad consensus that fundamental reforms were required in the international financial system. The international community has launched a series of initiatives – referred to collectively as the new international financial architecture – to strengthen the operation of the global financial system.

This paper focuses on one of these initiatives: the strengthening of financial systems. In the search for increased international financial stability and possible measures to prevent future periods of systemic risk, concerns have grown that international financial markets *themselves* may be increasingly important sources of financial instability. Manifestations of financial instability (including greater volatility in asset price movements) are often ascribed to developments in the international financial arena, including financial liberalization and deregulation of both bank activities and international capital controls. Factors such as consolidation in the financial services industry and increased competition amidst growing concern for shareholder value further increase the potential fragility of the international financial system (White 2000:12, Kaufman 2000:21).

The implementation of the proposed Basel Accord on capital adequacy is another important initiative of the new financial architecture. By more closely aligning regulatory capital charges and banks' risk profiles, the adoption of the proposed Accord could substantially strengthen banking systems, thereby increasing the overall

stability of the financial system. In the current environment of globalisation and increasing competition in the financial services industry, risks are larger in scope and scale than ever before. Keeping pace with the changes in the risk environment, as well as with the newest developments in risk-management practices, poses significant challenges to regulators and banks alike. For supervisors, the most important challenge involves developing an approach to capital regulation that works in a world of diversity and near-constant change. Financial institutions face the challenge of implementing advances in risk modelling in a coherent and systematic fashion, and of coping with conceptual difficulties regarding model specification and data limitations. The new capital adequacy framework proposed by the Basel Committee is an attempt to address these challenges. However, implementation of the proposed Accord creates additional challenges, especially in an emerging-market context.

This paper gives a perspective on the new financial architecture from the viewpoint of banks, and concentrates on the role of the implementation of the Basel Accord in the South African banking system. A secondary aim of the paper is to identify the challenges posed by the implementation of the proposed capital adequacy framework to South African banks and bank supervisors and to see how prepared they are for these challenges.

Although a review of annual reports of South African banks suggests a relatively sophisticated approach to credit risk management and the use of internal credit risk ratings, the rating systems of South African banks do not meet all the requirements set out by the Basel Committee for the internal ratings-based approach to setting regulatory capital requirements. Recent problems at Saambou and Unifer also point to potential shortcomings in the credit risk management processes of certain South African banks.

Against the background of South Africa's sophisticated and efficient financial markets – and yet its vulnerability as an emerging market – an overview is given of the structure of the South African banking sector. This includes quantitative indicators of financial system soundness, like various indicators of credit risk and capital adequacy. An overview is given of the risk management practices of South African banks, as well as of the supervisory approach of the South African Reserve Bank. All of this is compared to international “best practice” policy guidelines.

Several observers warn that the preconditions for implementing important components of the Basel Accord are absent in most emerging-market economies. The findings of this paper suggest that this is not the case in the South African situation. South African bank supervisors are efficient, as evident in the findings of the FSAP. The factors that seemingly cause minimum capital requirements to be an inefficient tool in enhancing bank system soundness in many emerging market countries do not seem to be present in the South African banking sector. These factors are the lack of a sufficiently deep and liquid capital market that makes the raising of “low quality” capital possible, and the lack of policy measures such as loan-loss provision regulations that complement minimum capital requirements. Indeed, the regulatory framework in South Africa was recently amended so as to be in line with international best practice standards, and to address any limitations pointed out by the FSAP.

However, the Accord does represent new ground for South African supervisors in several respects — the evaluation, for example, of banks' internal credit risk rating systems. South African bank supervisors have already started with specific measures to address challenges posed by the implementation of the Accord. South African banks have also started with preparations for the implementation of the Accord. Some of the larger banks have indicated that they want to adopt the advanced IRB approach. However, current practice does not conform to all the requirements set out by the Basel Committee and substantial logistical challenges remain.

A key challenge faced worldwide by virtually all developers and users of internal credit risk rating systems, including prudential supervisors looking to utilize banks' internal ratings for regulatory capital and other purposes, is the widespread lack of good long-run data on the performance of banks' loans. The lack of such data can impact on the ability of an institution to develop effective rating tools. It can also impede efforts to verify the accuracy and robustness of institutions' rating systems, to assign reliable quantitative loss estimates to risk grades, and to make reliable comparisons of ratings from different institutions. All of the aforementioned tasks are important not only from the perspective of the banks themselves, but also for the point of view of prudential supervisors. The paper highlights one important aspect where current South African practice lags behind Basel Accord requirements: disclosure regarding credit risk modelling and specifically rating systems. This is a key area that needs to be addressed before the IRB approach can be implemented.

Apart from implementation challenges in individual countries, there is concern over the impact of the proposed Basel Accord on global financial system stability. This includes questions about its impact on capital flows to emerging-market countries and the potential pro-cyclical impact of the new Accord. These concerns highlight the need for greater coordination within the international community on the reform agenda in what is, after all, an increasingly integrated international financial system.

## **1. INTRODUCTION**

The new international financial architecture has its roots in the financial crises that shook emerging-market economies in the 1990s – Mexico in 1994-5, and East Asia in 1997-8. The problems there, as well as in Russia in 1998, in Brazil in 1998-9, and more recently in Turkey and Argentina, underscored the importance of strengthening the international financial architecture.

These crises generated a broad consensus that fundamental reforms were required in the international financial system. Existing institutions and arrangements were widely seen as inadequate for dealing with very large and extremely volatile capital flows, in which an important part of the volatility was caused by large imperfections in the financial markets themselves (Griffith-Jones et al. 2000: 1). Consequently, there is a need for processes and practices to bolster this system.

The international community has launched a series of initiatives – referred to collectively as the new international financial architecture – to strengthen the operation of the global financial system. A focal point of this architecture is the prevention of crises. The emphasis is not only on promoting sound policies but also on buttressing the institutional underpinnings of markets. Since crises will inevitably continue to occur, the management and prompt resolution of crises represent two other key components of the reforms. But, however important these tasks may be, the ultimate objective of the international financial architecture is to promote sustained growth and broadly shared prosperity, within and among countries.

Work on strengthening the international financial architecture is being undertaken on several fronts simultaneously. Its major building blocks are transparency and accountability, international standards and codes, the strengthening of financial systems, capital account issues, sustainable exchange rate regimes, the detection and monitoring of external vulnerability, private sector involvement in forestalling and resolving crises, and IMF facilities.

This paper focuses on one of these building blocks: the strengthening of financial systems. In the search for increased international financial stability and possible measures to prevent future periods of systemic risk, concerns have grown that international financial markets *themselves* may be increasingly important sources of financial instability. Manifestations of financial instability (including greater volatility in asset price movements) are often ascribed to developments in the international financial arena, including financial liberalization and deregulation of both bank activities and international capital controls. Factors such as consolidation in the financial services industry and increased competition amidst growing concern for shareholder value further increase the potential fragility of the international financial system (White 2000:12, Kaufman 2000:21).

The Asian crisis has highlighted the importance of effective financial regulation and supervision in reducing the risk of financial crises and in limiting financial instability when crises do occur.



The implementation of the proposed Basel Accord on capital adequacy is an important initiative to strengthen bank regulation and supervision. In the current environment of globalisation and increasing competition in the financial services industry, risks are larger in scope and scale than ever before. Keeping pace with the changes in the risk environment, as well as with the newest developments in risk-management practices, poses significant challenges to regulators and banks alike. For supervisors, the most important challenge involves developing an approach to capital regulation that works in a world of diversity and near-constant change. Financial institutions face the challenge of implementing advances in risk-modelling in a coherent and systematic fashion, and of coping with conceptual difficulties regarding model specification and data limitations. The new capital adequacy framework proposed by the Basel Committee is an attempt to address these challenges and thus strengthen banking systems, thereby increasing the overall stability of the financial system. However, implementation of the proposed Accord gives rise to additional challenges: several researchers are of the view that adopting the Accord will actually destabilize the international financial system, especially in an emerging-market context.

This paper gives a perspective on the new financial architecture from the viewpoint of banks, and concentrates on the effect of the implementation of the Basel Accord on the South African banking system. Specifically, the probable impact of the proposed Accord on banking sector stability in South Africa is evaluated. A secondary aim of the paper is to identify the challenges posed by the implementation of the proposed new capital adequacy framework to South African banks and bank supervisors.

The possible impact of the implementation of the Accord on the South African banking system is evaluated in the context of the general financial environment in which South African banks operate. Several preconditions for the successful implementation of Basel II are absent in many emerging market countries (see Section 4.2). Therefore, an important secondary aim is to evaluate the extent to which these preconditions are met in the South African context.

Against the background of South Africa's sophisticated and efficient financial markets – and its vulnerability as an emerging market – an overview of the structure of the South African banking sector is given. So too, the supervisory approach of the South African Reserve Bank is outlined.

The rest of the paper is organized as follows: Section 2 discusses the role of capital requirements in the achievement of financial stability, while Section 3 deals with the proposed Basel Accord. Section 4 deals with the implementation of the proposed Accord in the South African context, and Section 5 concludes the study.

## **2 THE ROLE OF MINIMUM CAPITAL REQUIREMENTS IN THE ACHIEVEMENT OF FINANCIAL STABILITY**

Regulatory capital requirements, one of the key components of prudent financial regulation, can reduce the vulnerability of the financial sector. Credible enforcement of uniform regulatory capital requirements may reduce systemic risk by introducing a

measure of confidence in the solvency of financial counterparties. This fundamental objective of minimum capital standards may be articulated as follows: “Capital provides a measure of assurance to the public that an institution will continue to provide financial services even when losses have been incurred, thereby helping to maintain confidence in the banking system and minimise liquidity concerns” (Kupiec and Nickerson 2001:2). It is thus broadly understood that the goal of prudential regulation should be to ensure the financial stability of the system as a whole, i.e. of an institution not only individually but also as a part of the overall financial system (Acharya 2001:1).

However, the ultimate intent of capital regulations encompasses more than the prevention of systemic risk. This is described in a joint statement of the Shadow Financial Regulatory Committees of Europe, Japan, Latin America, and the United States (2001):

Banks should maintain a level of capital that is sufficient to: (a) reduce the likelihood of bank insolvencies to a level consistent with a stable banking system; (b) immunize taxpayers from losses incurred by government-guaranteed bank claimants in the event of bank insolvencies; and (c) align the incentives of bank owners and managers with those of uninsured bank claimants with respect to the risks assumed by banks.

Worldwide, banks operate within a public safety net: they have access to central bank funds in an emergency, and they are often covered by publicly provided deposit insurance. These facilities allow banks to transfer some of the risk in their asset portfolios from shareholders to taxpayers without compensating them for that increased risk. Because safety nets create incentives for banks to take on more risk, banks must be supervised and regulated in order to restrain their ability to shift risk to the public. Forcing banks to have sufficient capital at risk is a way to achieve this objective – as is made clear in the second point in the above quotation.

Although there is general consensus on the intention of capital regulations, there is less consensus on the appropriate design of capital adequacy requirements. A key debate, for example, centres on assessing whether regulatory standards that work in industrial countries are appropriate for emerging markets. Despite such concerns, a worldwide convergence of minimum bank capital requirements started with the Basel Capital Accord (the so-called “Accord”) published in 1988 by the Basel Committee on Banking Supervision (Matten 1996:11). Implementation of the Accord helped to reverse a prolonged downward tendency in international banks’ capital adequacy into an upward trend in the 1990s. Consequently, it reinforced the soundness of banks all over the world.

The 1988 Basel Accord approximates to what has been termed a rules-based approach by Karacadong and Taylor (2000:9). Such regulation sets prescriptive standards that regulated firms are required to follow. In the context of capital regulation, it relies largely on the application of simple mechanical formulas for assessing capital adequacy. Rules-based regulation thus aims for consistency across institutions. Indeed, it might be criticized on the grounds that it adopts a “one-size fits all” or “cookie-cutter” approach to assessing risk. The prudential soundness of banks is

monitored by using a standardized risk-measurement framework, and employing data that are based on a snapshot of banks' balance sheets on certain specified dates.

The aim of the 1988 Basel Accord was to produce a comprehensive approximation of credit risk based on the application of a number of simple rules. This conferred on it a number of advantages, as Karacadong and Taylor point out (2000:11). Firstly, a rules-based approach is easy to implement. Precisely because the Capital Accord is relatively simple, the framework is useful for banks and their supervisors in emerging-market countries, and it contributes to market transparency. Secondly, it is an objective measure that is easily verifiable and reproducible. Thirdly, as a common metric in the form of the 8 per cent capital ratio, it is comparable across institutions worldwide and promotes competitive equality among banking industries. Consequently, the Accord has been praised for contributing to enhanced market transparency, for promoting international harmonization of capital standards – and thus a level playing field within the Group of Ten (G-10) countries and elsewhere (De Swaan 1998: 232).

The simplicity, comparability, and verifiability of capital ratios may, in fact, have given markets a false sense of certainty and security, especially as the capitalization of most banking systems worldwide surpassed the 8 per cent minimum. For example, a bank with a nominally high capital ratio of 12 per cent normally would be characterized as “well-capitalized”, given the Basel minimum requirement of 8 per cent. And yet, a 12 per cent ratio may be inadequate for the bank's operating environment and risk profile, which may warrant a capital ratio of 15 or 20 per cent (Greenspan, 1998:3). Indeed, prior to the 1997-8 Asian financial crisis, many of the region's banking systems were considered adequately or well-capitalized on the basis of Basel capital adequacy ratios – which clearly misrepresented the solvency of banks and their ability to cope with economic stress.

A further indication that capital requirements have not performed their expected role as an effective supervisory tool in many emerging markets is evident from growth rates of banking systems' net equity during the year previous to the eruption of a major banking crisis. If equity capital is at all a good indicator of banking soundness, banks in countries about to fall into a major crisis should be facing difficulties in raising capital. In contrast, on the eve of disastrous crisis episodes in emerging markets, real net equity growth was not only positive but it also reached very high levels. Cases in point are Thailand, Mexico, and Ecuador where, judging from the rapid accumulation of equity capital, there did not seem to be signals of major banking turbulence.

According to Rojas-Suarez (2001:16) the disappointing performance of capital requirements as an effective supervisory tool in emerging markets can be ascribed to fundamental reasons that go beyond the improvements in regulatory procedures and design features of minimum regulatory capital requirements. Instead, these reasons centre on the particular features of financial sectors in many emerging economies, as will be shown in Section 4.2.

However, appropriate design of minimum capital requirement remains an area of substantial debate. In recent years, it was often argued that the 1988 Basel Accord was

no longer appropriate for the changing financial services landscape. For example, a decade of financial innovations, in some cases with the intention of circumventing the Accord, has eroded its effectiveness. This was partly due to the 1988 Accord's rigid structure in the computation of banks' individual risks. As a result of rapid innovation in risk management technologies, the Accord has come to appear increasingly dated. For example, neither securitisation nor credit derivatives are adequately captured in the 1988 Accord. Furthermore, its design has been blamed for several distortions to the business of banking. Growing evidence of these distortions, together with a better understanding of the Accord's conceptual shortcomings, has led to proposals to redesign it.

The proposals for a new capital adequacy framework have been crafted over the course of a few years, using an unprecedented, highly interactive dialogue process among banks and their supervisors (Working Group on Capital Adequacy 2001: 7). The result is the proposed new Basel Accord.

### **3 THE PROPOSED NEW BASEL CAPITAL ACCORD**

#### **3.1 A summary of the key features of the proposed new Basel Accord**

The Basel Committee released a proposal for a new capital adequacy framework in June 1999. On 16 January 2001, the Basel Committee on Banking Supervision followed up this first consultative document by presenting its second consultative document. While both the 1988 Accord and the proposed new capital adequacy framework share the same objectives of promoting safety and soundness in the financial system, and of enhancing competitive equality among elements in the financial system, the new Accord represents a significant departure from the 1988 Accord in terms of the principles it embraces and the methods it employs.

The proposed new Basel Accord can be considered an example of a process-oriented approach to bank regulation. Whereas the original Accord laid down a series of simple rules in order to develop a common metric for setting capital requirements, the new capital framework envisages an approach in which supervisors will become less involved in determining the precise rules of calculating capital adequacy. Instead, supervisors will concentrate on ensuring that a bank's internal risk management procedures are adequate. This can be seen as a shift away from the mechanistic, formulaic approach to setting bank capital that we characterize, above, as "rules-driven" towards a more process-oriented form of regulation.

A process-oriented approach rejects both the idea of standardization and the idea that periodic reports are a sufficient basis on which to assess a bank's financial soundness. Standardization is inappropriate, it is argued, because capital adequacy must vary according to the quality and character of a bank's assets, the competence of its management, and the stability of the environment in which it operates. No simple mechanistic formula can adequately reflect these factors (Estrella, 1998: 195). While this has always been true, advances in technology and product innovation have made mechanistic formulas increasingly inadequate as a means of assessing capital adequacy. Given the dynamic, evolving character of the industry it is not possible to

predetermine a set of rules that will capture all aspects of the risks incurred by banks. This dynamism has also undermined the traditional approach based on periodic reporting to supervisors. As Greenspan (1996: 3) remarks:

The use of new technology and instruments in rapidly changing financial markets means that some bank balance sheets are already obsolescent before the ink dries. They are not even necessarily indicative of risk exposures that might prevail the next day. In such a context, the supervisor must rely on his evaluation of risk management procedures as a supplement to -- and in extreme cases, a substitute for -- balance sheet facts. As the 21st century unfolds, the supervisor's evaluation of safety and soundness increasingly will be focused on process, and less on historical records.

The truth of these assertions is forcefully demonstrated by the failure of Barings Bank in 1995. Although initially well-capitalized, the bank was brought down by a rogue trader in a matter of months (Mishkin 2000:19). Thus, an emphasis on the adequacy of processes is to take the place of standardization and periodic reporting. Instead of prescribing rules for assessing capital adequacy, supervisors should aim to assess the adequacy of the internal processes used by firms to assess their own risks.

The proposed new Basel Accord contains three fundamental innovations, each designed to introduce greater risk sensitivity into the Accord. Two of the innovations concern refinements to the existing risk-measurement framework. These involve permitting banks to use their own internal systems for evaluating credit risk, a process known as "internal ratings", or, alternatively, permitting banks to use the gradings provided by approved external credit assessment institutions to classify their exposures into risk buckets.

The most significant innovation of the new proposals is that they move away from sole reliance on capital adequacy ratios and adopt a "three-pillared" approach, with a risk-sensitive capital framework being reinforced by supervisory review and enhanced disclosure, for ensuring bank solvency.

The proposed multi-track approach to prudential oversight was motivated by trade-offs between, on the one hand, more detailed supervision and regulation and, on the other hand, moral hazard and the smothering of innovation and competitive response (Greenspan 1999:2). In a financial industry landscape fundamentally transformed by globalisation of markets and constantly increasing competitive pressures, risks in the financial industry are larger in scale and scope than ever before. Closer ties globally between bank supervisors and increased reliance on market discipline are essential for effective supervision (Barth et al. 2001:10).

Each of the proposed pillars poses significant implementation challenges. When it comes to the first pillar, the hallmark proposal to place greater reliance on internal processes to set capital charges creates a direct link between the regulation of capital requirements and banks' internal structures for assessing, pricing, and monitoring the risks involved in individual operations.

The potentially greater accuracy and coverage that could result from the use of internal ratings systems would have far-reaching implications both for banks and for their supervisors. Banks would need to demonstrate the strength of their rating systems and the accuracy and consistency of their risk measurement. The role of supervisors in this regard would be a critical component of the substance and the credibility of an internal ratings approach.

As an alternative to the internal ratings approach, a refinement of the existing capital framework, based on ratings assigned by external rating agencies, is proposed. It provides for transparency and comparability in the risk-adjustment process, based especially on the extensive public disclosure of the criteria, methodology, processes, and actual credit decisions of agencies. However, the use of ratings in the regulatory process has been subject to some controversy, and the major ratings agencies have concerns about using ratings in this way. Most significantly, the successful use of external ratings in capital standards requires rigorous approval criteria and a robust approval process.

Under the new proposals, the second pillar – supervisory review of capital adequacy and supervisory judgement – will move to the centre stage of capital regulation. This pillar adds a discretionary, and therefore flexible, layer of control above the minimum capital requirements. A key component of the supervisory process is to ensure that banks have in place a disciplined internal process for assessing capital adequacy.

The high degree of discretion and subjective judgement involved in a supervisory review, especially in evaluating process-oriented capital allocation systems, creates room for wide inconsistencies in the application of capital standards. Ensuring that this pillar functions effectively will also require substantial investment in the human capital of supervisors in the developed world, and – to an even greater extent – in developing countries.

Market discipline, in turn, is necessary to provide incentives for banks to manage their risks prudently and for supervisors to perform their tasks in a manner that instils market confidence. However, nothing can take away from the importance of effective bank management.

### **3.2 Preconditions for the successful implementation of the proposed new Basel Accord in the emerging-market context**

Several observers warn that the preconditions for implementing important components of the new Basel Accord are absent in most emerging-market economies. Weak legal and regulatory institutions, and the limited human resources capacities of supervisory agencies will impair the effectiveness of supervisory review in evaluating capital adequacy. Inappropriate accounting standards and reporting systems, improper classification of non-performing loans, and under-provisioning of reserves against credit losses are the most important of these inadequacies. In addition, a deficient legal framework, unable to enforce supervisory actions when a bank's performance is deemed faulty, seriously undermines the efficiency of both supervisory review (pillar two) and bank capital ratios (pillar one).

Similarly, without efficient markets that send appropriate signals and corporate governance structures that respond to them, market discipline cannot play a meaningful role in promoting financial system soundness.

One crucial aspect in this regard is the adequacy of accounting and audit standards. Such standards are essential foundations of the information required to scrutinize banks. In particular, supervisors need to ensure that banks properly value loans and allocate provisions so that disclosed information reflects the true risk profile of banks.

Where such standards are absent, minimum capital requirements are given a task well beyond their intended purpose. Capital requirements should provide a buffer against unexpected losses, while loan-loss reserves should take care of expected losses. In reality, however, under-provisioning leads to inadequate loan-loss reserves. As a result, the gap between minimum required capital and actual capital is larger than if banks had appropriate loan-loss reserves. Therefore, an adequate design of capital standards needs to incorporate an adequate design of loan-loss reserves.

Another manifestation of the inadequacy of accounting and auditing standards is a practice known as “evergreening.” Accounting and supervisory conventions in many countries allow banks to make non-performing loans look good by lending additional money to the troubled borrower – who uses the proceeds to make the payments on the non-performing loan, thus keeping it current (Mishkin 2000:26).

Standards alone are clearly not enough. Putting high standards into effect hinges on an adequate supply of trained accountants and reputable auditing firms. While most industrialized countries meet high accounting and audit standards, many emerging economies still need to make major improvements in this sphere. However, circumstances surrounding the Enron saga have raised questions about auditing standards in developed countries as well. As details emerged regarding aggressive accounting practices and flawed internal governance, these prompted broader concerns about the transparency of individual disclosures, and a more general unease about the integrity of the information underpinning financial markets (Cohen and Remolana 2001:5). Consequently, there is a need to give as much attention to risks and vulnerabilities arising in the advanced countries as we do to problems in emerging markets and developing countries. Kohler (2002:5) sees the Financial Stability Forum as having an important role in this process.

In the South African context, the financial problems of the micro-lender Unifer offer a case in point. Reported earnings were inflated by more than 10%; fictitious income of R27m was declared – with the full knowledge of the company’s board, and auditors.

The ultimate test of market discipline is the extent to which institutions – bank and non-bank – respond to market signals by modifying their behaviour. This, in turn, requires effective governance structures and efficient legal frameworks. For example, shareholders’ ability to influence management hinges on competent board members in an executive board that plays an active role in monitoring a company’s management.

These conditions are deficient in numerous developing countries. For example, the Latin American Shadow Financial Regulatory Committee (2001:5) warns that weak

judicial enforcement, poor bankruptcy laws, and unreliable property registries limit the incentives for borrowers to repay their loans. In the South African context, certain segments of the financial infrastructure need urgent attention – such as the transparency of so-called over-the-counter (OTC) markets, and the capacity of the police for investigating commercial crime and effectively prosecuting offenders (Bank Supervision Department of the South African Reserve Bank 2002).

Another obstacle that could potentially hinder the successful implementation of the new Basel Accord in an emerging-market context is the lack of deep and liquid capital markets. Even when accounting, reporting, and legal frameworks are adequate, capitalization ratios will be less effective if liquid markets for bank share, subordinated debt, and other bank liabilities and assets are not available to validate the “real” value of bank capital as distinct from its accounting value. For example, changes in the market value of bank capital provide supervisors in industrial countries with information about the quality of reported capital.

Rojas-Suarez (2001:11) argues that asset ownership, both financial and real, is highly concentrated in emerging markets. Because wealth is highly concentrated, the potential market for equity capital is small, and hence concentrated and uncompetitive. In such an environment, supervisors have difficulty determining whether shareholders’ wealth is really at risk when they supply equity capital to a bank, since shareholders can finance their stake with a loan from a related party, which may even be a non-financial corporation, and hence outside the purview of the regulators. Thus, concentration of wealth provides incentives for bank owners to supply low-quality bank capital and therefore undertake higher risks than in industrial countries.

This suggests that it is relatively easy for bank owners in emerging markets to raise large amounts of low-quality equity capital relative to the bank’s capital base in a short time. The rapid growth of net “accounting” equity displayed on the eve of banking crises in several emerging markets reflects the “low quality” of capital in these economies. Lacking a market that assesses the quality of bank capital, capitalization ratios cannot reveal the “true” riskiness of bank activities and, therefore, cannot serve as an effective component of an early warning system.

### **3.3 The potential impact of the implementation of the proposed new Accord on financial sector stability**

According to several academics, it is likely that the new Accord will have significant, and broadly negative, repercussions for the developing world, both internationally and domestically (for example, Griffith-Jones and Spatt 2001, Rojas-Suarez 2001, and Danielson et al. 2001). This is due mainly to the impact of the new Accord on the lending environment, as well as to its impact on competitive equality in the banking sector.

The shift in emphasis from rules- to process-regulation involves foregoing the verifiability and comparability of capital ratios across banks and banking systems to the extent that there would be a greater reliance on internal risk measurement and control systems. This would have important consequences. Banks would have to be



evaluated more holistically by analysts and regulators alike, and capital ratios would become more difficult to interpret in isolation. The terms “undercapitalized” and “well-capitalized” would be difficult to designate without in-depth analysis, and taking into account whether or not the level of capital adequately reflected the risks embedded in the asset portfolio.

The large amount of discretion given to banks and regulators arising from the proposal contains an inherent incentive for regulatory forbearance by the authorities. As stated by the US Shadow Financial Regulatory Committee: “The number, complexity, and opaqueness of the new rules established under the Basel proposal would add to regulatory forbearance by making it harder to hold regulators accountable for their judgments of bank risk.” For example, this greater discretion creates the inherent danger that regulators may use their discretion to lower capital ratios for banks under their control in order to afford them a competitive edge. Alternatively, they may choose to stick to the minimum ratios prescribed under pillar one when prudence would suggest higher capital charges. Furthermore, supervision, with its heavy reliance on the judgement of individual supervisors, makes extremely intensive demands on the human capital of bank supervision departments.

Through “contagion” effects, regulatory forbearance in industrial countries can severely weaken asset portfolios of banks in emerging markets. One of the best examples of this kind of contagion was provided by the East Asian crisis. In Japan, in the midst of the recent banking crisis, authorities relaxed regulatory and supervisory requirements to give additional time to banks to resolve their difficulties. However, as demonstrated by numerous episodes in a large number of countries, regulatory forbearance had effects opposite to those expected by the authorities: banks increased rather than reduced their risk-taking activities. In the Japanese case, this practice involved increasing loans to banks and companies in East Asian countries without the appropriate assessment of the quality of the projects being financed. Fuelled with additional funds, banks in East Asia also had the incentive to expand financing without due evaluation of project qualifications. As is well known, the end result was a deepening of the banking crisis in Japan, and the weakening of banks in emerging East Asian countries, all of which contributed to the ensuing banking crisis in the region.

A supervisory programme as envisaged under the new capital adequacy framework has serious resource implications for most bank supervisors. Most supervisory agencies in emerging economies are already understaffed, and supervisors underpaid. Relying on supervisory review to a greater extent than hitherto may involve such workers in making important judgements that they may be technically ill-equipped to make, or which they find hard to maintain in the face of opposition from powerful and well-connected senior bankers.

Supervisory authorities in G-10 countries, and particularly in emerging markets, will be hard-pressed to mobilize the necessary resources to establish and operate effective supervisory review functions as required under pillar two. This will also be the case in South Africa. One thing which suggests that the requirements of the new capital adequacy framework will lead to a substantial reorganization of banking supervision

in South Africa is the fact that the process of on-site supervision only became fully operational during 2000 (South African Reserve Bank 2000:1).

These concerns are especially serious in the light of the current state of bank supervision in many countries. Indeed, there has been insufficient monitoring of banking institutions in many emerging-market and transition countries (Mexico, Ecuador, and East Asia being recent examples), but it has also been a very serious problem in industrialized countries. The inadequacy of bank supervision in Japan and the problems it has caused are well known, with the lack of resources for bank supervision exemplified by the fact that the number of bank examiners in Japan is in the order of 400 – in contrast to around 7000 in the United States (Mishkin 2000:22)

The greatest risk is that supervisory resources will be diverted away from the supervisory review of relatively weak low-franchise value banks onto strong high-franchise value banks which will be amongst the first to shift to the IRB approach. Consequently, the scope of supervisory review must be adjusted to clearly focus scarce supervisory resources onto the monitoring of weak banks with low incomes, low capital, and high risk. If this is not done, overall regulatory discipline could be seriously weakened (Milne 2001:18).

The consensus among analysts is that the most likely outcome for emerging markets in the near future is an adoption of the standardized approach of the newly proposed Accord. As indicated in Section 4.5, this is not the case in South Africa. Several South African banks plan to adopt the internal rating-based approach. Nevertheless, the implementation of the standardized approach would have important implications for financial stability in emerging markets.

One of the criticisms is the question of the relevance and suitability or applicability of these proposals with regard to emerging markets. What follows sets out are some of the major issues in this regard (Cantor 2001:175-177, Griep and De Stefano 2001: 151-158, Barclays 2001 2-9, IMF 1999:152).

By using ratings as a tool of regulation, regulators fundamentally change the nature of the rating agency product. Issuers pay rating fees, not to facilitate access to the capital market, but to purchase a privileged status for their securities from the regulator. As a result, licensed rating agencies will have a product to sell regardless of the analytic quality of their ratings and their credibility with the investor community. Flawed incentives promote aggressive rating practices that, in turn, will undermine a capital adequacy system based on such ratings.

There are concerns about how accurately credit ratings reflect underlying risks – particularly for sovereigns. Unlike with corporate ratings, credit rating agencies currently have only a limited, and mixed, track record when it comes to rating anything less than an ultra-prime borrower, as recognized both by the Basle Committee and the rating agencies themselves (Monford and Mulder 2000: 4-6) . In its review of rating agencies the IMF (1999) highlights – in addition to limited track record – the lack of an explicit and probabilistic methodology as well as limited resources devoted by rating agencies to sovereign ratings.

Based on historical experience, emerging-market countries have suffered downgrading of their sovereign ratings – a situation which a number of recent studies have labelled as “excessive.” Since the sovereign rating is generally the pivot upon which all of a country’s other ratings depend, this could determine a *de facto* ceiling for the private sector. The effect of sovereign ratings on capital requirements can be even more pronounced, since corporate ratings in emerging-market countries are more tightly linked to sovereign ratings changes. The correlation between sovereign ratings and firms’ ratings is almost non-existent for G-10 countries. However, the correlation between the two kinds of ratings becomes increasingly tighter as the country income level decreases.

As an extension of the above, it has been argued that the links between regulatory requirements and ratings changes can have a sharp impact on markets, both national and international. For example, one concern is that if during a crisis a sovereign is suddenly downgraded, from investment to non-investment grade, a number of institutional investors could be faced with higher capital charges or be prohibited from continuing to hold the sovereign’s securities. The ensuing portfolio adjustments could limit the funding available to sovereigns and/or impose higher borrowing costs. In this regard, the work of Altman and Saunders (2001: 25) shows that “traditional” agency ratings could produce cyclically-lagging – rather than -leading – capital requirements which would enhance instability in the banking system rather than reduce it. Manford and Muller (2000) generate a model of sovereign ratings of emerging-market countries; it suggests that the use of ratings for capital requirements as proposed in the new Basle Accord would result in significantly sharper fluctuation in required capital than under the current Accord. Volatility of banks’ capital requirements in poorer countries would be increased, and the cost of capital for the best institutions of those countries would be higher than for peer institutions from more developed economies. In turn, this would negatively affect the availability and cost of credit in emerging-market countries.

Externally rated counterparties account for a small proportion of corporate and financial borrowers. Owing to its limited coverage, the rating-based approach potentially creates a more “uneven playing field”, favouring US banks and banks which hold traded debt.

Long-term empirical studies conducted by the two major rating agencies, Standard and Poor’s and Moody’s, reveal a well-defined correlation between credit rating and the probability of default: a lower credit rating corresponds to a higher probability of default (IMF 1999:105). Furthermore, these studies find that lower credit ratings are less stable. However, these studies employ data sets containing mainly US companies, presenting very little evidence of the stability of corporate ratings in the emerging-market context.

In spite of the very rapid growth of their international activities in the last decade, US-based rating agencies have devoted their efforts to the more developed economies. In such economies, marginal and fixed costs associated with rating additional firms are lower, and/or the demand for ratings is higher.

Rated firms are now more widely spread, geographically, than two decades ago, because of the progressive globalisation of goods and financial markets. This development is the consequence of both the greater scope of coverage of the larger international rating agencies (S&P, Moody's, Fitch) and of the more active presence of national rating agencies. An example of the development in the scope of coverage of large international rating agencies is the increase in the number of foreign currency sovereign ratings provided by Standard and Poor's. This number has increased from only 11 countries 20 years ago, to 25 in 1989, and to 80 in 1999. The expansion of the number of rated firms has followed that of the sovereign ratings. At the end of 1999, only six countries among those that had an S&P sovereign rating did not have any individual firm rating (Fern et al. 2001:124).

However, the attainment of a worldwide scope of coverage is a very recent phenomenon, providing too limited a sample for comprehensive assessment of the accuracy of rating agencies for non-G10 countries.

It appears that the total number of rated firms declines sharply in countries with low incomes. The number of rated firms is particularly low when it comes to non-banks.. The median rating of the high-income countries (G10 and non-G10) are solidly positioned above the level of investment grade, while both the middle- and lower-income groups are below the level of investment grade. (Fern et al. 2001:122).

The debate on the accuracy and stability of ratings has so far been dominated by the agencies' failure to give advance warning of the Asian crisis (IMF 1999: 145). Indeed, the East Asian crisis and the other crises that hit emerging economies during 1997-8 compelled agencies to greatly (and belatedly) revise their ratings of the countries affected by the crisis. The sovereign and private-sector ratings in emerging economies in 1997-8 may be a case in which the revision of ratings could have had some undesired macroeconomic consequences had it been related to banks' minimum capital requirements.

Ratings were sharply downgraded for sovereigns. Besides the downgradings of Brazil, Venezuela and India, the sharpest downgradings affected the East Asian crisis countries: Indonesia, Korea, and Thailand fell below investment grade and Malaysia came close to the threshold. Various papers have claimed that rating agencies behaved pro-cyclically, downgrading these countries' sovereign ratings excessively with respect to their underlying fundamentals. (Kaminsky and Reinhart, 1999).

Sovereign ratings did show some upward revision in 1999, as soon as recovery started for East Asian crisis countries. This is consistent with the hypothesis that the 1997-8 downgradings were excessive. However, the upward revisions did not translate equally rapidly in relief for these countries' corporations. Both the Korean and Thai sovereign ratings were brought back to investment grade in 1999, but this did not happen as soon for Korean and Thai corporations.

The failure to predict the Mexican and Asian crises has been attributed to a number of factors. Firstly, rating agencies are said to be influenced by the compensation they receive from issuers. According to this argument, the agencies would hesitate to downgrade issuers from fear of losing business. Secondly, the agencies are

purportedly reluctant to downgrade sovereigns for fear of precipitating self-fulfilling crises. Indeed, it is not uncommon for downgraded sovereigns to blame the rating agencies, among other things, for their troubles. Finally, some argue that the rating agencies are inadequately staffed and therefore not up to the task (IMF 1999:135).

It appears, however, that market spreads, as well as market analysts reported in *Institutional Investor* and *Euromoney*, provided signals similar to those of the credit rating agencies. Furthermore, in reviewing developments since the beginning of the Asian crises, the credit risk profession has identified a number of economic factors that will receive increased emphasis in evaluations of countries' creditworthiness.

Credit ratings and downgrades have been shown to have been affected by factors such as issuer-industry and domicile. Actual occurrences of defaults and recoveries have not always correlated with these ratings, as shown in a number of empirical studies. Nickell et al. (2001) found that the rating transition matrix of US-domiciled and UK-domiciled issuers closely resembles that for the sample as a whole. Japanese-domiciled entities, on the other hand, differ substantially from the whole sample. The 1999 Japan Centre for International Finance (JCIF) study suggests Moody's ratings of Japanese companies may be relatively tough, since fewer defaults have been observed over time in Japan than would have been predicted by Moody's ratings. However, Ammer and Packer (2000) found that credit ratings appear to have been calibrated successfully across US and foreign issuers.

The empirical results of Ammer and Packer, and Nickell et al. also suggest that credit ratings have not always been consistent across issuer sectors. In particular, US banks experienced significantly more defaults than US industrial firms, taking the year and credit rating as given. The results of a study by De Beer et al. (2001) suggest that in the case of emerging-market companies, credit ratings are not perfectly calibrated across ratings-issuer and industry.

In addition to the above-mentioned potential impact under the standardized approach, adoption of the IRB approach can also potentially destabilize capital flows to emerging-market countries.

It is envisaged that the major banks' lending patterns will significantly change as they adopt internal ratings-based approaches. The outcome of these changes is likely to be a significant reduction of bank lending to the developing world, and/or a sharp increase in the cost of international borrowing for much of the developing world. Recent research has suggested that adoption of the IRB approach as currently proposed would result in speculative-grade borrowers (BBB- or lower) being effectively excluded from international bank lending. The implications of this are that large parts of the developing world will no longer be able to access international bank lending on terms likely to be acceptable. This is likely to be felt most severely in the poorest, and lowest-rated, countries. These are the very countries in most need of access to finance (Griffith-Jones and Spratt 2001:11). Naturally, the impact of this

effect will depend on the degree to which a country relies on international bank lending. In the case of South Africa, this should not pose serious problems.<sup>1</sup>

A related concern is that the proposed modified Accord could enhance the pro-cyclical features of capital requirements. Regulatory pro-cyclicality occurs because, in the midst of an economic contraction when non-performing loans tend to increase significantly, banks are required to increase provisions, which, in turn, may result in capital ratios below the minimum required. As raising capital is expensive for banks, especially in downturns, the cost and availability of bank funding increases, exacerbating the recession, and further deepening the non-performing loan problem.

Although there are different views in this regard, this effect would probably be greater under the internal-rating based approach. Under the IRB approach, the drive for risk-weights to more accurately reflect PD is inherently pro-cyclical in that, during an economic upswing, average PD will fall – and thus incentives to lend will increase. Conversely, during a downturn, average PD will increase (due to more difficult economic circumstances) and, in consequence, a credit crunch may develop with all but the most highly rated borrowers having difficulty attracting funds (Griffith-Jones and Spratt 2001:12).

The Basel Committee has recognized this concern, but argues as follows: “The Committee has also considered the argument that a more risk-sensitive framework has the potential to amplify business cycles. The Committee believes that the benefits of a risk-sensitive capital framework outweigh this concern.”

Griffith-Jones and Spratt (2001:12) argue that the trade-offs in terms of costs and benefits are largely applicable beneficial to the major, internationally active banks. It is likely that the developing world will feel the costs disproportionately (reduced lending coupled with an increased scale of crises) while simultaneously attracting none of the benefits. In addition to potential adverse macroeconomic effects, the pro-cyclical nature of the new Accord poses a considerably greater challenge to capital managers. This introduces a new and potentially significant element of uncertainty into capital planning (Barclays 2001:15).

The answer may lie in the implementation of an explicit counter-cyclical mechanism that would, in boom periods, and in contrast to ratings, dampen excess bank lending. Several mechanisms could be used to introduce a counter-cyclical element into regulation of bank lending. One mechanism would be to get the required capital ratio higher in times of boom, and to allow banks to use the additional cushion provided by the higher capital ratio, so that they could sustain lending in times of recession at a lower capital asset ratio (when increased bad loans are likely to be reducing their capital).

A second mechanism for introducing a counter-cyclical element into bank lending regulation is for regulators to encourage higher general provisions to be made for

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<sup>1</sup> A counterargument is that more risk-sensitivity in the Capital Accord could also give financial institutions, corporates, and governments incentives to deal quickly with problems in order to restore their creditworthiness. In the long run, this could actually help stabilize capital flows.

possible loan losses (i.e. subtracted from equity capital in the books of the bank) to cover normal cyclical risks.

The impact of the new capital adequacy framework on the competitive equality between banks of different countries is a further concern (Sironi and Zazzara 2001:8). Banks in developing countries are liable to face increased competitive pressure from internationally active banks that have adopted the IRB approach and have further enhanced their existing competitive advantages through the use of more finely-tuned, and therefore lower, capital requirements. Indeed, in their comments on the new Accord, both Deutsche Bank's Global Markets Research Division and Moody's Global Credit Research Department argue that this impact is likely to lead to smaller banks being at a disadvantage, with further industry-wide consolidation being the ultimate result. In developing and transition countries, this may imply an accentuation of current trends towards a strong increase in the proportion of foreign banks' control of the banking industry (Griffith-Jones and Spratt 2001:13).

Furthermore, (Griffith-Jones and Spratt 2001:2) argue that emerging-market banks attempting to switch to the more sophisticated approach (so as to avoid a higher capital requirement) will find it extremely complicated and demanding to do so, if not impossible in the medium term. This argument does not seem to be applicable to South African banks. Several large banks have already indicated that they are confident that they will be able to adopt the IRB approach (see, for example, the First National Bank Annual report 2001:77).

Nevertheless, the potential impact of the new Accord on competitive equality remains of significant concern. The need to enhance competitive equality and prevent "excessive consolidation in the financial sector" also arises from the need to promote the safety and soundness of the financial system (Swiss Bankers Association 2001:4). Competitiveness in the international arena is a serious concern in the South African banking sector. South Africa's biggest banks are small compared to large international banking groups. Indeed, being competitive on an international level was part of Nedcor's rationale behind the hostile take-over bid for Standard Bank (Marcus 2000:6).

Against a background of increasingly integrated international financial markets, competitive pressures in the financial services arena, and the growing concern for shareholder value, there are concerns about the possible impact of the new Accord on financial market stability. This is partly due to the failure of the proposed regulations to consider the fact that risk is endogenous.

The endogeneity of risk implies that volatility is determined in the market, in large part by the behaviour of all individual market participants.

As a consequence, systemic stability is determined by the collective behaviour of individual market players. Thus it is of special concern how the proposed regulations would induce the harmonization of investment decisions during crises with the consequence of destabilizing rather than stabilizing the global financial system (Danielson et al. 2001:4).

In times of crisis, endogeneity may matter enormously if market participants become more homogeneous as a result. Using similar risk models, they may pursue similar strategies to mitigate the adverse effects of the on-setting crisis. In such a case, individual actions may reinforce each other. Consider, for example, a fall in prices. Market participants may then have an incentive to sell assets, which in turn is reinforced if other participants also sell assets – thus reducing prices even further. This effect is a pure externality: individual banks do not take it into account when making decisions, and yet it affects the stability of the banking system as a whole (Persaud 2000:6).

Thus, according to Danielson et al. (2001:7) employing VaR or similar approaches to measuring risk for regulatory purposes is problematic in two senses. Firstly, by failing to acknowledge the endogeneity of risk and liquidity at the systemic level these approaches produce inaccurate volatility estimates. Secondly, by encouraging all market participants to employ similar risk-modelling techniques, regulation renders them more homogenous in risk-aversion and trading strategies, thus causing the financial system to become less stable.

Finally, the absence of an integrated credit and market risk framework is criticized. However, such an integrated risk management framework is not easily accomplished. And it implies considerable challenges to bankers and supervisors alike. Very few banks, even the bigger, internationally active banks, are capable of such an approach. The level of technological sophistication required is probably absent in most developing countries. This emphasizes the great challenge of harmonizing national standards that are binding on the minority of risky banks – but which are not unduly burdensome to healthy and prudently managed banks – and which incorporate objective and neutral criteria, as well as achieve a defensible compromise between administrative simplicity and theoretical accuracy (Federal Reserve Bank of Chicago 2001:1).

#### **4 IMPLEMENTATION OF THE PROPOSED BASEL ACCORD IN THE SOUTH AFRICAN CONTEXT**

The possible impact of the implementation of the proposed Basel Accord on the South African banking system is evaluated in the context of the general financial environment in which South African banks operate. A questionnaire is also employed; it is intended to identify challenges regarding the implementation of Basel II on a micro bank-specific level, and evaluate the preparedness of South Africa banks. The questionnaire addresses specific issues regarding the implementation of the new Basel Accord – such as South African banks' preferred approach to the calculation of regulatory capital requirements for credit risk, as well as perceptions regarding the biggest challenges posed by the implementation of the new Basel Capital Accord. The current disclosure practices of South African banks (as reflected in annual reports) are evaluated, based on a survey of the Basel Committee's Transparency Group which deals with the public disclosure practices of internationally active banks.



#### **4.1 A profile of the South African banking sector**

Gelbard and Leite (1999:8) classified the South African financial system as “well developed” in their study using a set of six indices representing key characteristics of the financial systems in 38 sub-Saharan African countries. These indices include a market structure index, a financial products index, a financial liberalization index, an institutional environment index, a financial openness index, and a monetary policy instruments index. South African banks are generally regarded as well managed and they generally have in place sophisticated risk-management systems and corporate-governance structures. However, compared to the biggest international banking groups, even the largest South African banks are relatively small. For example, at 31 December 2000, the total assets of Citigroup amounted to US\$902 210 million. For Barclays and ANM Amro the corresponding figures are US\$473 052 and 505 415 respectively (Basel 2001d:20).

The aggregated balance sheet of the banking sector in South Africa, as at 31 December 2001, equalled R1045.6 billion, as opposed to R819.2 billion as at 31 December 2000. The total funds of the banks – made up of capital, reserves, deposits, and loans – increased by 24.1% (year-on-year) to a level of R1034 billion at the end of 2001. The growth in total assets was brought about by an increase of 23.6% in loans and advances. Of these total assets, 69.1% was concentrated in the big four banks.

The value of industry assets has more than doubled in nominal terms between 1994 and 2000, which is reflected in the increasing contribution of the sector to GDP. In the year 2000, the financial sector contributed 20% of the country’s economic product. The relatively large size of South African banking reflects the development and sophistication of the financial sector in this country.

By the end of May 2002, the South African banking system consisted of 32 locally controlled registered banks, as well as 15 local bank branches of foreign banks, and about 55 representative offices of foreign banks (SA Reserve Bank 2002). Foreign banks, targeting a corporate and wealthier clientele, hold about 8.1% of the total assets of all banks doing business in South Africa.

Although opening the domestic banking sector to foreign banks is one possible way of fostering banking sector stability in the South African context (Mihaljek 2000:24), the relatively small share of foreign banks cannot be seen as an indication of an unsophisticated banking sector. Indeed, locally controlled South African banks are generally regarded as sophisticated and well managed.

The level of concentration in the South African banking sector is high, with ABSA, Standard Bank, First Rand, Nedcor, BOE, and Investec making up 83.2% of the market share (at the end of 2000) and 81.2% at end of December 2001 (Hawkins 2001:10). Most of the market segments are overshadowed by the “big six”, except for resale and repurchase agreements, where some of the overseas banks or their branches have a significant share of the market. Instalment finance by the big six accounted for approximately 90.8% of the total at September 2000. The figures were 94% and 88% for mortgage lending and corporate overdrafts and loans, respectively.

## **4.2 A credit risk profile of South African banks**

An analysis of overdue amounts and large exposures can give an indication of the level of credit risk in the South African banking system. In terms of the *amended Regulations relating to Banks*, which became effective on 1 January 2001, banks have to classify all loans and advances according to the quality of the assets on a monthly basis. About 78.3% of the banking sector's assets (84.4% in December 2000) earned a reasonable margin, 5.9% (December 2000: 5.3%) earned a small margin, and the remaining 15.8% (December 2000: 10.3%), including infrastructure, earned no margin.

The ratio of net overdues (that is, gross overdues less specific provisions) to net qualifying capital and reserves is used internationally to benchmark the extent of amounts overdue in a banking sector. Net overdues as a percentage of net qualifying capital and reserves amounted to 21% in January 2001. By the end of December 2001, this ratio had improved to 17.3% – which was well within the international benchmark of 25%.

Expressed as a percentage of total loans and advances, gross amounts overdue decreased from 4.3% in December 2000 to 3.9% in January 2001, mainly because of the amendment of the definition of “overdues” in January 2001. By the end of December 2001, the gross amount overdue (as a percentage of total loans and advances) amounted to 3.2%.

The implementation of the *amended Regulations relating to Banks* made it possible to determine the exact amount of specific provisions made and the value of the security held against loans classified as non-performing. By the end of December 2001, specific provisions covered about 46% of all overdues. Internationally, it is generally accepted that specific provisioning should cover at least 40% of non-performing loans, which indicates the slightly more conservative stance of South African banks in this regard. At the end of December 2001, about 22% of overdues were covered by security.

The non-performing loans of the total banking sector stood at a level of R25,7 billion at the end of January 2002. Other loans and advances overdue (that is, excluding mortgage accounts overdue and instalment accounts overdue) constituted the major portion of accounts overdue, namely 55%. Mortgage and instalment accounts overdue constituted 34% and 11%, respectively, of total overdues. The total gross overdues of the banking system prior to the East-Asian crisis of 1998 amounted to R15,5 billion, attributable to the high interest rates of 1998 which manifested in the overdue accounts.

## **4.3 Prudential requirements**

### **4.3.1 Loan provisioning requirements**

As of January 2001, the *amended Regulations relating to Banks* require large exposures granted not to exceed 800% of capital and reserves, in line with the guidelines of the European Economic Community. In terms of these guidelines, those

large exposures granted that exceed 15% of capital and reserves should not exceed, in total, 800% of capital and reserves, and no single exposure should exceed 25% of an institution's capital base. Large exposures granted were at a level of R1,4 billion in January 2001 (representing 1 874.8% of net qualifying capital and reserves), compared to R690 million (representing 962.8% of net qualifying capital and reserves) in December 2000. These figures include, amongst other things, exposures to Government and inter-bank settlements. The above-mentioned regulations refer only to large exposures to private-sector non-bank borrowers. Overdues in respect of large exposures decreased from R437,7 million in December 2000 to a level of R216,7 million at the end of December 2001. Specific provisions covered about 75.9% of overdues. The remainder of the overdues were covered by the value of the security held by banks.

In South Africa the loan classification requirement is 120 days, and the foreign exchange risk exposure of a bank, referred to in South Africa as the net open position, may not exceed 10% of its capital and reserves. The net open position has recently been tightened (from 15%) as of 1 January 2001.

Banks' adequacy of hedging against exchange-rate risk is reflected in the net open position in foreign currency after hedging. Measured against capital and reserves, the maximum net open position in foreign currency after hedging over the last twelve months fluctuated between a minimum of 3.1% in August 2001 and a maximum of 5.4% in January 2002. Despite the high volatility of the rand during the latter part of 2001 and the early part of 2002, banks remained safely within the stipulated maximum limit of 10% of capital and reserves, and were thus adequately hedged against exchange-rate risk during this time.

The adequacy and good quality of the South African bank supervision framework is evident from the above discussion. Minimum capital requirements are supplemented with adequate regulations in terms of loan-loss provisions, loan classification, provision for large exposures, and foreign-exchange risk. These regulations are in line with international best practices. And, in general, South African banks operate well within these guidelines and regulations.

#### ***4.3.2 Minimum capital requirements***

It is a well-accepted recommendation that minimum capital requirements need to be above 8% in emerging markets. The higher level of economic and financial volatility in emerging markets relative to industrial countries implies that the buffer stock needed by banks to weather unexpected shocks without becoming insolvent is larger in the former set of countries than in the latter. Higher volatility translates into greater standard deviation for a portfolio's unexpected losses and, therefore, to the need for a larger buffer. South African bank supervisors recognized this concern and recently increased minimum capital requirements to 10% of risk-weighted assets.

South African banks are well capitalized, and the average risk-weighted capital-adequacy ratio for the banking system stood at 11.1% at 31 January 2002 (January 2001: 12.5%). Almost 50% of the banks have a capital-adequacy ratio of 15% or more, whilst those banks that do not meet the newly required minimum capital

adequacy of 10% have phase-in programs in place over the short-term, which have been approved by the present author.

For 2001, the average capital and reserves held by the banking sector amounted to R92,4 billion (R76,3 billion in December 2000). An analysis of the percentage distribution of banks in terms of capital adequacy at the end of December 2001 reveals that 11.5% (2000: 20.4%) of the total number of banking institutions did not meet the new minimum capital-adequacy ratio of 10%, whereas 34.6% of banking institutions (2000: 44.4%) had capital-adequacy ratios that exceeded 20%.

Banking institutions that reported capital-adequacy ratios of above 20% (that is, 34.6% of institutions) represented only 2.6% of total banking-sector assets. Banking institutions with a capital-adequacy ratio of between 10% and 12% (30.8% of banking institutions) represented the biggest portion of total banking-sector assets, namely, 48.9%. The banking institutions that did not meet the minimum capital-adequacy requirement of 10% represented 39.1% of total banking-sector assets.

At the end of December 2001, primary capital and reserves constituted 71.8% (2000: 73.7%) of qualifying capital and reserves before deduction of impairments amounting to R12,4 billion (2000: R11,2 billion). The net qualifying capital and reserves growth of 16.3% during 2001 was lower than the growth in the total balance sheet of 27.6%.

A study by Barth et al. (2001), containing detailed and comprehensive information on the regulation and supervision of commercial banks in 107 countries, indicated that South African supervisors received a high score for “capital stringency.”

The Barth et al. study includes three different capital regulatory variables that capture different but complementary measures of the stringency of regulatory capital requirements across countries. South Africa scores relatively highly in all these measures. For overall capital stringency, the South African score is five. However, in terms of current capital regulations South Africa obtains the maximum score of six. In terms of the capital regulatory index, South Africa obtains a score of six out of a maximum of nine. The specific measures, as well as South Africa’s “score” for each, are recorded in Appendix One.

The efficiency of capital requirements in the South African context is also demonstrated by the fact that the South African banking sector remained remarkably resilient in the face of financial crises like the East-Asian crisis of 1997-8. However, to some extent, the South African banking sector experienced some signs of vulnerability at the beginning of 2002. These include the events that lead to the placement of Saambou Bank under curatorship. Media speculation during September 2001 that Saambou Bank was underperforming for the six months ending September 2001, the sale of Saambou shares by its CEO and an executive director, and the unsuccessful attempt by Investec Bank Limited to dispose of its indirect shareholding in Saambou, contributed to the creation of negative market sentiment surrounding the bank. The situation was exacerbated by Saambou's profit-warning announcement on 11 October 2001.

Following these developments, Saambou experienced a steady withdrawal of deposits and a decline in share prices. Saambou lost an average of R2 billion through deposit withdrawals from 6 to 8 February 2002, leaving the bank illiquid. These events led to the decision by the Minister of Finance to place Saambou under curatorship, on 9 February 2002. Since Saambou was placed under curatorship, the South African banking system has witnessed an initial withdrawal of deposits from the smaller banks and a flight to quality of, especially, the corporate-deposit base to the four big banks. However, these events were mainly due to confidence and liquidity problems and cannot be seen as an indication of general soundness problems in the South African banking sector.

Despite the fact that most South African banks meet (or exceed) minimum capital requirements, bank capital ratios in emerging market countries are often perceived as notoriously unreliable. For example, due to the concentrated ownership of wealth in emerging-market countries, it is easy to raise low quality bank capital (see Section 4.2). In the view of the FSAP mission, the economic value of bank capital in South Africa might be overstated by the existing cross-shareholdings between financial institutions, as well as by the reliance on collateral security. Although it was impossible to quantify the extent of the overstatement of bank capital resulting from cross-shareholdings, there was consensus that banks would remain well capitalized even after the netting out of cross-shareholdings. Measures taken by South African bank supervisors to address such issues are discussed in the next section.

#### **4.4 The efficiency of bank supervision in South Africa**

The FSAP mission regarded the Bank Supervision Department as an effective supervisor, and as acting in broad compliance with the Core Principles for Effective Banking Supervision. The efficiency of South African bank supervisors is also confirmed by the findings of the Barth et al. study. South Africa scores relatively highly in most measures of supervisory power, including 14 out of a maximum of 16 for the “official supervisory power” index, three out of a possible four for the “supervisory forbearance discretion” index, and the maximum score of three for the “liquidity/diversification” index. The official supervisory power measure gives an indication of whether the supervisory authorities have the authority to take specific actions to prevent and correct problems.

The supervisory forbearance discretion measure is intended to capture the degree to which this type of discretion is allowed. The liquidity/diversification index captures the degree to which banks are encouraged or restricted with respect to liquidity, as well as asset and geographical diversification. A summary of the findings of the Barth et al. study is provided in Appendix one.

The implementation of the proposed new Basel Accord poses new challenges to bank supervisors. The Supervision Department of the South African Reserve Bank has taken several steps to address these challenges. These include specific preparation measures with regard to Basel II, as well as amending the banking legal framework in South Africa in order for the framework to remain in line with the latest national and international regulatory, supervisory, and market developments.

The new regulations came into effect on 1 January 2001. The *amended Regulations relating to Banks* includes a chapter dealing specifically with corporate governance. Some of the issues addressed are: the maintenance of effective risk management by banks, guidelines relating to the conduct of directors, a statement relating to the attributes of serving or prospective directors or executive officers, and the introduction of an independent compliance function into each bank. These measures serve as an indication of the Department's commitment to the application of good corporate-governance standards in the banking system in South Africa.

In terms of Regulation 47, all banks are required to establish a compliance function, headed by a compliance officer, to ensure that the bank continually manages its regulatory risk (KPMG 2001:10). As part of the supervisory process, the SARB has compiled a compliance checklist, the new DI 800 series of regulatory returns. The objective of the SARB with the DI 800 is to monitor the extent to which each bank complies with the Act and the Regulations, and to follow up on any instances of non-compliance (KPMG 2001:10).

A fair value accounting statement AC 133 was also recently introduced and is applicable to year periods commencing on or after 1 January 2001. In terms of disclosure requirements of AC 133, banks are required to reflect the net mark-to-market adjustments of investments in their financial statements, as opposed to equity accounting (book value or purchase price), as was previously the case.

Connected lending is addressed in Section 77 of the *Banks Act* and Regulation 34, pertaining to the form DI 700 (restriction on investments, loans and advances), of the *Regulations relating to Banks*. In terms of Section 77, a bank's investments, holding of preference shares, loans or guarantees to any of its associates shall not at any time exceed 10% of the bank's liabilities, excluding capital and reserves. Furthermore, in terms of Regulation 22 of the amended Regulations, which pertains to the form DI 401 (consolidated return), a bank has to report particulars of all exposures entered into with an entity within the banking group that result in the banking group being exposed to an amount exceeding 1% of its qualifying capital and reserves. Banks also have to indicate whether such loans were granted on the same terms and conditions as loans granted to any other party.

Controlling shareholders are addressed in the above-mentioned Regulation 22 of the amended Regulations, as well as in Sections 3 7(7) and 42 of the *Banks Act*. Regulation 22, together with the form DI 401, deals with connected lending, as well as group capital adequacy, group large exposures, intra-group exposures, and group currency risk.

With regard to cross-shareholdings between banks and insurance companies the Bank Supervision Department is following the principles and techniques developed by the Joint Forum on Financial Conglomerates.

The techniques, which have been developed in line with the principles and methodologies of banking, insurance, and security supervisors, are successful in eliminating any double counting of capital. The issue is addressed in both Regulation 21, pertaining to the form DI 400 (capital adequacy), and Regulation 22, pertaining to

the form DI 401 (consolidated return), of the *amended Regulations*, by the inclusion of cross-shareholdings as impairments against both bank capital and group capital. Large cross-shareholdings of capital can permit difficulties in one entity to be transmitted quickly to other entities in a group. Since none of the reciprocal holdings represent externally generated capital, existing cross-shareholdings within a banking group should be phased out.

In the view of the FSAP mission, there was clearly some danger in over-reliance on collateral in the management of credit risk in South African banks. The Banking Supervision Department is concerned that in certain limited instances, the bad- and doubtful-debt position had been downplayed somewhat, because of managements' relatively optimistic valuations of security. Furthermore, as mentioned above, policies complimentary to capital requirements (for example loans-loss provisioning regulations) in South Africa are in line with international best practices. A further positive factor is that a relatively large percentage of total bank capital (71.8%) consists of primary capital.

The Banking Supervision Department introduced a system of on-site supervision during 2000. During 2001, more on-site reviews were undertaken. A start was made with follow-up visits to banks previously reviewed in order to assess the progress that these banks had made in addressing the issues that had been identified as requiring attention. More follow-up reviews will be undertaken in the future as resources increase, and the aim will be to decrease the time span between on-site reviews to a period of not more than 18 months.

The on-site reviews undertaken have enabled the Banking Supervision Department to uncover issues that would have remained unknown had the Department relied solely on the outsourcing of the on-site supervisory function to external auditors. Consequently, it was decided to establish a structure for regular interaction with the external auditors of banks, in order to share information on the lessons learnt from on-site reviews of banks' risk-management practices, and, secondly, to hold meetings with the external auditors of individual banks after each on-site bank visit.

The scope of the on-site reviews is to include banks' entire risk-management processes, on a solo and a consolidated basis. Thus, the emphasis placed on the risk-management process in bank supervision in the new Basel Accord will not be entirely new to South African supervisors. However, supervision and review of the internal credit risk rating systems of banks constitutes new ground for South African supervisors.<sup>2</sup>

The Banking Supervision Department admits that it will have to develop its internal capacity to enable it to meet the challenges posed by the new Accord. The Department has dedicated a staff member to the task of assessing and implementing the new Capital Accord and providing guidelines to the banking industry. Current plans are to conduct a detailed study of the new Accord and to determine the changes required to the current banking supervisory process. It is anticipated that a comprehensive project plan will be in place when the final Accord is released.

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<sup>2</sup> Interview material. 12 April 2002.

The Bank Supervision Department envisages arranging several conferences and workshops on the new Capital Accord during the next few years. Furthermore, it is also endeavouring to engage the banking industry through quarterly seminars and by forming an interest group/steering committee, at which implementation issues will be discussed. It is envisaged that this forum will be coordinated by the Banking Council of South Africa.

#### **4.5 A survey on specific challenges in implementing the proposed new Basel Accord for South African banks**

The Banking Council resolved that the South African banking industry would issue a combined response on the proposed Accord to the Basel Committee (Banking Council of South Africa 2001:1). Apart from raising general concerns such as a lack of historical data availability on probability of default (PD) and loss given default (LGD), and implementing the Accord in the context of the relatively volatile macroeconomic environment, the official response of South African banks to the Basel Committee included very little information on individual banks' "readiness" and preliminary action plans to ensure compliance with Basel II. This creates a substantial research agenda for identifying specific implementation challenges in the South African context, as well as evaluating the preparedness of South African banks to implement the new Basel Accord. In this regard, the aim of the survey is to give an indication of things such as South African banks' preferred approach to the calculation of regulatory capital requirements for credit risk, as well as banks' perceptions regarding the biggest challenges posed by the implementation of the new Basel Capital Accord. As mentioned, a questionnaire (see Appendix Two), sent to a representative sample of South African banks, is employed in order to achieve this. Some banks indicated that a policy decision prevented them from completing the questionnaires. However, some of these banks agreed to a personal interview, answering questions in a more informal way. Information obtained from personal interviews with personnel from the bank supervision department of the South African Reserve Bank is also used in the survey.

##### ***4.5.1 Contents of the second section of the survey***

The questionnaire is divided into three different sections to provide a more meaningful analysis. In the first section, the credit risk management and measurement processes of the banks are analysed. This part of the questionnaire is not intended to give a thorough and detailed account of the credit risk management practices of South African banks. It is intended, rather, to give a limited overview of credit risk management practices, directly related to internal credit risk rating systems. Furthermore, information obtained from this section of the questionnaire is supplemented by information obtained from the annual reports of banks included in the sample. As explained, the new Capital Accord implies greater emphasis on the risk management processes and systems of banks. The motivation for the inclusion of this part of the questionnaire is thus to evaluate certain aspects of credit risk management practices in South African banks against international best practices, as indicated by the Basel Committee's publications. This part of the questionnaire also



addresses aspects such as pricing of credit risk and incentive-based compensation, since the regulatory application of banks' internal risk ratings can have serious implications in this regard.

The second part of the questionnaire covers specific factors regarding the internal credit risk rating systems of South African banks. Credit risk rating has become an important feature of most South African banks' credit risk management systems over the past few years. This reflects the efforts of institutions to strengthen credit management practices, the wider availability and growing familiarity with rating techniques, an increasing sophistication within the industry, and a growing array of uses to which ratings may be put. The use of internal ratings in the determination of regulatory capital, as proposed under the IRB approach, also underscores the importance of internal credit risk ratings. The purpose of this section is to compare current internal credit rating system practices with requirements set out by the Basel Committee for adoption of the IRB approach.

A bank will need to demonstrate that its internal rating system and processes are in accordance with the supervisory standards set by the Basel Committee if it is to be eligible to adopt an IRB approach. The following provides a summary of these operational requirements (Sironi and Zazzara 2001:6).

**1. Structure of the rating system.** An important aspect of any credit risk rating system is the loss concept used to differentiate the riskiness of different credit exposures, i.e. whether the ratings are one- or two-dimensional in form, and whether they focus primarily on PD, LGD, EL or on all three credit risk measures. The cornerstone of the IRB proposal is that banks possess risk-rating systems that differentiate borrowers representing similar levels of credit risk. The proposal distinguishes between the risk of borrower default, on the one hand, and transaction characteristics that influence the loss severity that a bank would likely suffer if the borrower were to default, on the other. As a result, banks that adopt the IRB approach will need a risk rating system that provides a separate assessment of borrower and transaction characteristics. The Basel Committee concludes that a two-dimensional approach is necessary to provide supervisors with confidence that the assignment of borrower ratings (and, in turn, PDs to borrower grades) is not "tainted" by a consideration of the specific structure of the transaction.

**2. Number of grades.** Banks should have at least six grades for performing loans and two for problem loans with a meaningful distribution of exposures across grades and no excessive concentration in any particular grade. Specifically, the Committee is proposing that no more than 30% of the gross exposures should fall in any single borrower grade. This requirement recognizes that the granularity, and therefore usefulness, of a bank's rating system will be reduced if credit exposures tend to be concentrated in only one or two risk grades.

**3. Criteria for rating assignment and loss quantification.** Banks must have specific criteria for assigning borrowers a rating and documentation on how these criteria are established. The criteria should be able to differentiate risk, have predictive and discriminatory power, and be specific enough to enable third-party assessment of an exposure.

A grade is defined as the assessment of borrower risk on the basis of a specified and distinct set of rating criteria. The IRB requirements state that a grade should only qualify as such if a bank's management has provided specific rating criteria that distinguish the grade from others.

Risk rating systems that have overly broad grade definitions, which result in borrowers of significantly different risk characteristics being assigned the same grade, are not acceptable. Likewise, risk rating systems that materially assign borrowers of comparable risk to different grades are also unacceptable. The criteria should also be intuitively consistent with the PD estimates provided for each grade. For example, if the criteria describe a borrower whose repayment capacity is speculative in nature, the PD estimate should reflect the level of risk commensurate with its degree of financial flexibility, or lack thereof.

The requirements mandate banks to document their assessment criteria and also to track when an assigned grade deviates from that indicated by the application of the criteria. The requirements are designed to promote the consistent application of the risk rating criteria, a conservative credit evaluation when greater uncertainty exists, a comprehensive assessment of the borrower's financial condition over the future horizon, and the use of risk rating models that have statistical power and encompass all significant variables.

**4. Integrity of the rating assignment and review process.** This includes a requirement that each borrower and facility must be assigned a rating prior to the bank entering into a commitment to lend. A further requirement is that ratings should be reviewed periodically by an independent source.

Oversight and supervision of the operations of the banks' risk rating systems should be designed to ensure the risk rating system is properly functioning. This should be done by timeously identifying borrowers, industries, and portfolios that are experiencing financial deterioration.

The Basel Committee requires that banks have an explicit policy for the frequency of reviews post-origination. At a minimum, borrowers should be re-rated annually, or reviewed by an independent credit unit. Higher risk borrowers, and borrowers on whom new information comes to light, should have their risk ratings updated more frequently. Banks also need to have adequate capabilities to gather, prioritise, and analyse new information. The Committee has provided specific requirements for refreshing ratings once a bank has received periodic financial information. Generally, it is 90 days from receipt for non-problem borrowers, and 30 days for borrowers in a weakened financial condition.

The proposal also specifies operational requirements for banks' internal audit and credit risk control units. The requirements are designed to ensure that these areas employ a scope and frequency that are adequate to their control responsibilities and that test the proper functioning of the risk rating system. Control functions, such as credit risk or internal and external audits, are at the centre of identifying and resolving risk rating system deficiencies that threaten its proper operations. Ultimately it is the

responsibility of senior bank management and boards of directors to ensure the integrity of the risk rating system.

To this end, specific recommendations are made regarding the responsibilities of banks' boards of directors and senior management. Their responsibilities include the approval of the material aspects of the rating and PD estimation process, the frequency and content of risk rating management information reports, the documentation of risk rating determinations and statistical model methodologies, interaction with – and evaluation of – control functions, and provision of adequate resources to the control functions.

**5. The use test.** The proposals greatly stress organizational and operating functions. On the one hand, the proposals explicitly require the actual use, of the internal rating system in order to obtain its acceptance and validation by national supervisory authorities. On the other hand, the proposals repeatedly refer to the responsibilities of banks' different organizational units, such as the internal audit and the top management, which are required to perform an “oversight” function in the internal rating process. This requirements reflect the Basel Committee's intention that banks should not develop risk rating systems simply for IRB purposes. To be in a position to demonstrate to supervisors that an internal rating system should be used for the purpose of determining minimum regulatory capital requirements, a bank must first demonstrate that the rating system is an integral part of its current business and risk management culture. Due to the many functions that risk ratings impact, considerable time and effort needs to be committed to adequately implementing all of these functions. As a result, the requirements mandate that a bank use a risk rating system that broadly meets the minimum requirements for at least three years prior to its implementing the IRB approach.

**6. Internal validation.** Banks need to have robust systems in place to validate the accuracy and consistency of rating systems, processes, and the quantification of internal ratings. This standard describes the requirements for internal validation for both the PD estimates assigned to the rating grades and the techniques used to assign the ratings. It is one of the most important requirements for banks to properly execute if they are to credibly estimate their level of credit risk and the resulting regulatory capital requirements.

As a result of its importance, validation will likely receive significant supervisory attention prior to a bank being allowed to adopt the IRB approach. A bank should also be able to readily demonstrate validation capabilities to its supervisor prior to adoption of the IRB approach, and on an ongoing basis.

The Committee recognizes, however, that the statistical power – and hence the degree of reliance banks can place on techniques for the validation of PD estimates – is less than it is in the field of market risk, principally on account of the lower number of historical observations. As such, the Committee does not at this stage wish to set quantitative thresholds on what differentiates a valid estimate (a pass) from an invalid one (a fail). Consequently, validation procedures can involve comparing evolving credit migration statistics against expectations and/or comparing internal ratings with

other available rating alternatives, e.g. external agency ratings and/or externally developed rating models.

Results from previous empirical studies regarding banks' preparations for the implementation of the new Basel Accord and surveys regarding internal credit risk ratings were also used in the construction of the questionnaire. These studies include the following:

The Australian Prudential Regulatory Authority (2001), Treacy and Carey (1998) and English and Nelson (1998) reported on several aspects regarding internal credit risk ratings of banks in Australia and the US.

In January 2000, the Basel Committee issued a paper entitled "Range of Practice in Banks' Internal Ratings Systems" based on a survey of nearly 30 banks across the G-10 that were identified by their national supervisors as having well developed internal rating systems. These findings have guided the Committee in its design of the IRB approach for corporate exposures.

A number of international empirical studies provide a preliminary indication of banks' preparations in this regard. These include a study done by KPMG during May 2000. The preparedness of banks around the world for the proposed Basel II implementation was assessed. A total of 150 banks in Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, Germany, Italy, the Netherlands, Sweden, and the United Kingdom responded to the survey. A limited number of South African banks also participated in the study. The results of the survey were then consolidated and analysed by KPMG.

During August 2001, Carratu et al. conducted a survey on a wide cross-section of banks and building societies in Europe to establish their preparedness for the new Basel Capital Accord. Their results indicate that banks included in the sample seemed to have a fairly clear idea of the nature and scope of work required to implement the credit risk proposals. As mentioned above, this study identified several implementation challenges, including data management, securing senior level buy-in to the scope and cost of the project, and balancing the needs of the project with other management priorities. A key challenge faced world-wide by virtually all developers and users of internal risk rating systems, including prudential supervisors looking to utilize banks' internal ratings for regulatory capital and other purposes, is the widespread lack of good long-run data on the performance of banks' loans. The lack of such data can impact on the ability of an institution to develop effective rating tools. It can also impede efforts to verify the accuracy and robustness of banks' rating systems, to assign reliable quantitative loss estimates to risk grades, and to make reliable comparisons of ratings from different institutions: all important tasks not only from the perspective of banks, but also from the point of view of their prudential supervisors.

The last part of the questionnaire addresses specific issues regarding the implementation of the new Basel Accord. These issues include things such as South African banks' preferred approach to the calculation of regulatory capital requirements for credit risk, as well as perceptions regarding the biggest challenges

posed by the implementation of the new Basel Capital Accord. Some of the larger South African banks have already indicated that they want to adopt the advanced IRB approach. The current sophisticated approach to credit risk management and the use of sophisticated models in this regard constitutes a useful platform from which to do so. The extent to which current practices conform to the requirements set by the Basel Committee in this regard is evaluated.

#### ***4.5.2 Results of the survey***

##### *General factors regarding credit risk management*

In general, the credit risk management practices of South African banks seem to be sophisticated and in line with international best practices. The surveyed banks are confident that credit risk management is effectively covered in their training programmes, that all personnel understand the banks' approaches to granting credit (and can be held accountable for complying with established policies and procedures), and that their banks have a corporate culture and values which align well with their credit risk management objectives. They are also confident that their credit risk policies and procedures address credit risk in all the banks' activities at both the individual credit, and portfolio, levels – and that credits are priced in such a way as to cover all of the imbedded costs and compensate the banks for the risks they take. However, the surveyed banks are less confident about having sufficient staff resources and skills for effective credit risk management.

Banks seem to be less confident with regard to information systems and analytical techniques that enable management to measure the credit risk inherent in all on- and off-balance sheet activities. In particular, the large banks surveyed were not very confident that their information systems provide adequate information on the composition of credit portfolios. (All of the respondents of the large banks indicate "3" for this question.) This might be a reason for concern, since management information systems that support the loan approval process should clearly indicate the composition of the bank's current portfolio to allow for consideration of whether or not a proposed new loan (regardless of its own merits) might affect this composition sufficiently to be inconsistent with the bank's risk appetite.

##### *Data collection and quantification of loss concepts*

Banks which want to adopt the IRB approach are required to collect and store substantial historical data on borrower defaults, rating decisions, rating histories, rating migration, information used to assign the ratings, the party/model that assigned the ratings, PD estimate histories, key borrower characteristics and facility information. This must be established in a manner suitable for examination by regulators and for external verification. The data should be sufficiently detailed to allow retrospective re-grading of exposures, as rating models are reviewed and improved.

By collecting such diverse data, banks should be able to substantially improve the predictive power and robustness of their borrower risk rating models and PD estimates. In addition, bank managements will be able to improve their internal risk

management information systems due to the greater detail, consistency, and depth of available data. These requirements should also facilitate banks sharing information on a more consistent basis.

There are currently a lot of initiatives in the South African banking industry to quantify loss concepts. In general, most development in terms of quantification is in the area of retail portfolios. In line with overseas experience, South African banks currently lack long-term data on the performance of their internal rating systems. However, all the large South African banks surveyed indicated that they have a rating history for each borrower, including the methodology and key data used to derive the rating, key borrower characteristics, the date ratings were assigned, and the person/model who assigned the grade. This is in line with the requirements set out by the Basel Committee for adoption of the IRB approach.

All banks, using the IRB approach – whether using the foundation or advanced methodologies – must provide supervisors with an internal estimate of the PD associated with borrowers in each borrower grade. The preparation of the estimates, and the risk management processes and rating assignments that lie behind them, must reflect full compliance with supervisory minimum requirements to qualify for IRB recognition.

The Basel study (2000c) revealed that many banks, through their internal rating systems, are capable of assigning an estimate of PD to borrowers within a particular grade. Although most of the surveyed banks did not have sufficient internal data for specifying loss characteristics for all borrowers based on their own default history, a number relied on internal data for analysing the performance of certain borrower segments – in particular, retail or middle market customers. While the depth and breadth of such data varied, most banks appear to have initiated data-gathering efforts over the past three to five years.

The practices of South African banks in this regard seem to be broadly in line with international experience. All the surveyed banks indicated that they calculate PD estimates, although data limitations were indicated as a serious impediment to this. One of the surveyed banks indicated that it computes PD estimates from internal data (on default experience) and that it is confident about its estimates. The other surveyed banks indicated that they do calculate PD rates, but that internal default experience is not the sole driver of these calculations. The surveyed banks also indicated that they supplement data on internal default experience with external and pooled data, and that they use, especially, KMV methodology and other statistical default models. The one bank that calculated PDs from historical data indicated that the length of the underlying historical observation period used for the calculation of PD estimates is two to three years.

One of the largest South African banks indicated that while it does calculate PD estimates at the moment, it perceives the estimates as not being robust and granular enough due to data limitations. The bank also indicated that it feels most comfortable about PD estimates for the retail sector, since automation elements of loan applications have been significantly improved through behavioural scoring for the retail sub-portfolio. Calculation of PD rates and other loss concepts is considered to

be a work in progress. The bank indicates that it will increasingly adopt statistically derived estimates of future credit losses, driven by ongoing improvements to internal risk ratings and underlying PD measurements.

All of the surveyed banks indicated that they review their PD estimates at least annually. One of the larger banks indicated that PD estimates are reviewed monthly. All the surveyed banks also indicated that they have a history of estimated PDs and realized defaults associated with each grade.

The banks' historical databases often lack enough default observations for meaningful statistical inference since borrower defaults are fortunately relatively rare. Another problem with historical PD data series is inconsistency in the definition of what constitutes "default". Currently, different banks under different jurisdictions use different definitions of default. Consequently, current historical PD data series are not necessarily comparable among different banks, and are thus not very useful for regulatory purposes.

Thus, when banks formulate their PD estimates, they should be able to supplement their use of internal default experience with statistical default models, and be able to pool their data and map it to that of others. . If a bank has reconciled its own rating grades with those of an external credit assessment institution, such as a rating agency or credit bureau, then it can use that institution's published data on loss experience. The process of mapping to external rating agency data can be achieved in a number of ways, including comparison of the internal grades assigned to borrowers who have also issued publicly rated bonds, analysis of the financial characteristics of borrowers in internal grades to standard ratios which characterize the agency grades (such indicative data are typically published by rating agencies), and comparison of the definitions and criteria underpinning the internal rating grades to those of the external agencies. The judgement of bank personnel also plays a critical role in this process.

A key consideration in relying on external data is the comparability of such data to a bank's own portfolio. This is an issue for a number of reasons, including discrepancies between point-in-time and through-the-cycle ratings, differences in the composition of the banks' portfolios, and potential differences between the performance of publicly traded bonds and that of loans. US banks are pioneers in mapping external data to internal data. However, the limited number of borrowers with external ratings limits the use of mapping techniques in the South African context.

Pooling data from different banks is another alternative. Banks may also employ pooled data where the data was shared among a number of institutions to increase the breadth and depth of data. In order to do this, however, the bank must demonstrate that the population of borrowers represented in the data is representative of the population of the bank's actual borrowers. Additionally, a bank must demonstrate that the internal rating systems and criteria of other banks in the pool are comparable to its own. Some data sources will be richer for some borrowers than they are for others. Consequently, a bank may have a primary source of information, and use others simply as a point of comparison and potential adjustment to initial PD estimates.

The Bank Supervision Department of the South African Reserve Bank plans to start disseminating industry data, based on the DI900 forms completed by banks as part of regulatory compliance. However, it should be borne in mind that the Reserve Bank is not in the business of selling data. The dissemination of data is for the Banking Supervision Department's own purposes, and is not intended to provide data to the banking industry.

*Structure and operating design of internal credit risk rating systems*

In terms of their current rating systems' compliance with the requirements set for adopting the IRB approach, most of the banks surveyed indicated that with regard to some of the elements, their compliance is absolute. However, with regard to other elements, they are far from meeting the requirements. Banks also indicated differences in "readiness" for the IRB approach with regard to different sub-portfolios. In general, South African banks seem quite confident about estimation of loss characteristics of their retail portfolios, and data limitations do not seem to be such a big problem in this regard. Also, automation elements of loan applications seem to be most advanced in the retail sector.

Several banks indicated that they are currently busy with a gap analysis, identifying the extent to which their current rating systems comply with IRB requirements. They indicate that they need to discuss the results of this gap analysis with the regulators, so as to realistically determine the way forward for the implementation of the new Accord – and, especially, so as to deal with adoption of the internal ratings based approach.

Regulators admit that they need to increase their own education in this regard. South African bank supervisors have not yet started interrogating banks' rating systems, and consequently do not yet have a clear idea of how the structure of current rating systems differs from requirements set by the Basel Committee. Supervisors plan to start soon with a comparative study of the risk rating systems and credit risk models used by South African banks. These initiatives include a survey of models currently used by South African banks.

As mentioned, a key element of a bank's ratings system structure is the extent to which the rating is focused on the characteristics of the borrower (the obligor), as opposed to being focused on the specific details of the transaction, or alternatively being intended as a summary indication of risk that incorporates both borrower and transaction characteristics. In some cases, banks may choose to adopt multiple rating dimensions; in such cases, the same loan or exposure might receive a rating for each of the dimensions. Banks that adopt the IRB approach will need a risk rating system that provides a separate assessment of borrower and transaction characteristics. The Basel Committee concludes that a two-dimensional approach is necessary to provide supervisors with confidence that the assignment of borrower ratings (and, in turn, PDs to borrower grades) is not "tainted" by consideration of the specific structure of the transaction.

In a 2000 survey done by the Australian Prudential Regulation Authority, all 10 of the Australian banks surveyed utilize two-dimensional rating systems. In rating their



credit exposures, each of these banks determines a separate customer-level PD rating, a facility-level LGD rating, and a composite EL rating.

Other surveys indicate that only a small (though growing) proportion of European and US banks have similarly structured ratings. The Basel Committee study (2000c) found that about a third of the surveyed banks utilize two-dimensional ratings (of those, most use hybrid ratings, while only “a small number” assign separate PD and LGD ratings), 20% use single facility-level ratings that explicitly take into account both obligor and transaction-specific characteristics – while the remainder (about half) assign single obligor-level ratings meant primarily to reflect the risk of the borrower defaulting.

However, the Basel Committee notes that the number of rating dimensions formally used by banks may not completely reflect actual practice. For example, anecdotal evidence suggests that some banks, which claim only to rate the counterparty, may implicitly take into consideration the riskiness of the facility for the purposes of pricing, for profitability analysis, and in the allocation of economic capital. Thus, in light of such practices, it appears that only a small minority of the banks surveyed by the Basel Committee take no consideration of facility characteristics in their grading processes.

Two US studies, those by Treacy and Carey (1998) and English and Nelson (1998), made similar findings. Treacy and Carey surveyed the top 50 US banks while English and Nelson surveyed over 100 US banks across different size categories. Not unexpectedly, the latter found a higher proportion of smaller banks using one-dimensional systems. Among those institutions using a two-dimensional approach, neither study cited any examples of banks using composite ratings, though Treacy and Carey note that “a few banks” planned to shift in that direction. The differences in the survey results partly reflect differences in the timing of the surveys (combined with the rapid pace of development in this area) and the smaller number of banks in Australia.

South African banks appear, overall, to have moved more quickly in adopting two-dimensional composite approaches to credit risk rating compared to their counterparts in Europe and the US. All the surveyed banks indicated that they have a two-dimensional rating system. As indicated by the Australian Prudential Regulatory Authority study (2001), this is also the case with Australian banks.

With regard to the number of customer risk grades, South African banks are mostly clustered around the middle of the international spectrum. Most local banks have either nine or ten customer PD grades. One bank indicated that it has 100 grades. In general, the surveyed banks have from three to five non-pass/watch-list grades.

Tighter clustering in the number of risk grades might reflect the fact that several of the smaller and mid-sized banks have recently (within the past two years) expanded the number of risk grades as part of wider upgrades of their rating systems. This is broadly in line with international experience. The Basel study (2000c) indicates that, across the banks surveyed, the number of grades for performing loans was, on average, 10, and the number for impaired loans was about three. Within the surveyed

banks, the average number of problem grades was reported to be about three, ranging from a high of six to a low of zero. With regard to Australian banks, most banks have either nine or ten customer PD grades; one large bank has 22 main grades.

A general trend has been for banks to increase the number of pass grades as the range and sophistication of uses to which their ratings are applied has grown. As long as raters can achieve the finer distinctions required, rating systems with more risk grades – greater granularity – convey more information than systems with fewer grades, and can enhance a bank's ability to analyse and model its portfolio of credit risks.

Larger banks also tend to have more customer risk grades than smaller banks. The cost-benefit analysis of maintaining a larger number of risk grades tends to be more favourable for larger institutions. Such institutions generally have more complex credit portfolios (comprising many more customers, and a wider spectrum of risk) and are more likely to have introduced other sophisticated techniques of portfolio analysis that require ratings as inputs. Also, larger banks are usually better positioned, and have more resources, to develop and support more granular rating systems. Banks, however, need to exercise caution so as to avoid going beyond the point where they can no longer make meaningful distinctions concerning the riskiness of different exposures. Banks that have linked portfolio risk modelling with risk-based pricing and/or profitability measures can face strong pressures in this regard, including pressures from business lines looking for rating scale refinements to assist in meeting pricing and other performance targets.

Regardless of the overall number of risk grades, the granularity, and therefore usefulness, of a bank's rating system will be reduced if credit exposures tend to be concentrated in only one or two risk grades. One indication of how well-functioning rating systems differentiate risk within a loan portfolio is the largest percentage of total rated exposures falling in a single grade or grades.

Again, South African banks seem to be broadly in line with current international practice. In the case of most of the banks in the study, a maximum of about a third of rated exposures falls within a single grade. One bank indicated that less than 20% of total exposures fall within a single grade. The Basel(2000c), Treacy and Carey, and English and Nelson studies found similar results. In the case of three of the regional Australian banks, which rely heavily on the judgement of raters, between 50% and 70% of rated exposures fall within a single grade. On average, the banks surveyed in the Basel study (2000c) have, roughly, a maximum of 30% of rated exposure within a single grade. This value ranges from a high of 70% to a low of about 16%.

It may be concluded from this information that the majority of banks believe their rating systems are capable of differentiating adequately between risks. However, the "appropriate" distribution of exposures among grades for a given bank depends on many factors, including the structure of the loan portfolio, the nature of the exposures in that portfolio, and the uses to which ratings are put within the bank's risk management and business processes.

The IRB requirements mandate banks to document their assessment criteria and also to track when an assigned grade deviates from that indicated by the application of the

criteria. The requirements are designed to promote the consistent application of the risk rating criteria, a conservative credit evaluation when greater uncertainty exists, a comprehensive assessment of the borrower's financial condition over the future horizon, and the use of risk rating models that have statistical power and encompass all significant variables.

All banks surveyed consider balance sheet (including liquidity), income statement, and cash flow performance of borrowers in determining a rating. Those banks relying heavily on statistical default models use specific types of financial data (e.g., specific ratios that described leverage, debt-service coverage, and the like), while those banks relying on more judgmental analysis may leave much discretion to the rater in how these data are analysed.

Management experience and competence were cited as important considerations by all judgementally-oriented banks. Other considerations cited by judgementally-oriented banks were ownership structure, reputation, quality of financial information provided, the purpose of the loan in question, and, in some instances, the presence of environmental or other liability claims against the borrower. Finally, country risk was almost universally considered. For example Standard Bank indicates in its annual report that it has country risk committees based in London and Johannesburg, and that these report to the group credit-risk committee. The London committee is responsible for approving limits and ratings of countries outside sub-Saharan Africa, while the Johannesburg committee is responsible for countries in sub-Saharan Africa.

Essentially, all banks indicated that external ratings are considered in assigning internal grades, to the extent that such a rating is available for the borrower in question. Banks indicated that such ratings were rarely available for borrowers other than large corporates and financial institutions, and some banks mentioned that ratings were not widely available outside North America or the UK.

#### *Applications of rating systems*

As mentioned, the Basel Committee does not wish banks to develop risk rating systems simply for IRB purposes. To be in a position to demonstrate to supervisors that an internal rating system should be used for the purpose of determining minimum regulatory capital requirements, a bank must first demonstrate that the rating system is an integral part of its current business- and risk-management culture. Due to the many functions that risk ratings impact upon, considerable time and effort needs to be committed to adequately implement risk-rating systems. As a result, the requirements are that banks use a risk rating system which broadly meets the minimum requirements for at least three years prior to implementing the IRB approach.

South African banks' internal risk ratings are used in varying degrees in a wide range of applications. Most of the banks surveyed indicated that rating information is used widely in risk management, management reporting, and in the setting of limits and provisions. Increasingly, ratings are also used as a basis for economic capital allocation decisions, and as inputs in more sophisticated performance measurement, portfolio management, and pricing applications.

For example, the larger banks utilize their internal risk grading systems to assign delegated credit approval authority to lending personnel. At these banks, the maximum amount that each lending/credit officer may approve for any particular obligor varies by risk grade; i.e. delegated lending authority is more common for less risky grades, and vice versa. Use of this technique affords the banks greater flexibility in tailoring lending delegations to the skills and circumstances of particular lending officers. Among the smaller banks, ratings are used more simply in the delegation process. Typically, lending personnel are prohibited from authorizing new lending below a certain threshold rating; above that threshold, lending authority is typically restricted to a fixed dollar amount, irrespective of the obligor's rating.

All of the banks surveyed also use their rating systems to facilitate problem-loan management. Typically, when an exposure is assigned certain (low) grades, it becomes subject to requirements for more frequent monitoring and reporting on the condition of the obligor and the prospects for repayment, for the development of a formal rehabilitation or exit strategy, and/or for transfer to a specialist asset management unit.

All of the South African banks utilize ratings for portfolio monitoring and management purposes. Among other things, the banks' internal rating systems are used to report to top management the following things: total asset balances, large exposures, and relative changes in distributions for each risk grade. This information provides management with analyses of the mix of loans within the bank's portfolios and various sub-portfolios (including data sorted by business line, industry, or product type), data on problem assets and the risk profile of assets within pass grades. Ratings are also used to communicate risk-differentiated business acquisition strategies – such as in developing customer target profiles for particular products.

The vast majority of banks use rating information for pricing analysis purposes. The types of applications ranged from calculating the cost of funds to assigning grade-specific risk premiums. At some of the more sophisticated institutions, the cost of capital is explicitly considered in pricing decisions. In all cases, these banks calculate the cost of funds and assign grade-specific premiums.

All the surveyed banks reported that they directly relate the level of reserves to the rating classes. The banks also indicated that limits are set, based on rating categories. Furthermore, the rating process appears to be well integrated into the credit-authorization process at most of the banks surveyed; in particular, a few banks explicitly noted that loan approval authority is tied to rating categories. All the banks surveyed use rating information for attributing economic capital to products or business lines.

#### *System development and enhancement*

About half of the surveyed banks reported that their systems had been developed internally. Several were developed in co-operation with outside consultants, although in many cases they were subsequently modified internally.

Most banks reported recent changes in their rating systems. These ranged from minor changes to significant revisions in the process and methodology behind the system, including the introduction of revised rating scales: in particular, a few banks had recently undergone mergers, causing upheavals in their systems and processes.

Many of the banks emphasized that their systems continue to undergo additional enhancements, and some reported plans to introduce system changes in the near future. These include the addition of new grades, and the adoption of a two-dimensional rating system that provides ratings to both the borrower and the facility.

#### *Review of rating systems and assigned rating grades*

The Basel Committee requires that banks must have an explicit policy for the frequency of reviews, post-origination.

The survey results indicate that credit assessments and related ratings are subject to formal periodic review, at least annually in most cases. Most banks seek to enhance the timeliness of credit reviews, and any associated rating adjustments, by also specifying early review events and/or more frequent periodic reviews for lower-rated exposures. At some banks, early review policies are supported by centralized and/or automated monitoring systems. Most surveyed banks indicated that their credit risk committees are responsible for the overall review of the internal credit risk rating system, including things such as ratings methodologies.

Surveyed banks indicated that their rating systems incorporate a range of other features into their rating processes – features which are designed to enhance the accuracy, integrity, and consistency of ratings throughout their operations. All the surveyed banks indicated that the assignment of credit ratings is integrated into the banks' normal credit approval/review processes and that it is subject to the checks and balances built into those systems.

A couple of banks regularly undertake centralized monitoring of model override trends. Such monitoring can help indicate potential problems in the way rating models are being used within a bank – and/or deterioration in model performance. Some systems also seek to track potential instances of “gaming” rating models whereby loan officers might alter customer information and re-enter it several times in order to obtain a better rating recommendation. As a further means of enhancing rating consistency, efficiency, and overall accuracy at some banks where industry characteristics form an important input into rating models, an economics (or other specialized) unit – rather than individual lending/credit officers – is responsible for inputting relevant industry assessments.

In addition, some banks have established, or are considering establishing, automated data transfer linkages to minimize or eliminate re-keying of ratings input data. The aim is to improve system efficiency, by reducing inconsistencies in different data management systems caused by transcription error, failure to update databases, or potential manipulation of ratings information.

One of the surveyed South African banks indicated that it felt safe from the abovementioned problems – but only for its consumer/retail portfolio. Only a fully automated rating process makes it possible to implement “firewalls” to protect data and thus prevent changes to inputs. With regard to other sub-portfolios, the relatively limited extent of automation makes it more problematic to prevent – for example – re-keying of data inputs. The bank also indicated that it is currently working on ways to make control measures more robust.

#### *Validation of rating systems*

This standard describes the requirements for internal validation for both the PD estimates assigned to the rating grades and the techniques used to assign the ratings. It is one of the most important requirements for banks to properly execute if they are to credibly estimate their level of credit risk and the resulting regulatory capital requirements.

As a result of its importance, validation will likely receive significant supervisory attention prior to allowing a bank to adopt the IRB approach. A bank should also be able to readily demonstrate these capabilities to its supervisor – prior to adoption of the IRB approach and on an ongoing basis.

All the surveyed banks claimed to perform some degree of back-testing, but provided little additional information on how this was conducted. They indicated that they use the results gained from back-testing to modify either the rating process or the PDs associated with each grade. However, some acknowledged that the lack of data limits the statistical reliability of these evaluations.

Several banks discussed using external sources of data to assist in maintaining the accuracy and consistency of each grade’s loss characteristics (PD and/or EL), including historical bond performance by agency grade, PDs provided by vendor models, and other databases of default frequencies.

Over the past few years, a considerable number of the banks surveyed have tracked the migration of loans between rating grades. A few banks relied on this data in checking the calibration of PD and LGD, and in validating the internal consistency of the rating process. The larger banks regularly review credit migration data, and from time to time undertake comparison studies of alternative rating systems. Most of the smaller banks are currently building up their internal default histories, but have, to date, gathered insufficient data to form valid conclusions as to the efficacy of their rating systems.

#### ***Specific aspects regarding preparation for the implementation of the proposed new Basel Accord***

##### *Chosen (likely) approach to compliance*

Pending completion of the planning phase and the release of the final version of the proposed new Capital Accord, the decision as to which approach to take has yet to be made formally by some banks. A study by Carratu, et al(2001) found that 55% of

banks surveyed in Europe plan to implement the advanced IRB approach, while 28% aim for adoption of the foundation IRB – and only 9% are opting for the standardized approach. A 2001 study by KPMG found that all the surveyed South African banks aim to adopt the foundation IRB approach. This approach is also the approach favoured globally, according to the KPMG survey. In the present study, all the large banks surveyed indicated that they aim to adopt the advanced IRB approach. These differences in findings may be ascribed to the inclusion of different South African banks in the samples used, as well as to differences in the timing of the surveys (bearing in mind the rapid pace of developments in this area).

It seems that most South African banks prefer to adopt the IRB approach for the sake of international competitiveness. Another reason why South African banks favour the IRB approach is the fact that very few South African corporate borrowers have an external rating. The implication is that adoption of the standardized approach of the proposed new Capital accord gives banks no advantage in terms of finer risk differentiation between different borrowers or possible capital savings in the case of a bank with a higher quality portfolio.

However, while South African banks aim to eventually adopt the advanced IRB approach (and while they seem to have the impression that the South African regulators expect the largest banks to adopt this approach), one of the respondents indicated that it is not currently in the position to do so, mainly due to data limitations. In contrast, the Firstrand Group indicated that “...the credit risk management framework developed in the last two years is fully compliant with the advanced internal ratings based approach for credit risk of the new Basel Capital Accord” (Annual Report 2001:81).

Concerns were also raised about whether South African bank supervisors are currently in the positions to evaluate and approve banks’ internal credit risk rating systems for the purposes of using the IRB approach to regulatory capital determination.

#### *Estimated impact of the proposed new Accord on overall capital levels*

Interviews with South African bank supervisors indicate that they have, at this stage, no specific ideas about the possible impact of adoption of the new Accord on the absolute capital levels of South African banks. It seems as if the regulators want to follow the Basel guidelines very closely. This means that banks with advanced credit risk measurement and management systems, where supervisors are convinced that systems are sound, will be allowed lower capital levels under the advanced IRB approach, in line with the Basel Committee’s stated intention with the IRB approach. More than half of the banks surveyed indicated that their estimation of the likely impact of Basel II is that it will lead to an increase in the level of regulatory capital held. These banks estimate that any benefit of a possible reduction in the level of regulatory capital held against credit risk will be more than offset by the operational risk requirement. This is broadly in line with the results of the Basel Committee’s QIS. In line with these results, one of the larger South African banks indicated that it is very difficult to make an accurate estimation of the effect on absolute capital levels

at this stage. Partly due to the fact that the regulators did not indicate whether they would allow a decrease in capital levels is indicated as a main reason for this.

*Perceived benefits of adoption of preferred approach*

The majority of surveyed banks indicate that they feel the adoption of their preferred approach will add the most value by refining the process for allocating and charging capital – and thus lead to a potential reduction in capital levels. The introduction of more sophisticated risk-adjusted pricing, as well as an enhanced reputation (or better rating) due to the use of advanced risk management techniques were also mentioned. It is interesting to note that the same banks who indicated that they expect an increase in regulatory required capital levels when adopting the IRB approach, were often the ones who considered refining the process for allocating and charging capital (and thus gaining a potential reduction in capital levels) as the main benefit of adopting the IRB approach. This discrepancy probably points to the difficulty of accurately estimating the effect of the IRB approach on regulatory capital levels at this stage.

*Perceived obstacles in adoption of preferred approach*

All of the surveyed banks indicated that data issues are considered to be the biggest obstacle to implementation of their preferred approach to compliance (the IRB approach in most instances).

More specifically, the rigorous capture of loss given default (LGD) information (especially with the implementation of a standardized definition of “default”) was singled out by all the respondents as the biggest data. Missing data for the determination of probability of default (PD) were also indicated as an obstacle by all the banks, as were the resources required for data collection, and the required redesign of business processes.

This is in line with international experience. As indicated by the Basel Committee, the Australian Prudential Regulatory Authority study on credit risk rating practices of Australian banks, as well as the survey(s) by KPMG and Carratu et al., meeting historical data requirements remains a key issue for banks aiming to adopt the IRB approach.

Aspects such as the capture and treatment of collateral information and other credit mitigation techniques, the cost of compliance with Basel II, and dealing with the volatility of a more risk-sensitive capital regime are not seen as important obstacles.

*Assessment of current risk information systems*

South African banks are very conscious of the need to start building up a track record with regard to loss data. At the moment, there are many initiatives on the quantification of loss concepts being taken by South African banks. Most of the surveyed banks indicated that they have already completed an assessment of their current risk information systems in order to determine whether they would meet the test of being subjected to external verification, regulatory scrutiny and transparency of the new disclosure.



One of the smaller banks admitted that it has not done any such assessment. Some of the large banks indicated that such assessment is an ongoing process. As mentioned above, South African banks realize the limitations of their current risk information systems.

*“Basel II projects”*

Banks need to assess how they are going to position themselves for optimal benefit, bearing in mind the regulatory criteria and greater disclosures on the one hand, and time and resource constraints on the other. All banks reported having done some preliminary high-level review work on Basel II, with all banks at the very least having established a project team and being busy with project planning.

The Carratu et al. study found that, in general, smaller banks seemed happier to defer serious work at the time of their study – and tended not to have done much serious planning at all. The primary reasons for delaying preparations were that the banks were awaiting the greater clarity that would come from the publication of finalized proposals, as well as deadlines and resource shortages, both in terms of management and in terms of risk know-how. At the time of the survey, UK banks had a major resource conflict due to the burden of preparing for the move to a single regulator under the Financial Services and Markets Act of 2000.

This seems not to be the case in South Africa (at least not with regard to projects aimed at credit risk). All surveyed banks, including smaller banks included in the sample, were busy with Basel II projects. The differences in the timing of the surveys can again explain some of the differences in the results. However, all surveyed South African banks’ credit risk projects were only just commencing at the time of the study, and were usually in the pre-study/diagnostic review stage. Most banks consider these projects as ongoing assessments, or as work in progress. Again, South African respondents also indicated a lack of serious communication with the regulators. This is a problem. Banks indicated that they feel uncertain about what the regulators really expect from them, as well as about the proposed timeframes for implementation of the proposed new Accord.

*The use of cost/benefit analysis*

Uncertainty remains regarding certain aspects of the Basel proposal – which makes precise cost-benefit estimates difficult. Furthermore, the compliance and disclosure requirements that accompany the various approaches have cost implications that will take some time to assess.

The Carratu et al. study found that few European banks had done any serious thinking on the overall costs/benefits arising from the project, at the time of the study. Such a cost/benefit project typically includes the on-going cost of regulatory compliance compared with the *status quo ante*. Larger banks surveyed by Carratu et al. tended to foresee a lower future cost (predicated on a convergence of economic and regulatory

capital, enabling banks to run the two outputs from one common process), whilst smaller banks tended to see much higher compliance costs. None of the banks surveyed had as yet established the net cost/benefit of the project, although several were working on it.

All the surveyed South African banks indicated that they were busy with a cost/benefit project in this regard. As indicated earlier, several South African banks are concerned about compliance costs, and many perceive these costs to outweigh the potential benefits of lower regulatory capital charges (at least in the short run). No South African bank had as yet established the net cost/benefit outcome of the project.

All the surveyed banks indicated that they are familiar with the qualitative requirements regarding risk-rating systems as set out by the Basel II proposals. Furthermore, they do not perceive compliance with these standards as a major challenge. However, one wonders whether this is a true reflection of South Africa banks' preparedness for the IRB approach, or merely an indication of their ignorance with regard to these requirements.

#### *Planned Use of Consultants*

With regard to the planned use of consultants, a variety of responses were received from surveyed banks. One (large) bank indicated that it does not plan do use external consultants at all. Other banks (both large and small) are planning on using consultants to meet specific requirements, both for their know-how, and for additional short-term resources. All the other banks indicated that they were at least contemplating the use of external consultants. One bank indicated that the issue is currently being investigated. The bank is trying to decide whether international or local consultants should be used, and also in what specific areas consultants should be used. None of the banks indicated that it was presently looking to appoint a firm of consultants to work with the institution for the duration of the Basel II projects.

#### *Challenges posed by cultural buy-in and organizational changes*

The Carratu et al. study found problems in establishing buy-in for this large compliance project; this was a common theme coming from both senior executives and business heads. Alongside buy-in, a (relatively small) number of institutions highlighted the challenge posed by the necessary cultural and organizational changes that will be required to bring Basel II centre-stage in the way the organization is managed.

A more cynical bank surveyed by Carratu et al. mentioned that there seems limited benefit to the bank; rather, its view is that Basel II is no more than an increase in the cost of being in the game of banking. The bank's approach is, therefore, to achieve an adequate level of compliance at minimum cost.

#### **4.6 Market discipline and disclosure of financial information in the South African banking sector**

The Barth et al. study includes an index of private monitoring variables intended to capture to some degree the extent to which market or private “supervision” exists in different countries. South Africa obtained a score of six out of a possible seven. This indicates a relatively high degree of private oversight. The index is calculated using different measures of this type of variable, based essentially on information that is disclosed and thus available to the public. . These measures are as follows:

##### *Private Monitoring Variables*

*1. Certified Audit Required:* This variable captures whether an external audit is required of the financial statements of a bank and, if so, whether it has to be administered by a licensed or certified auditor. Such an audit would presumably indicate the presence or absence of an independent assessment of the accuracy of financial information released to the public. If both factors exist a 1 is assigned, otherwise 0 is indicated.

In South Africa, external audit compulsory, but there are no specific requirements for the extent of the audit. Auditors are licensed and the auditor’s report is given to the supervisory agency. Supervisors can meet external auditors to discuss the report without the bank’s approval. Auditors are legally required to report misconduct by managers/directors to the supervisory agency. However, legal action cannot be taken against external auditors by supervisory agency for negligence.

Supervisors cannot force banks to change internal structure.

*2. Per cent of 10 Biggest Banks Rated by International Rating Agencies:* The greater the percentage, the more the public may be aware of the overall condition of the banking industry, as viewed by an independent third party. In the case of South Africa, a 70% figure is recorded in the Barth et al. study.

*3. Accounting Disclosure and Director Liability:* This deals with whether or not the income statement includes accrued or unpaid interest or principal on non-performing loans, and whether or not banks are required to produce consolidated financial statements, which include non-bank financial affiliates or subsidiaries . The release of this type of information – or its absence – affects the ability of private agents to monitor – and hence influence – bank behaviour. This variable also covers whether bank directors are legally liable if information disclosed is erroneous or misleading. If all three factors exist a 1 is assigned, otherwise 0 is indicated.

In South Africa, directors are legally liable for erroneous or misleading information, although no specific penalties are stipulated.

*4. No Explicit Deposit Insurance Scheme:* This variable takes a value of 1 if there is no explicit deposit insurance scheme and if depositors were not wholly compensated the last time bank failed, and indicates 0 otherwise. A higher value would indicate more private monitoring.

The Barth et al. study showed that, in general, the degree of private monitoring increases as one moves from lower-income countries to high-income countries. This confirms concerns that market discipline will not play the role intended by the Basel Committee in emerging markets. However, results from the present study indicate that this will not necessarily be a problem in the South African context.

The disclosure practices of South African banks are also evaluated, based on the Basel Committee's Transparency Group's surveys of the public-disclosure practices of internationally active banks headquartered in its member countries.

The areas covered by the survey generally coincide with those identified in the proposed third pillar of the new Basel Capital Accord. The survey reviewed the disclosure of both quantitative information and the qualitative strategic and methodological disclosures that should enable the market to better evaluate the banking organization. The survey was conducted by national supervisory authorities who assessed the extent of disclosure by banks in their jurisdiction.

The survey includes questions on capital structure, capital adequacy, market risk internal modelling, internal and external credit ratings, credit risk modelling, securitisation activities, credit risk, credit derivatives, other derivatives, risk diversification, accounting and presentation policies, and other risks. Some of these areas, deemed as most relevant for the objectives of this paper, were surveyed for the five biggest South African banks (ABSA, First National Bank, Investec, Nedcor, and Standard bank).

The results of the 2000c Basel survey show that the most basic information relating to capital structure and ratios, accounting and presentation policies, credit risk, and market risk, is well disclosed, with disclosure rates typically over 80% for these survey questions. Disclosure rates generally decrease, however, as the sophistication, complexity, or degree of proprietary of the information increases, with information about credit risk modelling and credit derivatives disclosed by fewer than half of the banks. These areas are of particular importance under pillar three (market discipline) of the proposed new Basel Accord.

To a large extent, similar results were found for South African banks. However, with regard to credit risk modelling and credit risk ratings, South African banks' disclosure is less material than in the case of the Basel study's banks. Disclosure practices of the South African banks in the sample are discussed in the following section. The section contains a list of tables with disclosure rates for different survey items. In every instance, disclosure rates for international banks surveyed by the Basel Committee are compared to disclosure rates for the five biggest South African banks. Following each table is a discussion of disclosure practices of South African banks, including an international comparison (provided by the 2000c Basel study) and comments on possible improvements in disclosure practices to ensure compliance with the requirements under the proposed Accord.

**Table 1: Capital Structure**

SURVEY ITEM	DISCLOSURE RATE: BASEL STUDY	DISCLOSURE RATE: SOUTH AFRICAN BANKS
Disclosed the amount of common shareholder equity	100	100
Disclosed the amount of tier-one capital	100	100
Disclosed the amount of perpetual non-cumulative preference shares	97	40
Disclosed deductions from tier-one and tier-two capital	67	40
Disclosed the amount of tier-two capital (split between upper and lower level-two) with separate disclosure of material components	56	20
Disclosed the total capital base	98	100
Disclose the amount of innovative or complex capital instruments, including the percentage of total tier-one capital	83	0
Disclosed key “trigger” events	33	0

Overall, all surveyed banks disclose quantifiable items within capital structure. All banks disclosed the amount of shareholder equity and tier-one capital. All the banks disclosed the amount of tier-two capital, but only one bank provided separate disclosure of material components. Virtually all the banks disclosed the amounts of shareholder equity, preferred shares, and other aspects of their total capital base. Also, 40% of the banks disclosed the amount of minority interests in subsidiaries. One area that could be improved is the disclosure of deductions from tier-one and tier-two capital, which was disclosed by only 40% of the banks surveyed. None of the banks disclosed information concerning key “trigger” events that might affect the nature or cost of capital instruments. One of the banks included a comprehensive shareholder analysis in its annual report.

**Table 2: Capital Adequacy**

SURVEY ITEM	DISCLOSURE RATE: BASEL STUDY	DISCLOSURE RATE: SOUTH AFRICAN BANKS
Disclosed the risk-based capital ratio calculated in accordance with the methodology prescribed in the Basel Capital Accord	95	100
Disclosed the risk exposure of balance-sheet assets (specifying book value and risk-weighted amount for each bucket)	27	40
Disclosed the risk exposure of each off-balance sheet instrument (specifying nominal amount, credit-equivalent amount, and risk-weighted amount for each risk bucket)	44	40
Provided analysis of changes in the bank's capital structure and the impact on key ratios and overall capital position	69	40
Disclosed whether the bank has an internal process for assessing capital adequacy and for setting appropriate levels of capital	45	60

All the banks surveyed disclosed the calculation of their risk-based capital ratio in accordance with the methodology prescribed in the Capital Accord. Two of the five banks provided information on changes in capital structure and the impact of such changes on key ratios. Only about one half of the banks disclosed whether their institutions possessed an internal process for assessing capital adequacy and setting appropriate levels of capital. With regard to the latter two aspects, disclosure is very brief.

Although all banks disclosed their risk-based capital ratio, fewer than one half provided information on the credit and market risks against which the capital serves as a buffer. Without this information, it is difficult for the public to evaluate capital adequacy prospectively – that is, as conditions change. Furthermore, the lack of assurance that the bank itself has an internal process for assessing capital adequacy – over half of the survey population did not provide such assurance – should be disquieting for investors.

**Table 3: Internal and External Ratings**

SURVEY ITEM	DISCLOSURE RATE: BASEL STUDY	DISCLOSURE RATE: SOUTH AFRICAN BANKS
Discussed the process and methods used to assess credit exposures on both an individual counterparty and portfolio basis, including a description of the internal classification system (e.g., what each rating means in terms of default probability, degrees of risk being distinguished, performance over time and ex-post evaluation)	52	0
Provided summary information on the quality of on- and off-balance sheet credit exposures, based on the internal rating process or external ratings	17	0
Provided summary information about the internal ratings process	58	60
Described how internal ratings are used in the bank's internal capital allocation process	14	0

The adequacy of disclosures related to the use of internal ratings will be an area of increased importance under the new Basel Capital Accord. Adequate disclosure of key information regarding the use of internal ratings will be necessary for banks to qualify for the internal ratings based approach being considered in pillar one of the new Basel Capital Accord.

None of the banks discussed their internal credit classification system. Sixty per cent of the banks provided summary information about the internal ratings process. This information is very cursory, however. None of the banks described how internal ratings are used in the bank's capital allocation process. Similarly, no bank provided summary information on the quality of on- and off-balance sheet credit exposures, based on the internal rating process or external ratings. This is an important area where disclosure practices could be improved.

**Table 4: Credit Risk Modelling**

SURVEY ITEM	DISCLOSURE RATE: BASEL STUDY	DISCLOSURE RATE: SOUTH AFRICAN BANKS
Disclosed whether credit risk measurement models are used, and if so, provided descriptive information about the types of models, portfolio(s) covered, and size of portfolios	41	0
Disclosed how the bank has incorporated historical default experience for different asset categories, current conditions, changes in portfolio composition, and trends in delinquencies and recoveries	45	0
Disclose its process for stress testing, and how testing is incorporated into its risk management system	28	0
Disclosed quantitative and qualitative information about the credit risk measurement models used, including model parameters (e.g., holding period, observation period, confidence interval, etc.), performance over time, and model validation and stress testing	11	0
Disclosed whether credit scoring is used when granting credit, and if so, provided descriptive information about the credit scoring model and how it is used	42	0

Where banks use credit risk models, the associated level of disclosure is very low. Banks in the sample only mention the use of credit risk models. Loss concepts that are calculated are also mentioned. No banks provided qualitative or quantitative information concerning the credit risk models used, such as the parameters of the models, model validation, and stress testing. All the banks disclosed whether or not credit scoring is used; however, no bank provided descriptive information about the credit scoring model and how it is used. Slightly more than one half of banks disclosed information regarding the types of credit exposures that are individually evaluated for impairment. The new Basel Capital Accord does not envisage that credit risk models (as distinct from an internal ratings based methodology) may be used for the calculation of regulatory capital. It must also be noted that all the disclosure rates in the 2000c Basel study are also very low.



**Table 5: Credit Risk Allowances**

SURVEY ITEM	DISCLOSURE RATE: BASEL STUDY	DISCLOSURE RATE: SOUTH AFRICAN BANKS
Disclosed information on the impact of non-accrual and impaired assets on the financial performance of the bank, including information on charge-offs and provisions	85	100
Disclosed the amount of any charge-offs and recoveries that had been recorded directly in the income statement	88	100
Described how the level of allowances compared with historical net-loss experience	53	100
Disclosed how the allocated and (any) unallocated portions of the allowances are determined	76	20
Discussed practices and procedures used for evaluating the adequacy of credit loss provisions and credit loss allowances	58	80
Discussed the techniques used to monitor and manage past due or impaired assets/credit relationships	53	40
If the institution uses collateral, covenants, guarantees or credit insurance to reduce risk exposure, the impact on credit exposure should be disclosed	13	20

The level of quantitative information concerning allowances, charge-offs, and impaired assets continued to be well disclosed. Disclosures of qualitative information – policies, procedures, and practices – are generally very brief, and are less common than the quantitative disclosures.

Overall, all banks in the sample disclose the level of quantitative information concerning credit risk exposures, charge-offs, impaired assets and allowances. Disclosures that would compare the level of the allowances with historical net-loss exposure could be improved, as could disclosures regarding the impact of collateral, guarantees, or credit insurance on credit exposures. Only 40% of the banks provided a qualitative discussion on the techniques used to monitor and manage past due or impaired credits. This analysis is very cursory.

It must be noted that African Bank, not included in the sample, provides extensive disclosure on the areas of how allowances are determined, on practices and procedures used for evaluating the adequacy of credit loss provisions and credit loss allowances, and on the techniques used to monitor and manage past due or impaired assets or credit relationships.

**Table 6: Geographic and Business Line Diversification**

SURVEY ITEM	DISCLOSURE RATE: BASEL STUDY	DISCLOSURE RATE: SOUTH AFRICAN BANKS
Provided information on market activity by broad risk category (e.g. foreign exchange, interest rate, precious metals, other commodities and equities)	80	100
Provided information on trading revenues by major risk category (foreign exchange, interest rate, commodity, equity), or by major product (bonds, swaps, foreign exchange, equities)	69	0
Provided a breakdown of past due assets by asset category	33	60
Disclosed credit exposure information by business line	62	80
Disclosed summary information about the geographic distribution of credit exposures, including domestic and international credit exposures	57	80
Provided a breakdown of impaired assets by geographic area	44	60

The majority of banks disclosed information regarding the diversification of their credit exposures geographically, by product, and across business lines, which indicates an improvement compared with information available on previous years. A majority of banks provided information on market activity by broad instrument category. However, fewer banks provided information on impaired assets by geographic area or by a breakdown of past due assets by counterparty type or asset category.

**Table 7: Accounting Policies**

SURVEY ITEM	DISCLOSURE RATE: BASEL STUDY	DISCLOSURE RATE: SOUTH AFRICAN BANKS
Disclosed the basis of measurement for assets at initial recognition and subsequent periods, e.g. fair value or historical cost	100	100
Described the accounting policies and method of income recognition used for trading activities (using both cash instruments and derivatives) and non-trading activities	89	100
Disclosed income and expense information grouped by nature or function within the bank	98	100
Disclosed the basis for determining when assets are considered past-due and/or impaired for accounting and disclosure purposes (number of days where appropriate)	80	80

Overall, accounting and presentation policies were generally well disclosed. As often required by national law or generally accepted accounting principles, the basis of asset valuation was universally disclosed. All banks grouped their income statement information by nature or function within the bank. About one fifth of the banks did not disclose how they determine when credits are impaired or past-due; in some countries, there is no definitive guidance in this area.

In general, South African banks seem to be more positive in this regard. All banks surveyed indicated that they did not experience any difficulty in obtaining buy-in from senior executives and business heads. Furthermore, they do not perceive any cultural and organizational challenges in bringing Basel II centre-stage in the way the organization is managed.

## 5 CONCLUSIONS AND POLICY IMPLICATIONS

A strong financial system is critical in helping to ensure that changes in expectations and movements in domestic and foreign financial assets do not trigger a crisis in the domestic financial system, which, depending on the country, could have spill-over (or “contagion”) consequences for the international financial system. A strong financial system can also contribute significantly to domestic and international financial intermediation, helping to mobilize savings and channel them to productive investments. Financial stability and effective financial intermediation can thus foster economic growth.

The proposed new Basel Capital Accord is one of the key initiatives for strengthening bank soundness, and thus financial sector stability. This is both a wide-ranging and ambitious reform that seeks to better align regulatory capital with economic risk. It represents a real advance on the 1988 Capital Accord, and the proposals mark a

decisive step away from a “one size fits all” supervisory approach to capital. Rather than imposing a single method for calculating capital requirements, institutions will be able to select from a range of approaches for capturing, measuring, and controlling credit and operational risks. More sophisticated control structures will be rewarded by lower capital charges. If the Basel proposals are implemented as planned, they will have important effects both on individual banks and on markets as a whole.

This Accord represents a root and branch reform of the 1988 Basel Accord and poses significant challenges to banks and supervisors alike. These challenges have led many supervisors to comment that important preconditions for implementation of the Accord are absent in most emerging-market countries like South Africa. The findings of this paper suggest that this is not the case in South Africa. South African bank supervisors are efficient, as evident in the findings of the FSAP. The factors that seemingly render minimum capital requirements an efficient tool to enhance bank system soundness in many emerging-market countries – namely the lack of a sufficiently deep and liquid capital market that makes the raising of low quality capital possible, the lack of complimentary policy such as loan-loss provision regulations that complement minimum capital requirements – do not seem to characterize the South African banking sector. Indeed, the regulatory framework in South Africa was recently amended to be in line with international best practices, and address any limitations pointed out by the FSAP.

However, the new Accord does represent new ground for South African supervisors in several aspects – such as with the evaluation of banks’ internal credit risk rating systems. South African bank supervisors have already started with specific measures to address challenges posed by the implementation of the new Accord.

The survey also outlined the current state of play regarding credit risk rating among South African banks, and provided some international comparisons. Generally speaking, South African banks’ credit risk rating practices appear to be in line with those of their international peers. The current sophisticated approach to credit risk management and the use of sophisticated models in this regard, constitute a useful platform for this to take place from. However, current practice does not conform to all the requirements set by the Basel Committee, and substantial logistical challenges remain.

Internal bank rating practices, both locally and overseas, continue to evolve as the experience of rating institutions mounts up. As a group, the local banks have moved relatively quickly to adopt two-dimensional credit risk rating approaches whereby customer default probabilities and expectations of loss in the event of default are rated separately. In other respects, as elsewhere in the world, considerable differences exist among the banks’ rating systems, particularly in relation to the detail of how ratings are determined, the associated quality control processes that have been established in each institution, and the way in which quantitative values have been assigned to risk grades.

These differences reflect many influences deriving from the particular circumstances of each institution, including differences in the size and nature of banks’ rated portfolios, the intended applications of ratings, the capabilities of banks’ available resources and systems, the legacy of past decisions, and costs of change.

Although banks in general take the same set of issues into account in assigning internal ratings, the broadly different approaches used by banks in doing so will probably require different approaches to supervisory review and validation. Market discipline and disclosure can play a role in this process, by bringing about greater consistency among bank practices, and further promoting sound banking procedures

There appears to be a relatively limited set of data sources and techniques available to banks for use in estimating loss characteristics (PD, LGD, and associated parameters such as EAD). Banks in general appear to have had greater difficulty in attributing LGD estimates to their exposures than they have for PD.

A key challenge faced worldwide by virtually all developers and users of internal credit risk rating systems, including prudential supervisors looking to utilize banks' internal ratings for regulatory capital and other purposes, is the widespread lack of good long-run data on the performance of banks' loans. The lack of such data can impact on the ability of an institution to develop effective rating tools. It can also impede efforts to verify the accuracy and robustness of institutions' rating systems, to assign reliable quantitative loss estimates to risk grades, and to make reliable comparisons of ratings from different institutions: all important tasks – not only from the perspective of the banks themselves, but also from the point of view of their prudential supervisors (particularly in the context of proposals to utilize banks' internal ratings for regulatory capital purposes).

The survey highlighted one important aspect where current South African practice lags behind Basel requirements: disclosure regarding credit risk modelling and specifically rating systems. This would be one of the key areas that need to be addressed before the IRB approach can be implemented.

Apart from implementation challenges in individual countries, there exists concern over the impact of the proposed new Basel Accord on global financial system stability. This includes concerns regarding the impact on capital flows to emerging-market countries, and the potential pro-cyclical impact of the new Accord. As discussed in Section 4.3, the latter can be addressed using several possible policy measures. The former concern highlights the need for greater co-ordination within the international community on the reform agenda in an increasingly integrated international financial system. This includes greater co-ordination at the regional level, as well as intensified collaboration with the private sector.

The complexity of the new Accord, as well as the flexibility allowed to national supervisors, poses the risk of regulatory forbearance, as discussed in Section 4.3. Regulatory capital levels that are not sufficient relevant to risks in a banking system, is another risk in this regard. This all serves to underline the importance of effective and accountable bank supervision. This is not only applicable to the regulatory institutions, and the human resources capacities of supervisory agencies, but it also encompasses aspects such as appropriate accounting standards and reporting systems, and a sufficient legal framework, which is able to enforce supervisory actions when a bank's performance is deemed faulty. These aspects underpin the efficiency of both supervisory review (pillar two) and bank capital ratios (pillar one). Efficient markets

that send appropriate signals and corporate governance structures that respond to them, are another important aspect in this regard.

Finally, it must be kept in mind that banking system stability is just one element of overall financial stability. Successful implementation of the proposed new Basel Accord and the achievement of the Accord's stated objectives is thus just only one aspect of financial stability. Global institutions (such as the IMF, the World Bank and the BIS) are particularly important in a world where finance and markets are increasingly globalised. The latter dimension is crucial: to a great extent crises are caused by failures in private global financial markets, which need to be tackled at an international level. However, such measures have to be complemented by improvement of national macroeconomic and financial policies in the recipient countries: national and international measures to strengthen financial stability are mutually reinforcing.

## APPENDIX ONE: Measures of supervision efficiency

*(a) Overall Capital Stringency:* This measure gives an indication of whether there are explicit regulatory requirements regarding the amount of capital that a bank must have relative to various guidelines. This particular measure of capital stringency is to some degree capturing whether or not regulatory capital is solely an accounting concept or at least partially a market-value concept. Several guidelines are considered to determine the degree to which the leverage potential for capital is limited. These are as follows:

- (1) Does the minimum required capital-to-asset ratio conform to the Basel guidelines? Of 107 countries, 100, including South Africa, said yes and seven said no.
- (2) Does the minimum ratio vary with market risk? Of 105 countries, 24 said yes and 81, including South Africa, said no.
- (3) Is the market value of loan losses deducted from reported accounting capital? Of 104 countries, 57, including South Africa, said yes and 47 said no.
- (4) Are unrealized losses in the securities portfolio deducted from reported accounting capital? Of 104 countries, 60, including South Africa, said yes and 44 said no.
- (5) Are unrealized foreign exchange losses deducted from reported accounting capital? Of 102 countries, 62, including South Africa, said yes and 40 said no.

A value of 1 is assigned to each of the above questions if the answer is yes and a 0 otherwise. In addition, a value of 1 is assigned if the fraction of revaluation gains that is allowed to count as regulatory capital is less than 0.75. Otherwise, a value of 0 was assigned. By adding together these variables the overall capital stringency variable is created. It ranges in value from zero to six, with higher values indicating greater stringency. In the survey, the South African score is indicated as five (due to the “no” answer in (2)). However, current capital regulations in South Africa do vary with market risk, indicating the maximum score of six.

*Initial Capital Stringency:* This measure gives an indication of whether the source of funds counted as regulatory capital can include assets other than cash or government securities and borrowed funds, as well as whether the sources are verified by the regulatory or supervisory authorities. More specifically, the measure is based on the following three questions:

- (1) Can initial and subsequent infusions of regulatory capital include assets other than cash or government securities? Of 102 countries, 45 said yes and 57, including South Africa, said no.
- (2) Can the initial infusion of capital be based on borrowed funds? Of 101 countries, 34 said yes and 67, including South Africa, said no.
- (3) Are the sources of funds that count as regulatory capital verified by the regulatory or supervisory authorities? Of 105 countries, 86, including South Africa, said yes, and 19 said no. For those questions that were answered “yes”, a value of 1 was assigned. Otherwise, the value 0 was assigned. Adding these three variables together created a variable that may range from a low of zero to a high of three, with a higher value indicating less stringency. Consequently, South Africa obtained a score

of 1.

*Capital Regulatory Index:* This is the sum of the previous two measures of capital stringency. It therefore may range in value from zero to nine, with a higher value indicating greater stringency. South Africa obtained a score of six. The UK and Australia both obtained the highest score of nine.

*Official Supervisory Power:* This measure gives an indication of whether the supervisory authorities have the authority to take specific action to prevent and correct problems. This variable is based upon yes or no responses to the following 16 questions:

- (1) Can supervisors meet with any external auditors to discuss their reports without bank approval? Of 107 countries, 78, including South Africa, said yes and 29 said no.
- (2) Are auditors legally required to report any misconduct by managers or directors to the supervisory authorities? Of 107 countries, 65, including South Africa, said yes and 42 said no.
- (3) Can the supervisory authorities take legal action against external auditors for negligence? Of 107 countries, 55 said yes and 52, including South Africa, said no.
- (4) Can the supervisory authorities force a bank to change its internal organizational structure? Of 107 countries, 78 said yes and 29, including South Africa, said no.
- (5) Can the deposit insurance agency take legal action against bank directors or officers? Of 59 countries, 20 said yes, and 39 said no. This question is not applicable to South Africa.
- (6) Are off-balance sheet items disclosed to the supervisory authorities? Of 106 countries, 104, including South Africa, said yes and two said no.
- (7) Does failure to abide by a cease-desist type order lead to the automatic imposition of civil and penal sanctions on the directors and managers of a bank? Of 102 countries, 63 said yes and 39 said no. This question is not applicable to South Africa.
- (8) Can the supervisory authorities order a bank's directors/managers to provide provisions to cover actual or potential losses? Of 102 countries, 88 said yes and 14 said no. This question is not applicable to South Africa.
- (9) Can the supervisory authorities suspend the directors' decision to distribute dividends? Of 106 countries, 84 said yes and 22, including South Africa, said no.
- (10) Can the supervisory authorities suspend the directors' decision to distribute bonuses? Of 103 countries, 62 said yes and 41, including South Africa, said no.
- (11) Can the supervisory authorities suspend the directors' decision to distribute management fees? Of 103 countries, 54 said yes and 49, including South Africa, said no.
- (12) Can the supervisory authorities supersede shareholder rights and declare a bank insolvent? Of 101 countries, 74 said yes and 27, including South Africa, said no.



- (13) Can the supervisory authorities suspend some or all ownership rights of a problem bank? Of 103 countries, 85, including South Africa, said yes and 18 said no.
- (14) Regarding bank restructuring and reorganization, can the supervisory authorities supersede shareholder rights? Of 102 countries, 81 said yes and 21, including South Africa, said no.
- (15) Regarding bank restructuring and reorganization, can the supervisory authorities remove and replace management? Of 105 countries, 94 said yes and 11, including South Africa, said no.
- (16) Regarding bank restructuring and reorganization, can the supervisory authorities remove and replace directors? Of 105 countries, 91 said yes and 14, including South Africa, said no.

The answers to these 16 questions collectively constitute a measure of Official Supervisory Power. A value of 1 was assigned to a “yes” answer and a value of 0 to a “no” answer. This variable is the sum of these assigned values and therefore may range from zero to 16, with a higher value indicating more power. South Africa obtained a score of 14.

Barth et al. (2001:23) also decompose the official supervisory power variable into three constituent parts. The resulting three variables are as follows:

- (1) *Prompt Corrective Action*: This is an indication of whether a law establishes pre-determined levels of bank solvency deterioration that forces automatic enforcement actions such as intervention. If this is indeed the case, a value of 1 is assigned, otherwise 0 is indicated.  
  
We then multiply this by (4), (7), (8), (9), (10) and (11) as described immediately above. The Prompt Corrective Action variable may therefore range from zero to six, with a higher value indicating more promptness in responding to problems. South Africa, and most other countries included in the survey, obtained a score of zero.
- (2) *Restructuring Power*: This is an indication of whether the supervisory authorities have the power to restructure and reorganize a troubled bank. This variable is simply the sum of (14), (15) and (16) as described above. It may range in value from a low of zero to a high of three, with a higher value indicating more power. South Africa obtained a score of zero.
- (3) *Declaring Insolvency Power*: This is an indication of whether the supervisory authorities have the power to declare a deeply troubled bank insolvent. This variable is simply the sum of (12) and (13) as described above. It may range in value from zero to two, with a higher value indicating greater power. South Africa obtained a score of one.

Other indicators of supervisory power in the Barth et al. study (2001) include the following:

*Supervisory Forbearance Discretion:* Even when authorized, supervisory authorities may engage in forbearance when confronted with violations of laws or regulations or with other imprudent behaviour on the part of banks. To capture the degree to which this type of discretion is allowed, a variable was constructed, based on the following questions:

- (1) Regarding bank restructuring and reorganization, can the supervisory authorities or any other government agency forbear certain prudential regulations? Of 101 countries, 84, including South Africa, said yes and 17 said no.
- (2) Are there pre-determined levels of solvency deterioration that force automatic actions, such as intervention? Of 104 countries, 49 said yes and 55, including South Africa, said no.
- (3) Must infractions of any prudential regulations be reported? Of 104 countries, 103, including South Africa, said yes and one said no.
- (4) With respect to (3), are there any mandatory actions to be taken in these cases? Of 103 countries, 81, including South Africa, said yes and 22 said no.

A value of 1 is assigned when the answer is no and a value of 0 is otherwise assigned, except for (1) where the reverse takes place. This variable is calculated as the sum of these assigned values. It may therefore range in value from zero to four, with a higher value indicating more discretion. South Africa obtained a score of three.

*Liquidity/Diversification Index.* This variable captures the degree to which banks are encouraged or restricted with respect to liquidity, as well as asset and geographical diversification. In particular, the index was based on the following three questions:

- (1) Are there explicit, verifiable, and quantifiable guidelines for asset diversification? Of 107 countries, 38, including South Africa, said yes and 69 said no.
- (2) Are banks prohibited from making loans abroad? Of 106 countries, 15 said yes and 91, including South Africa, said no.
- (3) Is there a minimum liquidity requirement? Of 103 countries, 77, including South Africa, said yes and 26 said no.

On the basis of “yes” or “no” answers to these questions, a liquidity/diversification index was calculated. A value of 1 was assigned to “yes”, except in the case of question (2) where a 1 was assigned to “no”, since this response is associated with greater diversification. These three values are summed and may range in value from zero to three, with a higher value indicating greater liquidity and diversification. South Africa obtained a score of three.

*Official Supervisory Resource Variables.* This variable captures the official actions that the supervisory authorities are required to take, or may take, in response to various banking situations. But it is also important to know the official supervisory resources available to take these actions. More especially, this index attempts to measure the “quantity and quality” of bank supervision. This is done on the basis of five other variables:

(a) Supervisors per bank: This variable is the number of professional bank supervisors per bank.

For South Africa, the score is three. Other results include the USA 0.1, Denmark 0.2, Ireland 0.3, Egypt 8, Honduras 12, Botswana 9, and Bangladesh 8.

Some economies have relatively high ratios of professional supervisors per bank, such as Taiwan (China) with 18 and Honduras with 12. Others like the USA and Turkey have relatively low ratios – are 0.1 and 0.4, respectively. In the case of South Africa, the figure is indicated as three professional supervisors per bank. However, since Barth et al. do not specify “bank”, these figures can be misleading. For example, the relatively low figure for the USA can be explained by the USA’s unit bank system, as compared to a branch bank system in South Africa.

(b) Bank supervisor years per bank: This variable is the total number of years for all professional bank supervisors per bank. The total number for South Africa is 26.

(c) Supervisor tenure: This variable is the average years of tenure of professional bank supervisors. For South Africa, the result is four.

(d) Onsite examination frequency: This variable is the frequency of onsite examinations conducted in large and medium-sized banks, with 1 denoting yearly, 2 denoting every 2 years, and so on. For South Africa, the result is one.

(e) Likelihood supervisor moves into banking: This variable is the fraction of supervisors employed by the banking industry subsequent to retirement, with 0 denoting never, 1 denoting rarely, 2 denoting occasionally, and 3 denoting frequently. South Africa’s score is three.

Other supervisory information for South Africa included in the Barth et al. study is that supervisors are not legally liable for their actions; infraction of any prudential regulation found by a supervisor must be reported; and there are no important differences between expectations from the supervisory agency and what is mandated by law.

## **APPENDIX TWO**

The following questionnaire is intended to analyse the current situation within the bank’s credit risk management area. The questionnaire should be completed based on the current situation, and any possible or probable changes should be ignored unless specifically asked for.

To make the questionnaire as easy as possible to complete, it has been structured on the basis of multiple-choice responses as far as possible. Please answer all questions, and if there are any additional comments please attach an additional sheet.

All information will be treated as strictly confidential and will only be used for the purposes of the study.

GENERAL ASPECTS REGARDING CREDIT RISK MEASUREMENT AND MANAGEMENT

1. When did you last benchmark your credit risk management practices against industry best practices? (Please check only one.)

- Never.
- Over a year ago.
- Within the last year.
- Plan to do so in the next year.

2. Has your bank established an Enterprise Risk Management (ERM) process that integrates the monitoring and management of all risk exposures (credit, market, operational, etc.)? (Please check only one.)

- Yes.
- No, but we plan on doing so within the next two years.
- No, and we do not plan on doing so in the next two years.

3. Does your bank have a function that is responsible for credit risk management at the enterprise level? (Please check only one.)

- Yes.
- No, but we plan on doing so within the next two years.
- No, and we do not plan on doing so in the next two years.

4. Please indicate how strongly you agree with the following statements using a scale from 1 to 5, with 5 indicating “strongly agree” and 1 “disagree.”

- We have sufficient staff resources and skills for effective credit risk management.
- All relevant personnel clearly understand the bank’s approach to granting credit and can be held accountable for complying with established policies and procedures.

- Credit risk management is effectively covered in our training programme.

5. Please indicate how strongly you agree with the following statement using a scale from 1 to 5, with 5 indicating “strongly agree” and 1 indicating “strongly disagree.”

- I am confident that we have a corporate culture and values which align well with our credit risk management objectives.

- I am confident that our incentive compensation is well aligned with our credit risk management objectives.

- Senior management has communicated and demonstrated an affirmative commitment to credit risk management.

6. Do you have a written credit risk strategy that reflects the bank’s tolerance for risk and the level of profitability the bank expects to achieve for incurring various credit risks?

- Yes.

- No.

7. Do you have written policies in place regarding the information and documentation needed to approve new credits, renew existing credits and/or change the terms and conditions of previously approved credits?

- Yes.

- No.

8. Do you sometimes rely solely on credit scoring techniques in approving loan applications?

- Yes, for certain types of exposures. (Please specify.)

- Yes, for certain small exposures. (Please specify.)

- No, our bank always performs detailed analysis of all individual loans applications.

9. Which of the following most accurately describes your bank's approach to profitability analysis and loan pricing?

- Profitability analysis is based on the overall banking relationship with a customer.
- Profitability analysis is orientated to loans on a stand-alone basis: in other words, the profitability of every loan application is based on own merit, regardless of the total relationship with the customer.

10. Do you base loan price terms on obligor's risk?

- Most or all of the time, terms are based on the obligor's assigned risk grade.
- Most or all of the time, terms are based on a less formal assessment of the obligor's risk grade.
- Sometimes terms are based on the obligor's assigned risk grade.
- Sometimes terms are based on a less formal assessment of the obligor's risk..

11. Do you base loan non-price terms on obligor's risk grade?

- Most or all of the time, loan non-price terms are based on the obligor's assigned risk grade.
- Most or all of the time, loan non-price terms are based on a less formal assessment of the obligor's risk grade.
- Sometimes, loan non-price terms are based on the obligor's assigned risk grade.
- Some of the time, loan non-price terms are based on a less formal assessment of the the obligor's risk grade.

12. Please indicate how strongly you agree with the following statement using a scale from 1 to 5, with 5 indicating "strongly agree" and 1 indicating "strongly disagree."

- I am confident that credits are priced in such a way as to cover all of the imbedded costs and compensate the bank for the risks incurred.
- I am confident that our bank has taken appropriate steps to identify and control or mitigate the risks of connected lending.

- I am confident that over-reliance on collateral does not compromise other elements of sound counterparty credit risk management such as the due diligence process.

*Measurement of credit risk*

13. Please indicate how strongly you agree with the following statements using a scale from 1 to 5, with 5 indicating “strongly agree” and 1 indicating “strongly disagree.”

- We have a clear definition of credit risk.
- I am confident that our credit policies and procedures address credit risk in all of the bank’s activities and at both the individual credit and portfolio levels.
- I am confident that our bank has information systems and analytical techniques that enable management to measure the credit risk inherent in all on- and off-balance sheet activities.
- I am confident that the management information system provides adequate information on the composition of the credit portfolio, including identification of any concentrations of risk.

14. In measuring credit risk, which of the following approaches do you use?

- Transaction methods, where total credit risk with a counterparty is simply the sum of current and potential exposure of each transaction with the counterparty.
- Portfolio methods, computing the potential exposure of all the firm’s transactions with a counterparty at once, and considering correlations between potential exposures of multiple transactions with the counterparty.
- A combination of transaction and portfolio approaches. (Please specify.)

*Quantification of loss concepts and data issues*

15. Do you have a rating history for each borrower? In other words, do you have loss experience data by borrower/facility grade?

- Yes.
- No.

16. If you have a rating history for each borrower, which of the following elements are included ?

- Rating since inception.
- Methodology and key data used to derive the rating.
- Key borrower characteristics.
- Date rating was assigned.
- Person/model who assigned the grade.

17. Do you compute long-run average probability of default rates solely based on historical experience of borrowers in each internal risk grade?

- Yes, for all sub-portfolios.
- Yes, only for retail portfolios.
- Yes, only for corporate portfolios.
- No.

18. What is the length of the underlying historical observation period used for the calculation of PD estimates?

- Less than 2 years.
- 2 - 3 years.
- 3 - 5 years.
- More than 5 years.

19. If you do not compute PDs from historical data (internal default experience), can you compute PDs with any one of the following methods? (Please mark all applicable.)

- The use of external data and pooled data (e.g. data from major rating agencies, national credit registries, loss data from trade association reports).
- Statistical default models.
- A combination of the above techniques.
- A combination of the above techniques and internal default experience.

20. Do you review your PD estimates at least annually?

- Yes.
- No.



21. Do you have a history of estimated PDs and realized defaults associated with each grade?

- Yes.
- No.

22. Are you able to compute long-run average loss given default (LGD) rates which explicitly evaluate likely recovery rates for each transaction in the event of default?

- No.
- Yes, and we are confident about the accuracy of estimates.
- Yes, but we do not find the estimates to be reasonable.

23. Which of the following most accurately describes your approach to the estimation of LGD?

- Standard valuation procedures and discount factors based on type of security set out in the bank's policy documents, based largely on management judgmental industry benchmarks/ rules of thumb.
- Directly estimating an expected recovery percentage – e.g. in the case of impaired assets.
- Applying a generic classification based on the type of exposure for certain types of exposure, for example exposures secured over residential property.
- Based on historical data.
- Others. (Please specify.)

24. If you can compute LGD based on historical data, what is the length of the underlying historical observation period used for the calculation of PD estimates?

- Less than 2 years.
- 2 - 3 years.
- 3 - 5 years.
- More than 5 years.

#### OPERATING DESIGN FEATURES OF INTERNAL CREDIT RATING SYSTEMS

25. Approximately what percentage of the rand value of your bank's total loans has an internal credit rating?

- Less than 5%.
- Between 5 and 25%.
- Between 26 and 50%.
- Between 51 and 75%.
- Between 76 and 95%.
- More than 95%.

26. Approximately what percentage of the rand value of your bank's corporate loans has an internal credit rating?

- Less than 5%.
- Between 5 and 25%.
- Between 26 and 50%.
- Between 51 and 75%.
- Between 76 and 95%.
- More than 95%.

27. Approximately what percentage of the rand value of your bank's consumer/retail loans has an internal credit rating?

- Less than 5%.
- Between 5 and 25%.
- Between 26 and 50%.
- Between 51 and 75%.
- Between 76 and 95%.
- More than 95%.

28. If you do not rate all exposures, on what does the decision to rate or not depend?

(Please mark all that are applicable.)

- Amount of exposure. (Please specify.)
- Type of exposures. (Please specify.)
- Others. (Please specify.)

29. Which of the following most accurately describes your rating system?

- The use of identical rating methodologies for all sub-portfolios subject to rating.
- Specific applications are used for different customer groups and sub-portfolios.

30. Which of the following most accurately describes your bank's methodological approach to assigning ratings?

- A credit scoring model or other quantitative tool is essentially the sole basis for determining a rating for counterparties/exposures.
- Ratings are based primarily on a statistical model or objective financial analysis, but adjustment of ratings based on judgmental factors is allowed (to a limited degree).
- Ratings are assigned using considerable judgmental elements, where the relative importance given to such elements is not formally constrained.

31. Which of the following most accurately describes the loss concept underpinning the rating?

- Reflecting counterparty default probability.
- Separate PD and LGD rating.
- Expected loss on facilities.
- Rating is not intended to reflect any specific loss concept, but reflects an ordinal ranking of the banks' exposures relative to each other.

32. Which of the following most accurately describes your rating system?

- A two-dimensional system in which separate ratings, one focused on the characteristics of the borrower (obligor rating) and another rating focused on the specific detail of the transaction (facility rating), are assigned.
- A one-dimensional system in which only a single rating, intended as a summary indication of risk that incorporates both borrower and transaction characteristics, is assigned.

33. If you assign separate PD and LGD estimates, do you combine PD and LGD ratings to form an overall indicator of expected risk?

- Yes.
- No.

*Structure of the rating system*

34. How many different ratings do you assign? In other words, how many rating grades are there in total? (Please check only one.)

- 3 or fewer.
- 4 to 7.
- 8 to 11.
- 12 to 20.
- More than 20.

35. From this total number of ratings, indicate the number of rating grades for the following:

- Pass grades (quality borrowers/exposures).
- non-pass grades (for non-performing borrowers).

36. Do you include grades intended solely to capture credits needing heightened administrative action, such as so-called “watch” grades?

- Yes.
- No.

37. If you include “watch grades”, are they classified as part of:

- Pass grades.
- Non-pass grades?

38. What is the largest percentage of total rated exposures falling in a single grade?

- Less than 20%.
- 20% - 29%.
- 30% - 50%.
- More than 50%.

39. Do you currently rely on a rating scale that mirrors that of the ratings agencies?

- Yes.
- No.

40. If no, do you attempt to develop criteria that are consistent with that scale in order to have the internal rating process replicate that of the rating agencies?

- Yes.
- No.

41. Is your rating based on:

- Assessment of borrower's current condition and/or most likely future condition (point-in-time quality of issuers/exposures)?
- Assessment of borrower's riskiness based on a worst-case, "bottom of the cycle" scenario (through the cycle approach)?

42. Which of the following factors do you take into account in assigning ratings to corporate borrowers? (Please mark all that apply.)

- Formal industry analysis.
- Management experience and competence.
- Country risk.
- Specific financial ratios.

43. If you use financial ratio analysis, which of the following specific types of ratios is included?

- Historical and projected cash flow capacity.
- Capital structure.
- Quality of earnings.
- Quality and timeliness of information about the borrower.
- Degree of operating leverage.
- Financial flexibility resulting from its access to the debt and equity markets to gain additional resources.

44. Do you have a formal written description of the internal credit rating classification system?

- Yes.
- No.

45. If yes, which of the following elements are included? (Please mark all that apply.)

- What each rating means in terms of default probability.
- Model inputs.
- Model maintenance (changes to calculations, rating system, etc.).
- Exceptions to data inputs.
- Model overrides.
- *Ex post* evaluation.

46. Which of the following criteria for each risk grade is explicitly included in your credit risk policies?

- Factors that should be considered in assigning a grade.
- How these factors should be weighed in arriving at a final grade.
- Explicit quantitative target ratios or ranges.
- Verbal qualitative criteria in the case of less measurable factors.

*Applications/uses of ratings*

47. Do you include rating information in reports to senior management for the purpose of monitoring the risk composition of the rated portfolios?

- Yes, routine (at least monthly) and comprehensive reporting including both quantitative risk measures and qualitative perspectives.
- Yes, routine reporting (at least monthly), but limited in scope.
- Yes, *ad hoc*, event-driven reporting.
- None.

48. Which of the following elements are included in reports to senior management? (Mark all that are applicable.)

- Aggregate exposure for all rating classes.
- Limits assigned according to rating grades.

- Borrower-specific information, such as major shifts in rating classes for a single customer.
- Risk profile by grade.
- Migration across grades.
- Quantification of loss estimates per grade.
- Comparison of realized default rates against expectations.

49. Are you confident that such reports are specific enough to allow third-party assessment of the ratings assigned and the associated calibration of average PD per grade?

- Yes.
- No.

50. For which of the following applications do you use your ratings? (Mark all that are applicable.)

- To identify deteriorating or problem loans.
- Used in computing internal profitability measures.
- For pricing analysis purposes.
- Attributing economic capital to products or business lines.
- Credit approval authorities and limits.
- Analysis of bank's capital adequacy, reserving and profitability.
- Performing stress tests to assess capital adequacy.

51. If you engage in stress testing, which of the following is included in your stress testing?

- Economic or industry downturns.
- Market risk events.
- Liquidity conditions.

52. Do you base compensation for relationship managers explicitly on ratings?

- Yes.
- No.

*System development and enhancement*

53. Did you develop your rating system...

- internally;
- in co-operation with outside consultants;
- purchased from a third party?

54. Have you recently (within the past two years) expanded the number of risk grades as part of wider upgrades of your bank's rating system?

- Yes.
- No.

55. Does your bank use any of the following rating assessment tools to assist staff in rating determinations? (Please mark all that are applicable.)

- Use of external ratings (where these are available).
- More tailored rating definitions providing explicit guidance to raters (incorporating detailed quantitative and qualitative rating benchmark).

56. Which of the following control measures is applicable to your rating system? (Please mark all that apply.)

- Internal ratings can only be amended using specific procedures.
- Internal ratings are made available throughout the firm to allow users to flag inconsistencies and play the role of control officers.
- The rating and rating-validation processes are reviewed by senior management, i.e. managers with sufficient seniority and authority to enforce reductions in a bank's overall risk exposure.
- The assignment of credit ratings is integrated into the bank's normal credit approval/review processes and is subject to the checks and balances built into those systems.
- None of the above.

*Review of ratings*



57. Which of the following review and monitoring measures are used in your bank?

(Please mark all that apply.)

- Monitoring by those who assign the initial rating of a transaction.
- Occasional reviews of a business unit's rating assignments by independent loan review unit.
- Formal periodic review, at least annually, by an independent credit review unit.
- Early review events supported by centralized and/or automated monitoring systems.
- More frequent periodic reviews for lower-rated exposures.
- Other. (Please specify.)

58. Which of the following is addressed as part of the ratings review process? (Please mark all that apply.)

- Review of override decisions.
- Seek to track potential instances of "gaming" rating models whereby loan officers might alter customer information and re-enter it several times in order to obtain a better rating recommendation.
- The quality, completeness, and appropriateness of data inputs into the model are reviewed on a regular basis.

59. Does your bank use any of the following measures to ensure the accuracy and integrity of data inputs into the rating system?

- Automated data transfer linkages to minimize/eliminate re-keying of ratings input data and of completed ratings.
- Where industry characteristics form an important input into rating models, an economics or other specialized unit, rather than individual lending/credit officers, is responsible for inputting relevant industry assessments.
- Other. (Please specify.)

60. Does a poor credit process ratings received from the review teams have implications for credit authority and staff remuneration?

- Yes.
- No.

*Validation*

61. Do you perform some degree of back-testing to assess accuracy and consistency of each grade's loss characteristics?

- Yes.
- No.

62. If yes, which of the following approaches to validation do you use? (Please mark all that are applicable.)

- Regular monitoring of credit migration data against expected outcomes.(for example, comparing expected default rates to actual defaults.)
- Comparing internal ratings with other available ratings alternatives, e.g. external agency ratings and/or externally developed rating models.
- Other. (Please specify.)

PREPARATION FOR IMPLEMENTATION OF THE NEW CAPITAL ACCORD  
(BASEL II)

*Pillar one: Chosen (likely) approach to compliance*

63. Which of the following approaches for the calculation of regulatory credit risk capital charges are you aiming to adopt?

- Advanced IRB.
- Foundation IRB.
- Standardized approach.
- Undecided.

64. If you have decided not to choose the internal rating-based approach, please state your reasons.

65. What is your estimation of the likely impact of Basel II on the level of regulatory capital that you are required to hold?

- Will lead to an increase.
- Will lead to a decrease.
- Not sure.

66. Where do you consider the adoption of your preferred approach will add the most value?

- Reduction in capital requirements/refining the process for allocating and charging capital.
- The introduction of more sophisticated risk-adjusted pricing.
- Enhanced reputation/better rating due to advanced risk-management techniques.
- Expansion of eligible collateral.
- Improved rating system.
- Improved process quality.

67. Which of the following do you consider the biggest obstacles to implementation of the preferred approach? (Please mark from 1 to 8, with 1 indicating “biggest perceived obstacle” and 8 “smallest obstacle.”)

- Missing data for determination of probability of default (PD).
- Missing data for determination of loss given default (LGD).
- Resources required for data collection.
- Required business process redesign.
- Missing capacity for credit risk management experts.
- Cost of compliance with Basel.
- Capturing of information about collateral and other credit risk mitigation techniques.
- Dealing with volatility of more risk-sensitive capital regime.

68. Have you done any assessment of your current risk information system in order to determine whether it would meet the tests of being subject to external verification, regulatory scrutiny, and transparency of the new disclosure requirements?

- Yes.
- No.

69. Has your bank initiated any review work regarding compliance with the requirements of Basel II? In other words, has your bank already started Basel II projects? (Please mark all applicable.)

- Yes, credit risk project.
- Yes, operational risk project.

70. If you are delaying preparations, what are your reasons for this?

- Waiting for greater clarity that will come from the publication of finalized proposals and deadlines.
- Resource shortage, both of management and risk know-how.
- Basel II not a priority/other more pressing challenges.
- Other. (Please specify.)

71. If yes, what phase is your project at?

- Establishing the team.
- Project planning.
- Pre-study/diagnostic review.
- Detailed assessment.
- IT assessment.
- Implementation.

72. If your bank does have a Basel project, does it include cost-benefit analysis?

- Yes.
- No.

73. Are you familiar with the qualitative requirements regarding risk rating systems as set out by Basel II?

- Yes.
- No.

74. Do you perceive compliance with these standards as a major challenge for your bank?

- Yes.
- No.

75. Do you use or plan to use external consultants to assist in the planning and delivery of the Basel II project?

- Yes.
- No.

76. Did you experience any difficulty in obtaining buy-in from senior executives and business heads?

- Yes.
- No.

77. Do you perceive any cultural and organizational challenges in bringing Basel II centre-stage in the way the organization is managed?

- Yes.
- No.

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