

**THE IMPLEMENTATION OF THE NEW CAPITAL ACCORD (BASEL II):
A COMPARATIVE STUDY OF SOUTH AFRICA, SWITZERLAND, BRAZIL
AND THE UNITED STATES.**

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ABSTRACT

The international banking environment has become potentially riskier because of the recent developments in financial services and products which have changed the way banks do their day to day business. Imposing minimum capital adequacy regulations is one way of fostering stability in the global banking system. A number of countries have started to implement the new capital adequacy rules (Basel II) following the worldwide consensus among central bankers that bank's capital levels should be regulated to enhance global financial stability. In this study, through the comparative analysis of the general implementation issues it was established that emerging countries apply all Basel II rules uniformly across all the banking institutions that operate in their territories. Developed countries apply these rules only to large and internationally active banks and because of the diversity of their banking industries, they also apply domestically modified rules to the domestically based banks. For the successful implementation of Basel II, properly planning, devoting bank resources and making necessary legislative amendments are prerequisites for incorporating Basel II into the regulatory framework for any country. The study concludes that the current global financial turmoil continues to pose a threat to the effectiveness of the Basel II rules which are aimed at achieving global financial stability.

Keywords: *Capital adequacy, Financial stability, Risk-weighted assets, Basel I and II.*

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CHAPTER I

INTRODUCTION

1.1. BACKGROUND

The international banking environment has become more complex and potentially riskier since the early 1980s due to combined effects of financial deregulations, innovations, technological advances and rapid integration of the world financial markets (Sahajwala and Van den Bergh, 2000:1). These factors have contributed to changes in the way banks collect, measure and manage their risks (Carauana, 2004:1). The fast track integration of global markets has given the need to achieve financial stability through the adoption of common rules of regulating the global financial system. In the global banking sector, capital regulation can be used to achieve the stability.

As central players in the global financial system, banks are subjected to regulatory capital requirements because this benefits the economy when they are sufficiently capitalised and properly-managed. Such banks are in a position to withstand unexpected losses arising from market, credit and operational risk exposures; helping them to extend credit to their clients throughout the business cycle, adding to the efficiency and enhanced public confidence in the banking system (BIS, 2004:1; Hassan Al-Tamimi, 2008:1). Satisfactory bank capital levels serve as a base for bank growth, cushioning it against unforeseen losses which can lead to bank failures (Accord Implementation Forum (AIF): Disclosure Subcommittee, 2004:7). It is important to monitor and evaluate business activities of the banks relative to the capital necessary to cover the associated risks (Amidu, 2007:67).

Following the collapse of *Bankhaus Herstatt* in Germany and *Franklin National Bank* in the United States in 1974, the G10 central bank Governors agreed to come up with the Basel Committee on Bank Supervision (BCBS), commonly known as “The Committee”² (BIS, 2008:1; Klaus, 2001:4). To foster stability in the global banking system through the prevention of bank failures, the BCBS came up with the 1988 capital accord (Basel I). Basel I introduced the first internationally accepted definition of, and a minimum requirement for capital of banks, and addressed the inconsistencies in bank capitalisation. All banks were

² The G-10 countries now includes eleven countries which cooperate on financial, monetary and financial matters and these include Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States. The BCBS is concerned with the convergence in the guidelines for international co-operation in bank supervision and this committee is a standard-setting body on all aspects on bank supervision (BIS, 2008).

required to implement the Basel I framework, with a minimum capital standard of 8% by the end of 1992³ (AIF: Disclosure Subcommittee, 2004:10). This capital accord was aimed at improving the soundness of the international banking environment by increasing capital holdings and reducing competitive inequalities between internationally active banks (Cumming and Nel, 2005:641). It was intended to link regulatory capital to the risk portfolios of different banks, creating incentives to lower the overall risk in the system. Banks would hold higher levels of capital and riskier banks would reduce their risk profiles in order to reach the minimum capital to risk-weighted assets ratio of 8% (BCBS, 2001:1).

After almost a decade later, the BCBS proposed the replacement of the 1988 accord with the new risk-sensitive framework in June 1999. The effectiveness of Basel I was becoming less and less due to the developments that had taken place in the financial system since it was adopted. A number of these developments that caused Basel I not to cope include among others; increased globalisation (supported by the increased cross-border trading, investment and finance flows globally); technological advances and financial innovations. Advances in managing risks, technology and banking markets made the simple approaches of Basel I to become less valuable for a number of banking institutions for capital adequacy requirements (AIF: Disclosure Subcommittee, 2004:10). For this reason, there was need to move to a more complex and risk-sensitive framework.

Almost five years later, on 26 June 2004 the BCBS authorized the publication of the “*International Convergence of Capital Measurement and Capital Standards: a Revised Framework*”, which is the Basel II framework (BCBS, 2004:1). Its main objective is to bring stability and consistency in the regulation of the capital adequacy of internationally active banks (BCBS, 2004:1). Basel II outlines the details for implementing the risk-sensitive minimum capital requirements for banking institutions and reinforces them by stating the principles for assessment by banks and supervisors for their capital adequacy to cover their risks (BCBS, 2004:1).

The Basel II framework builds a firm foundation for capital regulation, supervision and market discipline to enhance prudent risk management to achieve financial stability (BCBS, 2006). It is based on the 1988 accord’s basic structure of setting capital requirements, and better reflects the underlying risks that banks face and provides incentives for risk management. This is accomplished partly by aligning capital requirements with credit risk and establishing a capital charge for exposures to operational risk (BCBS, 2006; AIF: Disclosure Subcommittee, 2004). Basel II can be applied to all banks in both G10 and non-G10 countries, because it provides a menu of approaches suitable for both sophisticated and least sophisticated banks (Mboweni, 2004:6). Its underlying principles facilitate the alignment of capital

³ For illustrative purposes, this simply implies that if a bank lends R1000, it will be expected to keep R80 as capital.

adequacy requirements to the key elements of banking risks, and also advance risk measurement and management capabilities of the banks. In this way, Basel II attempts to cope with the new developments and instruments in the financial system due to financial innovations (Mboweni, 2004:6).

Basel II will considerably affect both the banks and supervisors, in re-engineering their organisational structures and processes to comply with the requirements and standards of the new accord (Mboweni, 2004:7). With proper implementation, the new capital accord has the potential of improving risk management in banks and aligning economic capital more closely with regulatory capital (AIF: Disclosure Subcommittee, 2004:7). For the successful implementation of Basel II, total co-operation between banks and supervisors, between supervisors of different countries and between different banks is very important (Global Risk Regulator, 2005:1). In conclusion, it seeks to ultimately promote sound bank capitalisation, encouraging improvements in risk management to strengthen the stability of banking markets through the application of the three reinforcing pillars.

1.2. PROBLEM STATEMENT

In South Africa, banks are regulated by the Banking Supervision Department (BSD) of the South African Reserve Bank (SARB) in accordance with the principles set by the BCBS. This ensures that South African banks comply with the international sound practices to sustain a sophisticated banking system to the public (Mboweni, 2004:1). South Africa has become an important financial centre, well positioned to provide global services through the international offices of its banks and the presence of international banks (AIF: Disclosure Subcommittee, 2004:27). This provides the justification for the need for Basel II to be incorporated in the regulatory system of South Africa and other countries.

Given the different stages of Basel II implementation globally as well as concerns over its impact on the banking system, there is need for research on the implementation issues in different countries to draw some lessons for South Africa and other countries, implementing or yet to implement it. Key implementation issues include; the extent of and timetables for implementation, challenges faced by banks and national supervisors, banking infrastructure (whether it will be able to cope), and impact on bank lending and credit growth (especially for marginalised groups such as emerging small businesses). A comparative study is therefore necessary to explore the various issues around the implementation of the new accord in different countries. This could bring to light the experiences of the countries prior to and during Basel II implementation.

Regarding South Africa, Switzerland, Brazil and the United States and as far as the author is aware the current study is of its kind. There are few academic studies that have been done to address the likely

effects of the new accord for South Africa (see Jacobsohn, 2004; Cumming and Nel, 2005). These are pre-Basel II implementation studies, which attempted to show the likely impact that the regime might bring in the South African banking system. It is therefore relevant that a different view and approach be undertaken to determine the impact of Basel II in South Africa. Jacobsohn (2004) analyzed the effect of Basel II on the South African banking system through possible changes in the way in which a bank's business will be conducted. The study focused on the impact of pillar 1 and did not cover the impacts of pillars 2 and 3. His study concluded that large South African banks will become takeover targets⁴ because of their large exposures in the retail and mortgage markets due to intensified competition. Banks will change the way they conduct their business (i.e. market segments and product offerings) as a result of the implementation of Basel II (Jacobsohn, 2004:102-104).

Cumming and Nel (2005) conducted a preliminary assessment of the likely effects of the new accord for South African banks. The main preliminary finding of this study was that the South African banking sector had shifted towards low risk assets over the period and the implementation of Basel II would probably increase the credit lines to investment grade borrowers (Cumming and Nel, 2005:655). The most notable feature of these studies is that they were conducted before the full implementation of the new accord. The findings are based on the perceived impacts of such implementation on the South African banking sector. In addition to these studies, a comparative study is feasible because countries have different circumstances in terms of sizes of banking industry, regulatory and supervisory environments. The next section highlights the goals of this study.

1.3. GOALS OF THE RESEARCH

The central objective of this study is to conduct a comparative analysis on the implementation of the new capital accord in South Africa, Switzerland, Brazil and the United States, with regard to the qualitative and quantitative implementation issues which include the extent of and timetables for implementation, stages of and progress in implementation, deadlines, the challenges faced by the banks and the supervisors, capital adequacy ratios and the balance sheet structure in terms of the types of bank lending. These countries were selected on the basis that Switzerland and the United States are members of the G10 countries while Brazil and South Africa are non-Basel Committee countries with fast growing emerging economies. As a result, they differ in terms of how they approach the implementation issues. Given their unique circumstances, it is possible to explore the experiences of these countries by conducting a comparative study.

⁴ This can be confirmed by the ABSA/Barclays deal of 2005 and the Standard Bank/ Industrial and Commercial Bank of China (ICBC) deal of 2007 in support of his finding.

From this follows the second objective of the study which is to draw lessons and conclusions through the analysis of other country's experience in the implementation process of the new accord. This is feasible because the four countries in this study are at different levels of the implementation stages, not to mention different levels of economic development. In this respect, this study seeks to identify policy recommendations not only for South Africa, but other developing and emerging economy countries since these new regulations are expected to affect and be implemented by all the supervisors globally.

1.4. METHODS AND PROCEDURES

In order to understand the underlying principles of Basel II and the critical issues around its implementation in Switzerland, the United States, Brazil and South Africa, a detailed literature review is done to build a firm foundation for the study. The literature study is conducted in search for definitions, interpretations, interrelationships, viewpoints, principles, methodologies and previous research findings on Basel II implementation. This will also include a review of Basel II; quantitative impact studies (QIS), consultative documents (CDs) and other applicable literature on this topic to get an insight of the implementation issues.

Secondary data and reports of the central banks of the respective countries will be studied to investigate their progress in Basel II implementation. For verification of country specific information, the responsible authorities in the banking regulation and supervision departments will be consulted. For comparative purposes, the study uses time series trend analysis to determine the variations in the capital adequacy ratios and changes in the different types of bank lending. The period covered starts from 1999 to 2008. This will help to establish how banks in the various countries responded and approached the implementation of Basel II rules.

1.5. ORGANISATION OF THE STUDY

To come up with a clear understanding of the implementation of the new accord and to draw lessons, the rest of this study is arranged as follows: Chapter 2 gives an overview of the development of banking supervision and regulation. In this chapter, the reasons for the transition from Basel I to Basel II and the empirical literature on the technicalities around the implementation of Basel II are explored. Chapter 3 deals with the comparative implementation focusing on the institutional issues which include planning matters, timelines for and extents of implementation and regulatory structures in the countries under study. Chapter 4 focuses on quantitative trends and ratios. Finally, chapter 5 looks at the results, conclusions and recommendations.

CHAPTER 2

OVERVIEW OF THE DEVELOPMENT OF BANKING SUPERVISION AND REGULATION: BASEL I AND II

2.1. INTRODUCTION

Basel II implementation has been topical internationally in the financial and supervisory community since the late 1990s. To understand the implementation process and the related issues, this chapter starts by briefly highlighting the role of banks in the financial system. It proceeds to show the importance of bank capital with respect to bank regulation and supervision, which is the central focus of the new capital accord (Basel II). The chapter lays the platform for the study by revisiting the 1988 Capital Accord to show its strengths and weaknesses as the justification for the transition to the new accord. The key highlights of Basel II and the justifications for its adoption and implementation are briefly discussed. In conclusion, this chapter goes further to review the empirical literature with respect to the general implementation issues with respect to Basel II.

2.2. THE ROLE OF BANKS

In the financial system, banks play an important role as intermediaries between savers and borrowers (Levine, 2000:8). In undertaking their role as intermediaries, banks help channelling savings into productive investment projects through the provision of credit (Dobson and Hufbauer, 2001:95). By pooling resources together from savers, banks improve resource allocation through their expertise in assessing and monitoring borrowers. Given their central position in the financial system, banks facilitate the division of risk among a number of creditors (Levine 2000:8-10). Banks also facilitate the proper functioning of the payments and settlement system in any economy⁵. A secure and well-organised payment and settlement system must exist for convenient and reliable transfer of funds and securities to take place among the economic participants (Committee on Payment and Settlement Systems, 2005:9-10). More importantly, banks act as conduits for monetary policy implementation by the central bank. This shows that banks are central in the proper functioning of the economy. Therefore, stringent measures should be applied to ensure that there is stability in the banking industry and the entire financial system. Applying

⁵ All economic transactions involve some form of payment. The payment and settlement systems in the economy enables the transfers of deposit money and financial instruments (such as bonds, equities and derivatives which are now prevalent features of today's vibrant financial markets) to take place.

capital rules on the banks is one of the ways to achieve global financial stability and this is the focus of Section 2.3.

2.3. BANK CAPITAL WITH RESPECT TO BANKING SUPERVISION AND REGULATION

Globally, banking regulation and supervision arrangements differ from country to country. According to Sahajwala and van der Bergh (2000:2) the following factors are some of the reasons for variations:

- The complexity and state of development of the financial system;
- The number, size and concentration of banking institutions;
- The relative openness of the domestic financial system;
- The nature and extent of public bank's disclosure of their financial positions;
- And the availability of technological and human resources for regulation and supervision.

In spite of the above factors, regulation of banking institutions according to the international best practice is considered to be very important in ensuring stability in the global financial sector (Mboweni, 2006:1). The Bank for International Settlements (BIS) seeks to ensure that there is 'convergence' in supervisory processes globally in the different jurisdictions through the core principles in central banking.

Regulators are keen to ensure that banks are regulated through monitoring bank capital for the achievement of financial stability. They generally believe that failures of individual banks, especially the large institutions erode public confidence in the financial system (Koch and MacDonald, 2000:502). According to Dupuis (2006:1) the perception that a bank is having sufficient levels of capital over assets enhances the public's confidence in it. When depositors start to believe that the bank is unstable financially, which puts their deposits at high risk, sudden pulling out of funds by depositors will result and technically this will be a "run on the bank" (Dupuis, 2006:2). This shows that bank regulators are mainly concerned about the mitigation of systematic risk when they put in place capital requirements. Banks hold the highest percentage of assets and since they are deposit-taking institutions, they are prone to systematic risk because of their fragility.

To limit the magnitude and scope of bank failures and ensure that confidence prevails in the financial system, regulators impose minimum capital requirements for single banks (BCBS, 2001). Adequate capital reserves that banks keep help in preserving public confidence as a way of reducing the risk of a run on the bank. Generally, no bank can maintain the public's trust for long if it lacks sufficient capital and therefore there is need for the supervisors to impose and monitor the maintenance of the minimum capital requirements (Dupuis, 2006:2; Mboweni 2006). If banks are sufficiently capitalised they will be in a better

position to manage their activities and thereby reduce the chances of bank failures which distort the smooth running of the economy (Dupuis, 2006; Koch and MacDonald, 2000:502). Bank capital therefore acts as a buffer against unexpected losses in the day to day running of the banking institutions⁶. However, from a regulatory perspective, Dupuis (2006:2) argues that bank capital requirements can potentially constrain the bank's activities of taking deposits and lending, and also retard the growth of a bank's assets.

A number of supervisors need banks to keep the minimum capital levels, ultimately for the protection of the depositors when they operate in active banking markets (AIF: Disclosure Subcommittee, 2004:1; Dupuis, 2006:3). It can be concluded that adequate levels of capital help in promoting confidence in the banking system. Nevertheless, there is a challenge that it is difficult to ascertain the sufficient level of capital that may be needed in the sense that low levels of capital requirements may augment the risk of failure and higher levels may constrain the ability of banks to grant credit⁷.

2.4. THE RISE OF BANK CAPITAL REGULATION

In the period pre-1974, there were no internationally accepted standards for bank supervision and regulation. However, with international financial markets and cross-border money flows increasing in the 1970s the need for efficient banking supervision at the international level was evident (Mboweni, 2006:2; BIS, 2008:1). During this period, domestic banks and the domestic activities of international banks were regulated, while their international activities were not consistently supervised (Mboweni, 2006:2; BIS, 2008:1).

The national banking systems were significantly exposed to the financial crises in foreign markets in the 1970s due to the growth of international lending (Dupuis, 2006:3). Following the collapse in 1974 of *Bankhaus Herstatt* in Germany and *Franklin National Bank* in the United States, the G10 central bank Governors agreed to come up with the Basel Committee on Bank Supervision (BCBS), commonly known as "The Committee" (BIS, 2008:1; Klaus, 2001:4). According to Hadjiemmanuil (2005:217), the Herstatt crisis and the unprecedented bank failures in the UK and the U.S. generated major concerns about the prudential state of the international banking industry. Therefore, the Herstatt crisis brought awareness to the nature and potential scale of cross-border effects of bank failure.

⁶ A bank's capital reserves absorb the temporary losses, enabling the bank to remain solvent thereby protecting the depositors and creditors (Dupuis, 2006:1).

⁷ When too many funds are diverted into capital reserves the liquidity of the bank is drained and this puts it at a competitive disadvantage. Consequently, when the level of capital is too low, the bank will be exposed to the greater risk of insolvency (Dupuis, 2006:1).

Due to the increased concerns about bank financial stability, the 1988 Basel Capital Accord (Basel I) was introduced to fulfil the need for international standardization of capital regulation to safeguard the global banking system. The next section analyses this accord, looking at its strengths and weaknesses. It goes further to discuss the reasons that precipitated the transition from Basel I to Basel II which is the main thrust of this study.

2.4.1. The 1988 Capital Accord: Basel I

Under Basel I, the minimum total capital equal to 8% of its “risk-adjusted” assets was set and accepted by over 100 countries internationally (South Africa included) with its prescribed full implementation by the end of 1992. Basel I focused mainly on credit risk, with exposures broadly classified, and hence reflecting similar types of borrowers and risk. According to Klaus (2001:1), it became a globally accepted standard for credit risk measurement framework for banks. Since 1988, Basel I was progressively implemented not only in G10 member countries, but also in all other countries with internationally active banks. In this section, the strengths and weaknesses of Basel I are briefly outlined in order to understand the reasons that necessitated the transition to Basel II.

Following the implementation of this accord in a number of countries, the international banking system was strengthened by the provision of the standard for capital requirements and measurements (Rime, 2001; Cumming and Nel, 2005). The playing field for the banks was levelled by successfully raising international capital levels and improving the competitiveness in the banking environment. According to Dobson and Hufbauer (2001:123) the 1988 Basel Accord drew the lesson from the financial crises of the mid-1970’s that more adequate capital levels in international banks would help in reducing the systematic risk of bank failure. The minimum capital adequacy requirements set were designed to ensure that individual banking institutions have the ability to absorb losses, particularly credit losses (Dobson and Hufbauer, 2001:123).

2.4.2. From Basel I to Basel II: What Prompted the Change?

Basel I did provide much stability among internationally active banks by improving the international financial system’s capital base. However, in spite of its success in enhancing global banking sector capital and risk measurement, the accord had a number of flaws that led to the public outcry for the need for fundamental reforms (Ong, 2004). Evidently there have been developments in the financial system since the Basel I was introduced and implemented in a number of countries. In particular, the banking business, risk management practices, supervisory approaches, and financial markets have changed making Basel I unable to cope with these developments (BCBS, 2001:1).

Ong (2004) adds that in the past decade there have been remarkable distortions of credit risk in banking because of financial innovations which opened regulatory capital arbitrage opportunities through asset securitization vehicles. Financial engineering has brought the development of complex financial products. According to Hai *et al.* (2007:3) innovations such as financial derivatives and securitization⁸ largely contributed to the decline of traditional banking. As a result Basel I was no longer sufficient enough to be the benchmark for measurement of capital adequacy and the actual risks that banks face due to innovations supported by new technologies⁹. All these developments precipitated the need to move to a more appropriate accord, Basel II which could capture the inherent risks in the global financial system.

According to Ong (2004) the failure of Basel I's "one size fits all" approach to risk management is considered to be one of the crucial reasons for the need to replace it. There were no incentives for the banks to improve their risk management systems because the same criterion was applied to all banks in determining the minimum capital requirements. Hai *et al.* (2007:3) adds that Basel I was risk insensitive, because it failed to make a distinction between credit risk and other types of risk and was prone to regulatory arbitrage¹⁰. It was not sophisticated in its approach and it did not assess all the true risk profiles of banks¹¹. Basel I is also largely criticized because its risk categories were only weakly correlated with the actual banking risks, for instance all corporate exposures were given a risk weighting of 100% regardless of their credit rating (Cumming and Nel, 2005:641).

Given the broad risk categories, it can be argued that the 1988 accord actually increased the overall systematic risk because it allowed regulatory capital arbitrage. In this respect, it did not adequately take into account the hedging strategies available to banks. According to Cumming and Nel (2005:641) banks engaged in "*cherry-picking*", which involved shifting the composition of a portfolio towards higher-risk assets within a particular risk category. This gave the chance for banks to arbitrage their regulatory capital requirements.

⁸ These are new ways to un-bundle and transfer risks.

⁹ This also implies that there are a growing number of methodologies for managing and measuring risks. Technological advances imply that there is an improvement in data collection and analysis.

¹⁰ Banks ended up holding lower quality (high risk) assets on their balance sheets and off-loaded their high quality (less risky) assets (Hai *et al.*, 2007:3). Banks will start to hold low risk assets that attract lower capital charges and reduce high quality assets which attract high capital charges under Basel II (IMF, 2005).

¹¹ Cumming and Nel (2005) argue that Basel I was not comprehensive in its coverage because it only concentrated on credit risk, though market risk was added in 1996.

Globalization of the financial markets is also regarded among the factors that contributed to the replacement of Basel I. With globalization, integration and expansion of the global financial markets coupled with the introduction and exposure to new financial products, banks have continually become more exposed to diversified structure of risks (Hai *et al.*, 2007:3). The increased integration of global markets has seen the growth of cross-border trading, finance and investment. However, this implies that there are sophisticated risks that need to be accounted for, with a more risk sensitive framework.

In conclusion, the recognition of these important developments highlights the factors that necessitated the introduction of Basel II which is a more risk-sensitive framework (Pagia and Phlegar, 2002). The hallmark of Basel II is ultimately combining effective bank-level management and supervision with market discipline to restore safety and soundness of the ever-changing and complex financial system.

2.4.3. The New Capital Accord: Basel II

According to BIS (2007:1) Basel II intends to bring improvements in the way regulatory capital requirements mirror the underlying risks, considering the financial innovations such as asset securitization structures that has occurred in recent years. As mentioned above, it does not only focus on capital, but also on maintaining a level playing field and strengthening incentives to foster sound systematic risk management through the three mutually reinforcing pillars¹² (Caruana, 2003:1). Pillar 1 strengthens the minimum capital requirements set out in the 1988 accord, while pillars 2 and 3 represent the innovative additions to capital supervision (BCBS, 2001:7). The new accord aims at raising the capital that banks must hold to cushion against credit risk losses resulting from the internal factors such as bad lending decisions and external factors for example, economic downturns and crisis contagion (Dobson and Hufbauer, 2001:133). This ensures that banks that engage in risky transactions will have to set aside more capital than those that do not. The Basel II framework seeks to enhance capital supervision that is governed by a forward-looking approach and help banks to identify the risks (for example credit, market and operational¹³) they may face, presently and in future and thereby developing and improving their ability to manage those risks (BCBS, 2006:12-14).

¹² *Minimum capital requirements* (pillar 1), *the supervisory review process* (pillar 2) and *market discipline* (pillar 3).

¹³ *Credit risk* is the risk of loss that is incurred when a creditor defaults. *Market risk* refers to the risk of losses resulting from fluctuations in prices in the financial markets (Dupuis, 2006:5). *Operational risk* refers to the risk of direct or indirect losses that result from inadequate or failed internal processes, people and systems, or external events (BCBS, 2001:10).

The overarching objective of Basel II is to promote stability of the financial system by ensuring that banks are adequately capitalized and have improved risk management techniques in place. Pillar 1, *minimum capital requirements* maintains the definition of capital, setting the minimum capital requirement at 8% of capital to risk-weighted assets, with the guidelines closely aligned to each bank's actual risk of economic loss¹⁴ (BCBS, 2001:3). This improves risk measurement, i.e. the calculation of the denominator of the capital ratio¹⁵ which comprises of the credit, market and operational risk. The objective of pillar 1 is to clearly align the level of the regulatory capital more closely with risk (Bailey, 2005:5). It achieves this by linking risk-weights to credit ratings, meaning that a loan to a corporate will attract a risk-weight that reflects the individual credit-worthiness of the counterparty, rather than one that simply acknowledges the counterparty as a corporate (Bailey, 2005:5). In this way, there is better alignment of capital with the underlying risks and this helps to maintain the required level of capitalisation of banks.

There are two options for measuring *credit risk*, i.e. the *standardized approach* and the *internal rating based (IRB) approach*. According to BCBS (2001:4), the *standardized approach* allows a bank to assign risk-weights to its balance and off-balance sheet assets to derive the total risk-weighted assets. This implies that if a risk-weight of 100% is assigned, it means that the full value of an exposure is included in the calculation of the risk-weighted assets and this translates into a capital charge equal to 8%. In the 1988 Accord, individual risk-weights depended on the broad categories of borrowers (i.e. sovereigns, banks or corporates). Under Basel II, risk-weights are refined by reference to a rating provided by external credit rating agency under the standardized approach. The risk-weights are determined by the supervisor depending on the nature and characteristics of the exposure. There are five risk-weightings available, 0%, 20%, 50% 100% and 150% under Basel II (BCBS, 2006:15-19; Cumming and Nel, 2005:643). For corporate lending, Basel I provided only one risk category of 100% but Basel II provides four risk categories (20%, 50%, 100% and 150%) (BCBS, 2006:19).

The *internal ratings based approach (IRB)* allows the use of the bank's estimates of the creditworthiness of each borrower to approximate the possible future losses, and this forms a basis of minimum capital requirements under stringent methodological and disclosure requirements (BCBS, 2006:12). Unique analytical frameworks are available for loan exposures of different types, with varying loss characteristics. Under the IRB approach, banks are required to categorise the "banking-book" exposures into broad asset

¹⁴ Basel II improves credit risk sensitivity by requiring higher capital levels for borrowers who are likely to present higher levels of credit risk.

¹⁵

$$\frac{\text{Total capital}}{\text{Credit risk} + \text{Market risk} + \text{Operational Risk}} = \text{The bank's capital ratio (minimum 8\%)}$$

classes with different underlying risk characteristics. The five classes of assets include: *corporate, sovereign, bank, retail and equity*¹⁶ (BCBS, 2006:48). Since the IRB approach can be categorized into the *foundation* and *advanced* methodologies for corporate, sovereign and bank exposures, it gives a diverse range of risk-weights than those under the standardized approach and hence the greater sensitivity to risks (BCBS, 2006:12). The *Foundation* IRB (FIRB) approach and the *Advanced* IRB (AIRB) approach only differ in the sophistication applied in the quantification methodology. When using the *FIRB* methodology, banks come up with estimates of the probability of default (PD) of specific borrowers and the supervisors contribute other inputs. When using the *AIRB* methodology, a bank that has an advanced internal capital allocation process is allowed to contribute other inputs as well (BIS, 2001:4). The probability of default (PD), loss given default (LGD), exposure at default (EAD), and maturity (M) are the four parameters that are used to determine the estimated credit risk when the IRB approaches are applied¹⁷ (BCBS, 2006:48).

The new accord also sets out that banks should come up with a suitable capital charge for *operational risk* which was not included in the previous accord. This makes a greater improvement in the new accord because banks need to quantify the risk of losses from failure of internal processes and systems versus damages from external disruptions. There are three specific approaches that will help to capture operational risk i.e. the *basic indicator, standardized and internal measurement*.

Pillar 2, *Supervisory review process*, emphasises the need for conducting supervisory reviews of bank's internal assessments of their overall risks to ensure that adequate measures are available for such risks (BCBS, 2006:204). Supervisors must ensure that every bank has internal processes available for its capital adequacy assessment (BCBS, 2001:4). Basel II emphasizes the development of a bank's internal assessment processes and determination of targets for capital in line with its risk profile and control environment (BCBS, 2001:4). After evaluation of the bank's activities and risk profiles, supervisors are mandated to decide if the banks must hold higher capital levels above the 8% level set in Pillar 1. These internal processes are subject to supervisory review and intervention when deemed necessary (BCBS, 2001:5).

¹⁶ According to BCBS (2006:48) within the corporate asset class, there are five sub-classes of specialised lending that are separately identified. In the retail asset class, three subclasses are identified. Within the corporate and retail asset classes, purchased receivables may be treated accordingly depending on certain conditions being met.

¹⁷ These are the four risk factors. The probability of Default (PD) is obtained from the examination of the default history of a specific type of exposure. The loss to the bank given counterparty default (LGD) calculates the loss, less the collateral if the loan is secured. According to Cumming and Nel (2005:644), LGD allows for greater discretion in the assessment of the value of credit risk mitigants and their contribution towards diminishing the capital charge. Exposure at Default (EAD) and Maturity of the loan (M) are self explanatory parameters.

Pillar 3, *market discipline*, reflects how bank management can be improved through transparency in public reporting. It points out the disclosures that banks must report for the public to have better insight into their capital adequacy (BCBS, 2006:226). Market participants can only understand the risk profiles and capital adequacy of the banks through the disclosure which enhances market discipline (BCBS, 2001:5). By understanding the bank's activities and its ability to manage its exposures, consumers will be in a position to reward banks that prudently manage their risks and punish those that do not.

Although Basel II was initially designed for internationally active banks, its underlying principles can also be applied to other banks with different levels of complexity (BCBS, 2001:2). It provides a menu of approaches per risk and given the existence of a supervisory review, it is more flexible in risk and capital management and measurement. This ensures that there is improved corporate governance and transparency. More importantly, there are improved regulatory frameworks and supervisory policies, practices and processes.

The benefits of adopting Basel II can be summarised in terms of the *loan, portfolio and organizational levels* (Skosana Risk Management Company, 2006). At *loan level*, Basel II help in differentiating between risky borrowers (given the probability of default, PD), differentiating the risk of the facility (LGD), improving provisioning and pricing of the financial products. At the *portfolio level*, Basel II help in recognizing the power of diversification, understanding the impact of concentrations, and extending limits and capital. Lastly, at *organizational level*, Basel II helps in justifying large investments, enhancing thinking like fund managers, rewarding smart risk taking, and hence adhering to transparency and good corporate governance (Skosana Risk Management Company, 2006).

It is often argued that Basel I was centred on the bank's total capital with the aim of reducing chances of bank insolvencies that would negatively affect depositors (BIS, 2001:1). Basel II improves safety and soundness in the financial system by emphasizing the application of the three pillars consistently (BCBS, 2001:2; Bauerle, 2001). Although Basel II maintains the overall level of regulatory capital, it provides comprehensive and sensitive approaches to risks as compared to Basel I (BCBS, 2001:2). The new accord can be seen not only as a major change in how the minimum capital requirements are calculated, but also in the responsibilities of banks and regulators within the prudential regime (Bailey, 2005:3; Caruana, 2004). A summary of the main differences between Basel I and Basel II are shown in Table 2.1 below.

Table 2.1. Basel I versus Basel II.

FOCUS	BASEL I	BASEL II
Risk measure	Single.	Broad.
Risk Sensitivity	Broad brush approach.	Enhanced risk-sensitive.
Credit Risk Mitigation	Limited recognition.	Comprehensive recognition.
Operational Risk	Excluded.	Included.
Flexibility	One size fits all.	Menu approaches.
Supervisory Review	Implicit.	Explicit.
Market Discipline	Not addressed.	Addressed.
Incentives	Not Addressed.	Explicit and well defined.
Economic Capital	Divergence.	Convergence.

Source: Oothuzien (2005:24).

An analysis of Table 2.1 combined with the discussion above, makes it clear as to why there was a transition from Basel I to Basel II. The next section focuses on the literature survey on Basel II, discussing the general implementation issues.

2.5. THE IMPLEMENTATION OF BASEL II: GENERAL ISSUES

The new capital accord has received diverse commentary since its first proposal in June 1999 with regard to its implementation and effects on the whole banking system. In this section, the common concerns around the implementation of Basel II are discussed to gather insights into the implementation issues. The BCBS and a number of commentators concur that Basel II will bring financial stability in the financial system, because it provides sophisticated risk-sensitive methodologies (BIS, 1999; BCBS, 2004; Cumming and Nel, 2005; van Rixtel, Alexopoulou and Harada, 2003; Jacobsohn, 2004). However, Basel II is also entangled with some criticism and scepticism with regards to the promotion of sounder banking environment, volatility and consequences for developing and emerging market countries (Griffith-Jones and Spratt, 2001). These concerns are worth noting because they help to form the basis for comparison of the implementation of the new accord in the countries covered in this study.

2.5.1. Basel II and Developing Countries

An ongoing debate about Basel II has been on its impact on developing countries. It is often claimed that the adoption of Basel II, particularly the IRB approach will lead to a significant reduction of bank lending

to the developing countries and/ or a sharp increase in the cost of international lending to the developing countries (Griffith-Jones and Spratt, 2001:14). Additionally, there is a common view that Basel II will result in an increase in the cost and volatility of bank lending to developing countries. Furthermore, developing countries will need to implement Basel II at a considerable cost to their regulators and banking sectors (Bailey, 2005:4).

Bailey (2005:4) argues that the returns to such an investment will be lower because the accord was not designed for, nor is it appropriate for developing countries because the original idea came from the G10 countries which are predominantly developed countries. Given these cases, local banks may find themselves increasingly capital constrained, making them more vulnerable to acquisition by advanced international banks which are able to offer huge injections of capital and expertise required by the regulators (Bailey, 2005:4). Dupuis (2006:8) adds that Basel II tends to unfairly favour larger banking institutions because they have abundant resources and capacity to enforce the capital requirements. In the long-run, internationally active banks will completely dominate the domestic banking sector, posing a threat to the domestic supervisors and regulators. Another consequence for developing countries is that they may fail to attract international banks¹⁸ in the event that they fail to adopt this new accord (Bailey, 2005:4).

As regulatory capital becomes aligned with risk, there will be an increase in capital requirements for loans to developing countries which tend to be less creditworthy (Griffith-Jones and Spratt, 2001). In so doing, borrowing costs will increase as banks seek to cover their higher capital charges (Bailey, 2005:6). However, contrary to the views of Griffith-Jones and Spratt (2001), Bailey (2005) concludes that Basel II implementation in developed countries holds no serious implications for developing country lending because costs will not be affected as international banks price using economic capital, not regulatory capital¹⁹. Additionally, Basel II will not exacerbate the business cycles of recipient developing countries because Pillars 2 and 3 will prevent international banks from behaving procyclically. Pillar 2 will increase the scope for regulatory forbearance and corruption, and underdeveloped capital markets mean that Pillar 3 is likely to be ineffective, and Pillar 1 is unable to offer any significant improvements over Basel I due to poor data environments (Bailey, 2005:40).

¹⁸ It can be desirable for developing countries to have internationally active banks in their banking industry because this may boost international confidence in that country. Additionally, these banks bring international expertise and this may ultimately improve the standard of banking services provision and capitalisation of these banks.

¹⁹ Economic capital measures the amount of capital that an institution needs to support its business activities or set of risks. Regulatory capital is the minimum capital required in order to comply with regulatory requirements (Jacobsohn, 2004:79).

Sharing the same view, the IMF (2005) points out that the risk sensitivity of Basel II will likely lead to higher capital charges on loans to the developing and emerging market economies because of their relatively higher credit and operational risks. Consequently, this increases the costs of borrowing and reduces capital inflows to these so-called high-risk destinations (IMF, 2005). A similar concern is that most banks in developing countries lack the necessary resources for the implementation of Basel II. It is therefore argued that the new rules may constrain accessibility to credit for a number of developing countries (Dupuis, 2006:8).

2.5.2. Basel II and “Procyclicality”

It is often argued that Basel II may destabilize the financial system because of procyclicality since capital charges are positively dependent on the probability of default (PD) (Cumming and Nel, 2005:644). For instance, in the event of a downturn, the capital charge will rise in all exposures and banks will be less willing to extend credit to corporates²⁰; making it difficult to secure loans when they are most needed, causing firms to fail and ultimately exacerbating the effects of the recession (Cumming and Nel, 2005:644). Credit charges tend to fall during an upswing, giving an incentive for firms to expand. Similarly, banks are likely to attach risk-weights that are higher during an economic slowdown, raising the bank’s cost of extending credit, which might in turn restricts bank lending (IMF, 2005). IMF (2005) believes that this is a reality in risk-based capital management and therefore Basel II potentially leads to relatively accurate pricing of risk although business cycles can be aggravated by procyclicality. It can be concluded that Basel II capital requirements tend to be ‘*countercyclical*’, increasing during recessions, inducing procyclical lending behaviour on the banks’ side and hence financial instability in the financial system.

According to Heid (2007:3886)²¹ some sceptics fear that Basel II will unduly increase the volatility of regulatory capital. By limiting the banks’ ability to lend, capital requirements may exacerbate an economic downturn²². Arguably Basel II makes the required minimum capital more cyclical because it increases the sensitivity to credit risk. This potentially poses severe capital management problems because capital charges are likely to increase in an economic downturn at the time when banks are confronted with the

²⁰ Ceteris paribus, credit quality declines when a firm’s business outlook weakens, and banks start to face higher capital charges during an economic downturn (Heid, 2007:3889).

²¹ Heid (2007) concludes that Basel II has a significant pro-cyclical effect on lending even if banks are not capital constrained.

²² However, the alignment of regulatory capital with economic risks has micro-economic benefits mainly because it reduces that potential for regulatory arbitrage (Heid, 2007:3886).

erosion of their equity capital as a result of write-offs in their loan portfolios. Such instabilities in the financial sector can then be transferred into the real sector (Jacobsohn, 2004:82; Heid, 2003:1). As the banks are forced to hold more capital during a downturn, they shift the incidence to borrowers. Without other sources of finance, companies will reduce spending for investment purposes, thereby aggravating the economic meltdown. The impact on the macroeconomy may be even more severe if the capital strained banks are forced to reduce their lending (Heid, 2007:3886). Therefore, the capital buffer that banks hold on top of the required minimum capital plays a significant role in mitigating the impact of the volatility of capital requirements.

Likewise, Jacobsohn (2004:82) points out that due to increased risk sensitivity of capital charges, continuous procyclical effects may arise when the quality of the bank's assets is attached to the business cycle movements. Consequently, this distorts the central objective of capital regulation to foster stability in the whole financial system (Heid, 2003). Procyclicality also affects developing countries in the sense that capital allocations will become entangled with the economic cycle of the recipient country, exacerbating its booms and busts (Griffith-Jones and Spratt, 2001; Reisen, 2001; Ward, 2002).

2.5.3. Basel II: Needs in terms of Bank Resources

Basel II requires very complex systems for risk measurement and management and this is a challenge to banks because they need to improve their internal systems, processes and staffing (Dupuis, 2006:8). Banks must have compatible infrastructural systems for data reporting, verification and validation in place for the successful implementation of the advanced methodologies (IMF, 2005). In some cases, the implementation process may be delayed because financial institutions, particularly in developing and emerging countries put great efforts to improve their systems, practices and procedures (Dupuis, 2006:8). Experts in risk-based supervision are needed and this poses a challenge to supervisors in finding the qualified staff (IMF, 2005). The pace of implementation of Basel II is largely influenced by planning and resource constraint of the national supervisors and banks (Cornford, 2005:16). This shows that the banks need to plan carefully and set aside resources for the implementation process to be successful.

2.5.4. Basel II: Requirements For and Choice of Approaches

Basel II adoption in any country demands that banks must meet the minimum supervisory requirements, internal controls and risk management, although the selection of the advanced approaches and other options largely depend on its ability to fulfil all the expected requirements (Cornford, 2005:19). For instance, for a bank to use the IRB approaches, it must meet stringent eligibility criteria which mainly depend on its management and internal controls (Cornford, 2005:17). In some instances, different rules

may be applied to a bank by the home and host supervisors. It might be the case that the home supervisor might require the bank to use the IRB approach, and the host supervisor prescribes the standardized approach for the same bank because of limitations on its supervisory capacity. In some instances, host supervisors may be reluctant to let a foreign bank to use, for example, IRB approach because of lower costs and capital requirements which gives it competitive advantages over the domestic banks (Cornford, 2005:18). Such differences between supervisors can potentially complicate Basel II implementation processes globally.

2.5.5. Basel II and the Development of Rating Agencies

This is one of the implications of Basel II that is not considered by many. Rating agencies help in coming up with the risk-weights of the assets that are used in the standardized approach of Pillar 1. In this way, countries have incentives to develop credit rating agencies to improve credit management (IMF, 2005).

2.6. SUMMARY

This chapter has analysed the Basel Accords and highlighted their strengths and weaknesses. It can be observed that the failure of Basel I to cope with the ongoing developments in the financial system led to the need for its revision and ultimate replacement with a more risk-sensitive approach (Basel II). However, Basel II is also entangled with a number of concerns which mainly relate to the developing countries, procyclicality, choice of the appropriate methods, resources necessary for implementation and the development of rating agents. Therefore, there is need to proceed to the next chapter that explores the implementation issues for all the countries in the study. It attempts to explain how these countries have approached these issues which mainly relate to planning and resources, timetables and extents of implementation, as well as the trends in banking sector variables. This is done in light of the implementation issues raised in this chapter.

CHAPTER 3

IMPLEMENTATION OF BASEL II: COMPARISON OF THE INSTITUTIONAL ISSUES

3.1. INTRODUCTION

Basel II implementation has started in a number of Basel and non-Basel Committee countries worldwide. For a country to adopt Basel II it must fulfil the generally accepted pre-conditions. According to Kruger (2005:4) firstly, the banking industry must have a culture of risk management with the supervisory authority applying a risk management approach to supervision (Pillar 1). Secondly, banks should apply sound principles of capital management and the supervisory authority should assess the quality of capital management by banks (Pillar 2). Thirdly, the market should require listed companies to be transparent and disclose reliable and relevant information relating to the financial position and performance as well as corporate governance, risk management and risk exposures (Pillar 3). Once these preconditions are fulfilled, a country can go ahead with Basel II implementation.

It is therefore relevant to investigate the comparative institutional issues which include planning, timetables for and extents of implementation, regulatory structures, and the banking structures because they influence the Basel II implementation processes. In this chapter, these institutional factors will be investigated for South Africa, Switzerland, Brazil and the U.S., the goal of which is to evaluate how the different countries approached these institutional factors.

3.2. PLANNING FOR BASEL II IMPLEMENTATION

In this context, planning involves the investigation into whether there have been legislative and regulatory changes to suit the implementation of Basel II. Changes that have taken place to ensure that the environment is conducive for the successful implementation of Basel II will be compared. In other words, this section focuses on analysing how the countries in the study prepared themselves for the implementation of Basel II. Individual countries will be discussed in Sections 3.2.1 to 3.2.4.

3.2.1. South Africa

The process of implementing Basel II in South Africa spans for close to eight years, starting from the beginning of the new millennium up to the full implementation on 1 January 2008 for all banks. This

section unpacks the process through which Basel II was incorporated into the regulatory framework in South Africa.

The preconditions that South Africa fulfilled before commencing the Basel II implementation process which are worth noting included:

- Stable macroeconomic policies and fiscal policy transparency and discipline;
- World class accounting and disclosure procedures (being compliant with the International Financial Reporting Standards (IFRS));
- Transparent auditing framework (being compliant with the International Standards on Auditing);
- Stringent bank supervision (being compliant with Basel Core Principles for Effective Bank Supervision and Basel I);
- Good corporate governance (being compliant with Basel Committee prescriptions adopted from the *“Enhanced Corporate Governance for Banking Organisations”* publication and the local best practice standards, King I and II reports on corporate governance);
- Ongoing risk management (being compliant with Basel I, Core Principles and other guidelines);
- Fully functioning payment system (being compliant with Core Principles for Systematically Important Payment Systems);
- And a favourable legal environment (being governed by the corporate law, insolvency law, Banking law (being compliant with national standards – Basel Core Principles and Basel I), the Financial Advisory and Intermediary Act (FAIA), Financial Intelligence Centre Act (FICA) and the National Credit Act) (Bank Supervision Department, 2007:17).

The preconditions stated above relate to legislation with regard to banks, companies, insolvency, money laundering, bank supervision, accounting and the legal environment, which makes South Africa more adhering to international standards. This shows that South Africa cooperate with its international counterparties which makes it a world class financial centre that adheres to the international standards. For this reason, the South African banking sector strives for best practice in corporate governance and risk management to ensure continued stability (Bank Supervision Department, 2005:39).

Based on the mission and philosophy of the Bank Supervision Department and to implement Basel II successfully in South Africa, it became necessary to make amendments to the Banks Act, the regulatory framework (the Regulations), the supervisory process and related policies (Bank Supervision Department, 2005:39). The amendments to the Banks Act are the product of an assessment of the various prescriptions contained in Basel II, inputs received from the various subcommittees of the Accord Implementation Forum (AIF) and a number of discussions and debates on issues raised during meetings of the regulatory

subcommittee of the AIF (Bank Supervision Department, 2005:40). In 2007, the Banks Amendment Bill was put before and approved by the South African parliament. This bill seeks to considerably enhance the regulatory framework for South African banks, requiring them to apply risk-weightings to all their assets and hold minimum capital that will enable them to back any loss associated with those assets (Manuel, 2007:2).

As discussed above, upon the fulfilment of the preconditions that made Basel II ideal for South Africa and the consensus among all stakeholders in the banking industry and the government, the whole Basel II implementation process got underway. However, much detail on the implementation process is discussed in section 3.2 which focuses on the timelines for Basel II implementation. In this section, a step by step approach is followed to highlight how South Africa successfully incorporated Basel II into its regulatory and supervisory framework.

3.2.2. Switzerland

The Swiss banking industry fulfilled all the pre-implementation conditions although the Banking Act was not amended as in the case of South Africa. Instead, the standard risk-weights and the capital adequacy ratio of 8% were set by the Federal Council in the Capital Adequacy and Risk Distribution Ordinance (CRO) (Swiss Federal Banking Commission, 2005:11). The CRO took all the provisions which cover the definition of capital and the distribution of risk from the Banking Ordinance and outlines the regulations of Basel II. All the provisions within the Banking Act for supervising the large institutions came into effect on 1 January 2006 incorporated into the Banking Ordinance concurrently with the CRO (Swiss Federal Banking Commission, 2005:11). These moves were intended to facilitate the transition from Basel I to II in Switzerland.

3.2.3. Brazil

Like other regulatory bodies, the Central Bank of Brazil published a number of prudential regulations necessary for the implementation of the new accord. This included Communication Resolution No. 2682 which instituted ratings for credit transactions in nine risk levels (AA, A, B, C, D, E, F, G, and H), and created provisions for doubtful credits (Banco do Brasil, 2008). After the endorsement of Basel II by the BCBS in June 2004, the Brazilian authorities were among the first emerging market countries to announce their proposed timetable for the implementation of Basel II in the form of a communication. Communication No. 12,746 outlined the timetable and steps to be followed in the process of implementing Basel II in Brazil, considering the risk levels associated with the transactions undertaken by financial institutions.

The implementation of an operational risk management structure was specified in 2006, concentrating on the definition of an institutional policy, processes, procedures, and support systems. A year later, the implementation of a market risk management structure was specified (Banco do Brasil, 2008). In light of these regulatory developments, in 2007 a new schedule adjusting the timetable released in 2004 was issued (Banco do Brasil, 2008). Under the new schedule, advanced methodologies are to be implemented by late 2012, focussing on the allocation of operational and credit risk capital charges (Banco do Brasil, 2008). These regulatory reforms were driven by the need to achieve successful implementation of the new capital accord requirements.

3.2.4. The United States

In terms of the preparation for the implementation of the new accord in the U.S., the regulatory authorities proposed in an Advance Notice of Proposed Rulemaking (ANPR) that Basel II “*should apply only to institutions with assets in excess of US\$250 billion or total on-balance sheet foreign exposure of over US\$10 billion.*” The top ten internationally active banks would adopt Basel II because they are mandatory banks and other remaining under Basel I and opt-in later to the advanced rules. The primary Federal supervisor of a bank will determine the appropriate application of the new rules depending on the bank’s asset size, level of complexity, risk profile and its line of business (Federal Reserve Board, 2007:69290).

In the United States, all banks governed by Basel II, as mandatory banks or opt-in, are obliged to implement the advanced approaches for the calculation of capital charges, i.e. the AIRB for credit risk and the AMA for operational risk (Federal Reserve Board, 2007, 2007:69301; Gordon-Hart, 2004). This suggests that the U.S. opted for a *two-tier implementation* stance, which is mandatory only for the largest banks and optional for others. Arguably this stance may lead to an uneven playing field for banks in the U.S and may lead to regulatory capital arbitrage that Basel II seeks to eliminate. Although Basel II implementation is underway in the U.S., there have been lengthy consultations that were aimed at ensuring that the implementation will be closely in line with the international standards.

3.2.5. Planning For Implementation: Concluding Remarks

Given the complex nature of Basel II, proper planning is a necessary prerequisite for a successful implementation process, taking into account the individual country specific characteristics. As shown in the above sections, all the countries took enough time preparing for the implementation of the new capital adequacy rules. This was meant to ensure the all the necessary preconditions prevail in their domestic financial and regulatory environment for the successful Basel II implementation. Among other things, it was necessary to institute some amendments to existing regulatory and supervisory structures in one way

or the other to ensure that the transition and implementation processes will be well coordinated and successful.

In the case of South Africa, amendments to the Banks Act, the regulations and the supervisory process were instituted because of the prescriptions under Basel II rules. In this way, fulfilment of all the preconditions in the regulatory and supervisory framework meant that the implementation process could get underway smoothly. Combined with the commitment of the South African authorities, the country managed to meet all the deadlines with regard to the implementation plans. On the contrary, Switzerland did not amend its Banking Act as South Africa because of its relatively more advanced prudential regulatory environment that existed. Instead, the Federal Council of the Swiss National Bank made important decisions of standardizing their risk weightings. Unlike South Africa, Brazil or the United States, the Swiss authorities came up with the two ordinances, the Capital Adequacy and Risk Redistribution (CRO) and the Banking Ordinance (BO) which act as emblems for Basel II implementation guidelines in Switzerland.

Similarly, the Brazilian authorities did not make any amendments to the Banks Act, instead they resorted to coming up with prudential regulations in the form of legally recognized Communications²³ updating their regulatory and supervisory system to facilitate Basel II implementation. Just like Brazil and Switzerland, the United States did not amend their Banking Act as a result of the intention to implement Basel II. Following the lengthy consultation process in the U.S., the Federal Reserve Board released the final rules for the implementation of Basel II's advanced approaches for large and complex U.S. banking organizations in November 2007.

In the U.S. banks in excess of \$250 billion in assets are mandated to adopt Basel II while others may opt-in to adopt Basel II approaches. Similarly, Switzerland opted to apply the advanced rules to the internationally active banks. This is contrary to South Africa and Brazil because they opted to implement all Basel II rules to all the banks and banking groups operating in their jurisdictions, despite of their asset levels. As long as the institution qualified to be defined as a bank, automatically it is subjected to Basel II rules just as in the case of Basel I.

In conclusion, on the backdrop that all the countries managed to prepare their domestic regulatory and supervisory environments for Basel II implementation, it is necessary to proceed and analyse the time lines

²³ The most important ones include Communication 12,746 of 2004 which stated the initial procedures to be followed and lastly Communication Release No. 16.137 of November 2007 which modified the procedures proposed in 2004.

for and extent of implementation of the new capital adequacy framework. This could bring to light the experiences of all the countries, on their roadmap to Basel II compliance.

3.3. TIMETABLE FOR IMPLEMENTATION

Almost nine years have passed since the initial proposal of Basel II was published in 1999 and the capital rules and their implementation timelines have been revised on several occasions globally (Yetis, 2008:1). The BCBS proposed a timetable for the Basel Committee member countries for implementation of the new accord in the finalised revised framework issued on 26 June 2004. The BCBS set the target effective dates as year-end 2006 for the basic approaches and year-end 2007 for the advanced approaches (BIS, 2004:1). Soon after the announcement of the revised framework, nine out of the G10 countries and at least one non-Basel Committee country, South Africa announced plans to conduct further national quantitative impact studies (Cornford, 2006:2).

In this section, the timetables taken by the countries in the study will be analysed. Issues pertaining to the dates, parallel runs, and the specific methodologies to be implemented will be scrutinized in the light of the proposed timetables and the progress made so far with respect to the set deadlines. The countries are analysed in the order South Africa, Switzerland, Brazil and lastly the United States.

3.3.1. South Africa

South Africa chose to fully implement Basel II on 1 January 2008 and the Bank Supervision Department remained committed since the announcement of its proposed timetable for implementation in 2004. This positive sentiment was underpinned by the SARB belief for the possibility of "every registered bank in South Africa to migrate to the base approaches of Basel II without major disruption or risk to individual banks or the banking system" by 2008 (Neville, 2005:1; SARB, 2004). The most salient feature of Basel II implementation in South Africa is that the BSD decided that, "*Basel II would be adopted in its letter and spirit as an absolute minimum standard, and no sub-Basel II deviations would be permitted, although enhancements to Basel II that set a higher standard were, and in future may be incorporated into the regulatory and supervisory framework*" (Bank Supervision Department, 2007:17). This is the central decision that underlined the Department's preparation for Basel II implementation to enhance stability in the banking system through adopting internationally applicable standards in light of the market and regulatory developments. This shows that all approaches contained in Basel II are available to *all* banks in South Africa, however being subject to certain conditions being fulfilled by each individual bank (Bank Supervision Department, 2007:18). The Basel II framework is ideal for South Africa because it offers a spectrum of approaches that are suitable

for a variety of banks, banking groups, bank regulators and bank supervisors, from the basic to the highly advanced²⁴.

There has been an ongoing process to integrate Basel II into the South African regulatory and supervisory system. In the period 2001-2002, the remarkable development was that banks were requested to comment on the pronouncement of Basel II and the head of the BSD was appointed in 2002 to oversee Basel II implementation. In the same year, lead analysts²⁵ were attached to the large banks which intended to apply the advanced approaches for regulatory minimum capital adequacy purposes (Bank Supervision Department, 2007:19). To be the driving force behind Basel II implementation, in 2003 the AIF was established together with its subcommittees²⁶.

Upon the release of the Basel II framework by the BCBS in June 2004, South Africa proposed a timetable for the implementation of the new framework (Kruger, 2005: 27). In the period 2004 - 2005, high-level gap analysis and self assessments for readiness were done to facilitate the planning for Basel II implementation. In mid-2005, all banks submitted their implementation plans for examination by the BSD. The IRB models were intended for the large banks, but not all of them applied the AIRB for credit risk. Some banks adopted AIRB for credit risks for at least part of their credit portfolios and the remainder the FIRB (some adopted the FIRB, which is also an advanced approach) (Store, 2008). In 2005 there were also

²⁴ It can be reiterated that Basel II does not discriminate in terms of location (whether developed or developing country) or the size of bank, the same standards and minimum requirements apply to all parties in relation to a particular approach (Bank Supervision Department, 2007:18). Furthermore, due to the flexibility under Basel II, banks or banking groups have the leeway on deciding the scope of adoption that is relevant and appropriate to its individual circumstances. If a developing country's bank regulator or supervisor approves the adoption of the advanced approaches to banks within its borders, it would be expected to attain the minimum Basel II standards in relation to its regulatory and supervisory frameworks and policies, practices and procedures (Bank Supervision Department, 2007:18).

²⁵ Together with risk and quantitative specialist, they were mainly concerned with the assessment of relevant models, methodologies, data requirements, input, output and related controls.

²⁶ The Steering Committee was responsible for the overall implementation. The Risk Management Subcommittee was responsible for Pillar 1 and 2. The Regulatory Framework Subcommittee was responsible for converting Basel II into the appropriate South African compatible regulatory framework. The Disclosure Subcommittee was responsible for Pillar 3, including the education around Basel II. The Economic Impact Subcommittee was responsible for addressing the economic implications for South Africa of implementing Basel II (Bank Supervision Department, 2007:21). Through the dedicated commitment of the AIF Steering Committee and its subcommittees, Basel II implementation received a good foundation in the South African environment.

proposals for legislative changes with respect to the Banks Act of 1990. Such amendments were intended to facilitate the implementation process and the changes being in line with Basel II.

The BSD and other banks participated in the completion of the quantitative impact studies (QIS 3, QIS 4 and QIS 5) initiated by the Basel Committee. These QISs were useful in facilitating further calibration and improvement of models and at the same time providing the regulator with data. To a greater extent, the QISs influenced guidance and provision of feedback and benchmarks to banks (Store, 2008). In 2006, the pilot run of Basel II commenced as a move to test how the actual implementation would take place in the South African banking industry. In the same year, formal field tests were initiated for banks that targeted the basic approaches for credit and operational risk for selected statutory returns. Banks that intended to apply advanced approaches and had participated in QIS 5 were requested to conduct informal field tests for the proposed statutory returns and directives relating to credit risks (Bank Supervision Department, 2007:23). According to Store (2008), QIS 5 and 5.5 eventually became the pilot runs. The central role of the field tests was to assess the preparedness of banks and banking groups and at the same time ensure that the proposed amended statutory returns would facilitate and effectively and efficiently assist in the implementation of Basel II.

The major developments in 2007 relate to the parallel run and the QIS 5.5. The BSD requested all locally incorporated banking groups that targeted the advanced approaches for credit and/or operational risk to take part in QIS 5.5 which is a follow up to QIS 5. The aim of QIS 5.5 was to gather information relating to the impact of implementing Basel II on a banking group not on a narrower bank legal entity. It also aimed at assessing the state of preparedness for the full Basel II implementation (Bank Supervision Department, 2007:22). All banks were required to participate in the parallel run process during the fourth quarter of 2007²⁷. In this regard, banks were expected to submit in accordance to the prescribed schedules, both Basel I-based statutory returns and the proposed Basel II-based statutory returns.

On 1 January 2008, South Africa switched to Basel II, making all its banks Basel II compliant. The “full” implementation means that a bank is eligible to apply any Basel II approach or methodology approved by the national supervisor. Since there are a number of approaches under Pillar 1 per risk type available; a bank can only use what it has been allowed by the regulator. This implies therefore that a bank that did not adopt an advanced approach on 1 January 2008, it will likely continue to discuss its plans to migrate to a more sophisticated approach with its regulator until such time when it obtains approval. In the interim

²⁷ The banks that employed the standardized and the foundation internal ratings (F-IRB) approaches started operating under the new regime from 1 January 2007. However, the institutions that implemented the more complex advanced IRB approach had an extra year, and started employing them on 1 January 2008 (Oosthuizen, 2008).

period, the bank will have to apply the standardised approaches until the approval for the internal approaches have been obtained. It should be noted that the Basel I rules no longer apply in South Africa.

3.3.2. Switzerland

As a member of the Basel Committee and the location for the head offices of two leading global banks (Credit Suisse Group and UBS AG), Switzerland is also compelled to apply the Basel II rules diligently (Swiss Federal Banking Commission, 2005:8). The schedule adopted by Switzerland is similar to the one proposed by the Basel Committee (Swiss Federal Banking Commission, 2005:9). In line with the proposed timetable for Basel II implementation, Switzerland started to adopt the new accord's approaches by the end of 2006. Major banks started by applying the standard approaches to calculate their capital requirements. In terms of the extent of implementation, only the large internationally active banks that have the ample resources can apply the advanced methodologies (IRB and AMA) (Swiss Federal Banking Commission, 2005:8).

Just like South Africa, Switzerland opted to integrate all the elements of the three pillars into its regulatory system and adopt all the approaches available in the Basel II framework. There were no alterations made to the methodologies for credit, operational and market risks (Swiss Federal Banking Commission, 2005:9). The simpler approaches (including F-IRB) were fully adopted on 1 January 2007 and the advanced and institution-specific approaches (A-IRB and AMA) came into effect on 1 January 2008. The two speed timetable is suitable because it allows banks operating under the institution-specific approach to have enough time for the transition.

Unlike other countries, there are two versions of the standard approach for credit risk in Switzerland. Firstly, the Swiss standard approach (SA-CH) is specifically designed for domestically active banks and it is amended continuously to be compatible with Basel II standards. Secondly, the international standard approach (SA-BIS) is specifically designed for the internationally active banks (Swiss Federal Banking Commission, 2006:7-9).

The transitional provisions allowed flexibility that helped banks to switch to the framework during 2007 (Swiss Federal Banking Commission, 2006:7-9). Banks were able to complete the new Basel II-based capital adequacy report between 31 March 2007 and 31 March 2008. The institutions that were adopting the institution-specific approaches (AIRB and AMA) had to change over on 1 January 2008.

This reflects that Switzerland has been exemplary among the Basel Committee member countries, by remaining committed to the BCBS proposed timetable. As the host of the BCBS, in Basel it is imperative that Switzerland acts as a measuring rod for other countries.

3.3.3. Brazil

In December 2004, Brazil was among the first emerging market countries to release a timetable for the implementation of Basel II. The framework was outlined in 2004²⁸ specifying the broad elements of the three pillars to be applied uniformly to all institutions in the Brazilian financial system (both foreign- and domestically-owned). The rules and criteria for implementing Basel II, with reference to requirements and procedures for validation of internal systems for credit, market and operational risk assessment would be applied *uniformly and consistently* across institutions operating in Brazil, regardless of nationality of ultimate ownership (foreign vs. domestic) (Focus BCB, 2005:2).

From the outset, all institutions in the financial system were required to adopt the simplified standardized approach to credit risk. Larger and internationally active institutions had the opportunity to adopt the AIRB approach, following a transition period established by the national supervisor. During the transition period, these banks would be allowed to first adopt the FIRB approach and ultimately the AIRB approach. Brazilian financial institutions that were qualified to adopt the advanced approach for credit risk also qualified to adopt advanced measurement approaches (AMA) for operational risk (Focus BCB, 2005:2).

Following the public hearings and studies developed by financial institutions and as a consequence of the provisions of the resolution of 2007²⁹, the Central Bank of Brazil decided to adjust the schedule for Basel II implementation established in 2004. The revised timetable started in 2007, showing that the other procedures followed before the updated timetable was based on the previous version of 2004. It is therefore necessary to focus on the revised timetable which starts from 2007 to 2013, when all the approaches are expected to be applied. As compared to timetables for South Africa, Switzerland and the

²⁸ The Communiqué 12,746 of 9 December 2004 outlined the broad elements and timeline for implementation of the new Basel II bank capital adequacy framework within the Brazilian financial system. According to the Banco Central Do Brasil (2005:97) the Board of Directors of the Central Bank of Brazil published the Communication 12,746, containing the procedures/ guidelines and the schedule to be used during the Basel II implementation process. Its main objective was to adapt the guidelines by the BCBS to the conditions, peculiarities, characteristics and level development of the Brazilian market (Banco Central Do Brasil, 2005:98-99).

²⁹ Communication Resolution No. 3490 altered the way of calculating the Required Reference Equity by incorporating measures for market risks previously not considered and ultimate alterations to the calculation of credit risk capital and introducing operational risk (Banco do Brasil, 2008).

U.S, the Brazilian timetable is much detailed and easy to interpret as it takes a holistic approach (with respect to credit, market and operational risks) for what will transpire to all banks as the implementation process continues.

Although emphasis is on Pillar 1 implementation, compliance with Pillars 2 and 3 is expected to occur concurrently. Attention has been on ensuring the establishment of capital requirement for operational risk (criteria and methodology). Recommendable progress in terms of adoption of various internal models and development of model validation plans has been the priority for 2008. This relates to the implementation of a credit risk management structure by banks (Central Bank of Brazil, 2008).

By the end of 2009, the validation process for using internal models for market risk capital requirements assessment will commence. Furthermore, the eligibility criteria for the implementation of the internal ratings-based (IRB) approach for credit risk capital requirement assessment (i.e. establishment of schedule for, and commencement of, IRB model validation) will be established. There will be disclosure of the application process for authorization to use the internal ratings-based approach for credit risk capital requirement assessment. The key points for internal models for operational risk capital requirement assessment will also be disclosed (Central Bank of Brazil, 2008:1).

The end of 2010 marks the beginning of the authorization process for using the FIRB approach for credit risk capital requirement assessment. The beginning of the authorization process for using the AIRB approach for credit risk capital requirement assessment will commence in 2011. By the end of 2011 the eligibility criteria for the adoption of internal models for operational risk will be established. Furthermore, the application process for the validation to use internal operational risk models will be disclosed. Lastly, the end of 2012 marks the beginning of the authorization process for using internal models for operational risk capital requirement assessment (Central Bank of Brazil, 2008:1).

As in the case of other countries, the implementation of all the various methodologies for market, credit and operational risks only takes place after the validation process. The implementation of the methodologies will take place respectively as follows: 2010-2011, market risk methodologies, 2012-2013, credit risk methodologies and 2013, operational risk methodologies. This shows that the complete implementation deadline for all Basel II approaches has been set to be year 2013.

3.3.4. The United States

On 7 December 2007 the Agencies³⁰ announced the approval and issue of the final rules to implement new risk-based capital framework (*advanced approaches rule*) in the United States for large and internationally active banking organizations (mandatory or core banks), almost three years after the release of the Basel II framework (Federal Reserve Board, 2007:69301). This rule allows all qualifying banks to adopt the IRB approaches for credit risk and AMA for operational risk to calculate risk-based capital requirements. According to Kroszner (2008) the advanced approaches rule became effective since the beginning of April 2008 and Basel II became an official regulation in the U.S. The full implementation process is expected to take time considering the complex nature of the U.S. financial system.

This makes the U.S. an exception among the Basel Committee member countries when it comes to Basel II with regard to the pace and extent of implementation. As indicated above, Basel II rules are mandatory to core banks and optional for others. Core banking institutions must improve their credit and operational risk measurement and management by using advanced approaches (Federal Reserve Board, 2007:69301).

The interagency statement outlines the qualification process to be followed by all banks intending to operate under the advanced approaches rule³¹ (Federal Reserve Board, 2008a:1). According to the Federal Reserve Board (2007), the new U.S. Basel II rule is consistent with international approaches and includes a number of prudential safeguards. Banks are expected to complete a parallel run period that equals four quarters and move to three transitional periods without floors before adopting Basel II. The agencies are expected to remain committed to analyse Basel II (Federal Reserve Board, 2007:69301).

In terms of the timelines, all core banks are expected to adopt implementation plans³² approved by the board of directors within six months of the effective date of the rule (1 October 2008) or within six months of becoming a core bank (Federal Reserve Board, 2008a:3). On the other end, banks intending to opt-in can do so any time. All implementation plans must be submitted at least 60 days to the primary Federal supervisor for approval prior to its parallel run. Therefore, banks started their parallel runs in 2008

³⁰ Collective name for the Office of the Comptroller of the Currency (OCC), the Board of Governors of the Federal Reserve System (Board), the Federal Deposit Insurance Corporation (FDIC), and the Office of Thrift Supervision (OTS).

³¹ The qualification process basically encompasses three stages: the bank must adopt the implementation plan approved by the board of directors; complete a parallel run, and move to the transitional periods (Federal Reserve Board, 2008a:1).

³² Among other things, banks need to have done self assessments to fulfil the qualification requirements and its consistency with the agencies' supervisory requirements. Gap analysis is essential because it helps banks to identify areas that need improvements to comply with the qualification process. Furthermore, the bank is expected to state delivery dates and the date when all the methodologies will be fully operational.

and are eligible to begin their first of three transitional floor periods in 2009. Core banks must show when their transitional floor will commence, at most not later than 36 months from the effective date of the rule (1 April 2011) (Federal Reserve Board, 2008a:3).

During the parallel run period, banks must show that their IRB, AMA, other methodologies and internal capital adequacy assessment process (ICAAP) systems are working properly (Federal Reserve Board, 2008a:2). Every bank must successfully complete a parallel run prior to the adoption of the advanced approaches. Once the primary supervisor is satisfied, the bank will be notified to adopt the advanced approaches of Basel II and then identify the start date for its first transitional floor period.

It is therefore clear that the U.S. authorities delayed the implementation timetable as suggested by the Basel Committee for its member countries. The parallel run date was shifted to January 2008 and the final deadline for adoption set to be January 2009 instead of 2007 and 2008 respectively (Bies, 2005:4; Gnevko, 2006:1). This modification of the timetable by the U.S. regulators was due to the intention to accommodate the interests of the national financial system. However, although Basel II implementation is now underway in the U.S., it can be argued such delays to the first phase of implementation until 2009 has implications for all the global and cross-border institutions. Moreover, the phased implementation may create uncertainty for firms that are subject to multiple rule interpretations and implementation deadlines (McCaw and Walsh, 2008).

Recently on 26 June 2008, the Federal Reserve Board proposed the *standardized framework* for banks, holding companies of the banks, and savings associations that are not governed by Basel II's advanced approaches rule discussed above for public comment. This framework intends to implement simple approaches included in Basel II to calculating the risk-based capital requirements (Federal Reserve Board, 2008b:1). The key highlights of the standardised framework include: the increase in the risk-weight categories for credit exposures; risk-weighting residential mortgages using loan-to-value ratios; using the Basic Indicator Approach to determine a capital charge for operational risk; and banks must assess their risk profiles.

The standardized framework also aims at aligning regulatory capital requirements with risk, encouraging advances in risk management practices. Given the diversity of the U.S. banking institutions, it is important that banks have access to updated capital rules without increasing the regulatory burden. To achieve this, the standardised framework's risk sensitivity is aimed at achieving stability and foster competitive equity among all institutions that are not implementing Basel II's advanced approaches (Federal Reserve Board, 2008b:1).

It appears that unlike other countries, the U.S. prefers to implement the new accord on its own terms. According to Yetis (2008:94) at one point non-core banks were allowed to adopt a Basel 1A, which was a fusion of the Basel I and Basel II standardised approach for credit risk. However, the U.S. regulators later withdrew the Basel IA proposal, putting emphasis on the Basel II standardised approach for non-core banks as discussed above.

3.3.5. Comparative Timetables for Implementation: Concluding Remarks

The above sections highlighted the timelines for and extents of Basel II implementation undertaken by each country on the discretion of its national regulatory authorities' understanding of their domestic environments. Table 1.3 below summaries the key observations from the above sections and it shows that the four countries are directly comparable in terms of timelines for and extents of implementation of Basel II approaches. A key highlight is that given the complexity of their banking system, Switzerland and the United States resorted to implement the complex methodologies only to the banks which are large and internationally active because of their resource endowments necessary for the implementation process. On the other hand, South Africa and Brazil resorted to apply all Basel II rules uniformly and consistently to all internationally active banks as well as the domestically based banks regardless of nationality of ultimate ownership (domestic and foreign) and asset levels. As emerging market economies, they need to fully comply with such internationally accepted rules so that they may be in a position to attract more foreign investments through the confidence they send to the international community. Such compliance helps in fast tracking the integration of these countries into the world economy at a faster pace.

This gives rise to the question why the Brazilian and South African authorities, given their emerging market economy status chose to apply all Basel II rules to all banks in their jurisdictions, unlike their developed countries' counterparts the U.S. and Switzerland which resorted to the internationally active banks only. It may be suggested that such a decision is based on the need to ensure stability and soundness in the financial system, levelling the playing field for all the banking institutions in the country. The developed countries in the study may have resorted to the sophisticated methodologies because they have the ample resources that facilitate the implementation of Basel II rules. The sophistication of the banking industries contribute to the choice of the methodologies that a particular country chooses to apply. Table 3.1 below summaries the results on the extents of and timetables for Basel II implementation.

Table 3.1. Summary of results on the extent of and timelines for Basel II implementation.

	South Africa	Switzerland	Brazil	The U.S.
Extent of implementation	All banks (internationally active and domestically based banks)	All banks (complex methodologies i.e. IRB and AMA reserved for internationally active banks)	All banks (foreign- and domestically owned banks)	Specifically to top mandatory banks, although opt-in banks are welcome to implement
Preparation for implementation*	1999-2006	1999- 2005	2001- 2005	1999 - 2007
Parallel run period for Basel I and II	1 January 2007 to 31 December 2007.	1 January 2006 to 31 December 2006	1 January 2006 to 31 December 2006	1 January 2008 to 31 December 2008
Final implementation date	1 January 2008 (All approaches)	1 January 2007 (Simpler approaches) 1 January 2008 (Most advanced and institution-specific methodologies i.e. A-IRB and AMA)	2010**: Methodologies for market risk; 2012-2013: Methodologies for credit risk; 2013: Methodologies for operational risk	1 April 2008: Advanced Approaches Rule: Basel II 1 January 2009 (All approaches)

Source: Compiled from BSD (2007), Federal Reserve Board (2007, 2008), Swiss National Bank (2007) and Central Bank of Brazil (2008).

Notes: * the preparation period refers to the time from the release of the proposal for Basel II rule to the time when the countries stated to implement or show willingness to implement the finalized rules in 2004.

** means that final implementation will take place after the validation process of the methodologies.

All the countries began actively preparing for the actual implementation soon after the release of the revised framework of Basel II in 2004. This is the main common observation among all the countries. South Africa and Switzerland seem to have begun preparing for Basel II implementation at an earlier date in 1999 than the U.S. and Brazil. However, South Africa, Switzerland and Brazil seem to have continued rallying ahead of the U.S. which seems to have taken long in accepting the full terms of Basel II. The U.S. only released its time lines for and extent of implementation by the end of 2007, three years after the release of Basel II in 2004.

The parallel run is the period when the country could apply Basel I rules which were existing together with the new rules under Basel II. This was meant to see if banks will be able to cope with methodologies set forth in Basel II. The existence of the parallel run periods can be viewed as the opportunity that countries took to smoothly adapt to the new rules. All banks in all the countries are mandated to go through a period of a parallel run. The durations and the beginning of the parallel run periods are stated although Brazil and Switzerland generalize that there will be a parallel run while South Africa and the U.S. specifically show how that will be done at bank levels.

South Africa clearly stated that the parallel run period would be a year, from the beginning of January 2007 to December 2007 with all the approaches applied to all banks. Unlike the other countries, the U.S. stated that the parallel run will begin in January 2008 to the end of 2008, following a 'specific bank' level approach following its Federal supervisor's approval to start the parallel run to enter the transitional periods. The countries follow the guidelines contained in the Basel II framework. In this case, the early adopter of the parallel run is Switzerland that started in January 2006 to December 2006, followed by South Africa which took the year 2007 and the U.S. which chose the year 2008 to begin this process. In this instance South Africa seems to be following Switzerland, while Brazil and the U.S. seem to be lagging behind South Africa. Nonetheless, the length of the parallel run periods for all the countries seem to be lasting the same time, that is a whole year.

With reference to the final dates for the full implementation of Basel II approaches, South Africa and Switzerland are ahead in the process of implementation. South Africa chose 1 January 2008 as its deadline for implementing all Basel II approaches. Switzerland was the early adopter of Basel II because it fully implemented all the simpler approaches on 1 January 2007, with the most advanced and institution specific approaches fully implemented on 1 January 2008, just like South Africa. Although the U.S. delayed to release its final dates for completely becoming Basel II compliant by January 2009, it will complete this process faster than Brazil. The final dates for implementation in Brazil are "*risk-methodology*" specific, and this makes it the one lagging behind than all the other countries in the study, although it started the implementation process earlier than the U.S. For instance, as discussed in Section 3.2.3, the final implementation date for operational risk methodologies is 2013.

However, as seen in Section 3.2.4 and according to the timetable for the U.S., with the final rules released in November 2007, Basel II started to be operation in the U.S. on 1 April 2008 and the final date set for 1 January 2009 for the complete implementation making it to be ahead of Brazil. The slight delay in the process for the U.S. may be due to the complex nature of its financial system and the greater number of

stakeholders who needed consultation before the release of final rules. It can therefore be concluded that Switzerland and South Africa are the early adopters followed by Brazil and the U.S.

Table 3.2 below summaries the methodologies that the countries in the study opted to adopt based on their revised timetables for implementing Basel II, given the readiness of their banks and the supervisors' approval. The BCBS set the target effective dates as year-end 2006 for the basic approaches and year-end 2007 for the advanced approaches when the revised framework was released.

Table 3.2. Summary of the methodologies for Basel II.

Year	2007	2008	2009	2010	2011	2012	2013
South Africa		SA-CR, FIRB, AIRB, BIA, SA-OR, AMA					
Switzerland	SA-CR, FIRB, BIA, SA-OR	AIRB, AMA					
Brazil	SA-CR					AIRB, FIRB	BIA, ASA
The U.S.			AIRB, AMA				

Source: Compiled from Yetis (2008:94).

Key: SA-CR: Standardized Approach for Credit Risk.

SA-OR: Standardized Approach for Operational Risk.

BIA: Basic Indicator Approach.

AMA: Advanced Measurement Approach.

FIRB: Foundation Internal Rating Based Approach.

AIRB: Advanced Internal Rating Based Approach.

ASA: Alternative Standardised Approach.

Table 3.2 shows that Switzerland made recommendable progress in implementing the basic and advanced approaches for operational and credit risk earlier than other countries and its implementation timelines are similar to the EU country members. It moved to the more advanced approaches by the beginning of 2008, just like South Africa where all the basic and advanced methodologies were effective from 1 January 2008. This situation is different to Brazil and the U.S. In Brazil, the standardized approach for credit risk

was implemented in 2007 based on the timeline of the 2004 Communication. The implementation of the advanced methodologies was moved to 2012 and 2013 after the validation processes as a result of the revision in the communication of 2007. Brazil may therefore be regarded as the last one to fully adopt all the methodologies, as compared to South Africa, Switzerland and the U.S. The U.S. shows a completely different scenario than any other country because of its *two-tier implementation* approach, which is mandatory adoption only by the largest banks and optional for others. All the core banks are expected to implement the advanced approaches of credit and operational risk by 2009, which is a later date than South Africa and Switzerland.

In the interest of all banks operating in their countries, Switzerland and the U.S. came with proposals similar to the Basel II approaches. Switzerland decided to come up with its own approaches, notably with reference to the standardized approaches i.e. the SA-CH (tailored for the domestically active banks). Similarly, to cater for other banks in the U.S. which are not subject to the advanced approaches rule, the Federal Reserve Board is seeking to adopt the standardized framework for capital adequacy requirements. South Africa and Brazil took a holistic implementation approach, which to a greater extent could level the playing field and reduce regulatory capital arbitrage from occur by taking the Basel II rules as they are without any modifications. This suggests that emerging market countries prefer to adopt the international rules for the safety of their banking industries. On the other hand, developed countries given their resources capacities and the complexity of their banks in terms of the products they offer, they are in a position to design similar measures to cater for all banking institutions in their jurisdictions. In the next section, the regulatory structures that facilitate Basel II implementation and compliance are examined.

3.4. REGULATORY STRUCTURES FOR IMPLEMENTATION

This section briefly highlights the regulatory and supervisory authorities responsible for Basel II implementation in South Africa, Switzerland, Brazil and the United States. These authorities have the mandate of ensuring that the whole implementation process is a success and they may be regarded as the drivers for Basel II compliance to take place. Table 3.3 summaries these regulatory organisations from each country. This helps to see the commitment that all the countries have had especially before and after finalisation of the Basel II framework, and as well as during the implementation process.

Table 3.3. Regulatory Structures to oversee Basel II implementation and compliance.

	South Africa	Switzerland	Brazil	The U.S.
Regulatory structures	South African Reserve Bank (SARB)	Swiss National Bank (SNB)	Central Bank of Brazil	The Federal Reserve Board (The Board)
	Bank Supervision Department (BSD)	Swiss Federal Banking Commission (SFBC)	Risk Management Department	The Federal Deposit Insurance Corporation (FDIC)
	The AIF (and its subcommittees)	Large Bank Group Department (LGD)	The Department of Financial System Regulation and the Department of On-site Supervision	The Office of the Comptroller of the Currency (OCC) and the Office of Thrift Supervision (OTS)

Source: Compiled from BSD (2007), Federal Reserve Board (2007), Swiss National Bank (2007) and Central Bank of Brazil (2008).

Table 3.3 shows that all the countries have strong regulatory and supervisory teams that are dedicated for the full implementation of Basel II. The regulatory and supervisory authorities listed in Table 3.3 are responsible for ensuring stability in the banking system all the time through the combined effort with other stakeholders.

In South Africa, the ultimate supervision of the banking system is overseen by the South African Reserve Bank’s Bank Supervision Department (BSD). The AIF was set up to spearhead the Basel II implementation initiative. The AIF consists of a Steering Committee on which various stakeholders, including the National Treasury, banks, the Bank Supervision Department of the South African Reserve Bank and the South African Institute of Chartered Accountants, are represented, and a number of subcommittees. Similarly, Switzerland has a more similar regulatory structure to South Africa. Just like the Bank Supervision Department of the SARB, the Swiss Federal Banking Commission (SFBC) has the Large Banking Group Department which is responsible of Basel II implementation and compliance in Switzerland.

The SFBC has had the task of supervising banks since 1934 and securities dealers since 1 February 1997. The Large Banking Groups (GB) Department of the SFBC has the responsibility of supervising large banks and validating risk models from the perspective of their relevance to supervisory law. With reference to risk models, its main task is to check, approve and monitor the procedures of specific institutions for the calculation of capital adequacy. The SFBC mainly devotes itself to the rigorous supervision of the large

banking groups Credit Suisse Group and UBS AG than other banks because of their size, complexity, organization and business activities (SFBC, 2008:1).

Unlike South Africa and Switzerland, Basel II implementation in Brazil is coordinated by a working group, the Risk Management Department (DIRIS) (which comprise of the Department of Financial System Regulation (Denor) and the Department of On-Site Supervision (Desup). This department performs the same duties like the AIF of South Africa and the Large Banking Group Department of Switzerland. In the initial stages, DIRIS undertook studies to identify the areas that needed revision for the Basel II implementation to be successful (Banco do Brasil, 2007:1).

However, on the extreme side, the U.S. has a complex regulatory structure unlike the other three countries because of its sophisticated financial system. The U.S regulatory system is based on an ‘interagency’ framework. The four federal banking sector agencies include the Federal Reserve Board, the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC) and the Office of Thrift Supervision (OTS). They all aim at ensuring that there is stability in the U.S. banking system. The Federal Reserve Board oversees the overall developments and supervision of all banking institutions in the U.S. The OCC monitors banking operations, controls national banks and ensures safety and soundness in the banking system.

3.5. INSTITUTIONAL ISSUES: CONCLUDING REMARKS

From the analysis of the institutional factors in this chapter, it may be concluded that South Africa, Switzerland, Brazil and the U.S. made recommendable progress in the roadmap to Basel II compliance, as the benchmark for regulatory capital requirements framework. In their planning and preparation stages, all the countries made comprehensive feasibility and compatibility studies to determine if Basel II rules may be implemented given their unique circumstances. In some cases, there was need to amend their regulatory and legislative structures to suit the requirements for Basel II implementation. Such amendments were necessary to facilitate the smooth transition from Basel I to II. In some instances, there was need for tailor-made adjustments to the frameworks so that the rules may accommodate the complexity of the domestic banking and financial environment. However, these amendments may not be uniform because these countries have different circumstances and level of economic and financial system developments. As a result, the extent and nature of amendments done, depended on the pre-existing prudential regulatory frameworks in the respective countries.

As recommended by the BCBS, all the countries came up with their timetables for Basel II implementation, making it easier to compare these countries in terms of the extent and progress made in

the implementation process. The timetables enable supervisors to monitor how banking institutions are performing with reference to the deadlines set for compliance with Basel II. The timetables differ from one country to another owing to the differing circumstances that these countries face. For instance, the following factors contributed to the variation of the timetables of implementation: the banking industry structure, number of banks, the level of economic development, complexity of the banking industry, readiness of the banks and the national supervisors among other things. Although these countries have different ways of presenting the timetables, an inclusive timetable may be used as in Tables 3.3 and 3.4 above to illustrate these discrepancies. In this way the differences and similarities may be depicted.

In terms of the regulatory and supervisory frameworks, all the countries have strong regulatory agencies that oversee the whole Basel II compliance in their jurisdictions. Across all the countries, it is evident that Central bank departments are responsible for the proper functioning of the supervisory and regulatory systems. These departments facilitate the adoption of the internationally accepted principles in their banking systems. Through the combined efforts of the national supervisors and their departments or agencies, it may be concluded that there has been good progress in Basel II implementation process. As shown in the timetables of implementation, all the countries have reached the final stages of their implementation programs.

Having established that all the countries in the study have made good progress in terms of institutional issues in preparing for Basel II compliance, it is therefore necessary to proceed to investigate the trends in their banking industries. Chapter 4 presents an analysis of the banking industry trends with respect to total number of banks, capital adequacy and total assets variations can help in determining the individual country experiences.

CHAPTER 4

QUANTITATIVE TRENDS AND RATIOS

4.1. INTRODUCTION

All the countries in the study have made remarkable progress in Basel II implementation in terms of institutional framework changes considered in the preceding chapter. This chapter seeks to empirically analyse the trends in the banking sectors of these countries. Establishing how the banking sectors have been performing is important because it will bring to light how Basel II rules have affected their overall performance. The banking industry structures, variations in the balance sheet, total assets, the capital adequacy ratio and the risk profiles of the bank assets are some of the banking sectors issues that can be considered. Analysing the trends of the components of the banking sectors, centrally targeted by Basel II will help to deduce conclusions and recommendations not only for South Africa, but other developing and emerging countries that are implementing or are yet to implement Basel II approaches as expected by the Bank for International Settlements.

4.2. DATA AND METHODOLOGICAL ISSUES

The study makes use of banking sector data from first quarter of 1999 to the second quarter of 2008. This time frame is selected because three phases in the roadmap to Basel II implementation have been identified. The first period is 1999-2004 and it represents the proposal and finalisation of Basel II revised framework. The second period is from 2004-2006, which marks the preparatory period for Basel II implementation. The last period represented is the implementation period, 2007-2008. The BCBS proposed that the G10 country members should have fully implemented Basel II by January 2008. As indicated in the earlier chapters, the proposals for the need to replace Basel I began in 1999. About four years later, in June 2004, the final Basel II rules came into existence and a number of countries showed interest to implement and incorporating them into their regulatory systems. The timetables for implementation were issued in accordance with the provisions of the revised framework of Basel II.

For purposes of comparison and avoidance of discrepancies the data used is obtained from the IMF Global Financial Stability Reports and Thomson DataStream. Usually banking and financial data come in different forms because of varying reporting styles and formats. For this reason, the IMF (2007:167) cautions that financial soundness indicators (FSIs) data is not strictly comparable across countries because of differences in national accounting, taxation and supervisory regimes. Annual reports of the central

banks and their corresponding regulatory agencies are consulted for validation of the data obtained from the named sources. Data on the total number of banks is obtained from the central banks' annual reports.

A comparative analysis will be employed and the collected data is grouped and compared in tabular and diagrammatic form to determine the variations in absolute and percentage terms. A comparative study is essential in this case because the countries have different circumstances that affect Basel II implementation. The countries in the study represent four regions; hence the observations and conclusions made will help to mirror the activities in the various parts of the world. South Africa is an emerging market country and represents the developing countries especially in Africa and it's a non-BCBS country. Brazil is also an emerging market country which represents the Latin American region and it is not a member of the BCBS. The United States is a member of the G10 countries and it's a developed country with a financial centre well recognised globally. And lastly, Switzerland is a member of the BCBS countries and hosts the BCBS in Basel, and also represents the developed countries in the European region. It can be observed that the study uses two developed and two emerging market economy countries. This helps to have some inferences on the trends of banking sector data and how implementation issues have been approached by the responsible authorities. The differences in the levels of developments in each country justify the inclusion of these countries in the study. Through the analysis of the implementation issues for these four countries, conclusions about the global implementation of Basel II can be reached. The next section highlights the key elements of Basel II that affect the banking sector variables considered in this study.

4.3. BANK INDUSTRY VARIABLES

To form the platform for comparing banking sector trends, this section highlights the key elements of Basel II that affect some of the banking sector variables. Linking the key elements of Basel II and the banking sector variables is important because it justifies their inclusion in the study. To determine the relevance of the banking sector variables, they are matched with the key highlights of Basel II in terms of goals, instruments and new policies. Table 4.1 summarises these variables and shows that the key highlights of Basel II and the responding banking industry variables considered in this study are closely related.

Table 4.1. Key highlights of Basel II and the responding banking industry variables.

Key highlights of Basel II.	Responding Banking Industry variables.
1. Reduced risk in terms of bank exposure.	- The capital adequacy ratio: the need for banks to keep the required capital-assets ratio. - Bank industry structure: total number of banks. - Bank Total Assets: the type and quality of assets.
2. Improved risk management, accountability and disclosure through the pillars.	- Banking industry structure and operations: the link between the supervisor and banks. - Bank's internal capital assessments to their risk profiles.
3. The discretion to revise the capital adequacy ratio from time to time.	- Capital adequacy ratio variation over time.
4. Improved risk sensitive methodologies for credit, market and operational risks and different risk categories of exposures.	- Risk profiles of bank assets. - Changes to the total risk exposure of bank assets and improved calculation of the capital adequacy ratio.
5. Calculation of risk-weighted assets.	- Total risk exposure of bank total assets. - Total qualifying assets for capital adequacy calculation.

Source: Compiled from BCBS (2006).

Sections 4.3.1 to 4.3.3 below briefly highlight how the key elements of Basel II and the responding banking sector variables are linked and this serves as the justification for their inclusion in the study.

4.3.1. Reduced Risk Exposure

The first key highlight of Basel II is the minimum capital adequacy ratio which was kept at 8% of risk-weighted assets (BCBS, 2006:2). With regulatory capital requirements, banks that do not meet such levels will be forced to do so by the national supervisor. This influences the total number of banks that operate in a country because of increased chances of bank mergers, acquisitions and liquidations to meet the regulatory requirements. This can result in smaller banks merging with other banks to boost their capital base and the big banks dominating the banking industry.

Accordingly the type and quality of bank assets are expected to improve favourably because banks are required to hold risk-weighted assets which are used in calculating their capital adequacy ratios. Banks now have incentives to hold lower risk assets and avoid high risk ones because they receive higher capital

charges. The total assets and the balance sheet structure will therefore be expected to change, and analysing them will be beneficial as this will bring to light their responses to the new capital adequacy rules. This justifies the relevance of analysing whether capital adequacy of banks improved or not since the transition from Basel I to II. If banks can now maintain the required capital adequacy level, the banking industries will remain healthier and financial stability will be enhanced.

4.3.2. Risk management, accountability and disclosure

Another hallmark of Basel II is the introduction of the three reinforcing pillars; the minimum capital requirement, supervisory review process and market discipline. There is a direct link between these pillars of Basel II and banking sector operations. In terms of the banking industry structure, it implies that there is an improved and more direct link with the supervisors and banks. Banks can now develop internal economic capital assessments which are appropriate to their own risk profiles for identifying, measuring and controlling risks. Through the supervisory review process, the supervisor can adequately monitor how the banks are performing. In this way, bank operations in terms of risk management, accountability and disclosure will improve as shown in Table 4.1 above.

4.3.3. Risk-sensitive methodologies and risk measures

The addition of the operational risk measure in the calculation of the capital ratio is an important highlight of Basel II. This has important implications on the total risk exposure of the bank and banks are now better hedged against operational risk instances. The balance sheet structure of the banks will be affected because of the changes in the total risk exposure of bank assets. Consequently, the calculation of the capital adequacy improves because banks can now apply the three risk measures which are subjected to risk-sensitive methodologies ranging from standardised to advanced approaches.

The application of a large spectrum of risk-sensitive methodologies for measuring credit, market and operational risk is an important feature of Basel II. For example, for credit risk, the IRB approach requires the four risk measures, i.e. the probability of default (PD), the expected loss at Default (EAD), maturity (M) and loss given default (LGD). This is an improvement in the calculation of the capital adequacy and the risk-weighted assets (RWA). The balance sheet of the banks is directly affected by the application of risk-sensitive methodologies which influence the risk-weighted assets. The variations of bank's total assets over time may be evident because banks may alter the type and quality of assets that they hold.

There has been an improvement in the way risk-weighted assets are now calculated. For instance, using corporate exposures as an example, risk-weighted assets (RWA) are computed as a function of the basic

set of four input parameters: $RWA = K (PD, LGD, M) \times 12.5 \times EAD$, where 12.5 is the reciprocal of 8% (the overall level of minimum capital as a percentage of RWA) (Saidenberg and Schurermann, 2003:10). According to BCBS (2006:12) total risk-weighted assets are derived from the multiplication of capital requirements for market risk and operational risk by 12.5 and addition of the results to the sum of risk-weighted assets for credit risk. A scaling factor of 1.06 is applied to keep the minimum capital requirements, and provide incentives for adopting the advanced approaches to credit risk.

In conclusion, the above analysis shows that there are strong links that exist between the key highlights of Basel II, bank industry structure, balance sheet structure, total bank assets, capital adequacy ratios and the risk profiles of assets that the banks hold. It is therefore relevant to proceed to empirically compare the countries as shown in Sections 4.4 to 4.7 below. However, caution has to be taken because not all the data is directly comparable across countries due to differences in data collection and formats. Furthermore, the trends in bank data may not be solely as a result of Basel II implementation. The underlying macroeconomic trends may also drive these variables.

4.4. BANKING INDUSTRY STRUCTURES

The banking industry structure gives an indication as to how many banks are actively involved in providing banking services. The nature of banks, whether internationally- and domestically-owned, has a bearing on the application of Basel II rules in terms of methodologies (ranging from standard to advanced approaches) that need to be applied by the home and host supervisors for the same banks. Studying the banking industries is important in establishing the composition of the banks that operate in a given country. This helps to determine the breakdown of the big and small banks and the complexity of the banking sectors in the different countries. The total number of banks is used as the proxy for measuring the complexity of the banking industry. The *a priori* expectation is that the more complex the banking sector, the higher the complexity of the application of Basel II rules.

Table 4.2 below summarises the total number of banks in South Africa, Switzerland, Brazil and the United States over the period 1998 to 2007. The phases of Basel II implementation are shown to help in determining the variation of the total number of banks before, and during the implementation process.

Table 4.2. Total number of banks as at year end.

Phases	Year	South Africa	Switzerland	Brazil	The U.S.
Proposal and Finalisation of Basel II	1998	113	376	232	8777
	1999	114	372	221	8582
	2000	121	375	216	8315
	2001	131	369	206	8082
	2002	97	356	194	7888
	2003	82	342	190	7770
Preparation for Implementation	2004	80	338	189	7631
	2005	82	337	185	7526
Implementation	2006	77	331	181	7401
	2007	80	330	176	7283

Source: National Authorities (see Tables A-1 to A-5 in the Appendix).

Note: The total number of banks in South Africa and Brazil represents all the registered banks and foreign banks that have their representative offices. For Switzerland, the total number of banks represents bank categories 1.00 to 8.00, that is all banks that are registered and recognised under the Swiss law. For the convenience given the complexity of the United States' banking industry, the FDIC-insured banking institutions are used as a proxy for total number of the banks that operate in the United States.

Table 4.2 shows that there has been a general decline in the total number of banks in all countries. During the proposal and finalisation of Basel II phase, banks in Switzerland, Brazil and the U.S. declined gradually, with the exception of South Africa, where the number of banks increased from 113 in 1998 to 131 in 2001 before declining sharply to 82 in 2003. In the U.S. the total number of banks declined from 8777 in 1998 to 7770 in 2003, and the decline is marginally higher as compared to Brazil and Switzerland. From Table 4.2 above, it can be concluded that in all countries the period 1998 – 2004 has been characterised by a downward trend in the total number of banks. It appears that Basel II has meant a process of consolidation, liquidations, or mergers and acquisition. This can be regarded as process of cleansing the banking industry and ultimately leading to the reduction in the number of banks. After 2004, the trend has been more stable and it could be that banks had settled for the preparation for Basel II implementation.

In 2004, there were 80 banks in South Africa and they slightly increased to 82 in 2005. In Switzerland, there was a small decline from 338 in 2004 to 337 in 2005. The trend is the same for Brazil and the U.S. In Brazil, total banks fell from 189 to 185 and in the U.S. the figure dropped to 7526 in 2005 from 7631 in 2004. The same trend continued into the implementation period, with U.S banks falling further to 7283 by the end of 2007. In Brazil, the banks declined further to 176 in 2007, with Switzerland following the same

trend. On the contrary, South African banks increased from 77 in 2006 to 80 in 2007. Having established the trends of the banking industries in all countries, their salient features are further examined in Section 4.4.1 below.

4.4.1. Country specific analysis.

In Africa, South Africa is the only country that has a well regulated banking system that is adequately capitalized and Basel II compliant (Guma, 2008:7). The composition of the South African banking industry is shown in Table A-1 in the appendix and it is diverse and uniquely characterized by the dominance of the big four banks³³. Over time, the big banks category has been accounting for the large share of the banking sector's total assets (Guma, 2008:10). The total number of South African registered banks, comprises of the big banks and the 'other banks' categories and the only two mutual banks since 2001. The number of foreign banks with representative offices continued to be high above 40 while the registered local branches of foreign banks remained to be on an average of 14 throughout the period.

There has been a fluctuation in the total number of registered banks since 1999 due to cancellations of registration and liquidations of other banks especially in the period 2001 to 2003. In 1999 there were a number of banks which were approved to acquire or establish foreign banking interests in terms of Section 52 of the Banks Act, 1990. With such a composition of domestically registered local and foreign banks as well as representative offices of foreign banks, it shows that South Africa does have a diverse banking system. Following the recent acquisition of stake in some of the big banks, for example ABSA and the Barclays merger in 2005, and the sale of 20% of Standard Bank to the Industrial and Commercial bank of China (ICBC) for R36.7 billion in 2007 clearly shows that there is need for prudent supervision. These developments in the banking industry pose new challenges and opportunities for the supervisor, in terms of the supervision of these banks and discovery of new risks that are associated with mergers and acquisitions by large foreign banks.

The Swiss banking industry is mainly characterized by a comparatively large banking sector by international standards and the dominance of the large two banks³⁴, Credit Suisse and UBS in terms of total assets (Swiss National Bank, 2008:22). To maintain the confidentiality of individual banks, the Swiss National Bank categorizes the banks as shown in Table A-2 (in appendix). The Swiss National Bank is responsible for defining the bank categories depending on the business focus, geographic scope of

³³ Standard Bank, ABSA, FNB and Nedbank.

³⁴ These two large banks are given much attention because of their size and international exposure.

activities and legal status³⁵. The Swiss banking industry is diverse with a combination of domestically and internationally-based banks which are subject to reporting requirements under the Swiss law.

The total number of banks in Switzerland has been declining since the year 1999, dropping from 375 banks in 2000 to 330 as at December 2007. As in the case of South Africa, the Swiss banking industry has been dominated by three big banks from the period 1999 to 2004 and two big banks since 2005 to the present. To show the diversity of the Swiss banking industry, the foreign controlled banks and branches of foreign banks continued to be on the same levels over the period 1999 – 2007. Foreign controlled banks remained above 120, while branches of foreign banks remained above the total of 20. The fluctuations in the total number of banks in Switzerland are attributed to new bank establishments, bank takeovers, transformation of security dealers into banks and closure of branches. These changes mainly affected foreign-controlled banks and branches of foreign banks (Swiss National Bank, 2007:15). According to the Swiss National Bank (2008:22) at the end of 2007, the total bank assets were in excess of CHF 4700 billion, which was over nine times the size of the Swiss annual GDP.

³⁵According to Swiss National Bank (2007: 20-23) and Geneva Financial Center (2007) the bank categories in Switzerland include:

- *Cantonal banks* (Category 1.00) operate in their own cantonal although some have branches outside their canton or offices outside the country.
- *Big banks* (Category 2.00) operate globally and have a network of branches and subsidiaries around the world.
- *Regional banks and savings banks* (Category 3.00) operate regionally.
- *Raiffeisen banks* (Category 4.00) are the banks whose business is done by individual offices at regional basis. However the Raiffeisen Switzerland Cooperative operates throughout the country.
- *Other banks* (Category 5.00) include the sub-categories namely: commercial banks (5.11), stock exchange banks (5.12), other banking institutions (5.14) and foreign-controlled banks (5.20).
- *Commercial banks* (Category 5.11) operate mainly at a domestic scale but they are involved in retail and investment banking and asset management.
- *Stock exchange banks* (Category 5.12) mainly operate at international level and are involved in asset management, serving clients in and outside Switzerland.
- *Other banking institutions* (Category 5.14) are all banks that cannot be included under any other heading!
- *Foreign-controlled banks* (Category 5.20) are internationally based and operate in all fields of business, usually asset management (the clientele mainly foreign) and investment banking. In Switzerland, *foreign banks* include both the foreign-controlled banks operating in under Swiss law (Category 5.20) and the branches of foreign banks operating in Switzerland (Category 7.00).
- *Branches of foreign banks* (Categories 7.00) are the banks that primarily operate internationally with the focus on the country of origin. They are involved in investment banking and asset management for foreign clients.
- *Private bankers* (Category 8.00) operate at international and domestic scale, specializing in asset management with their clientele being both domestic and international (Swiss National Bank, 2007: 20-23).

The Brazilian financial system is the largest and most sophisticated in Latin America. Banks in Brazil managed to pass through difficult times during hyperinflation periods of the 1980s and today they now operate in a more stable environment (World Bank, 2007:1). According to the Banco Central Do Brasil (2007:71), the Brazilian banking system is composed of banking conglomerates and independent banking institutions³⁶. The commercial bank category includes branches of foreign banks. There has been a decline in all the bank categories shown in Tables A-3 and A-4 in the Appendix. Just like South Africa and Switzerland, the multiple banks' category dominates the banking sector; although the number has been declining, it remained high throughout the period. According to the Banco Central Do Brasil (2007:31) the largest banking system group is consolidated banking segment I which is composed of the major financial institutions operating in the country and is composed of 104 institutions and account for 86.4% of total bank assets.

The banking industry of the United States is more complex than any other country in the study because of the number and size of the banking institutions that operate in it. The total number of banks shown in Table A-5 represents the total number of FDIC-insured commercial banks. Table A-5 in the Appendix shows the number the banks and their branches. The U.S. banking system is also characterised by the dominance of the top 50 large commercial banks, in terms of consolidated total assets of \$300 million or more. Minority-owned banks are also prevalent and they play a major role in the banking system of the United States. This shows that the U.S. banking industry is complex and this justifies the presence of four regulatory agencies which work together in an attempt to enhance financial stability in the banking industry.

4.4.2. Banking Industry Structures: Concluding Remarks

It can be concluded that all the banking industry sectors for the countries in the study are diverse being characterised by the presence of domestically and internationally-based banks operating in their territories. Having the highest number of banks, the U.S. has the most complex banking industry than other

³⁶ Independent banking institutions (I) are defined as financial institutions that operate as commercial banks, multiple banks with commercial portfolios or savings banks that are not part of conglomerates. Independent banking institutions (II) refers to financial institutions of the multiple bank type without commercial portfolios, investment banks and development banks that are not part of conglomerates. A banking conglomerate refers to the grouping of financial institutions that consolidate their financial statements. The banking conglomerate (I) comprises of a conglomerate in which at least one institution is a commercial bank or multiple bank with a commercial portfolio. The banking conglomerate (II) does not have commercial banks and multiple banks with commercial portfolios, but have at least one institution of the multiple bank type without a commercial portfolio, investment bank and development bank (Banco Central Do Brasil, 2007:72).

countries. To rank the countries in terms of the complexity of banking industries (using the total number of banks), the countries appear in the following order: the U.S., Switzerland, Brazil and South Africa.

Since each bank has to be monitored by the national supervisor for the implementation of the Basel II rules, it may take some time for approvals to take place. Consequently, in a country where the banking industry is composed of a large number of banking institutions, it is likely that the implementation process may be lengthy than expected. This is true in the case of the U.S. whose timetable for implementation has been slightly delayed as discussed in chapter 2.

South Africa has already fully implemented all the Basel II approaches as compared to the United States and Brazil. Given the size of its banking industry, with the domestically- and internationally-based banks being approximately seven times lower than the U.S. banks, it has managed to rally ahead of the U.S., Brazil and Switzerland. However, this does not need to be interpreted as South African having a simplistic banking industry. Instead, South Africa having a “smaller” banking industry as compared to other countries, it is easier for the national supervisor and the steering committees to monitor the readiness for Basel II implementation in the banks.

Similarly, the banks in Switzerland are almost two and a half times more than the South African banks and half in total number of U.S. banks. Coincidentally, the total number of banks in Brazil is on average double that of South Africa. The total number of banks in Switzerland and Brazil are close to each other, which may suggest that their banking industries are more or less the equal in size, despite being in different geographical regions.

The most common similarity in these banking industries is the existence and dominance of the big banks especially in terms of assets and employee levels. The big banks’ categories contribute more to the total assets of the whole banking industry. The existence of foreign banks in each country justifies the need for these banks to adopt Basel II rules because there are a number of cross-border banking activities which take place in every country. Section 4.2 below discusses the capital adequacy of these banks in the countries in the study.

4.5. CAPITAL ADEQUACY OF BANKS

The new capital accord framework seeks to determine the minimum capital levels for the banks which are internationally active³⁷. Home supervisors have the leeway to adopt domestic arrangements, by setting higher levels of minimum capital as in the 1988 Accord and also draw supplementary measures of capital adequacy for banking institutions under their supervision (BCBS, 2006:3; Dupuis, 2006:8). In this section, emphasis is on determining the BCBS prescribed and the domestically supervisor-determined capital adequacy ratios and analyse their variation over time. The BCBS recommends that countries need to revise the capital adequacy ratios upwards depending on the state of their domestic banking environments. As a result countries that believe to be having relatively high risks in their banks should consider to let the banks keep additional capital higher than the Basel minimum (BCBS, 2006:3). Revising and keeping a higher capital adequacy ratio over and above the Basel II minimum may be regarded as a way to keep the banking industry much safer.

Capital adequacy of banks is emphasised because capital provides the safety net for depositors against the risk of losses that a bank may incur during its day to day business operations (BSD, 2007). For that cause, only adequately capitalised banks should be allowed to accept deposits from the public. Graphical depictions of the trends of the capital adequacy ratio must be analysed because it shows how the country's banks have been responding to the new rules brought by Basel II. It is for this reason that variations of the capital adequacy ratio is regarded as an indicator of the preparedness or readiness of the banks to implement and operate under the auspices of the new capital accord. Section 4.5.1 presents brief country backgrounds on capital adequacy rules.

4.5.1. Brief Country Backgrounds on Capital Adequacy Ratios

This section briefly summaries the backgrounds of the capital adequacy ratios of the countries in the study before exploring the variations over time. In South Africa, the capital adequacy ratio for banks and bank controlling companies was revised to 10% in 2001, until December 2007 following the discussions between the BSD and the banking institutions (Bank Supervision Department, 2007:70). In terms of reporting for capital adequacy in Switzerland, all the banks in the categories 1.00 to 5.00 (see Table A-2 in the Appendix) are required to report eligible and required capital on quarterly basis under the Swiss

³⁷ The capital adequacy ratio refers to the ratio of a bank's capital to its risk-weighted assets. Under the Basel II dispensation, for the calculation of the capital adequacy ratio, there is a need to determine the net qualifying capital and liabilities (as the numerator) and the total risk exposure or the sum of risk-weighted assets plus off-balance sheet items adjusted for risk (as the denominator) (Hassan Al-Tamimi, 2008:1).

regulation in line with Basel II requirements. The Ordinance on Capital and Risk Distribution for Banks and Securities Traders (Capital Ordinance) which came into effect on 1 January 2007 facilitated the transformation of Basel II into national law requiring banks to maintain a minimum capital adequacy ratio of 8% (Swiss National Bank, 2007:28).

As part of the statutory mandate, the Brazilian authorities set the minimum capital adequacy ratio at 11% for all Brazilian banks (Banco Central Do Brasil, 2007:43). However, individual credit unions not associated with central credit unions are required to have a Basel capital ratio above 15%, while developmental agencies are obliged to maintain a 30% level and 11% for all other financial institutions (Banco Central Do Brasil, 2007:72). In the United States, banks are expected to be adequately capitalized, with the minimum capital adequacy ratio being above the 8% level.

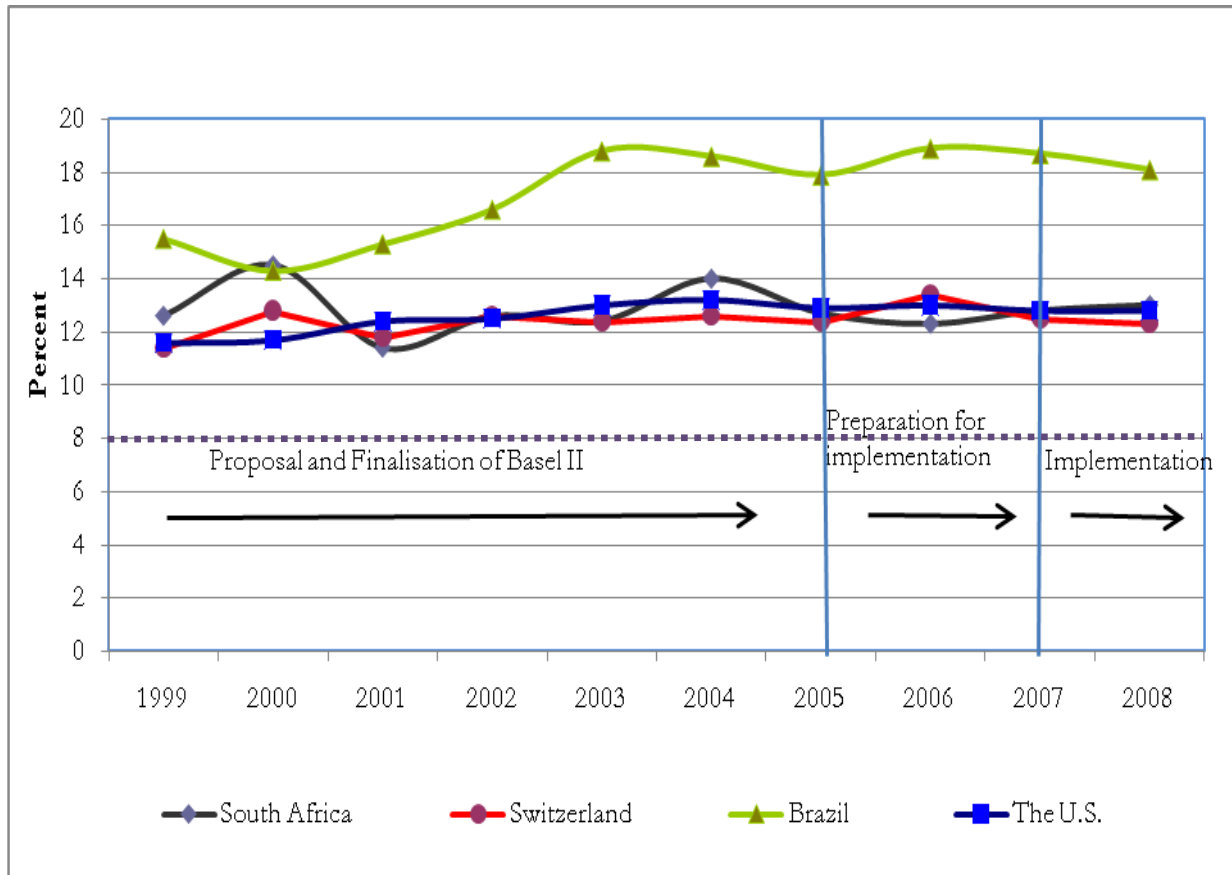
This suggests that all the countries have been determined to keep their domestic capital adequacy ratios over and above the 8% level. For South Africa and Brazil, the ratios are set +2% and +3% over and above the BCBS minimum respectively. In order to explore the variations across the countries in the study, the capital adequacy ratios of all the countries can be examined diagrammatically in Section 4.5.2 below.

4.5.2. Capital Adequacy Ratios: A Diagrammatic Illustration

Figure 4.1 illustrates the trends in the capital adequacy ratios for all reporting banks in South Africa, Switzerland, Brazil and the United States. The data on the bank regulatory capital to risk-weighted assets ratio is obtained from the IMF Global Financial Stability Reports and is compiled by the IMF from the data provided by the national authorities and the IMF staff estimates. The minimum capital adequacy ratio of 8% set by the BCBS; together with the individual country determined ratios shall be used as the benchmarks for comparisons of the trends over time.

The minimum capital adequacy ratio of 8% is shown in Figure 4.1 by the dotted line. This helps to show the variations in the capital adequacy ratios of the countries as it is used as the benchmark. In the case of South Africa, the BCBS 8% (international standard) and the BSD 10% (domestic standard) minimum capital adequacy levels are used as the benchmarks. For Brazil the BCBS 8% (international standard) and the 11% (domestic standard) are used as the benchmarks for its banks. On the other hand, the 8% minimum capital adequacy ratio is used as the benchmark for Switzerland and the United States because they did not revise the minimum level upwards. In the analysis, it is important to remember that all the countries are compared based on the international minimum capital adequacy ratio of 8% for uniformity and consistency.

Figure 4.1: The Capital Adequacy Ratios.



Source: IMF (2000 - 2007).

Figure 4.1 shows that the four countries managed to maintain virtually the same high level of capital adequacy throughout all the study period. They have all managed to keep their capital adequacy levels well above the international standard, suggesting that all the banks continued to be adequately capitalised in line with the Basel II rules.

In the proposal and finalisation of Basel II phase (1999 - 2004), all the countries already had higher capital adequacy ratios of above 8%. They were all around the 10% level and this could be attributed to the idea that the impact of Basel I had already filtered through in their banking sectors. With the higher capital adequacy ratios, it shows that banks were ready to adopt the newly proposed framework and push the ratio even higher.

South African bank’s capital adequacy was above the 8% BCBS level and SARB 10% prescribed level, fluctuating in the range 11-14%. The decision to revise the minimum capital adequacy up from 8% to 10%, helped South African banks to maintain even higher levels of capital adequacy above all the

prescribed levels. However, it may be argued that raising the capital adequacy ratio might not have had much impact on the banks because they were already having capital adequacy ratios above 10% before the revision. Instead, that decision substantiated the need for banks to remain adequately capitalised, showing the commitment of the supervisor to foster stability in the South African banking industry.

The trend for the Swiss banks is similar to South Africa, with their capital adequacy ratio already above the 8% level prescribed by the BCBS under Basel I. In 1999, it had a ratio of just above 11%, which increased sharply to close to 13% in 2000, before dropping down to 12% in 2001 and remained around this level until the end of this phase.

Brazilian banks also managed to keep their capital adequacy ratios at least above the 11% level. To support this, in 1999 alone the banks already had the highest ratio than other countries at 15.5%, which declined steadily to 14.3% in the year 2000. From the year 2000, the ratio has been rising, reaching the highest level in this phase to 18.8% in 2003. Similarly, the capital ratio of the U.S. banks was above the 8% level, rising from 11.6% to in 1999 to 12.7% in 2003. This suggests that the bank capitalisation has been improving throughout this phase in the run-up to the release of Basel II rules.

During the preparation for implementation phase (2004-2006), South African banks continued to maintain higher capital adequacy ratios well above 12% level. By the end of 2003 the ratio was still above 11%, peaking up to 14% in the year 2004, which marks the beginning of the preparation for Basel II implementation. Having been able to maintain higher capital adequacy ratios above the 10%, South African banks were well geared for implementation. Similarly, Swiss banks had capital adequacy ratios already above 12%, with this trend remaining at the same level up to the end of this phase. By the year 2005, encroaching into the implementation phase, the ratio increased to above 13% and it slowed down slightly to a level just below 13%. Figure 4.1 shows that the Swiss banks managed to maintain higher capital adequacy levels throughout the period. By maintaining their capitalization by almost +/- 4% higher above the prescribed level of 8%, it clearly reflects the determination of the Swiss banks and the regulatory authorities to ensure that the banks are adequately capitalized.

On the other end, the capital adequacy ratio in Brazil dropped down slightly from 18.6% to 17.6% before rising sharply to 18.9% in 2006 which marks the end of the preparation phase. This indicates that the banks were ready for the actual implementation of the finalised Basel II rules. However, a change in the timelines for implementation of the Basel II methodologies may not necessarily be accountable to the fluctuations in the capital adequacy ratios in Brazil. Instead the continued commitment of the banks to ensure that they are adequately capitalized may account for such higher capital adequacy levels.

In the U.S., the capital adequacy ratio dropped from 13.2% in 2004 to 13% by the end of 2006. This level of capital adequacy is above the 8% level suggesting that U.S. banks were geared for the Basel II rules, although the agencies delayed the issue of the final timetable for the adoption of the new rules. As discussed earlier, this was only successful in 2007 when the advanced approaches rule was released.

In the implementation phase (2006-2008), South Africa continued to maintain its capital adequacy ratio above the 10% level reaching 12.2% in 2007 and this trend can be attributed to the commitment to fully implementing Basel II on 1 January 2008. The same applies to Switzerland whose ratio dropped slightly to 13% in 2007 from 13.4% in 2006. Brazil's ratio dropped from 18.9% in 2006 to 18.5% in 2007, although the ratio remained higher than other countries in the study. On the other end, the U.S. maintained a constant capital adequacy ratio at 13% between 2006 and 2007. However, the ratio dropped to 12.8% in the first quarter of 2008. With the capital adequacy ratio in the U.S. remaining constant, it could be a sign that bank's capitalisation was not improving and this points to the financial crisis that worsened in September 2008.

Looking over the whole period (1999-2007), it can be concluded that banks in all countries managed to maintain capital adequacy ratios above the BCBS prescribed level of 8%. Generally, Brazilian capital adequacy ratios remained higher above 8% as compared to other countries. This makes it an outlier because of its exceptionally higher capital adequacy ratios than other countries in the study. South Africa, Switzerland and the U.S. have similar capital adequacy ratios in the range 10% - 15%. This range is remarkably over the 8% recommended level showing that all the countries have managed to remain capitalised to bring stability in their banking industries.

The U.S. banks seem to have maintained a stable capital adequacy ratio level, approximately in the range 12% to 14% level. However, despite its compliance to Basel II rules, it has experienced a major financial crisis as from the third quarter of 2008 that brought the collapse or near collapse of key banking institutions. Basel II is expected to alleviate such cases from happening and inconsistencies in bank regulation could be the reason for the turmoil that resulted. It could be the case that the crisis was not as a direct result of the balance sheet activities of the banks. Instead, the off-balance sheet activities of the investment banks may have contributed to the emergence of the financial crisis in the U.S. (Griffin, 2008: 1)³⁸. Therefore, it is suggested that regulators should monitor all balance- and off-balance sheet activities of the banks. Additionally, capital adequacy rules should be applied uniformly to all banking and financial institutions that operate within a country.

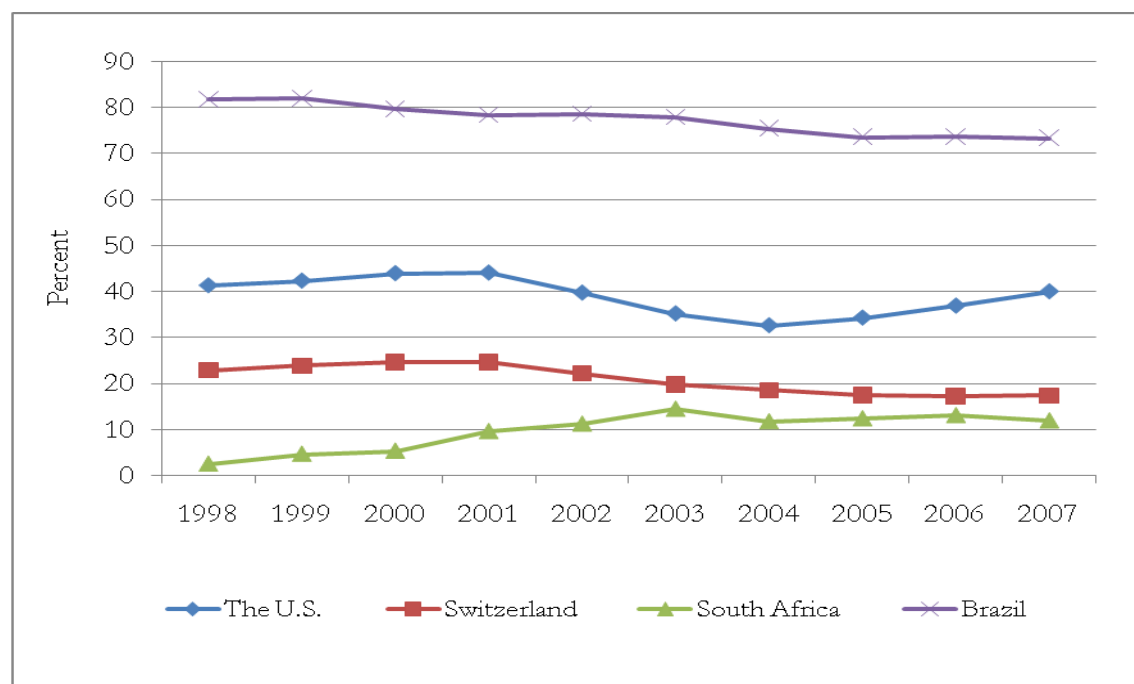
³⁸ Griffin (2008:1) argues that there was "insufficient" regard for off-balance sheet risks.

From Figure 4.1, there is clear indication that all the four countries have adequate capital levels above the minimum 8% level. Although there are slight declines in the capital adequacy ratio trend in the second quarter of 2008, it can not be concluded that banks were starting to be inadequately capitalised because they were above 8%. However, one needs to track the developments especially in the later part of the third quarter of 2008 to determine whether the banking data indicate the run-up to the financial crisis although this is out of the scope of this study. The next section below explores the trends of the different types of bank lending.

4.6. STRUCTURE OF BANK LENDING

The composition of a bank's balance sheet can be analysed in order to have an idea on the type and spread of the banking sector activities. This is relevant because it helps to analyse changes in, for example, the types of bank lending which affect the overall risk profile of the banking sector. However, the complete breakdown of the composition of the balance sheets is not feasible because of non-availability of all data categories for all the countries. Figures 4.2 – 4.4 depict the trends in the composition of three types of lending, i.e. individuals, corporates and government because these are available for all the four countries over the period from 1998 to 2007. The risk-weightings for these categories were covered in Section 2.4.3 above.

Figure 4.2: Bank Assets: Loans to corporates

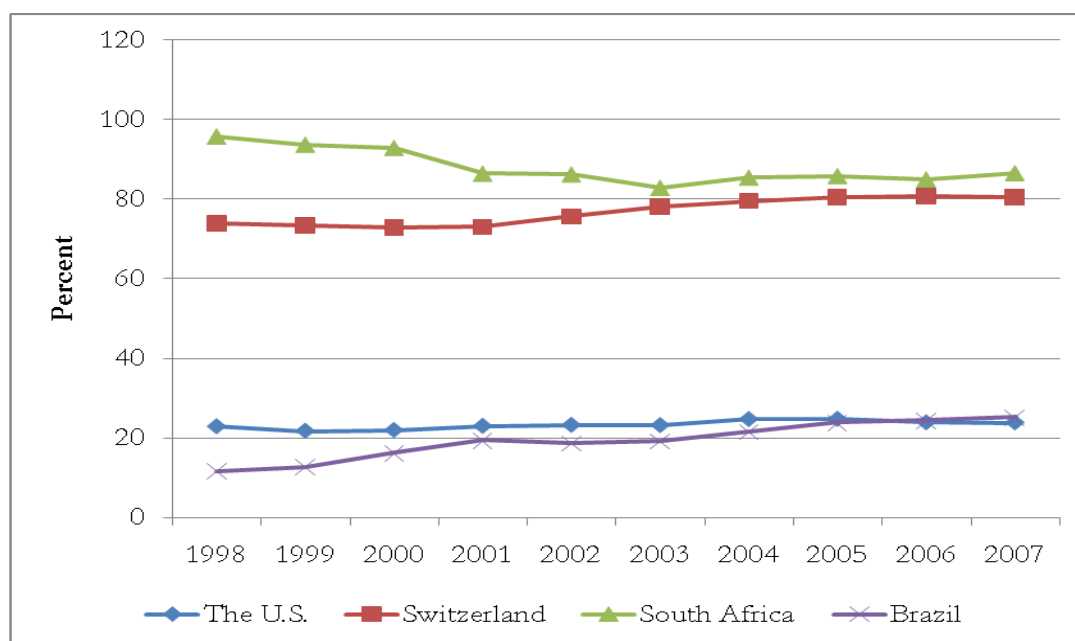


Source: Thomson DataStream (2008).

Figure 4.2 shows that the throughout the whole period, banking lending to corporates has remained fairly steady for all the four countries. Under Basel II, corporates receive the highest risk-weighting for capital adequacy calculation purposes. It is evident from the diagram above that for South Africa; bank lending to corporates has been rising steadily from 1998 until 2003. There is a decline from the period 2003 to 2004 and from 2004 up to 2007; there is a steady growth in this category of lending. This suggests that South African banks were starting to reduce their lending to high risk corporates relative to other categories so as to reduce their risk exposures, as intended under the Basel II framework. Similarly, Switzerland followed the same trend as South Africa; its bank lending to corporates rose during the period 1998 to 2001, slowing down to about 20% in 2003 and remained steady until the end of 2007. It can be observed from the Figure 2 above that bank lending to corporates rose steadily in the United States from 1998 up to the end of 2001. From 2002 until the end of 2004, there has been a sharp decline in the lending to corporates. Contrary to other countries, there is a steady increase in lending to corporates from 2004 until 2007, showing an increase in the risk appetite for the U.S. banks. Brazil has been having a stable trend in bank lending to corporates throughout the whole period, although its proportion is higher than other countries, above 70% of lending going to the corporates. From 2004, it has been declining, showing that the Brazilian banks were now lending in line with Basel II rules to reduce the overall risk exposure.

Figure 4.3 shows the growth of bank lending to individuals by banks in the four countries.

Figure 4.3. Bank Assets: Loans to Individuals

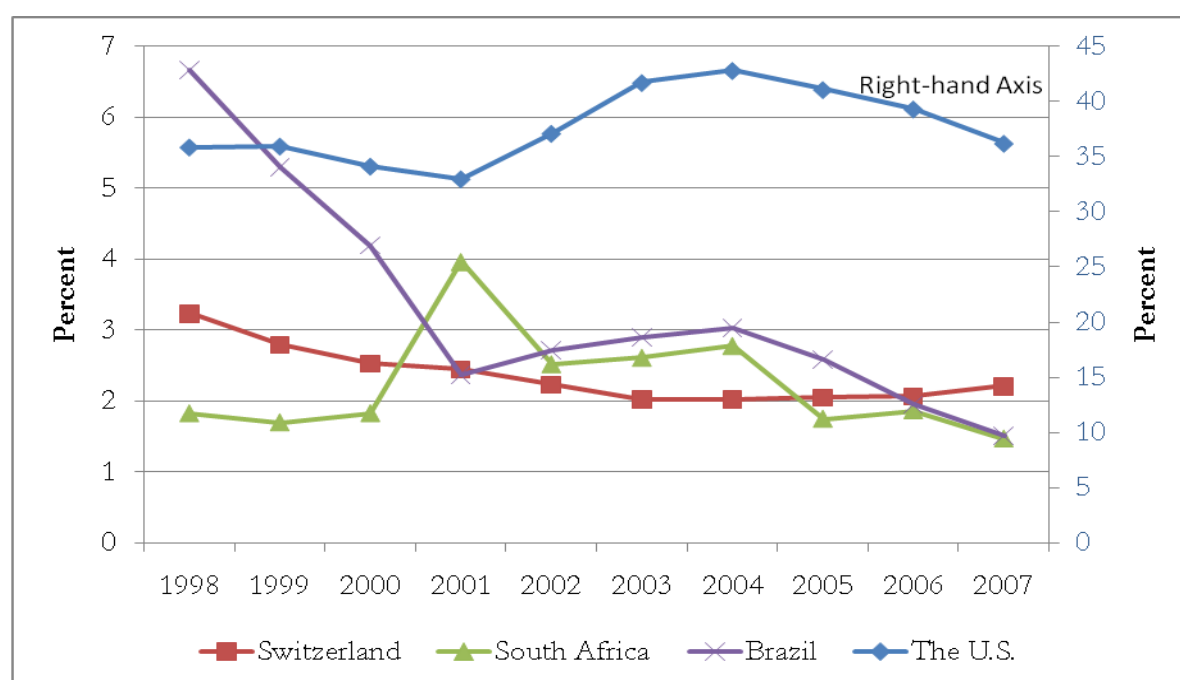


Source: Thomson DataStream (2008)

As in Figure 4.2 above, Figure 4.3 reflects that the proportion of bank lending to individuals became more stable in the period 2003 to the end of 2007. Unlike in the period 1999-2002, there have been unstable fluctuations in the level of banks lending to the private individuals. Usually, bank lending to private individuals can be regarded as risky unless the banks are assured on the creditworthiness of the borrower. The share of bank lending to private individuals has been slowing down dramatically, from the period 1998 to 2003. However, there is a slight increase from 2003 to 2004 and the trend stabilises from 2005 to 2007. It should be noted that this proportion of this lending is fairly higher than other countries in the study, being above 80%, which is considerably higher. This growth in lending in South Africa also justifies the enactment of the National Credit Act to augment other institutional policies like Basel II to reduce the growth of credit in the country. In this case, the United States and Brazil have been having a very steady growth in the lending to private individuals unlike South Africa and Switzerland which have the highest proportions.

Figure 4.4 below illustrates the trends in bank lending to the government departments in the four countries. It should be remembered that government institutions receive a lower risk-weight because they are assumed to be less risky as compared to other exposures. It is therefore expected that under Basel II banks will increasingly move from high risk exposures to lower risk exposures so that they are in a position to reduce their overall risk exposure.

Figure 4.4. Bank Assets: Loans to Government



Source: Thomson DataStream (2008)

Unlike Figures 4.2 and 4.3, Figure 4.4 presents a mixed picture from all the four countries. This is evidenced by the fact that South Africa for instance shows some fluctuations in terms of the proportion of bank lending to government departments. In the period 1998 to 2001, there has been a dramatic rise, followed by a sharp decline from 2001 to 2002. From 2002 to 2004, there has been a steady growth in bank lending to government. Surprisingly, from 2004 to 2005, there was a sharp decline that was followed by a steady increase in 2006 and a further slight decline in 2007. This seems to suggest that South African banks have not been having a stable banking lending culture towards government institutions. On the contrary, Switzerland, shows a trend that seems to be in line with the *a priori* expectations. From the period 1998 until 2003, there has been a steady decline in the relative proportion of bank lending to government institutions as compared to other categories being considered. However, from the period 2003 up to the end of 2007, there has been an increase in lending to this category as compared to the other categories. It therefore suggests that the Swiss banks have been moving to lending to lower risk categories which receive a lower risk-weight, hence Basel II has had an impact in the banking industry. Brazil shows a similar picture as South Africa. It started with a sharp decline in the period 1998 to 2001, that was followed by a steady growth in bank lending to government departments in the period 2001- 2004. From 2004, there has been a sustained decline until the end of 2007. On the same note, the U.S., shown on the right-hand axis, shows that bank lending to government institutions has the highest proportion above 35% as compared to other countries. Although, it has been on a decline from 2004, the proportion has remained high as compared to South Africa, Switzerland and Brazil.

Considering the trends in the composition of bank lending to the three types of exposures (private individuals, corporates and government institutions), inferences can be made with regard to the risk profiles of the banks assets that they hold. The analysis of Figure 4.2 suggests that banks have been reducing their relative lending to the corporates which receive a higher risk-weight than other exposures. Similarly, Figure 4.3 reflected that banks in the four countries have not reduced their lending to private individuals drastically. The trend shows that there has been a fairly stable lending behaviour among the banks in all the countries. This can be as a result of the desire to remain fairly hedged against high risk exposures. Lastly, banks in the four countries seem to have differing behaviour towards lending to government institutions despite the fact that this category receives the lowest risk-weight and hence capital charge. In this category, Swiss banks have moved to the lower risk category for lending as compared to other countries. As a result, this suggests that banks have different approaches to assets that they hold which affect their risk profiles. In conclusion, one indication of the Basel II impact is the relative changes in low versus high risk category lending. It was shown in Section 2.4.3 that Basel II refines the risk attributes of the assets that the banks hold. Figures 4.2 to 4.4 illustrated the trends in the relative proportions of bank lending to three categories of exposures which have different risk attributes.

With regard to the trends in the risk exposures in the four countries, it is important to briefly mention the global financial crisis that affected a number of countries in second and third quarters of 2008. This crisis has seen collapse and near collapse of some large banking institutions, forcing a number of governments globally to look for rescue plans to recapitalise the banks. It is important to address this issue because it is directly related to the risk profiles of the assets that the banks hold as discussed above. Griffin (2008) suggests that the root cause of this crisis may be attributed to the off-balance sheet activities of the banks. This suggests that the trends in the risk exposures cannot be directly linked to the crisis that has destabilised the global banking system. Von Drehle (2008) shows that the bursting of the housing bubble in the U.S. led to increased *mortgage defaults* because homeowners failed to repay their monthly instalments. Consequently, the Wall Street institutions were not able to pay off the mortgage-backed securities they used as collateral to leverage the increased debt. However, facing the increasing debt and shrinking assets, banks were forced to tighten or freeze credit, which brought the system nearly to a halt. Due to investor panic, stocks were abandoned and the banks were trapped in the cycle of declining value. Therefore, in line with the developments in the financial sector and the risk exposures that banks are exposed to, Basel II rules need to be applied uniformly and the off-balance sheet activities of the banks must be monitored to solve the “cherry picking” problem.

4.7. QUANTITATIVE TRENDS AND RATIOS: CONCLUDING REMARKS

Following the analysis of the banking industry structure, it has been established that the United States has the more complex banking industry as compared to other countries. Brazil and Switzerland have similar banking industries which are closely the same in terms of the total number of banks. The South African banking system is also similar to other countries being diverse and dominated by the existence of foreign-owned banking institutions. This shows the relevance of the application of Basel II rules in these countries as they have active banking industries with banks involved in international transactions.

The four countries managed to maintain impressively higher capital adequacy ratios throughout the study period. There is no single country whose capital adequacy ratio fell below 8% over the entire period. This indicates that all the countries have been able to maintain sufficiently higher capital adequacy ratios for the stability in their banking industries, despite of the fluctuations of total assets. It can be concluded that the growth in the capital adequacy ratios of the banks is desirable as banks remain financially sound. Although this chapter shows that bank capitalisation has been improving over time, the current global financial crisis continues to bring new threats to the supervisors. Furthermore, the effectiveness of the Basel II rules become questionable, given that they are supposed to improve risk management and measurement in the financial system. The next chapter discusses the major findings, conclusions and recommendations.

CHAPTER 5

RESULTS, CONCLUSIONS AND RECOMMENDATIONS

5.1. INTRODUCTION

The core purpose of the study was to conduct a comparative study on the general implementation issues of Basel II for South Africa, Switzerland, Brazil and the United States. This purpose arose from the global acceptance of the new capital and risk measurement and management rules encompassed in the Basel II rules. Given the different levels of economic development and extents of and timelines for implementation, and complexity of the banking industries, a comparative study of this nature could bring to light the experiences and approaches that the different countries face in the implementation process. In this way, the major findings, conclusions, recommendations and limitations are discussed in this chapter.

5.2. MAJOR FINDINGS

All the countries being studied have been dedicated to the full implementation and incorporation of Basel II into their regulatory systems and good progress has been done in this regard. In preparing for Basel II implementation, all the four countries had to make ongoing consultations with all stakeholders. Appropriate legislative reforms were instituted to facilitate the integration of Basel II into the regulatory systems of these countries. Notably, South Africa made remarkable amendments to the Banking Act. Without amending the Banking Act, Brazil issued some directives in the form of Communications to help all banks to implement the new rules consistently. Similarly, Switzerland did not directly alter the Banking Act; instead, it issued Ordinances that acted as emblems for Basel II implementation guidelines. The United States did not also make direct inferences on amending the Banking Act; however, the agencies held ongoing consultations to come up with the Advanced Approaches Rule as the set standard for Basel II implementation.

Timetables for and extents of implementation vary from one country to the other. South Africa and Brazil opted to apply all the Basel II approaches uniformly and consistently to all the banking institutions that operate within their jurisdictions. Switzerland and the United States opted to apply the rules only to the large and internationally active banks. Switzerland chose to come up with the so-called Swiss Finish to cater other domestically active banks. Similarly, the United States categorically stated that the advanced rules of Basel II will only be available to the large institutions with consolidated assets of over U\$250 billion, and other banks can adopt these methodologies on opt-in basis. Additionally, given the complexity

and diversity of the United State's banking industry, the agencies proposed a standardised framework to cater for other banks that do not qualify for the advanced approaches.

To facilitate the implementation process, all the four countries came up with regulatory and supervisory authorities responsible for overseeing the progress in Basel II implementation. Such clearly defined regulatory bodies help in speeding up the implementation process in line with the international standards. In South Africa, the Bank Supervision Department's AIF and its Subcommittees were set up to oversee the whole process. In Brazil, the Risk Management Department is the working group that was set up to coordinate the implementation of Basel II. The Large Banking Group Department of the SFBC also performs the same duties, supervising the large banks and validating the risk models. Given the complexity of the United States banking industry, a combination of the four Federal agencies oversees the implementation process of Basel II in order to maintain consistency and stability in the federal banking system.

In terms of capital adequacy, all the countries remained adequately capitalised throughout the study period. They managed to remain above the 8% level recommended by the BCBS. Since the South African banks were required to maintain a minimum of 10% from 2001 all the banks managed to remain well above this level, fluctuating in the range 12-14%. Similarly, banks in Brazil are expected to keep a minimum capital adequacy ratio of above 11%, and they managed to keep exceptionally higher levels as compared to the other countries, remaining in the range 15-19%. Switzerland and the United States maintained stable capital adequacy ratios throughout the study period well above the 8% minimum. This shows that all the countries were ready for Basel II implementation.

With reference to the analysis of the different types of lending to the three distinct exposures, it has been observed that banks in all the countries have tended to remain stable in changing their lending behaviour. It has been noted that there is a shift from high risk exposures to relatively lower risk exposures. As a result, such a trend can be interpreted as an improvement in risk-aversion by the banks by reducing lending to exposures that are associated with high risk-weights.

5.3. CONCLUSIONS AND RECOMMENDATIONS

Based on the observations on the implementation of Basel II in these four countries considered in this study, it can be concluded that proper planning and dedication of resources is a prerequisite for a successful implementation. Much of the progress accomplished by these countries in implementing Basel II can be attributed to proper planning. Despite the fact that South Africa is an emerging market, it has managed to fully implement Basel II ahead of a developed country, the United States and moved at the

same pace with Switzerland which is also a developed country. Therefore, it can be concluded that although the characteristic of a country (whether developing, emerging or developed) does influence the pace and extent of implementation, planning and dedication of resources is important for a successful implementation. The planning and resources in this context refers to, among other things; determination of timetables for and extents of implementation, setting deadlines, training of staff to oversee the application of the methodologies, the improvement of banking infrastructure (for data capturing and storage) and necessary legislative reforms (amendments to the Banking Act if necessary). For any country that is implementing or yet to implement Basel II, it is recommended that ongoing planning and devotion of adequate resources should be in place for the implementation to be uniform and consistent. This will help in ensuring that the Basel II is applied across all the banking institutions in the country.

Given their status as emerging economy countries, South Africa and Brazil applied all the Basel II rules uniformly and consistently across all the banks that operate in their countries. These emerging countries seem to apply these rules consistently because of their risky nature. If the rules are applied uniformly, they will be in a position to become to a greater extent immune to international financial disturbances. Furthermore, the compliance of the emerging countries sends a clear message to the international community that these countries are more than willing to comply with international standards and this improves the country risk-weighting by the rating agencies. On the other hand, the developed countries, Switzerland and the United States opted to apply the rules only to the large and internationally active banks and apply their tailor-made or modified rules to their domestically based banks. However, this two-tier implementation stance that the developed countries undertake may probably lead to regulatory capital arbitrage activities by banks that Basel II seeks to eliminate. As a result, the playing field might not be levelled in such circumstances in the developed countries. Nonetheless, given the complexity of their banking industries special arrangements for all banks is important because of the diversity. It is recommendable that the emerging market countries should take an extraordinary stance with regard to Basel II implementation as compared to the developed countries.

Despite the high capital adequacy ratios and the shifts from high risk lending to lower risk lending that has been observed in the study, the global financial crisis remains a threat to the adoption of the Basel II rules. Given the current global financial crisis that has had negative impacts on the global banking system, Basel II rules seem to be on the spotlight. This raises scepticism on the effectiveness of the Basel II framework. Given that Basel II rules are meant to bring better risk measurement and management in the banking system, it is recommended that the risk-weights and risk categories must be reviewed from time to time. As mentioned in section 4.6, it is important that off-balance sheet activities of all banks must be closely

monitored so that off-balance sheet risks can be dictated quickly. Furthermore, Basel II rules should be applied consistency across all banking institutions that operate within a country.

In conclusion, the current global financial crisis can be viewed as an opportunity for the BCBS to identify the new set of risks that are inherent in the current global financial system not addressed by the current regulatory capital framework. New rules and approaches should be in place to overcome these unforeseen risks. Furthermore, the regulatory framework must be applied stringently in all countries to restore confidence in the global financial system.

5.4. AREAS FOR FURTHER STUDY

Unlike previous studies which used pre-implementation data and time frames, this study has included the implementation phases. However, it is in our view that the time frame is not long enough to determine all the post-implementation experiences of the banks in all countries. It is therefore suggested that further studies be conducted in future to examine the post-Basel II implementation impacts in the banking system. It is also suggested that a country-level study can be conducted to investigate the post-Basel II implementation impacts on the banking industry using bank-level data. Such an analysis helps to determine whether Basel II, has managed to influence the growth of bank assets, improvement in the quality of the assets that the banks hold and the reduction of the risk exposures of banks.

Given the current global financial meltdown, it is also relevant to research whether the Basel II rules have helped to alleviate the crisis or exacerbated its magnitude. This thorny issue arises from the fact that the global financial crisis intensified during the time when the Basel II framework, which is supposed to prevent such crisis from happening has been on the top priority for a number of supervisors to implement it. Therefore, it is relevant for a new study to be undertaken using the recent global financial crisis to investigate whether the Basel II help to reduce the effects of a crisis or not especially using the United States data.

APPENDIX

Table A - 1. The South African Banking industry as at year end.

Bank category	1999	2000	2001	2002	2003	2004	2005	2006	2007
1. Big banks	4	4	4	4	4	4	4	4	4
2. Mutual banks	3	3	2	2	2	2	2	2	2
3. Other banks	38	38	36	25	17	15	14	14	14
4. Registered local branches of foreign banks	12	15	15	14	15	15	15	14	14
5. Foreign banks with approved local offices	57	61	56	52	44	44	47	43	46
TOTAL	114	121	131	97	82	80	82	77	80

Source: Bank Supervision Department Annual Reports (1999 – 2007).

Table A - 2. The Swiss banking industry as at year end.

Bank Category	1999	2000	2001	2002	2003	2004	2005	2006	2007
1.00. Cantonal banks	24	24	24	24	24	24	24	24	24
2.00. Big banks	3	3	3	3	3	3	2	2	2
3.00. Regional banks and savings banks	106	103	94	88	83	83	79	78	76
4.00. Raiffeisen banks	1	1	1	1	1	1	1	1	1
5.11. Commercial banks	16	13	12	11	9	8	7	7	7
5.12. Stock exchange banks	54	57	61	62	55	53	56	52	48
5.14. Other banking institutions	5	7	7	5	4	4	4	4	6
5.20. Foreign controlled banks	123	123	125	122	122	123	122	120	122
7.00. Branches of foreign banks	21	23	25	25	26	25	28	29	30
8.00. Private bankers	17	17	17	15	15	14	14	14	14
TOTAL	372	375	369	356	342	338	337	331	330

Source: Swiss National Bank (2007:26).

Table A - 3. Total number of banks operating in Brazil as at year end.

Bank Category	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec
Multiple Bank	174	169	163	153	143	141	139	138	137	134
Commercial Bank	28	25	28	28	23	23	24	22	21	20
Development Bank	6	5	5	4	4	4	4	4	4	4
Savings Bank	2	1	1	1	1	1	1	1	1	1
Investment Bank	22	21	19	20	23	21	21	20	18	17
TOTAL	232	221	216	206	194	190	189	185	181	176

Source: Central Bank of Brazil, 2007.

Table A - 4. Distribution of banks by size – quantity of banks.

Size	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Large	28	24	25	23	21	17	16	14	13	12
Medium	62	63	55	55	56	54	47	49	48	45
Small	141	130	123	116	115	111	104	101	103	104
TOTAL	231	217	203	194	192	182	167	164	164	161

Source: Central Bank of Brazil (2005)

Table A - 5. Total Number of FDIC-Insured Commercial Banks (Number of Institutions, Branches and total offices) as at year end.

Year	Institutions	Branches	Offices
1997	9144	60921	70065
1998	8777	62615	71392
1999	8582	64288	72870
2000	8315	64859	73174
2001	8082	65635	73717
2002	7888	66902	74790
2003	7770	68215	75985
2004	7631	70842	78473
2005	7526	73441	80967
2006	7401	76459	83860
2007	7283	78867	86150

Source: FDIC (2008)

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