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An in-depth analysis of the Basel Accords, and the implication of adopting these accords in the emerging markets

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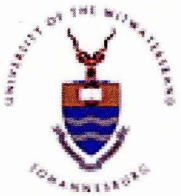

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Thesis title: An in-depth analysis of the Basel Accords, and the implication of adopting these accords in the Emerging Markets

Abstract:

Following the global financial crisis in 2007/8 the various bank regulators sought to question the effectiveness of existing financial regulation. Regulators questioned the causes of the system wide failures experienced during the crisis, with a view of implementing new regulation that ensures that these system wide failures never reoccur. What ensued was the release of most recent iteration of the Basel Capital Accords, Basel III, which sought to improve the quality and quantity of banks' capital. This paper discusses the various versions of the Basel Capital Accords, the rationale behind the creation of these Accords, as well as the how the short comings of each Accord were addressed in subsequent versions of the accord. Furthermore, this paper also highlights the unintended consequences that the most recent iteration of the Accords, Basel III, has on emerging markets, and the banking sector within these markets.

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1. Introduction

1.1. Purpose of the Study

The purpose of this study is to discuss and articulate the history, rationale and objectives of the Basel Accords. This paper will discuss in depth the various iterations of the Accords, highlight the short comings of each version, and discuss how subsequent versions of the accord have sought to rectify these. In light of the release of the most recent iteration of the framework, Basel III, this paper will also seek to understand the key drivers of Basel III, the concept of capital and risk weighted assets ("RWA"), its components, implementation and the management thereof.

To build onto this discussion, and in line with the theme of banking regulation and capital management, this paper will also touch on the Emerging market regulatory landscape, with a view to understand the status quo. For the purpose of this paper; emerging markets is described as a country that has some characteristics of a developed market but is not a developed market (Subhash, 2006). Further, based on a literature review of discussion papers, we weigh up whether any of the iterations of the Basel Accord, specifically the latest version, Basel III, should be adopted across the emerging market. In the instance that these accords are adopted or, more likely the case, already being adhered to, this paper will look to discuss potential amendments required to adopt the Basel accords to suit the Emerging Market.

1.2. Brief Overview

There are few areas of regulation linked as closely to broader macroeconomic stability as banking regulation. Banks' maintain a privileged position in the global economy, as they are the source of efficient payment systems and the financial systems primary source of liquidity. Cohen (1986) described banks as providing 'the oil that lubricates the wheels of commerce. To ensure that they can continue to perform these vital tasks, banks' must have the resources to weather slumps in the economy. This is where capital regulation comes in. Over the last 25 - 30 years, capital adequacy requirements have emerged as the leading focus of regulation for maintaining the safety and liquidity of banks'. The rationale for holding regulatory capital, comprised predominantly of shareholders' equity, and reserves against bank loans, is to provide a buffer against unexpected losses and in the process to create a disincentive for participating in excessive risky activity. When standards are not stringent enough, banks' will encounter insufficient capital to cover losses, following which their liabilities will likely outweigh assets, subsequently resulting in bankruptcy.

Since the early 1980's the international banking environment has become more complex and riskier. This is due to the combined effect of financial deregulation, innovations, technological advances and rapid integration of the world's financial markets (Sahajwala & Van den Bergh, 2000). These factors have contributed to changes in the way banks collect, measure and manage their risks (Carauana, 2004). The fast track integration of global markets has resulted in the need to achieve financial stability through the adoption of common rules regulating the global financial system. In the global banking sector, capital regulation can be used to achieve this stability. Satisfactory bank capital levels serve as a base for bank growth, cushioning it against unforeseen losses which can lead to bank failures (Bank for International Settlements, 2004). It is

important to monitor and evaluate business activities of banks' relative to the capital necessary to cover the associated risks (Amidu & Hinson, 2006).

1.2.1. The Basel Accords

The creation of a committee with the objective of fostering stability in the global banking system, to be executed through the prevention of bank failures was established in 1974 following the collapse of the Bankhaus Herstatt in Germany and Franklin National Bank in the United States. This committee, subsequently known as The Basel Committee on Banking Supervision ("BCBS" or "Committee") is made up of representatives from Central Banks and prudential regulators of more than 25 countries[1].

The original mandate of the Committee was to deal with the regulatory challenge posed by the increasing internationalization of banking in the 1970s. The collapse of the German and American based banks in 1974 showed that financial crises were no longer confined to one country, and that coordinated international action was needed to prevent future crises from spilling over borders. The committee, which meets and has its secretariat at the Bank for International Settlements ("BIS") in Basel, Switzerland, has no formal authority. Instead, it works to develop supervisory standards and promote best practices in the fields of banking and finance. These objectives culminated in the 1988 capital accord aimed at fostering stability in the global banking system through the prevention of bank failures. This capital framework accord was commonly known as Basel I.

This framework introduced the first internationally accepted definition of, and a minimum requirement for banks' capital, and addressed the inconsistencies in bank capitalisation. The Basel I Accord required that a bank had available as "regulatory capital" (through combinations of equity, loan-loss reserves, and subordinated debt) 8.0% of the value of its RWA and asset-equivalent off-balance-sheet exposures. Simply put, Basel I assessed capital primarily in relation to credit risk and addressed other risks only implicitly, essentially loading all regulatory capital requirements on measures of credit risk. In 1996 it was amended to take explicit account of market risk in trading accounts.

Basel I's adaptation and implementation occurred rather smoothly in the Basel Committee states. Although they were not intended to be included in the Basel I framework, other emerging market economies also adopted the Accords recommendations. This was however in contrast to the warnings written into Basel I against implementation in industrializing countries. In September 1998 the Basel Committee announced that it would officially review the 1988 accord with the aim of replacing it with more flexible rules. By 1999, nearly all countries, including China, Russia, and India, had implemented the Basel I Accord. 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 (Bank for International Settlements, 2004). For this reason, there was need to move to a more effective and risk-sensitive framework.

[1] Members of the BCBS are comprised of: Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

1.2.2. The Basel II Accord

In response to the banking crises of the early 1990s as well as the above mentioned shortfalls of Basel I, the BCBS proposed a new, more comprehensive capital adequacy accord. In June 1999 the BCBS released its first set of proposals for the new framework. According to the Committee, the new accord had the following objectives: (1.) continuing to promote safety and soundness in the financial system. As such, the new framework should at least maintain the overall level of regulatory capital already in the banking system; (2) continue to enhance competitive equality amongst banks'; and (3) constitute a more comprehensive approach to addressing risks.

After five years of negotiations, industry comments and impact studies, the Committee announced it had agreed upon capital adequacy framework, the Basel II Accord. The new accord rested on three pillars. Pillar 1: Specifying minimum capital requirements, Pillar 2: Providing guidelines on regulatory intervention to national supervisors, and Pillar 3: Created new information disclosure standards for banks'. The Basel II framework builds a firm foundation for capital regulation, supervision and market discipline to enhance prudent risk management as to ultimately achieve financial stability (Bank for International Settlements, 2006).

As surveys emerged showing the effect of Basel II, it became clear that the accord failed to achieve its stated objectives. In so far as the first objective, every Quantitative Impact Study ("QIS") conducted by the BCBS forecasted large capital reductions relative the levels held under Basel I for banks' employing advanced internal ratings based ("A-IRB") approach[2]. Cognisant of the fact that large banks' adopted this approach, overall capital levels in the banking system declined[3].

The accord also failed to achieve its second stated objective – the need of continuing to enhance the competitive equality amongst banks'. There are clear winners and losers under Basel II. Every QIS study showed large financial institutions under the A-IRB approach making significant gains on smaller institutions in terms of capital obligations. Under Basel II, larger institutions were able to free up capital and reallocate it to more profitable areas, whilst smaller banks' unable to implement A-IRB were forced to undergo an alternative process, wherein ratings, and required capital levels would be estimated by supervisory and regulatory authorities (the"Standard Approach"). This resulted in smaller banks' being required to increase their overall capital requirements, which necessitated a reduction in their profitability and subsequently resulted in a loss of market share.

1.2.3. Basel III

Recent financial crises have unearthed numerous weaknesses in the global regulatory framework and in banks' risk management practices. In response, regulatory authorities have considered various measures to increase the stability of the financial markets and prevent future negative

[2] An approach that requires that all risk components be calculated internally within a financial institution. In addition to the A-IRB approach estimations, this approach allows banks to calculate other risk components such as loss given default (LGD) and exposure at default (EAD) themselves. These would normally be estimated by supervisory authorities.

[3] The 2006 QIS-4 showed that banks employing this approach would experience an average drop in overall capital requirements of 15.5%, and a median reduction in Tier 1 capital of 31%.

impact on the economy. One major focus is on strengthening global capital and liquidity rules. According to the BCBS "Basel III is a comprehensive set of reform measures, developed by the BCBS, to strengthen the regulation, supervision and risk management of the banking sector".

This iteration of the Basel Accords seeks to improve the banking sector's ability to deal with financial and economic stress, improve risk management and strengthen banks' transparency. Basel III has been designed to address the weaknesses experienced during the financial crisis the world faced in 2008. The intent of the BCBS is to prepare the banking industry for future economic downturns. The latest amendments to the framework aim to enhance bank specific measures and include macro-prudential regulations to help create a more stable banking sector.

1.3. Problem Statement

Following on from the recent banking and liquidity crisis of 2007 - 2008, the Emerging market's arose relatively unscathed, primarily as a result of more resilient banking industries (Caggiano & Calice, 2011). The strength of the banking industry can primarily be attributed to the fundamental reforms, which included strengthening the regulatory and supervisory systems to ensure sounder and more flexible macroeconomic management framework, instituted across the continents' banking sectors during the course of the past decade.

As the role and importance of emerging markets in the global financial market is expected to increase in years to come, and as the prevalence of international financial institutions operating within these markets increase, the quantum and complexity of transactions undertaken will increase (Caggiano & Calice, 2011). Increased transaction volumes and complexity will call for more careful oversight and regulatory controls.

Whilst the Basel accords were in fact designed to address these very points, the Basel Accords were not designed to be implemented in the emerging markets (Balin, 2008). This has, however, not detracted multinational banks[4], which are mandated to adhere to these accords, from undertaking business in these emerging markets, nor has this stopped capital hungry states from implementing iterations of the accord in order to benefit from cheaper bank financing.

What this paper aims to address is:

1. Whether or not multinational banks who undertake business in emerging markets, are disadvantaged by their requirements to adhere to the Basel Accords, and
2. Discuss whether emerging economies, which have adopted the Basel framework, fully understand the accords nuances, and if the adoption of the accords have led to unintended consequences which adversely affect these economies. Where such unintended consequences exist, this paper will also look to suggest means of amending, or adopting the accords to better suit an emerging market economy.

1.4. Overview of Methods Used in This Study

[4] Banking system in which banks provide a wide variety of financial services, including both commercial and investment services, across geographies.

In order to understand the underlying principles of the various Basel accords, as well as the issues associated with the potential implementation of Basel III, a detailed literature review will be undertaken in order to build a firm foundation for the study. This study will leverage off of the Basel committee's quantitative impact studies, consultative documents, working papers on the topic and other applicable literature in order to obtain a better insight on the concept. In other words, this work will rely on secondary data gleaned from a comprehensive literature review, to deduce logical recommendations on the way forward. As such this paper will be review of literature cum conceptual type study.

1.5. Organisation of the Study

To establish a firm understanding of the Basel Accords and to enable debate around the topic of whether or not the Basel Accords have met their stated objectives, the rest of this study is arranged as follows: Chapter 2 will discuss the history and overview of the two earlier versions of the Basel accords - herein we will discuss the thought processes which led to the creation of the Accords, their major shortcomings and, and how these shortcomings were seen to be addressed by subsequent iterations. Chapter 3 will undertake an in-depth analysis of Basel III deconstructing the latest version of the accord to gain an understanding of the key drivers of the new accord. This chapter will also detail the major components of the accord and discuss how these components are improvements upon and have rectified the shortfalls of Basel II.

Chapter 4 will discuss, based on the key drivers flagged in Chapter 3, the effect having to adhere to the Basel accords has on multinational banks, and how this may translate into a competitive disadvantage. It will also investigate how emerging markets, which have already adopted these accords, may be experiencing unintended consequences of having to adhere to accords designed for developed economies. Finally, Chapter 5 will summarize the key research findings and provide recommendation in so far as amending the Basel Accords in the context of emerging markets in a way that will ensure that banking problems and shortcomings are met with effective regulation which does not result in unintended consequences.

2. Overview and history of the Basel accords

2.1. A brief history of the Basel Committee

Until the 1970s, banking regulation was confided to the regulatory regimes required in the respective banks' country of incorporation. Decisions on how to regulate banks' operating within the borders of a country was left at the discretion of the supervisory authorities of said country. To a very large extent any existing banking regulation lacked international reach, however this changed after the 1974 failure of Herstatt Bank in Germany.

The concept of banking regulation and capital adequacy requirements can, to an extent, be attributed to the management of foreign exchange rate exposure, brought about as a result of globalization. We can go further and suggest that the creation of the BCBS was a direct consequence of the 1973 breakdown of the Bretton Woods system of managed exchange rates. 1974 saw the West German Banking Supervisory Office withdraw the banking license of Bankhaus Herstatt after finding that the bank's foreign exchange exposure exceeded its capital base by close to three times. At the time of Herstatt Bank's closure, several unsettled transactions between Herstatt Bank and American banks' remained outstanding. In this case, American banks' had paid Herstatt Bank Deutschmarks, but the American banks' had not received the dollars owed to them. This resulted in significant losses for the American counterparties. In October 1974 the Franklin National Bank of New York also stopped operating; this came about after the bank racked up substantial foreign exchange losses.

These incidents illustrated the risks associated with banking internationally, and underscored the importance for collaboration between countries to mitigate the occurrence and minimize the impact of future risks in international banking. With the objective of avoiding a reoccurrence of the above mentioned bank closures, as well as other financial market disruptions, the Central Bank governors of the 10 largest economies, ("G10 countries"), established the Committee on Banking Regulations and Supervisory Practices. This Committee subsequently became known as the Basel Committee on Banking Supervision. This newly formed committee was mandated with encouraging and facilitating the regular cooperation between the member countries of this committee on banking supervisory matters. The strategic intent of the committee was set to enhance financial stability, to be brought about by improving the supervisory know-how and the quality of banking supervision globally.

The means in which the Committee sought to achieve its strategic intent was by:

1. Establishing and enforcing minimum supervisory standards;
2. Improving the efficiency and effectiveness of these methods for supervising the international banking business; and
3. Sharing information on national supervisory arrangements.

After starting life as a G10 body, in 2009 the BCBS expanded its membership and now includes 27 jurisdictions. The Committee itself reports to an oversight body, a group of Central Bank Governors and Heads of Supervision ("GHOS"), from member countries.

The Committee formulates supervisory standards, guidelines and recommends statements of best practice with the expectation that national authorities will implement them. The Committee as such encourages convergence toward a set of common standards and monitors its implementation, without attempting a detailed harmonization of member countries' supervisory regimes. It however bears mentioning that adhering to the committee's recommendations are discretionary as the Committee's decisions have no legal force.

At its onset, one of the committee's most important objectives was to narrow the gap in international supervisory coverage so as to ensure that:

1. No foreign bank could escape supervision; and
2. Supervision would be adequate and consistent across member jurisdictions.

The first step in meeting this objective was the 1975 paper issued, and which came to be known as the Concordat. This Concordat set out the principles to which supervisory responsibility for banks' foreign branches, subsidiaries and joint ventures was to be shared between host and parent supervisory authorities. In May 1983, the Concordat was revised and re-issued as Principles for the supervision of banks' foreign establishments.

April 1990, saw the issuance of a supplement to the 1983 Concordat. The aim of this supplement was to improve the cross-border flow of prudential information between banking supervisors. 1992 saw certain principles of both the initial and supplemented version of the Concordat being reformulated as minimum standards. These standards were communicated to other banking supervisory authorities, who were invited to endorse them, and published in July 1992.

2.2. Importance of Regulating Bank Capital

As the work of the BCBS continued throughout the 1970s and 1980s, it became clear to the Committee that it was imperative that the committee address the issue of capital regulation. In summary we can define the purpose of the Basel accords as ensuring that banks' are sufficiently and adequately capitalized. However, before an understanding of the capital accords can be gained, it is worthwhile that we develop a grasp of the concept of capital.

2.2.1. Defining capital

From an accounting perspective banks', like companies, have a balance sheet. These balance sheets are comprised of assets, liabilities, and equity. Liabilities represent bank's debt obligations and in the case of retails banks' are comprised primarily of deposits. Conversely, banks' assets are comprised of facilities extended by these banks, primarily comprised of customer loans. These loans give rise to the banks' revenue, which is largely made up of interest charged to borrowers. Whilst there exists a range of other items which can be broadly classified as either assets or liabilities, the bulk of a bank's assets and liabilities consist of loans and deposits respectively.

When the assets of a bank exceeds' its liabilities, the balance is referred to as the bank's capital, or more commonly equity. It is critical that banks' have and maintain a sufficient level of capital at its disposal; thus ensuring that banks' are able to service their liabilities as they become due.

Aside from mitigating the risk of insolvency, capital is especially important to a bank for the following reasons:

- It serves as a buffer and protects against the risk of losses, these losses are inherent in banks' assets, which are primarily comprised of loans to customers.
  - Banks' lend money with the expectation that these loans will be serviced, both principal along with interest. However failures in so far as the repayments of these loans occur, these are termed ("default").
  - In the event that a default occurs, banks' would lose the money it owes to its depositors, i.e. its liabilities, in this instance banks' drawdown on its capital as a means of repaying said depositors.
- It mitigates the impact of volatility on a bank's liabilities.
  - Banks' are primarily funded with customer deposits, liabilities. Deposits can be seen as a relatively unstable funding source, given that depositors can demand the bank repay them at their discretion. In the instance that depositors make a run on the bank, a portion of the reduction in deposits could also be funded with banks' capital. This stems from the relatively illiquid nature of the bank's assets, which in most cases have longer tenors.
  - Should withdrawals be substantial enough, banks' may see their capital base completely eroded following which it may find itself being classified insolvent.

Possessing sufficient levels of capital instills confidence in the minds of both banks' depositors, as well as its creditors. These capital levels imply that that the bank will be able to service its liabilities, even in the event that some of its assets are defaulted on.

2.3. Development of the accords

With the impact of globalization spurring international trade, and subsequently increasing international flows, member countries of the BCBS sought to address the concern of capital regulation from an international perspective, ensuring that individuals, corporates and even banks' operating internationally are protected by a set of common capital requirements. These capital requirements were especially important during the middle half of the 1980's, as some of the most internationally active banks' sought to capitalize on minimal to non-existent capital regulation and held minuscule levels of capital.

It should however be noted that not every nation maintained a lax capital regulation regime. As a case in point, during the 1980's the United States of America ("USA" or "US") implemented a significantly stricter capital requirement regime. Stability of the US's banking market aside, this led to the US putting their banks' at a competitive disadvantage in relation to banks' in other countries who were subjected to less cumbersome regulatory regimes.

With the considerations highlighted above in mind, the Basel committee sought to create and implement standards with the objective of harmonizing the regulation pertaining to banks' capital across the world. The intention of this harmonized regulation being:

1. The creation of a safer, international banking landscape; and
2. The creation of regulation which yields a level competitive landscape for banks' that operates in different countries as well as those with multinational operations.

The results of the BCBS' work resulted in the creation and implementation of a framework entitled the "International Convergence of Capital Measurement and Capital Standards," this framework has become more commonly known as the Basel I Capital Accord, or simply Basel I.

2.4. Basel I: the Basel Capital Accord

A consensus of a weighted approach to the measurement of risk, both on and off banks' balance sheets came about as a result of concerns that the capital ratios of major international banks' were deteriorating. These concerns were exacerbated by the mid 1980's Latin American debt crisis[5] at a time of growing international risks. As a result of the growing international risk awareness, the Committee members, backed by the now G10 governors, resolved to halt the erosion of capital standards and to work towards greater convergence in the measurement of capital adequacy.

The Committee recognised the need for a multinational accord which could strengthen the stability of the international banking system, and remove the source of competitive inequality which arose from differences in national capital requirements. Following comments on a consultative paper published in December 1987, a capital measurement system commonly referred to as the *Basel Capital Accord* (or the 1988 Accord) was approved by the G10 Governors and released to banks' in July 1988.

The BCBS is a statutory body, and as such has no legally binding authority. As such the adoption of the Basel accords are seen to be is largely discretionary. However, even absent any legal ramifications, many of the BCBS's member countries, as well as other non -member countries, have adopted the Basel I accord, and subsequently incorporated the features of the accord in their own regulatory regimes.

Cognisant that the Committees work was targeted primarily towards banks' involved at an international level, the Basel I accord was only intended to be applied to these banks' with cross border activities. However, following the release of the accord, many countries have applied Basel I's framework to all banks' operating in their jurisdiction on a wholesale basis.

2.4.1. Features of Basel I

The Basel I Accord called for the implementation of a minimum capital ("Capital adequacy") ratio, wherein the ratio of capital to RWA is set at 8.0%, this ration was meant to be implemented by the end of 1992.

As a means of quantifying capital adequacy, Basel I employed the capital ratio. The capital ratio measures the ratio of banks' capital in relation to its assets. It should however be pointed out that the value of a banks' assets included within this ratio is not the nominal value of a banks' assets, instead the value of the bank's assets were adjusted to reflect their riskiness. These risk adjusted

[5] During the 1960's and 1970's many Latin American countries, notably Brazil, Argentina, and Mexico, borrowed large sums of money from international creditors to be used on infrastructure programs. These countries had soaring economies at the time so creditors were comfortable to provide loans. Initially, developing countries typically garnered loans through public routes like the World Bank. After 1973, private banks had an influx of funds from oil-rich countries and believed that sovereign debt was a safe investment.

assets, are commonly referred to as a banks' RWA. The capital (adequacy) ratio is thus expressed as capital/RWA.

As mentioned above, to be considered sufficiently capitalized the ratio of a bank's capital needs to be at least 8.0% of the value of the bank's RWA.

Whilst formulating the capital (adequacy) ratio, the BCBS also sought to define the constituents of "capital" from a regulatory perspective. In its broadest terms, capital is defines as banks' excess assets over its liabilities. However, as with banks' assets and liabilities, discussed earlier in this paper, there are many other items which can be included in capital, some of these items are better suited than others to absorb losses.

Subsequently the BCBS decided in respect of the Basel I accord, the definition of banks' capital would be broken down into two components: Tier 1 and Tier 2 capital.

2.4.1.1. Tier 1 Capital:

Tier 1 Capital is comprised of high quality capital. By higher quality the accord refers to capital with a lower priority and likelihood of repayment in the event that a bank was to be declared insolvent. Based on the definition above, Tier 1 capital has the greatest ability to absorb losses in assets.

This form of capital is primarily comprised of "core capital" namely, common equity, and represents an ownership share in the bank. Tier 1 capital also includes the paid-in value of common stock, as well as any reserves such as retained earnings. Items arising from ownership in the bank have the lowest priority of repayment in the event of insolvency, and therefore represent the highest quality capital.

As discussed earlier in this paper, in terms of Basel I, banks' must maintain a capital ratio of at least 8.0% to be considered sufficiently. However it is important to point out that the Basel I Accord requires that at least half of this 8.0%, i.e. 4.0%, of the capital ratio be comprised of Tier 1 capital (i.e., Tier 1 must equal at least 4.0% of a bank's RWA).

2.4.1.2. Tier 2 Capital:

Tier 2 Capital is considered to be less reliable than Tier 1 Capital, and is comprised of items such as subordinated debt and reserves held for loan losses. Cognizant the rank and seniority of the constituents of Tier 2 Capital, a bank can use the proceeds raised from subordinated debt issuances to service more senior ranking liabilities, these liabilities include deposits owed to customers.

While Tier 1 Capital is comprised of unencumbered equity, Tier 2 Capital is permitted to include subordinated debt issued by banks'. In light of the fact that these lower priority liabilities are included in the definition of capital, it can be seen to be reflective of the financial wellbeing of banks' in certain of the BCBS member countries. These banks' were inadequately capitalized with bank capital, owner's equity, and instead relied, albeit only partially, on debt.

Banks' capital provides a buffer against potential losses, stemming from defaults, in bank's assets. Whilst drafting the Basel I accord, the BCBS sought to develop capital adequacy guidelines by employing a risk based approach. The committee incorporated the notion that the level of capital required to be held by banks' be proportionate to both assets held by the bank, as well as the probability of a default associated with the assets held by a bank.

Simplifying this statement, the BCBS implemented a framework where riskier assets, defined as those which possess a higher probability of defaulting, be offset by a requirement to hold higher amounts capital against these assets.

2.4.2. Concept of RWA

With the employment of the above mentioned risk based approach under Basel I, the BCBS incorporated a risk sensitivity measure into the denominator of the capital ratio calculation. Instead of employing a capital ratio which contrasts a bank's capital against the nominal value of its assets, Basel I's capital ratio contrasted a banks' capital against the value of bank's risk adjusted assets. The risk adjusted denominator of the capital ratio was called banks' risk weighted assets.

As a means of differentiating between the risks inherent in banks assets, the BCBS established four risk categories. Banks' assets were segmented into risk buckets, each of these buckets defined by a risk weighting, these buckets carried the following risk weightings; 0%, 20%, 50%, and 100%. The risk associated with banks' assets dictates the bucket into which these assets would fall, this bucket then determines the proportion of that asset's value to be included in the bank's RWA calculation.

Relatively riskier assets, such as loans extended to corporates, are placed in buckets with higher risk weightings. This implies that more of the asset's value is included in bank's RWA, which, in turn, results in increased capital requirement in order to meet the 8.0% capital requirement.

These risk weightings are based on the risks inherent in the counterparty involved in the transaction. As an illustrative example, facilities extended to Governments of the Organization for Economic Co-operation and Development ("OECD") poses no risk of loss to banks'. Therefore, under the Basel I Accord facilities extended to governments of the OECD are placed in the 0% risk category, as such banks' would not have to include the value of these assets in its total RWA.

Converse to the case of facilities to OECD governments, Basel I considers commercial loans to be riskier, as such the accord suggests that these assets be placed in the 100% risk category. With the above in mind, 100% of the nominal value of commercial loans is included in the denominator of the capital ratio. Below is a chart which further clarifies the risk weighting by obligor assumed under Basel I:

Risk Weighting (%)	Assets to include within this Risk Bucket
0.0	Cash and loans extended to the governments of OECD countries

20.0	Assets involving banks' domiciled in OECD member countries, and cash items which are in the process of collection
50.0	Loans secured by mortgages on residential property
100.0	Assets involving commercial businesses, consumer loans, and assets involving non-OECD governments

Basel I's determination of capital adequacy also incorporated a process for accounting of the risks emanating from items held off banks' balance sheets. When off balance sheet assets become items reflected on banks' balance sheets, these assets carry a risk of loss similar to any other asset. Recognizing that assets held off balance sheet have this potential for losses, Basel I ensured that these types of assets were consolidated into banks' capital ratios.

Once all assets, on and off balance sheet, were risk adjusted, the corresponding risk adjusted values were summed. The product of this calculation equates to banks' RWA. This RWA represents the denominator in the Basel 1 accords Capital Ratio.

2.4.3. Drawbacks of Basel I

This accord can be seen to be the first coordinated, international, attempt at regulating bank capital. Whilst the accord was largely accepted and implemented by both members and non-member countires of the BCBS, the Basel I Accord was also the subject of substantial criticism.

Amongst the biggest criticisms of the accord was that the framework was almost solely focused on credit risk. Other areas of contention focused around the frameworks inability to adequately reflect the actual risks borne by banks', the failure to consider and take into account other risk exposures such as market risk, and the view that the risk weightings assumed under the Basel I accord was inadequate.

In January 1996, following various consultations with stakeholders, the Committee issued a set of amendments to the accord, this saw the introduction of market risk into the weighting of asset classes. A key feature of this amendment is that, subject to strict regulatory standards and supervision, banks' was permitted to employ internal risk valuation models and techniques as a basis for measuring their market risks and exposure when determining capital requirements.

Aside from the failure to take into account other types of risk, substantial criticism was also directed to the Basel I asset bucketing approach. Opponents of the framework viewed Basel I's bucket approach to risk weighting assets as subjective, broad, and insufficiently sensitive to the bespoke risks associated the assets held by banks'. Put into context, within each bucket, there are assets with very different levels of risk, but because they all share a common type of counterparty they were assumed to possess the same type of risk.

As a means of illustrating the criticism of Basel I's approach to RWA, we should consider the case of commercial loans. Under Basel I, commercial loans are risk weighted at 100%. The critique stems from the fact that whilst commercial loans counterparties are treated uniformly from an RWA perspective, each of these counterparties has a unique risk profile. A loan to an established corporate is less risky from a credit risk perspective, that a loan to a startup company. Whilst credit profiles of the corporates mentioned above may differ vastly, from a RWA, and

consequently capital adequacy perspective the corporates are treated similarly. This uniform RWA treatment resulted in banks' engaging in regulatory arbitrage.

From a regulatory perspective, it is inconsequential whether banks' lend to start-up or established corporates, according to Basel I's risk weightings, banks' have to include 100% of the loan in its RWA calculation (King and Tarbert, 2011). Considering this dichotomy from a profit making perspective, loans to start-up corporates are riskier; this risk premium however attracts higher pricing. Banks' are profit driven, and are such incentivized to make loans to riskier corporates where it earns more profit. By pursuing the highest earning potential, maximising profits increases risk, this leads to a situation where the level of capital required under the Basel I methodology is insufficiently commensurate with the risk inherent in banks' assets.

As criticisms of Basel I mounted, BCBS member countries concluded that reforms were required. Following years of stakeholder engagements and consultations, the BCBS released a set of revisions to the Basel I Accord, entitled "International Convergence of Capital Measurement and Capital Standards: A Revised Framework". This revised framework has come to be known as ("Basel II").

2.5. Basel II: the New Capital Framework

In 1999 the BCBS issued a proposal for a new capital adequacy framework slated to replace the relatively outdated 1988 Accord. This led to the June 2004 release of Basel II Accord. The Basel II Accord was organized around three (3) central pillars, referred to as the "Three Pillar" approach. These pillars are as follows:

1. Minimum Capital Requirements: This pillar sought to further develop and expand upon the standardised rules set in the 1988 Basel I Accord;
2. Supervisory Review: A newly introduced pillar setting out the capital adequacy and internal assessment procedures[6] to be followed by banking institutions; and
3. Market Disclosure: Another newly introduced pillar which sought effective disclosure as a lever to strengthening market discipline and encouraging sound banking practices[7].

The minimum capital requirement pillar attempted to specifically redress the deficiencies identified in Basel I. Pillars II and III sought to deal with supervisory review standards and market discipline issues.

The publication of the Basel II framework in 2004 followed six years of preparation wherein the BCBS consulted, on an extensive basis, with banking sector representatives, supervisory agencies, central banks', and outside observers. Ultimately the objective was to develop a substantially more risk-sensitive capital accord.

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[6] Pillar two encourages banks to develop their own risk management strategies, based on sound capital assessments and a comprehensive assessment of risks subject to each bank's specific situation. Pillar two also codifies the expectation of regulators that banks will strive not only to meet, but ultimately to surpass, the minimum capital requirements outlined in pillar one. Finally, pillar two emphasizes the direct role of bank boards of directors and senior management in ensuring Basel II's compliance.

[7] Pillar three aims to increase market discipline by developing a set of disclosure requirements intended to allow market participants to assess key pieces of information on the capital adequacy of a bank. In enabling a more accurate assessment of each bank's activities by market participants, regulators had hoped that the market would reward those prudently managing their risks while penalizing banks with less robust risk management.

2.5.1. Pillar 1, addressing the short comings of Basel I

Similar in nature to the first iteration of the Basel accords, Basel II required banks' to maintain a capital ratio equal to at least 8.0% of RWA. The framework assessed banks' capital adequacy by employing the same capital adequacy ratio as Basel I, with no further amendments to the definition of capital. In terms of the Basel II Accord the bulk of the emphasis was focused on Pillar I, more specifically the denominator of the capital ratio equation, i.e. the calculation of RWA.

Pillar I was redesigned with the intention of addressing the deficiencies of Basel I, to better reflect the underlying risks of banks' assets, and to better address the financial innovation which occurred between the release of Basel I, and II.

With the above in mind, the primary objective of this pillar was to ensure that the calculation of risk in banks assets more accurately reflects the risk inherent in these assets. As a means of achieving this objective, the Basel II Accord saw the inclusion of a reformed method for measuring credit risk. When banks' assets are fully reflective of its risks, there occurs a reduction in the occurrence and incentives for banks' to engage in regulatory arbitrage. This was identified as one of the major criticisms of Basel I.

Basel II's amended pillar I employed the following approaches of measuring credit risk:

1. The Standardized Approach;
2. The Foundation Internal Ratings-Based Approach ("F-IRB"); and
3. The Advanced Internal Ratings-Based Approach.

The Basel II accord offered an array of options for determining banks' credit risk.

2.5.1.1. The Standardized Approach:

Basel II's Standardised approach shares numerous similarities with Basel I's approach to risk weighting assets. Given its similarities with Basel I, the Standardized Approach is the least complex of Pillar I's three approaches to implement. As was the case with Basel I, this approach retains the use of risk buckets for determining an asset's risk adjusted value.

Contrary to Basel I, the Standardized Approach differs from the initial accord in the following ways.

1. The Standardized Approach sees the number of risk buckets expanded from four to six.
   - This Approach saw the introduction of a 150%, and 35% risk bucket.
2. The process of determining the buckets in which banks' assets are placed.
   - Basel I saw assets being placed in risk buckets premised on the counterparty involved. With the knowledge that no two counterparties bear an identical risk profile, the Standardized Approach premises its risk weighting on the unique risk associated with each of the bank's assets.
   - Basel II's Standardized Approach facilitates this risk weighting approach by leveraging off credit rating agencies, such as Standard & Poor's ("S&P), Moody's and Fitch.

With the Standardized Approach, assets are assigned to risk buckets based on the credit rating assigned to the banks' counterparties; higher rated counterparties being assigned to lower risk buckets and *vice versa.*

The implications of this updated framework can be seen when we consider the example of a commercial borrower, rated AAA by S&P, in terms of Basel II, this asset would be placed in the 20% risk bucket. In contrast, under the Basel I Accord all commercial loans, irrespective of their credit worthiness, would be placed in the 100% risk bucket.

How an asset is risk weighted is subject to both an assets credit rating, as well as whether the asset is representative of a claim on a sovereign government. This is reflective of the notion that assets extended to government poses less risk. All things equal, the standardized approach places government assets in a lower risk category than a similar asset with a claim on a private party.

Tabulated below are examples of the risk-weightings premised on credit ratings (S&P's ratings scale) and contrasted between claims on governments and private counterparties.

Credit Rating (S&P)	Government Risk-Weighting	Private Counterparty Risk-weighting
AAA to AA-	0%	20%
A+ to A-	20%	50%
BBB+ to BB-	50%	100%
Below BB-	150%	150%
Unrated	100%	100%

This does not take into consideration the 35% risk category. This is because the category is reserved exclusively for loans secured by residential mortgages. Such assets are automatically included within this category irrespective of credit rating.

The Standardized Approach is seen as the easiest methodology to employ when calculating credit risk. Given the relative ease of implementation, it is recommended that this approach be implemented by smaller banks' adopting Basel II.

The other approaches, FIRB and AIRB, are recommended for implementation in larger, more sophisticated banking institutions. The biggest difference between the standardized and two Internal Ratings Based ("IRB") is that the IRB approach, as the name suggests, allows banks' to employ proprietary methodologies in the determination of the risk level of their assets. In contrasts, the Standardized Approach requires banks' to rely on the external ratings to risk weight their assets.

Given the sophisticated nature of the IRB approaches, where banks' seek to employ either of the IRB approaches, banks' are required to demonstrate their technical ability to implement these approaches and are required to receive approval from regulators.

2.5.1.2. Internal based ratings approach

Expected loss is a concept underpinning both IRB approaches. Losses in assets are a normal part of the banking business. Banks' are able to forecast and prepare for losses by analysing and interpreting historical probabilities of defaults, and losses. Instances exist where a bank incurs losses greater than forecast. These above average loss levels are termed banks unexpected losses. Unexpected losses are employed in the estimation of banks' credit risk, these credit risk estimations informs the determination capital levels banks' should maintain.

As the name suggests expected losses are expected, given the expectation that these losses will materialise, banks' set aside reserves, such as loan loss reserves, with the objective of absorbing these expected losses. With expected losses cushioned by banks' reserves, bank capital is meant to cushion against unexpected losses. As a means of estimating unexpected losses, four inputs are employed, all of which are common to both IRB approaches.

1. Probability of Default ("PD"). This input yields an estimate of the probability, on an annual basis, that a borrower will default on its obligation to service a loan.
2. Loss Given Default ("LGD"). This input provides an estimate of the losses a bank may incur in the event that a borrower defaults.
3. Exposure at Default ("EAD"). This input represents the total exposure banks' have extended to a specific borrower. This is the amount banks' stands to lose at the time of a default.
4. Effective Maturity ("EM") of the asset. The longer the tenor of a loan, all things being equal, the greater the probability of a default occurring.

Once these inputs are computed for banks' individual assets, these inputs are fed into mathematical estimation computations; these computations yield the estimates of banks' unexpected losses. In terms of the Basel II accord, banks' must ensure that they possess capital equal to at least 8.0% of this unexpected loss amount.

2.5.1.3. Differences between the FIRB and the AIRB approaches

The difference between the FIRB and AIRB approaches stems from who determines the values of these inputs.

- In terms of regard to the FIRB approach, banks' are only allowed to calculate the PD of their assets. The values of LGD and EAD are determined by banks' regulators. Furthermore, while regulators retain the discretion to assign the EM input, banks' are allowed to apply its own calculation.
- In contrast to the FIRB approach, under the AIRB approach banks' are allowed to calculate values for all of its inputs.

Whether banks' employ the FIRB or AIRB approaches, both the risk calculation methodology and its resultant outputs must be reviewed and verified by banks' regulators. Therefore it can be seen that the Basel II Accord allows banks' a degree of autonomy when estimating credit risk. Irrespective of the methodologies employed to measure the credit risk inherent in a banks' assets, the output of these calculation are used to determine the proportion of the underlying assets value that will be included in banks' RWA.

2.5.2. Pillar 2: Supervisory review

Pillar 2 of the Basel II Accord is a discretionary element of regulation; this Pillar is premised upon an assessment of the supervisory functions within the bank. In particular, Pillar 2 assesses the extent of internal control procedures within banks'.

This supervisory review process seeks to ensure that banks' have capital levels sufficient to support the risks inherent in their business, as well as encouraging banks' to develop and use better risk management techniques in the management of their risks.

Pillar 2 is comprised of two elements:

1. The discretion of regulators to impose additional capital requirements on banks'; and
2. Placing the burden on banks' to assess their capital requirements, risk architecture and the controls necessary to satisfy them.

The Individual Capital Adequacy Assessment Process ("ICAAP") is the component of Pillar 2 assessment undertaken by firms. The ICAAP allows corporates the ability to assess the level of capital which adequately supports all current and forecast business risks. In undertaking an ICAAP, a firm can ensure that it has appropriate processes in place to ensure compliance with the Capital Requirements Directive. This requires banks' to develop and use appropriate risk management techniques and for regulators to engage actively in the review of those requirements, systems and controls: the Supervisory Review Evaluation Process ("SREP").

Supervisors, in most cases regulators, are required to evaluate how well banks' assess their capital needs in relation to their risks. Should the situation warrant any action supervisors have the ability to intervene. The objective here is to foster an active dialogue between banks' and their supervisors. This ensures that where shortfalls are identified, prompt and decisive action can be taken by either reducing risk or by restoring capital levels. Accordingly, supervisors may wish to adopt an approach to focus more intensely on banks' with higher risk profiles or less operational experience.

A further aim of Pillar 2 is to enforce the notion that increasing capital levels should not be viewed as the sole solution for addressing banks' increasing risk profile, other alternatives available at the banks' disposal include;

- Improving the capacity and efficiency of risk management:
- Increasing the level of provisions and loan loss reserves:
- The application of internal limits: and
- Improving internal controls.

With the Basel II Accord, specifically Pillar 2, the BCBS sought to cement the notion that capital cannot be regarded as a substitute for addressing inadequate risk management or control processes.

Three main risk areas exist which are suited to treatment under Pillar 2:

1. Risks considered in Pillar 1, but not adequately captured by the process: This includes risks such as credit concentration risk;
2. Factors which are completely overlooked in the Pillar 1 process: These factors include considerations like interest rate risk in the banking book, business and strategic risk; and
3. Factors outside of the control of banks': these include such considerations as business cycles.

Other important points of consideration include the assessment of banks'' compliance in respect of the minimum standards, as well as the disclosure requirements of the IRB methods employed in Pillar 1. Bank supervisors are required to ensure that these requirements are met as qualifying criteria as well as on a continuing basis.

2.5.2.1. Key principles of supervisory review

As part of Basel II, the BCBS has identified four key principles of the supervisory review process. These principals complement the core Principles for effective banking supervision as well as the core principles methodology. In terms of these principals;

1. Banks' require a process for assessing and maintaining overall capital adequacy in relation to their risk profile.
2. Supervisory review and assessment of banks' internal capital adequacy and their respective compliance with regulatory capital ratios. Supervisors have discretion to undertake supervisory action in the event the results of the supervisory assessment are not in line with minimum requirements.
3. Supervisors require banks' to operate above the minimum regulatory capital ratios. As such supervisors have a discretionary power to mandate banks' to hold capital in excess of the minimum ratio.
4. Supervisors have the ability to intervene early on, this prevents capital from falling below the minimum required levels. Furthermore this facilitates early and speedy remedial action in the event that capital is not maintained or restored.

2.5.3. Pillar 3: Market discipline

The objective of this pillar is to promote greater stability in the financial system. This pillar comprises a set of disclosure requirements which enables market participants to assess the capital adequacy of a bank. This disclosure encompasses information on the scope of application, capital, risk exposures, risk assessment processes, etc. In addition to promoting greater market stability, this pillar also fosters good corporate governance. Market discipline contributes to a safer and sounder banking landscape, also complementing the minimum capital requirements, Pillar 1 and the supervisory review process, Pillar 2.

Pillar 3 sets out the public disclosure requirements which banks' must make to provide greater insight into the adequacy of their capitalization. When marketplace participants have a sufficient understanding of a bank's activities and controls in place for the management of its exposures, they are better able to compare between banks' and as such reward those who manage risks prudently and penalize those who fare badly.

Basel II strongly recommended banks' to put in place a formal disclosure policy, approved by the board of directors, addressing the bank's approach to disclosures made, and the internal controls over the disclosure process. Banks' must also implement processes for assessing the appropriateness of their disclosures, including validation and frequency.

It is important that the disclosure made by the bank include details relating to key banking risks, including but not limited to credit risk, market risk, interest rate risk and equity risk on the banking book and operational risk, as well as the techniques which banks' rely upon to identify, measure, monitor and control those risks as these are important considerations upon which market participants evaluate a bank.

2.5.4. Drawbacks of Basel II

As was the case with Basel I, Basel II was also the subject of heavy criticism. The subject of the most significant criticism related to the standardized approach, specifically the use of rating agencies in the determination of assets' risk. The reasoning behind this criticism contemplated the independence of agencies providing the rating. Ratings agencies may be considered biased, as opposes to being independent, given that they are remunerated by firms who are subject to the ratings. As such concerns stem from the reliability and objectivity of ratings provided.

Illustrating the drawback of the credit rating agency method can be seen in the failure to consider, and protect against securitization trends which occurred before, and hastened the onset and impact of the global financial crisis. In terms of Basel II's standardized approach, all securitization assets held by banks' are assigned a risk weighting. However, the assets assigned risk weighting is subject to an assigned external credit rating. It can therefore be seen that credit rating agencies play a crucial role in the determination of capital levels to be held by banks' in relation to their securitization assets.

As was the case with the subprime credit crisis, ratings agencies issued inaccurately high ratings to securitized products, the rational for these ratings being twofold.

1. Rating agencies employed faulty rating methodologies in the assessment of securitization risks; and
2. Rating agencies can be seen to have been conflicted, as they remunerated by parties subject to the ratings. Conflicts of interest arose, which impaired the ability of rating agencies to provide objective ratings on securitised assets.

The highly rated securitized assets resulted in insufficient capital held against these assets. Insufficient capital levels left banks' relatively undercapitalized when compared to the risk inherent in these assets. When the assets underlying the securitized products defaulted, banks' were insufficiently capitalized to absorb these losses, this resulted in and hastened the impact of the global financial crisis.

Another concern related to the standardized approach touches on the absence of a consistent ratings system. Basel II fails to specify the rating agencies banks' should rely on, this has

resulted in banks' employing various rating agencies. Each of these agencies employs their own proprietary rating methodologies, which has subsequently resulted in the inconsistent treatment of credit risk amongst banks'.

Further critique of the standardized approach relates to the inadequate differentiation amongst unrated borrowers, the Standardized approach assigns unrated borrowers with a 100% risk rating. The standardized approach falls victim to the same criticisms leveled against Basel I, as it includes borrowers of varying risk profiles in the same risk bucket, ultimately incentivizing banks' to engage in regulatory arbitrage.

Criticisms of the IRB approaches relate to the potential of assessing the real amount of risk in banks' assets. By employing asset specific inputs, the IRB approaches assign risk weightings unique to banks' assets. As a result, instead of the four risk buckets employed under Basel I, or the six risk buckets employed in the standardized approach, the IRB models are capable of producing an indefinite number of risk weightings from 0% on up. Instead of relying on overly broad risk insensitive buckets, the IRB approaches assign risk weightings that are unique to, and more reflective of banks' underlying assets. By allowing the banks' to conduct the risk assessment, the IRB approaches also give people familiar with the borrower the discretion to subjectively determine the risk associated with that borrower, this yields more accurate risk ratings. Therefore, in theory, Basel II's IRB approaches can be seen as a significant improvement over both the Basel I Accord, as well as Basel II's Standardized Approach which employs a bucket approach to risk weighting.

Whilst the IRB approaches appear effective in theory, in practice these approaches are not without their faults. The internal production of risk assessments raises concerns about consistency, these come about because no two banks' would employ the same risk assessment methodology. If, for instance, two banks' assumed identical risk parameters but employed different risk models, the output from these IRB approaches would not yield consistent risk weightings for the same asset. As such regulators of banks' employing the IRB approaches assume a greater responsibility for ensuring that risk assessments are accurate. This is however problematic when considering the complexity of banks' internal methodologies. With these complexities in mind, regulators of IRB banks' may end up deferring to the banks' who devised these risk assessment methodologies. In this event, the IRB approaches would result in a situation where effectively, banks' would be regulating themselves.

A further drawback of the IRB approach is its tendency for promoting pro cyclical bank behavior. Basel II's regulatory structure is the subject of criticism as it induces banks' to hold lower levels of capital during good economic cycles. This adversely impacts banks' when they are forced to take economically harmful actions, such as limiting new loans or undertaking deeply discounted equity offerings, during downswings as they seek to maintain adequate capital levels. During economic upswings, borrowers are better equipped to service their debt obligations. The IRB approaches used by banks', in most cases, reflect improving financial performances which results in lower credit risk estimates of banks' assets. These lower credit risk assessments result in banks'' holding less capital. Conversely, during economic downturns, most recently the 2008-2009 global financial crises, when credit risk was at its greatest, the IRB approaches reflect these higher risk levels. The higher credit risk

assessments drive up banks' RWA, and thereby raises the amount of capital to be held by banks'. This increased capital requirement results in banks' lending less. This is termed a credit crunch, and exacerbates the severity of any ensuing economic crisis. Economic crises are prolonged when banks' lend less, as a result less money circulates in an economy, and this adversely impacts economic growth, and consequently delays any economic recovery.

A credit crunch occurred during the most recent global financial crisis. Banks' held toxic assets, in the form of subprime loans, and had no option aside from reducing lending levels as a means of preventing the further erosion of their capital ratios.

Basel II's shortcomings became particularly apparent to BCBS members countries prior to and during the onset of the global financial crisis. Whilst the crisis was ensuing, stakeholder engagements as to how to best improve the accord was already underway. Whilst the BCBS initially sought to structurally enhance the Accord, the severity of the crisis exacerbated the shortcomings thereof and hastened the urgency of which it was to be addressed. Following significant debate, November 2010 saw the BCBS release the most recent installment of the Basel Accords. This Accord was titled: A Global Regulatory Framework for More Resilient banks' and Banking Systems. More commonly this has come to be known as Basel III.

3. Basel III: The Continuing Evolution of Bank Capital Regulation

3.1. Introduction:

In November 2010, member countries of the BCBS officially endorsed Basel III. Basel III reflects the lessons learned by the BCBS during the global financial crisis. This updated Accord seeks to apply these lessons to existing frameworks of banking regulation. In simple terms Basel III should not be viewed as a replacement for Basel II, instead the new Accord is slated as a supplement to its predecessors. Where Basel II sought to ensure that capital requirements were reflective of the risks underpinning banks' assets, Basel III aims to increase the quality and quantity of capital that banks' hold against these assets.

In addition to supplementing the existing Basel Accords, the BCBS also undertook an extensive reassessment of its risk coverage assumptions and guidelines (Bank for International Settlements, 2010). Seen as one of the most innovative components of the new, Basel III, Accord is the BCBS's creation of system wide macro prudential measures. Where Basel I and II's reforms were targeted at the individual bank level, Basel III introduces reforms at the macro prudential level. These reforms include the introduction of tools such as the countercyclical buffer as well as a universal leverage ratio. These tools aim to address systemic risk within the global financial system (Hannoun, 2010).

3.2. Increasing the Quality and Quantity of Capital held against banks' assets

During the design and consultation stages of the Basel III accord, the requirement the BCBS sought to ensure was the "need to strengthen the quality, consistency, and transparency of the regulatory capital base" (Bank for International Settlements, 2009). The reforms proposed within the accord aims to ensure that the capital bases of internationally active banks' are backed by high quality buffers which are able to absorb losses during periods of economic downturns. The new accord strengthened the definition of capital, focusing specifically on quality, transparency, and consistency. As discussed in chapter 2 of this research paper, Basel I set risk weighted capital requirement at 8.0%, with total capital divided equally amongst Tier 1 and Tier 2 capital, to a great extent, this remained the status quo in Basel II.

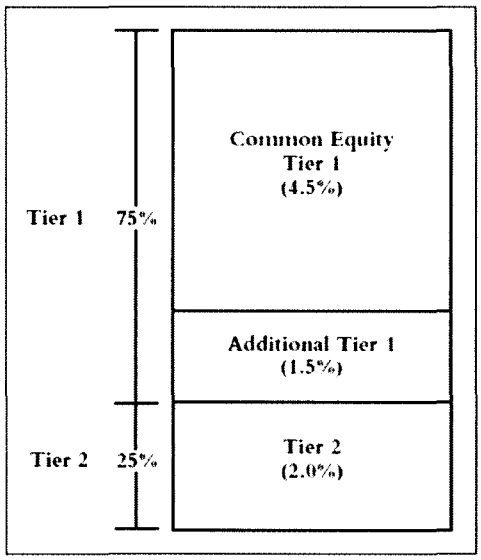
At face value, Basel III retains 8.0% total capital requirement, however the new accord prescribes at least 75% of banks' total capital be comprised of Tier 1 capital. This new requirement increases the proportion of Tier 1 capital from 2.0% of capital from the 4.0% level requirement under the Basel I and Basel II capital Accords. Consequently Tier 2 capital cannot comprise more than 2.0% (25%) of the 8.0% capital requirement. The new Basel III Accord further segments Tier 1 capital into two categories:

1. Common Equity Tier 1 Capital; and
2. Additional Tier 1 Capital.

Based on the above segmentation of Tier 1 Capital, Basel III further requires that Common Equity Tier 1 must comprise at least 4.5% of banks' 8.0% capital ratio, furthermore Common

Tier 1 Equity must also comprise at least 75% of banks' Tier 1 Capital. Additional Tier 1 capital makes up the remainder of Tier 1 capital, and can comprise up to a maximum of 25% of Tier 1 capital. Tier 2 Capital can comprise a maximum of 2.0% of banks' 8.0% capital ratio. The capital composition instituted by the Basel III Accord is best illustrated in the diagram below.

Components of the banks' 8.0% capital ratio



3.2.1. Common Equity Tier 1 Capital

Common Equity Tier 1 Capital consists of common stock, common stock surpluses, and share premium and/or additional paid in capital. To qualify as Common Equity Tier 1 Capital, the BCBS requires that upon issuance instruments have the following characteristics:

- Be the most subordinated claim in the event of a bank liquidation;
- Feature a principal which is perpetual in nature;
- Unable to be repurchased, redeemed, or cancelled;
- Feature dividend terms that are at the discretion of the issuing entity;
- Be recognizable as equity in respect of accounting standards; and
- Issuance executed as part of an arm's length transaction with a third party.

3.2.2. Additional Tier 1 Capital

Additional Tier 1 Capital consists of paid in, and other forms of capital that fail to satisfy the standards of Tier 1 Common Equity Capital. Preferred stock can be considered an example of Additional Tier 1 Capital as these securities are structurally subordinated to depositors, creditors, and other subordinated bank debt. This form of capital also includes equity and subordinated debt instruments issued by banks' subsidiaries which are also held by third parties. Additional Tier 1 Capital also includes certain regulatory adjustments to capital.

As is the case with instruments that qualify as Tier 1 Common Equity Capital, Additional Tier 1 Capital instruments may not be subject to credit sensitive features and must have been issued by

banks' to third party investors. Furthermore Additional Tier 1 Capital must also feature principals that are perpetual in nature, the terms of any dividend declarations must be at the discretion of the issuer, and where instruments are callable, strict rules must govern the nature of these instruments conversion.

3.2.3. Tier 2 Capital

Tier 2 Capital is responsible for providing loss absorption on a "gone-concern" basis; this is in contrast to Tier 1 Capital which is referred to as "going-concern" capital. In contrast between Tier 1 Capital provides banks' with an equity cushion, whilst Tier 2 Capital is responsible for absorbing losses in the event that banks' become insolvent.

Whilst Tier 2 capital is primarily viewed as a loss absorber, this form of capital also serves to provide a cushion against losses. This form of capital is comprised of lower forms of equity and subordinated liabilities. Amongst its equity constituents is preferred stock with non-perpetual principals. Debt constituents include convertible debt as well as other subordinated debt. Tier 2 Capital also consist of other equity instruments which fail to qualify as Tier 1 Capital.

To be recognized as Tier 2 Capital, the BCBS's requires that at issuance:

- The instrument must be subordinate to depositors and general creditors;
- These instruments cannot be secured or guaranteed by the bank
- Cannot possess credit sensitive dividend features.
- Issuance must be executed as part of an arm's length transaction with a third party.
- These instruments cannot feature terms which permit investors to accelerate payments in the event of an insolvency, liquidation, or bankruptcy.

3.3. Establishing Additional Buffers

In light of constrained capital, the BCBS has included within Basel III, new capital buffers that have the objective of defending against future losses. These buffers come on the back of the experiences garnered from the most recent global financial crises. Specifically, during the onset of the 2008/2009 global financial crisis, various banks' declared dividends and awarded staff bonuses (Carauna, 2010). This resulted in capital outflows, which subsequently eroded banks' reserves and reduced their ability to absorb losses.

With the erosion of capital buffers in mind, the Basel III Accord includes both a Capital Conservation and a Countercyclical Buffer. Underpinning these buffers is the principal that banks' should build up capital during periods of economic growth. This capital can then be drawn upon during the periods of poor economic performance when unexpected losses are most likely to occur (Wellink, 2010).

3.3.1. Capital Conservation Buffer

The Capital Conservation Buffer requires banks' to hold an additional 2.5% of Total Capital in the form of Tier 1 Common Equity. This 2.5% is over and above the 4.5% minimum Tier 1 Common Equity Capital banks' are required to hold in respect of the 8.0% capital ratio. In total, Basel III increases the Tier 1 Common Equity requirement to 7.0% (4.5% + 2.5%) of RWA.

Whilst banks' are allowed to dip below the 7.0% ratio during periods of financial or economic stress, banks' must rebuild this buffer through reductions in discretionary distributions[8]. In the event that banks' fail to voluntarily reduce these distributions, whilst these banks' are below the 2.5% Capital Conservation Buffer, the Accord encourages regulators to implement cutbacks in banks' discretionary distributions until the buffer is re-established (Hannoun, 2010).

The extent to which regulators can cutback discretionary distributions is dependent on how much banks' have eroded their Capital Conservation Buffer. Banks' who possesses capital levels close to the 2.5% buffer face less stringent constrains than banks' that fall significantly shy of the 2.5% buffer. This is illustrated in the following table.

Total Common Equity Tier 1 Ratio (%)	Capital Conservation Buffer (%)	Minimum Capital Conservation Ratio*	(%) of earnings available for discretionary distributions
4.5 - 5.125	0 - 0.625	100%	0%
> 5.125 - 5.75	0.625 - 1.25	80%	20%
> 5.75 - 6.375	1.25 - 1.875	60%	40%
> 6.375 - 7.0	1.875 - 2.5	40%	60%
> 7.0	2.5	0%	100%

Note*: ((%) of earnings banks' are required to hold to rebuild buffer)

The above table illustrates the sliding scale envisioned by the BCBS. As an example, a bank with a Common Equity Tier 1 ratio of 5.5% and a capital conservation buffer of only 1% would have to conserve 80% of its earnings in the subsequent year to rebuild the buffer, limiting discretionary distributions to only 20% of earnings.

Banks' can avoid these restrictions by recapitalizing the buffer through capital raisings (such as rights issues). Given economic and financial circumstances Banks' may from time to time dip into the capital conservation buffer to absorb losses. However it is important to note that banks' may not flexibly operate within the buffer range to enhance their competitive posture relative to other banks'. With this in mind, Basel III instructs regulators to employ their discretion to impose time limits on banks' operating within the buffer.

3.3.2. The Countercyclical Buffer

Evidenced by the financial crisis, losses incurred in the banking sector can be extremely large. This is especially true when an economic downturn is preceded by a period of excess credit growth. Easy access to credit results in the accumulation of loans, these results in price and yield increases, ultimately this often results in the creation of asset bubbles (Hannoun, 2010). Eventually when asset bubbles, prices plummet, loans get defaulted on, and the extension of new credit becomes constrained. The reduced availability of credit compounds the erosion of asset prices resulting in an in the amount of defaults.

As a means of mitigating against this cycle, Basel III employs a Countercyclical Buffer. As is the case with the Capital Conservation Buffer, this buffer is also comprised of Common Equity Tier

[8] Basel III considered the following items to be distributions: dividends, share buy-backs, discretionary payments on other Tier 1 instruments, and discretionary bonus payments to staff. Payments that do not result in depleting Common Equity Tier 1 below the 7% minimum, such as scrip dividends, are not considered distributions under Basel III.

1 Capital which serves as a second pool of capital, and is accumulated during periods of high credit growth. Theoretically, the objective of this buffer is to reduce the availability of credit during high growth periods, and simultaneously reduce the pressure of restricting credit growth during economic downturns.

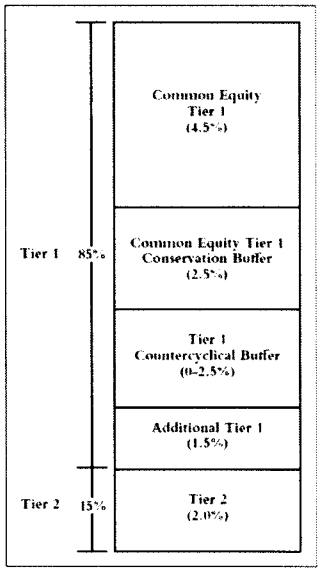
This buffer places reliance on national regulators to monitor credit growth relative to indicators like GDP. When regulators determine that credit growth has been excessive, regulators can impose the Countercyclical Buffer on banks' in their jurisdictions[9].

The size of the Countercyclical Buffer can range from 0.0% to 2.5% and is dependent on financial stability factors experienced in each jurisdiction. When a Countercyclical Buffer is implemented, banks' must comply within a 12 month period, or as is the case with the Capital Conservation Buffer, face restrictions on discretionary distributions (Caruana, 2010).

3.3.3. Potential 13% Capital Ratio (with Buffers)

With Basel III's introduction of the Capital Conservation and Countercyclical Buffers, the 8.0% capital ratio which underpinned the Basel I and II accords increases to 13% under Basel III. As can be seen from the illustration below, 85% of banks' capital ratio must be comprised of high quality Common Equity Tier 1 Capital, whilst only 15% comprises Tier 2 capital.

Based on Basel III's stated objective of increasing the quality and quantity of capital held against banks' assets, we can observe that under the new accord, 85% of banks' capital comprises high quality Tier 1 Capital this illustrates an increase in the quality of capital in contrast to the earlier accords. Furthermore the new Accord also results in an increase in the capital ratio from 8.0% to 13%.



3.4. Introducing a Leverage Ratio

During the development and commentary phases of the Basel III Accord, the BCBS remained mindful of the fact that many banks' had built up excessive leverage, yet these banks' were able

[9] Internationally active banks will be subject to a weighted average of the buffers applied in each of the jurisdictions in which the bank had credit exposures.

to show strong capital ratios. With this in mind, the BCBS rejected the notion that capital requirements be measured and maintained solely on RWA.

To remedy such occurrences the BCBS has adopted a further measure for reinforcing the current risk based capital requirements. Basel III introduces a Leverage Ratio which compares Tier 1 Capital against banks' to total exposure, without taking into account RWA. A leverage ratio of at least 3.0% (i.e. Tier 1 capital should be at least 3% of total exposure) is the suggested target for Banks'.

Basel III's Leverage Ratio remains a work in progress, key for consideration is the calculation of the total exposure to be used in the Leverage Ratio's denominator. To date, the BCBS has agreed the following important principles:

- Assets of subsidiaries, which are consolidated from an accounting perspective, need not be included in the measure of total exposure. This is the true in the instance that investments in these entities are deducted from Tier 1 Capital for regulatory purposes;
- In the calculation of total exposure, loans cannot be netted off against deposits. Furthermore collateral and other credit risk mitigating instruments must be disregarded;
- Derivatives are be included in the calculation of total exposures by employing a Loan Equivalent methodology as is prescribed in the Basel II Accord; and
- Both on and off balance sheet assets are included in the calculation of total exposure. Off balance sheet assets employ a credit conversion factor of 100%.

Though the broader market participants may find this additional measure beneficial to bank market regulation, it remains too early to say whether this additional measurement will have a positive effect on banks' lending behavior. Should the Leverage Ratios be incorrectly calculated, there exists a danger of unintended consequences, for this reason the BCBS has instituted a lengthy implementation period. The Leverage Ratio came into effect on January 1st 2013, however the BCBS continues to collect data during the Leverage Ratio's current observation period which ends on January 1st 2017.

3.5. Managing Counterparty Risks

In assessing the risks arising from on-and off-balance sheet transactions, as well as derivative related exposures, the shortcomings of earlier Accords become increasingly apparent. The Basel II Accord allowed banks' to calculate the risks of their trading book assets with the VAR model. In general, VAR models output smaller capital charges than the charges that would be seen if the same asset were to be held on the banking book. VAR models employed by banks' assume a degree of liquidity in trading book assets, however leading up to the financial crisis banks' built up positions in both derivatives and securitization products. These securitization assets proved to be less liquid and significantly more risky during times of market stress. This ultimately resulted in large losses as a consequence.

In attempting to rectify this potential arbitrage opportunity, the VAR model was subsequently amended and reintroduced by the BCBS during 2009. This capital measure was further supplemented, with the inclusion of a charge accounting for turbulent market conditions.

The calculation of the stressed and consequently higher VAR capital charge takes into account a stress calibrated VAR model which assumes a 12 month period of stressed financial conditions. The rules governing Basel III's capital charges in regards to securitizations have also been standardized across both the banking and trading books, thereby eliminating any further arbitrage opportunities.

The treatment of the trading book and the securitization market's exposure remains a key area of consideration for the BCBS. Nevertheless, the BCBS has also proposed various alternatives with the objective of mitigating counterparty credit risk in both the derivatives and structured financing markets. These proposed alternatives aim at removing anomalies in Basel III's treatment of securitization assets. Counterparty credit risk and external ratings, particularly in the context of Cliff Effects[10] remains two areas which require considerable focus from the BCBS.

3.5.1. Counterparty Credit Risk

The Basel III Accord emphasizes that banks' calculate their capital requirements under a worst case scenario[11]. In doing so, the BCBS focuses on the following key topics:

3.5.1.1. Stress testing of default risk:

Basel III requires that banks' calculate their default risk capital charge by taking into account a stress calibration as part of the exposure calculation. The stress calibration must take into account at least three years of historical data, which should also include a period of increased credit spreads allowing for a cross section of banks' counterparties.

The data underpinning the stress calibration must be updated on at least a quarterly basis, or possible more frequently if conditions warrant it. To assess the adequacy of these stress models, a bank must measure its calculations against a benchmark portfolio that is subject to the same market susceptibilities as the bank and that is calculated using similar stress calibrated data.

3.5.1.2. Credit Valuation Adjustments:

Basel III also requires banks' to hold capital against marked to market losses stemming from a decline in the creditworthiness of its counterparties[12]. Secured financing transactions are not covered unless potential losses are deemed material by the banks' regulator. The calculation is made on the basis of a bond equivalent valuation, though the exact calculation methodology is subject to the banks' approved model.

3.5.1.3. Wrong Way Risk:

The identification and mitigation of wrong way risk is viewed as another means of improving the evaluation of Counterparty Credit Risk. Wrong Way Risk arises when a bank's exposure to a counterparty increases whilst the credit worthiness of the counterparty declines.

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[10] Cliff effects describes a one or two notch rating change which leads to a step change in investment portfolios and therefore an outsized impact on market prices.
[11] The new measures also identify specific areas of credit risk which encourages their assessment and mitigation.
[12] This requirement is known as the credit valuation adjustment. This adjustment applies to all OTC derivatives counterparties that are not central clearing counterparties.

An illustrative example is the case in which a bank holds put options written by a corporate on its own shares. Basel III requires banks' to monitor wrong way risk through the analysis of defined sectors including industry and product, as well as in reference to specific transactions.

3.5.1.4. Asset value correlation for large institutions:

To account for the systemic risk that could arise from the failure or default of a large counterparty, a multiplier of 1.25x is applied to the asset value correlation for exposures to:

1. Regulated financial institutions with assets in excess of $100 billion; and
2. All unregulated financial companies, this is irrespective of size.

3.5.1.5. Collateralized Counterparties:

Basel III proposes a variety of measures for improving the management and calculation of collateral. The BCBS established a minimum period at risk of five business days for margin calculations on netting sets of transactions, such as repo transactions, while all other such transactions entail ten business days.

In the case of sets exceeding 5,000 transactions or for sets involving derivatives considered hard to replace or illiquid collateral this minimum period at risk increases to twenty business days. When assessing the appropriate period at risk, banks' that are subject to Basel III must consider whether they are able to replace trades, when these trades are concentrated to a particular counterparty.

3.5.1.6. Central Counterparties:

More transactions and trades being facilitated through Central Counterparty ("CCP") clearing in the Over the Counter ("OTC") derivatives markets and is seen as a key factor in the reduction of risk. This is evidenced in initiatives by both the U.S. and E.U. legislatures[13].

The BCBS encourages the movement to CCP's and has introduced a low capital charge, 2.0%, on exposures to CCP's[14] that satisfy the criteria specified by the International Organization of Securities Commissions ("IOSCO"). These criteria include measures pertaining to capital, collateral maintenance, and governance.

Exposures to CCP's that do not meet the IOSCO's criteria are treated as any other bilateral exposure, and must meet the 8.0% capital requirement.

3.5.1.7. Enhanced Counterparty Credit Risk Management:

In addition to the above listed counterparty considerations, the BCBS has introduced further measures for improving the quality of the risk assessments, practices, and procedures.

[13] Proposals on the establishment and operation of CCPs, and a compulsory clearing obligation for certain OTC derivatives have been published in both the U.S. (part of the Dodd Frank Wall Street Reform and Consumer Protection Act and the E.U. draft regulation published Sept. 15, 2010).

[14] Under Basel II, 0% risk weight applied, and many anticipated that this standard would continue to apply. The BCBS determined, however, that imposing a small charge would encourage prudent risk monitoring practices and would also clarify that "even trade exposures to compliant CCPs are not risk free.

Particular emphasis is placed on how these operations function during periods of market turbulence. Counterparty credit exposure and product risks must be captured in a timely manner and subjected to regular and extensive stress testing. The integrity of forecasting and estimation models must be continually ensured. These models must also be subjected to regular validation and testing, which includes back testing. Furthermore, both banks' and their supervisors must be alert to the consistency in the use of these models.

- The BCBS emphasise the importance of banks'' risk management functions and recommends that these operations be supported by:
  - Senior management that is actively involved on a continuing basis;
  - Recognition of the risk management exposure;
  - Models of day-to-day business operations; and
  - Policies and procedures that is well understood and documented.

Furthermore the BCBS requires that the systems responsible for monitoring banks' risk management systems and procedures be reviewed at least annually. Banks' must also have an independent and distinct risk control unit that asses risk measurement, credit exposure and trading limits on a daily basis.

3.6. External Ratings and Cliff Effects

3.6.1. External Ratings:

The Basel II Accord permitted banks' to use credit ratings issued by External Credit Assessment Institutions ("ECAI") for assessing their risk weightings. An unintended consequence of using ECAI's has resulted in many banks' being unable to make their own assessments of risk. To address this unintended consequence, Basel III employs a policy wherein banks' make their own independent credit risk assessments of rated instruments.

In addition, for rating agencies to qualify as ECAI's, agencies must comply with IOSCO's "Code of Conduct Fundamentals for Credit Rating Agencies". This is particularly important from the perspective of the ratings transparency process. It is expected that the BCBS will in the future issue additional proposals, this is likely follow its review of the securitization framework and the use of external ratings.

3.6.2. Credit protection:

Basel III recognizes credit risk protection providers under the Accords credit risk mitigation provisions. To qualify under these provisions, providers must be externally rated, and be rated no worse than A- or the equivalent. In the event that a ratings downgrade was to occur, these provisions may result in cliff effects. Cliff effects described a scenario where a one or two notch rating change results in a step change in investment portfolios. The changes in investment portfolios have an outsized impact on market prices. The aftermath of the ratings downgrade leads banks' to hold more capital against these rated assets. Where cliff effects occur and banks' are unable to increase its capital, insufficient capital levels may result in further downgrades, with the cycle thereby repeating itself.

To counteract the risk of cliff effects, the BCBS has proposed that the requirement, for credit risk providers to be rated A- or better, be eliminated for non-securitization exposures. Where securitization exposures are concerned, credit protection will only be recognized if the provider of the protection is rated BBB as a minimum, and a minimum rating of A- when the protection was initialized.

3.7. Improving Liquidity

Considering the drivers of the global financial crisis, it is evident that the crisis was driven by poor liquidity. Banks' ability to raise short-term funds was severely constrained, and converting bank assets into cash became increasingly difficult, where it did take place, these sales were done at substantial haircuts. Consequently, banks' were forced to draw down on Central Bank lending facilities.

As collateral, eligible to Central Banks, dwindled, combined with the impact of severe erosions in value of banks' less liquid assets, the constrained liquidity experienced during the crisis lead to erosion in banks' capital levels.

With the acknowledgment that liquidity is an important contributor to the stability of the banking sector, in 2008 the BCBS published the Principles for Sound Liquidity Risk Management and Supervision. More recently, the BCBS also published the first harmonized Liquidity Standards, a key component of Basel III.

Key to these standards, the BCBS introduced two minimum liquidity standards:

1. The Liquidity Coverage Ratio ("LCR"); and
2. The Net Stable Funding Ratio ("NSFR").

3.7.1. Liquidity Coverage Ratio

The LCR was designed to ensure that multinational banks' hold sufficient, unencumbered, high-quality liquid assets that can be used to offset any net cash outflows banks' may be susceptible to. This ratio takes into consideration a month long acute stress scenario, which is comprised of both systemic and bank specific shocks.

These stress scenario's contemplate downgrades in banks' credit ratings, partial losses in deposits, an inability to procure unsecured wholesale funding, increases in secured funding haircuts, increases in derivative collateral calls, and calls on off-balance sheet exposures.

LCR Formula

$$\frac{Stock\ of\ high\ quality\ liquid\ assets}{Total\ net\ cash\ outflow\ over\ the\ next\ 30\ days} \geq 100\%$$

The equations' numerator represents banks' "stock of high quality liquid assets". These high quality assets must be unencumbered and are characterized with low credit and market risk susceptibility, ease and certainty of valuation, and low correlation with risky assets[15].

Operationally these assets must be used as a source of contingent funds, and available for banks' to convert at any time, so it can be used to fill funding gaps. These high quality liquid assets are divided into Level 1 and Level 2 Assets.

- Level 1 Assets: These are not subject to haircuts under any stress scenarios, and are comprised of cash and Central Bank reserves which can be drawn upon.
  - Level 1 Assets also include marketable securities, issued or guaranteed by governments, Central Banks, multilateral development banks', and other public sector entities.
- Level 2 Assets, are those assets which are subject to haircuts of at least 15%. After accounting for haircuts, Level 2 Assets can comprise a maximum of 40% of the LCR's numerator.
  - Marketable securities, such as corporate and covered bonds, issued by non-financial institutions comprise Level 2 Assets.

Total net cash outflow is defined as banks' total expected cash outflows less the total expected cash inflows during a stressed scenario. Cash inflows are capped at 75% of expected outflows, thus implying that net cash outflows and the corresponding minimum for high quality liquid assets, may not fall below 25% of expected cash outflows in the 30 day stress scenario.

When calculating banks' expected cash inflows, banks' must include inflows from outstanding exposures, currently performing, and which banks' has no expectations of default within the 30 day horizon. Once expected cash inflows for the 30 day stress scenario are determined, this amount is deducted from the expected cash outflows, up to a total of 75% of the outflows. The resulting net cash outflow corresponds to the minimum stock of high quality liquid assets that Basel III's LCR requires banks' to maintain.

As the equation suggests, the LCR requires that banks' hold, at minimum, an equal amount of high quality liquid assets against its net cash outflows for the next 30 days.

3.7.2. Net Stable Funding Ratio

In contrast to the LCR, aimed at ensuring short term liquidity during periods of stress, the NSFR promotes medium and long term funding with the establishment of minimum liquidity levels. These liquidity levels are premised on banks' assets and their activities which include assets related to off-balance sheet commitments, over a 1 year period of extended stress.

The NSFR requires that Available Stable Funding ("ASF") exceed Required Stable Funding ("RSF") for assets and off balance sheet commitment exposures.

NSFR Formula

$$\frac{Available\ amount\ of\ stable\ funding}{Required\ amount\ of\ stable\ funding} \geq 100\%$$

[15] Ideally, these should also be Central Bank eligible..

ASF is defined banks' total regulatory capital, this includes:

- Preferred stock with maturities in excess of one year;
- Liabilities with maturities in excess one year; and
- Non maturity and term deposits, as well as wholesale funding with maturities of less than one year, that are expected to remain with banks' for an extended period in the instance of an idiosyncratic stress event.

Funding sources are weighted differently and are subject to whether they are considered "stable" or "less stable". Furthermore they depend on the nature of the entity providing the funding.

The Required Stable Funding is based on the liquidity profiles of banks' assets and their off balance sheet exposure. The RSF is calculated by multiplying an RSF factor, which is assigned to each type of asset, by the value held in each asset class. Thereafter banks' must add the amount of off balance sheet activity, also, multiplied by its corresponding RSF factor.

These RSF factors approximate the proportions of asset classes that will not be monetized either through sale, or which can be used as collateral in secured borrowing during a yearlong liquidity event.

3.8. Dealing with Systemically important financial institution' s ("SIFI")

Basel III advocates increasing capital and liquidity requirements, these increased requirements are expected to result in a strengthening of banks'. However whilst these efforts will strengthen individual banks', they do not address the systemic risk which arise from the interconnectedness of banks', specifically those banks' who are perceived to be "too big to fail".

Consequently the BCBS working with the United Kingdom's Financial Services Board ("FSB") are developing a series of proposals to address SIFI's. These proposals include considerations which include capital and liquidity surcharges, tighter restrictions on large exposures, mandatory recovery and resolution plans, and contingent capital and bail in debt requirements.

Of the proposals contemplated, seen as the most critical is the potential requirement that all non-common Tier 1 and Tier 2 Capital instruments, such as common equity, preferred equity and subordinated debt, that are issued by SIFI's be inclusive of terms that ensures these instruments be written off prior to any public sector capital infusion (Bank for International Settlements, 2010).

These proposals are complementary to other broader macro reforms, all of which aim to reduce the pooling of risk and addressing problems which would arise in the event of a SIFI's failure. Currently, all of these SIFI related proposals remain in their infancy.

BCBS aimed to release a provisional methodology for assessing systemic importance by 2011 (Financial Stability Board, 2010), however this methodology remains a work-in-progress. The BIS recently suggested that while indicators, such as bank size, can be considered reliable proxies for systemic importance, to date no consensus has been reached in so far as defining the

class of SIFIs to be subjected to capital surcharges or other additional requirements. Neither as a consensus been reached as to what those additional requirements may be.

3.9. Implementing Basel III

Basel III was introduced with the objective of improving the safety and soundness of banks', and the broader banking sector. With this objective in mind the Accord sought to increase the quality and quantity of capital to be held by banks'. Whilst the broader objectives of the Accord are well understood, many bankers and regulators alike have cautioned against the rapid implementation of these reforms, with many cautioning against unintended consequences.

With much of the global banking sector only starting to emerge from years of recovery, the BCBS has established a phased implementation timetable for the roll out of Basel III. This timetable weighs up the desire for increased capital and liquidity requirements against the need to facilitate economic recovery.

Basel III's phased implementation approach commenced in January 2013, however the full Accord is only expected to be implemented by January 2019. Per its objective of increasing the quality and quantity of capital, achieving a Common Equity Tier 1 Capital ratio of 4.5% and an overall Tier 1 Capital ratio of 6.0% is seen as the BCBS's highest priority. Consequently, the implementation of these requirements must take place by January 2015, this being at least four years earlier than some of the Accords other features.

Once Basel III's core capital ratios have been implemented, the Capital Conservation Buffer will start to be phased in from January 2016. The implementation of this ratio will commence with an initial buffer of 0.625%, with a further 0.625% being added to the buffer each year up until the buffer reaches 2.5%. The implementation of the Countercyclical Buffer runs in parallel to the Capital Conservation Buffer, however national regulators may choose to accelerate the implementation and size of the Countercyclical Buffer dependent subject to jurisdiction specific circumstances.

The leverage ratio was phased in from January 1, 2013 with final implementation scheduled for December 31, 2016. During this period, banks' must calculate their leverage ratios and starting January 1, 2015, must also publicly disclose these ratios. Subsequently the 3.0% Leverage Ratio comes fully into force on January 1, 2017.

The BCBS's implementation of the Basel II's new Liquidity Ratios follows a more staggered approach:

- The LCR is expected to be officially introduced, as a minimum standard, by January 1, 2015; and
- The NSFR is only expected to be introduced by January 1, 2018.

To date, no time frame for the implementation of any of the additional capital charges, envisioned for SIFI's is envisioned. However the BCBC is in the process of coordinating its work

on this topic with the U.S. Financial Stability Oversight Council ("FSOC") and the European Systemic Risk Board ("ESRB") as these bodies address SIFIs in their respective jurisdictions.

3.10. Conclusion

The Basel III Accord represents sizeable milestone in the development of uniform, and internally reaching capital requirements. The Accord emphasizes the quality and quantity of core capital, with the overriding objective of fortifying banks' capital cushions as the framework's cornerstone.

Through the correction of the identified shortfalls of Basel I and II, the BCBS has designed a regime that incorporates liquidity requirements as well as numerous macro prudential tools to reduce systemic risk. It is however worth mentioning that none of these reforms are expected to be implemented cheaply. Bank capital and its ability to absorb losses without impacting the global economy are critical, but expensive. In the future, regulators will be required to contrast Basel III's benefits against the costs of its implementation.

This becomes apparent when we take into consideration the considerations voiced by detractors of the Accord who believe aspects of the reforms outlined and discussed throughout this chapter will hamper economic recovery, and may impede economic growth. The BCBS itself has admitted that Basel III will have an impact, modest, on growth in the short term (Bank for International Settlements, 2011). However, with this in mind they designed the phased implementation calendar with the objective of minimizing any deleterious effects on economic growth.

4. How does reforming financial regulation affect the emerging market?

4.1. Preamble:

As discussed through the breath of this research paper the impact of the most recent financial meltdown has resulted in the episode commonly termed the "Great Recession", a lesson which has warranted the distinction of being contrasted against the great depression of 1929. With the most recent iteration of the Basel accord designed primarily to ensure that the banking industry avoids the behaviour and practices which resulted in the global crash.

As a result of the increased capital adequacy, bolstered supervisory review, and sterner market discipline regulation brought on by Basel III one of the concerns of emerging markets is that the accord will succeed in its objective, but in doing so stunt the growth of the emerging markets, specifically Africa and other frontier markets[16].

This chapter leverages on research prepared by the G20 where it commissioned the FSB, World Bank and the International Monetary Fund ("IMF") to analyse the effects of regulatory reforms on emerging markets. This paper also discusses the findings of research carried out by the private sector.

4.2. Introduction:

With the objective of reinforcing the stability of banks' and the banking sector in mind, following the effects of the global financial crisis, the G20 agreed numerous reforms, the impact of which was also globally felt. Although the implementation of Basel III has been applauded by developed economies, these developed economies are also implementing their own reforms to supplement the core international standards set by the FSB and BCBS.

From a financial development perspective, the goals and objectives of Emerging markets are completely different to those being sought by developed economies (Dorrucci, Meyer-Cirkel, and Santabárbara, 2009). This can be seen at the sovereign level, but also the ways in which these countries fund themselves. The banking sectors in most of these countries are in most cases fundamentally less sophisticated and more often than not their financial markets are far less developed. In developed economies the current mandate is to manage banks' classified as SIFI's and ensure the deleveraging process is carried out. This is in order to meet regulatory priorities.

In emerging markets, banks' have a greater responsibility to support economic growth, job creation, and financial inclusion. As mentioned above these emerging markets have less developed capital markets', furthermore these banks' are also subjected to increasing competition with banks' from developed economies on the international stage. With this in mind ensuring that banks' are healthy and have the ability to deliver credit for investment in emerging markets are of critical importance. As such, any proposed regulation, or externalities

[16] Less advanced capital markets from the developing world. Frontier markets are countries with investable stock markets that are less established than those in the emerging markets. Available at http://www.investopedia.com/terms/f/frontier-market.asp

which are expected to impact the competitiveness, ability of emerging market banks to achieve the above mentioned economic growth objectives must be carefully considered.

Whilst the term "emerging markets" is used widely throughout this research paper, the traits common to all of these markets are; imperatives towards economic growth, comparatively less developed, and thinner capital markets.

This chapter seeks to discuss and addresses:

1. The impact of banking regulation, such as the Basel Accords, on banks' operating in emerging markets;
2. The impact these reforms may have on the drivers of economic growth in these emerging markets; and
3. Potential measures of addressing the issues highlighted above.

4.3. The impact of Banking Regulation on Banks Operating in Emerging Markets

Quantifying the impact of the most recent series of reforms remains unclear. To date these have only been partly implemented whilst some remain a work-in-progress. While only BCBS member countries have to implement Basel III, some emerging markets may have choose to either implement Basel III or develop regulatory regimes that draw on the principals of Basel III. What is evident is that banks' from developed economies will need to change their operating to meet the new regulatory regime, in some cases this may entail withdrawing from operations considered noncore. Whilst the latest iteration of the Basel Accords, Basel III, is slated to yield substantial benefits, concerns have been raised that implementing these reforms, at least in the short run, may hamper economic growth, and result in unintended consequences. To this extent the BCBS has admitted that Basel III will have an impact on growth in the short term. Other unintended consequences include:

1. Increasing cost of finance: In the short run, the cost of increasing capital ratios may result in banks' reducing lending and increase cost of finance;
2. Deleveraging of banks' balance sheets: Increasing the proportion of capital in relation to total assets means that banks' would reduce their liabilities; and
3. Structural changes to the multinational banking model: The entry of foreign banks' into emerging markets has been shown to improve the functioning of host country's bank market, this comes about through increased efficiency and market competition.

4.3.1. The impact of liquidity:

Inadequate capitalisation underpinned by inadequate liquidity regulation in the developed world without doubt contributed to the financial crisis. As a means of addressing these shortfalls, the Basel III accords liquidity regime introduced two requirements;

1. The Liquidity Coverage Ratio; and
2. The Net Stable Funding Ratio.

4.3.1.1. The Liquidity Coverage Ratio:

This ratio was introduced to prevent a reoccurrence of failures experienced during the global economic crisis. Changes to regulation that governs liquidity are expected to have a profound impact on both developed and emerging economies. It should however be noted that these economies may not be impacted in the same way.

With the wounds of previous financial crises still in memory, many emerging markets have established robust liquidity regimes. How Basel III will work in these markets is yet to be clarified, this is only compounded by disparities in the banking models in operation. If we were to overlook the differences between individual countries within the emerging economies group, the new regulation gives rise to issues common to most of them.

The LCR requirement of holding high quality liquid assets within buffers, poses problems for emerging markets. Emerging markets issue sovereign debt less frequently than developed market. Many of the most underdeveloped of the emerging markets have insufficient levels of sovereign debt in issue, thus impeding their banks' to meet buffer requirements. The alternative of placing funds with Central Banks, yields increased liquidity costs and subsequently results in an increase in the overall cost finance.

Should these emerging markets issue more sovereign debt, which will enable their banks' to meet the liquidity buffer requirements, these countries face the risk of defaulting on their debt servicing obligations. This trend has already been seen in some of developed economies, specifically southern Europe. Employing such an alternative would be counterintuitive to meeting the new regulatory policy, which has the stated objective of strengthening the financial market.

Another alternative available to banks' from emerging markets is to increase their holdings of highly rated liquid assets from developed economies countries. However, as governments of developed economies continue to face ratings downgrades, banks' are being to look elsewhere and are targeting alternative high grade issuers. This has resulted in increased demand for securities from stronger emerging market sovereigns such as the United Arab Emirates, China and Qatar. As demand for this paper increases, its availability will become limited, banks' will subsequently be forced to look at sovereign backed entities originating from these countries. That being said, taking into account foreign exchange and country specific risks, holding liquidity buffers comprised of foreign securities, irrespective of their rating, is far from perfect.

Further ways through which emerging markets can meet the LCR buffer requirement is by holding Level 2 Assets, defined as high quality non-sovereign instruments such as covered and corporate bonds. These instruments can comprise up to 40% of the buffer and are subject to valuation haircuts. In most emerging markets however the availability of such instruments is also limited. The covered bond market is insufficiently developed as an asset class and high quality corporate paper is only available in limited quantities. This is as a result of the underdeveloped capital markets and ratings constraints. To qualify for the LCR liquid asset buffer, corporate bonds are subject to credit rating requirements. Corporate ratings are capped at the rating of its country. Given their existing levels of development, many of the emerging markets are rated lower than the minimum standards required by the LCR.

Such issues concerning the appropriateness of the LCR for emerging markets are not limited to the asset buffer, but also impact the treatment of banks' liabilities. A case in point, not all countries operate deposit insurance schemes, however, in terms of Basel III liquidity, the regime identifies deposit insurance as a criteria for classifying deposits as stable. In such a case the depth of relationship between banks', their clients and the channel by which deposit are garnered could be a better indicator of deposit stability under stressed conditions.

The BCBS's current review of the LCR, covering both the definition of assets eligible for the liquidity buffer, and the treatment liability classes, needs to take full account of emerging market considerations prior to its introduction in January 2015.

4.3.1.2. The Net stable funding ratio:

In the context of emerging markets, the NSFR appears even more challenging than the LCR. The European Banking Authority ("EBA") estimates that European banks' alone will face a shortfall against the NSFR of around €1.9trn, estimated at 75% of the European senior debt market. This is a significant hurdle for European banks' as they are also faced with distressed economic outlook. From the perspective of emerging markets banks', the NSFR, will be very demanding as a result of limited depth in local funding markets, and the resultant stresses on the global funding markets.

Aside from the direct impact of implementing Basel III's liquidity regime on emerging market banks', there is also a likely indirect consequence to arise as banks' in developed economies, particularly Europe, refocus their coverage models. These indirect consequences are highlighted when taking into consideration the recent EBA stress tests. These tests required various European banks' to meet a 9.0% Core Tier 1 Capital ratio without reducing credit exposure in the European Union. For European banks' to complying with these requirements many would likely have to withdraw from their operations in emerging markets. As will be discussed later in this paper, this will result in a negative consequence for the banking sectors in these foreign economies.

Additionally areas like project and infrastructure finance that are characteristic of long tenors, with exposures in many emerging markets, and subject to large international bank involvement in raising finance, are also very likely to be affected. From the perspective of emerging markets, this will have a detrimental impact on infrastructure development over the foreseeable future, or at least until other viable alternatives are developed. Nomura concludes that the Basel III liquidity regime "...has the potential to markedly alter global asset allocation decisions, the conduct of Central Bank monetary policy and the shape of global yield curves" (Nomura, 2012).

4.3.2. Rising Cost of Finance – Capital

Historically many emerging market banks' were better capitalised than there developed market peers. As a means of increasing their capital rations, internationally active banks' with operations in emerging markets may have to change their strategies and business models.

Various emerging markets operate effective, interventionist macro-prudential regimes. However none of the Basel Accord has given consideration to the effects and benefits that such regimes add to financial stability. Effective macro prudential regulation embeds a degree of safety in the overall regulatory regime, implying that further capital requirements may offer less incremental benefit.

Numerous private sector assessments have analysed the incremental costs of implementing Basel III and its impact on economic growth and bank credit supply (Ghosh, Sugawara and Zalduendo 2011). Whilst less emphasis has been placed on the Accords impact on emerging markets, the World Bank estimates that an increase in the capital ratios in developed economies of 2% may result in GDP contraction of 0.3% in emerging markets with large banking flows.

To evaluate the short term impact on banks' financing costs, volumes, and economic activity amongst developed economies who have or are in the process of adopting Basel III, the Macro Assessment Group ("MAG") and the Institute for International Finance ("IIF") have each undertaken studies to understand their impact.

The MAG report, which is based on models covering 17 countries, suggests that the median increase in lending spreads is estimated at 15 basis points by 2015. This is in response to a 1.0 percentage point increase in the target capital ratio over a period of four years. Whilst the IIF report, which is premised on data from the Eurozone, Japan, and the United States, suggests that a 2.0 percentage point increase in banks' capital ratios would result in an increase in the average lending spread of 132 basis points over the period 2011–2015.

As the Accords other prudential requirements, which are not as yet required, are being contemplated by banks', banks' have to weigh up the need of being adequately capitalised, against the requirement to provide shareholders with a return on their investment. This is of critical importance when banks' consider raising new capital in the equity markets, which if successful assists banks' in meeting Basel III's regulatory requirements.

Other ways in which developed market banks' have sought to increase their capital ratios entail the comprehensive restructuring of their businesses, however these restructurings have the effect of exacerbating reductions in capital deployed to emerging markets[17]. Other banks', considered as better prepared, may have secured lending in the emerging economies in which they operate, especially if they were able to secure a higher return in these markets.

In addition to the changes in capital brought on by Basel III there are other changes to capital regulation which also impact emerging markets. This can be seen in the implementation of Basel 2.5 which resulted in the deleveraging of banks' trading positions. This adversely effected liquidity in emerging markets and the development of their financial markets.

Financial regulators in developed economies are now developing "bail in tools", such as the counter cyclical buffer, ensuring that banks' are easily resolvable in the event of a crisis.

[17] The December 2008 BIS Quarterly Review concluded that "A robust finding is that deterioration in banks' health and stresses in mature interbank markets from the early 1990s to mid-2007 consistently led to slower growth in international credit to emerging markets."

Although these moves have been welcomed, it is important that the impact of these reforms on emerging markets be considered.

In designing and implementing the counter cyclical capital buffer, we need to remain cognisant of the variance between the required credit growth in developed and emerging markets. Developed markets do not require the same growth rates in the extension of credit expected to be seen in emerging markets. In the emerging markets credit and the growth therein supports rapid economic growth and social development. With this in mind, growth in developed economies may be much lower than the growth rate required in emerging markets with lower credit penetration.

For some time various banks' in emerging markets have conducted their business with more equity than banks' in the developed economies. With the implementation of Basel III and the requirement for all banks' to hold more capital, and in the context of the relative resilience showed by emerging market banks' during the financial crisis, increasing the capital requirements for these banks' will further constrain their ability to extend credit, ultimately increasing their cost of capital.

4.3.3. Reduced Availability of Credit Due To Deleveraging

As a means of meeting higher capital requirements internationally active banks' are forced to weigh up their allocation of capital between countries and activities. The concern is that regulation that entails mandatory requirements in regard to banks' capital in their home markets may lead to a reduction in capital deployed to emerging market countries where these banks' have operations.

Claessens et al (2001) discussed the importance foreign bank entry plays on emerging markets. Their paper asserted that the entry of foreign banks' into emerging markets renders national banking markets more competitive, forcing domestic banks' to operate more efficiently. The results of the paper suggested that the relaxation of regulations pertaining to foreign bank entry, whilst a reduction in domestic banks' profit margins will occur, would result in an overall positive welfare outcome for the domestic economy.

The Basel III accord does not directly reduce the entry of foreign banks' into emerging market economies, however it can be seen as an impediment, as banks' now choose to increase their mandatory capital requirements in their home countries. It therefore goes that a reduction in the number of foreign banks' operating in the emerging markets would result in a decrease in the competitive environment, increase the profits of domestic banks' and ultimately result in overall negative welfare for the domestic economy.

4.3.4. Fragmentation of Available Finance

International trade flows, and the growth thereof is imperative for both emerging and developed economies. These flows are susceptible to various factors which may adversely impact the ability of international banks' to facilitate these flows. Some of these factors include:

- Banks' that have benefited from governments funding, are the subject of political pressure to ensure credit is availed primarily in their home markets.

- Cross border activity is being hampered by structural reforms and other regulatory disincentives. These cross border impediments significantly hinder financing international trade and investment flows.
- Recovery and resolution plans instituted by the home regulators of internationally active banks' may result in an adverse impact on the international banking and emerging markets. When developing resolution regimes, home supervisors must collaborate with host supervisors to focus on techniques which are aligned with the firm's broader structure. Where strategies are not aligned, these international banks' may be forced to shut down, and ultimately reducing access to available finance.

4.4. Impact on Emerging Markets Growth

This section analyses the effect of the regulatory pressures banks' in emerging markets could feed through into the different financing needs and ultimately economic growth.

4.4.1. Trade and Commodity Finance

Trade and commodities are some of the primary drivers of economic growth in emerging markets. Hence it is a fair assessment to state that trade and commodity finance plays vital role in improving the current global economic outlook. Globally trade finance supports USD14 - USD16 trillion worth of trade annually (The Impact of Regulatory Reforms on Emerging Markets, 2012). Given the importance of trade related business in the emerging market it is this form of financing that is particularly relevant to emerging markets, given the extent of export related businesses and also because of the higher take up of documented trade finance in these markets.

- Products such as Letters of Credit ("LC's") are more widely used in Asia and emerging markets than in the developed economies, LC's are also used by both small and medium enterprises ("SME's"), and much larger companies in emerging markets.
- Over 55% of all LCs originate from emerging markets, thus emphasising the importance of trade finance as an important source of credit for these markets.

This means of financing is considerably important for SME's and smaller corporates, this on the back of the relative ease of facilitating, and cheaper means of borrowing when compared to other debt products because it is more structured and self-liquidating. These features are of importance to SME's, given their higher risk profile would in most cases imply higher capital requirements, more expenses for the banks' and additional costs for customers.

Trade finance has crucial role in supporting real economic activity, this form of financing poses minimal risks to financial stability, and was not a contributor to the onset of the Global Financial Crisis. Trade finance deals are short term, average tenor of between 90 to 180 days, and have very low default rates.

Given its role in supporting economic growth, limited credit and liquidity characteristics, trade finance seems the type of product policymakers should support. This is however not reflected in the current Basel III proposal. The combined impact Basel II and III has had on trade finance is significant and in the context of the limited risk posed, out of proportion. The April 2011 Economic Premise, published by the World Bank suggests that while the size of the reduction in trade flows remains subject to debate, in the short term there will be an adverse impact on the

countries adopting Basel III. To the extent that the short term impacts do materialise, emerging markets are expected to be impacted through various channels, these channels are over and above the impact these countries would face in the event that they implemented Basel III themselves.

In light of the disproportionate treatment of the trade finance the IMF, FSB and World Bank task force suggested that policymakers make the following changes:

4.4.1.1. Capital:

- The waiver of the one year maturity floor for trade loans and receivables, in addition to the agreement that there be a harmonised implementation approach.
- The creation of a trade specific Asset Value Correlation ("AVC") or risk curve in addition to a harmonised implementation approach.

4.4.1.2. Liquidity :

- The implementation of defined liquidity requirements for LC's and trade guarantees. These requirements can be based on data from the International Chamber of Commerce.
- Recognition of Trade Finance inflows from corporate counterparties at 100%.
- Basel III recommends that inflows from exposures to Financial Institutions be recognised at 100% during stress (100% would repay on maturity). From the perspective of corporates the accord only recognises 50% of inflows.
- Given the self-liquidating nature and structural characteristics of trade finance, recognition of 100% of the inflows from both corporate and financial institutions appears more logical.
- Capping inflows at 50%, adds a liquidity buffer cost to the business, this exerts undue pressure on the viability of export/import financing which may result in banks' contracting – as opposed to growing – this driver of economic growth.

October of 2012 saw the BCBS announcing measures with the objective of improving the capital treatment of trade finance. The announcement was, however, disproportional in that only LC's for imports to low income countries, and not exports from these low income countries were amended. Ultimately these amendments adversely impacts emerging markets as they favour exporters from developed economies over emerging market exporters.

In the event that banks' decided to discontinue the supply of trade finance, the fear is that the this financing will move into the scope of the unregulated shadow banking market, worse still it could disappear altogether - both unattractive outcomes. Considerable evidence shows that banks' have already contracted from this lower margin business[18].

4.5. Investment and infrastructure and energy

The emerging markets demand for infrastructure finance vastly outstrips the requirements of developed economies. International financial institutions such as banks' play a critical role in financing large scale infrastructure projects in emerging markets.

[18] According to 2012 data from dialogic trade finance figures were down 18% year-on-year. Activity also fell to 173 deals, down 39% on Q1 2011 when 282 deals were completed.

4.5.1. Most trade and project finance, going from developed markets to emerging markets, comes from Europe and Central Asia

Whilst it is seen as imperative that effective liquidity regulation be implemented, is critical that this regulation be mindful of activities such as infrastructure investment. Based on the current accord, the liquidity requirements make project finance an even less attractive business proposition. Referring particularly to the NSFR, it is likely to mean that it will be more costly to initiate project finance. The NSFR rules require banks' to match long-term obligations with long-term funding which increases the cost drivers of infrastructure finance. There are already signs that project finance is starting to decline.

Though some of the reduction in this form of financing can be blamed on macroeconomic developments, at least some of this decline is a direct consequence of increased capital and liquidity requirements. If this in fact the case it is likely that infrastructure projects will become more difficult to fund, given the increasing cost. This coming at a time when significant infrastructure investment is required both in the emerging and developed economies.

To complicate the situation even further, European banks' will be recommended to delever, sell assets and/or move out of project finance entirely. These recommendations come in the wake of the comparatively low margins as they face profitability pressures given their macroeconomic circumstances.

Whether institutional investors could cover the financing gap left by banks' remain unclear. In emerging markets, the institutional investment markets are less developed. In general foreign investors are more conservative when it comes to investing in illiquid, long-term investments in most emerging markets. Few private sector alternatives exist, should banks' pull out.

4.6. Risk Management

Basel III features rules which were written with a bias towards the banks' in developed economies specifically investment banks'. A case in point is Basel III's Credit Valuation Adjustments ("CVA") capital charge.

Given the calculation of CVA it is possible to reduce the CVA charge by hedging with Credit Default Swaps ("CDS"). This has two negative impacts for banks in emerging markets:

4.6.1. Unnecessarily increasing complexity:

Most developed markets bank hedge out the counterparty credit risk component of a derivative transaction, in emerging markets most banks' are often already extending credit to derivative counterparties. The CVA approach employs different methodologies for the credit risk for a loan and the credit risk of a derivative transaction for the same counterparty. This approach will only further complicate risk management.
Moreover, because CVA is derived from credit spreads, the CVA charge itself is likely to be both significantly higher than conventional credit analysis would imply, and considerably more volatile, particularly in emerging markets, where liquidity in the underlying instruments is often extremely limited.

CVA charges penalise lower rated counterparties prevalent in emerging markets. Market analysts estimate that for emerging market banks' capital requirements for derivative counterparties will increase by 2-4 times. This increases costs and reduces the availability of hedging instruments for emerging markets corporates and financial institutions.

4.6.2. Scarcity of appropriate CDS for CVA hedging

The CVA capital charge can be minimised by hedging exposure through CDS. However, the emerging market faces a scarcity of single name CDS, with the market itself extremely illiquid. What single name CDS's are available, these are only available in five year maturity buckets and in USD. This makes hedging CVA onerous and difficult.

CVA imposes substantial costs on non-financial derivative counterparts when transactions are not centrally cleared. These costs are not reflective of the limited systemic risk these activities pose to the financial system. The CVA capital charge as such imposes unexpectedly high costs on corporates and project finance where derivatives are used to manage these risks.

4.7. Impact on Development of Financial Markets

Empirical research shows that effective and efficient financial markets are an essential requirement of economic growth. Research also shows that deeper financial markets provides greater financial stability, lowers governments financing costs and increases financing alternatives to facilitate growth. According to the IMF (Enhancing Financial Sector Surveillance in Low - Income Countries, 2012) notes that "shallow financial markets tend to increase foreign exchange, liquidity management and concentration risks, posing risks for financial stability". It adds that "well-developed financial markets and institutions can help dampen the negative impact that exchange rate volatility has on firm liquidity and investment capacity." In markets that are not developed banks will tend to hold excess liquidity on their balance sheet because they are unable to "smooth their intraday liquidity to efficiently manage unexpected financing needs".
With this in mind it is essential that the reforms aimed at creating deeper financial markets in emerging markets is not lost. The following issues should be considered:

The needs of emerging markets are different. There is a risk that the international regulatory reform agenda could divert efforts from equally essential initiatives, such as the development of deeper capital markets. These reforms could provide greater financial stability and significant economic benefits.

The increasing fragmentation of international banking will lead to constrained liquidity and increased USD credit costs Activities such as trade and project finance, USD denominated, could pose particular problems. As a result, local banks' are increasing the use of local currency dollar swaps to access borrowing, which could create further risks, or shifts away from the USD for such purposes. The development of the local currency bond markets is the best way of reducing emerging market dependence on USD funding, thus underscoring the importance of continued progress.

Diversified banking markets provide benefits from a financial stability perspective both for those in home and host countries. There is a risk that deleveraging international banks' will lead to local concentration of banking models in emerging markets and for advanced banks' a concentration of risk in home markets. This making it more difficult for banks' to cope when faced with financial stability risks. The financial crisis highlighted the benefits well managed international banks' offer when they injected credit into markets where domestic banks' were overburdened.

It is also imperative to recognize the profound impact the actions of central banks' in the developed economies have on the emerging markets. Since the crisis, the balance sheets in the developed economies central banks' have increased dramatically, this as a result of quantitative easing and the long-term refinancing operations of the European Central Bank. Over the short to medium term these have been justified given the objective of securing financial stability in developed economies. However, as these operations continue it will be important to consider the impact they have on the global financial system, especially emerging markets.

5. Conclusion and recommended next steps

The objective of this literature, cum conceptual, paper sought to discuss and articulate the history, rationale and objectives of the Basel Accords. This paper commenced with a brief overview of the international banking market during the 1970's, and sought to explain the various bank failures which led up to the creation of the BCBS, and thereafter the Basel Capital Accords.

Following the adoption and implementation of the first, Basel I, Accord in 1988, much discussion and debate has ensued pertaining to the effectiveness of these Accords. Through these discussions, various shortfalls of these Accords have been highlighted which the BCBS has sought to address through amendments to these Accords, or on at least two occasions since its implementation has resulted in entirely new Accords in the form of Basel II and Basel III.

The most recent version of these Accords, Basel III, was implemented during the aftermath of the 2008/2009 global financial crisis. Whilst this Accord sought to improve the quality and quantity of banks' capital, thereby fostering a more robust banking sector, detractors of the Accord believe that the Accord will adversely impact economic recovery, and growth in emerging markets. Subsequently, this paper sought to understand the whether or not multinational banks who undertake business in emerging markets are disadvantaged by their requirements to adhere to the Basel Accords, and to discuss whether emerging economies, which have adopted the Basel framework, experienced any unintended consequences adversely affecting these economies.

Whilst definitive conclusions, pertaining to the exact impact on economic activity, cannot as yet be drawn, this stemming from the fact that current indicators and data does not as yet support this, the paper has found that in adhering to the new Accord some multinational banks may reduce their businesses and operations in emerging markets as a means of conserving capital. Based on the withdrawal of these banks, there will be an impact on the banking landscapes of these emerging markets, which inevitably impacts economic activity. These are amongst some of the many unintended consequences subsequent to implementation of the Accord..

In so far as whether a recommendation to implement the Accord in emerging markets can be drawn, it is important that we consider both the positive and negative consequences of the Accord. The objective of the Accord, which entails increasing the quality and quantity of bank capital, is vital in the creation of a safer and more sustainable banking sector. Whilst the tools for creating such a safer banking landscape may result in unintended consequences in the short term, it is important that emerging market policy makers consider their long term objectives, and whether this Accord will assist in meeting them. To this extent, more work is required on the part of policymakers and industry participants to calibrate the impact of these unintended consequences and to define appropriate policy responses or amendments. In particular it is recommended that:

A full impact assessment is commissioned to assess the economic impact of the implementation of Basel III on emerging markets, both on a country standalone and broader market perspective. This should include both the direct effects of these markets seeking to comply with international

requirements and the indirect impact via the responses to regulatory change of banks from developed markets active in emerging markets.

Furthermore, this paper also recommends the establishment of a roadmap for change, this roadmap should have the goal of creating an internationally consistent and harmonized approach to bank regulation. It is important that this take account of the state of banking models in developed and emerging economies as well as the financing needs of these economies. Given the current reforms and Basel Accords, amendments may well be in order to mitigate unintended consequences on emerging markets, and to ensure it fits their needs in both substance and timing.

List of Definitions:

Abbreviation:	Definition:
A-IRB:	Advanced Internal Ratings Based
ASF:	Available Stable Funding
AVC:	Asset Value Correlation
BCBS or the Committee:	Basel Committee on Banking Supervision
BIS:	Bank for International Settlements
CCP:	Central Counterparty
CDS:	Credit Default Swaps
CVA:	Credit Valuation Adjustments
Default:	Failures in the repayment of the loans
EAD:	Exposure at Default
EBA:	Exposure at Default
ECAI:	External Credit Assessment Institutions
EM:	Effective Maturity
ESRB:	European Systemic Risk Board
EU:	European Union
FIRB:	Foundation Internal Ratings-Based
FSB:	Financial Services Board of the United Kingdom
FSOC:	Financial Stability Oversight Council
G10 Countries	The group of countries that have agreed to participate in the General Arrangements to Borrow
GDP:	Gross Domestic Product
GHOS:	Governors and Heads of Supervision
ICAAP:	Individual Capital Adequacy Assessment Process
IMF:	International Monetary Fund
IIF:	Institute for International Finance
IOSCO:	International Organization of Securities Commissions
IRB:	Internal Ratings Based
LC:	Letters of Credit
LCR:	Liquidity Coverage Ratio
LGD:	Loss Given Default
MAG:	Macro Assessment Group
NSFR:	Net Stable Funding Ratio
OECD:	Organization for Economic Co-operation and Development
OTC:	Over the Counter
PD:	Probability of Default
QIS:	Quantitative Impact Study
RSF:	Required Stable Funding
RWA:	Risk Weighted Assets
S&P:	Standard & Poor's
SIFI:	Systemically Important Financial Institutions
SME:	Small and Medium Enterprises
SREP:	Supervisory Review Evaluation Process
UK:	United Kingdom
US or USA:	United States of America

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