

# **The costs, benefits and outcomes associated with Basel II implementation**

An analysis of Basel II gainers and losers

## Table of Contents

<b>Chapter 1 – Content and Methodology of this Dissertation</b>	<b>5</b>
1. The content of the dissertation	5
2. Methodology of the Dissertation	6
<b>Chapter 2 – Introduction (Background and Key Research Questions)</b>	<b>8</b>
<b>Background</b>	<b>8</b>
1. Basel II – The Three Pillars	8
<b>Key Research Questions</b>	<b>10</b>
1. Costs and Benefits of a Basel II Implementation	10
2. Basel II Implementation on an International Basis	11
3. Basel II Winners and Losers	11
4. Capital Advantages and Benefits from a Basel II Implementation	12
<b>Chapter 3 – Background to the Basel Accords</b>	<b>13</b>
<b>History of the Basel Committee</b>	<b>13</b>
<b>History of the Basel Accords</b>	<b>13</b>
<b>1. Basel I</b>	<b>14</b>
Section 1 – The Constituents of Capital	14
Section 2 – Risk Weighting System	15
Section 3 – A Target Standard Ratio	17
Basel Accord Annexes	18
<b>2. Basel II</b>	<b>18</b>
Part 1 – Scope of Application	19
Part 2 – The First Pillar Minimum Capital Requirements	20
Part 3 – The Second Pillar Supervisory Review Process	30
Part 4 – The Third Pillar Market Discipline	33
Conclusions of Reviews of Basel Accords	34
<b>Chapter 4 – Basel II Literature Review</b>	<b>35</b>
<b>Introduction</b>	<b>35</b>
<b>1. Implementing Basel II: Is the Game Worth the Candle? – Richard Herring</b>	<b>35</b>
1.1. Objectives of Basel II	36

1.2.	Basel II and Procyclical Lending	37
1.3.	Conclusions	37
<b>2.</b>	<b>The Rocky Road to Implementation of Basel II in the United States –</b>	
	<b>Richard J. Herring</b>	<b>38</b>
2.1.	The Bifurcated Approach	38
2.2.	Criticisms of the Bifurcated Approach	38
2.3.	Conclusions	39
<b>3.</b>	<b>Assessing the regulatory impact: credit risk – going beyond Basel II by</b>	
	<b>Richard Tschernjak</b>	<b>39</b>
3.1.	Introduction	39
3.2.	Implementation Challenges	39
3.3.	Capital Advantages	40
3.4.	Risk Management	40
<b>4.</b>	<b>Basel II: The Route Ahead or Cul de Sac by Richard Brealey.</b>	<b>41</b>
4.1.	Introduction	41
4.2.	The Case for Regulations covering Bank Capital	41
4.3.	Conclusion	42
<b>5.</b>	<b>Dealing with Basel II – the end of risk management by Robert Hudson</b>	<b>43</b>
5.1.	Introduction	43
5.2.	The Problems with Basel II	43
5.3.	Conclusions	44
<b>6.</b>	<b>The Basel II Approach to Bank Operational Risk: Regulation on the Wrong</b>	
	<b>Track by Richard J. Herring</b>	<b>44</b>
6.1.	Introduction	44
6.2.	The Problems with the Basel II Definition of Operational Risk	44
6.3.	Differences between Operational Risk and other Pillar 1 risks	45
6.4.	Problems and Issues with Basel II Operational Risk	45
<b>7.</b>	<b>Basel II and the Cyclicity of Bank Capital by Mark Illing and Graydon</b>	
	<b>Paulin</b>	<b>46</b>
7.1.	Introduction	46
7.2.	The Impact of Basel I	46
7.3.	The Impact of Basel II	46
7.4.	Conclusions	47
7.5.	Final Thoughts	48

<b>8. Competitive effects of Basel II on US bank credit card lending by William W. Lang, Loretta J. Mester and Todd A. Vermilyea</b>	<b>48</b>
8.1. Introduction	48
8.2. Conclusions	48
<b>Overall Conclusions from Literature Review</b>	<b>49</b>
<b>1. Benefits of Basel II</b>	<b>49</b>
<b>2. Shortcomings associated with Basel II</b>	<b>49</b>
<b>Chapter 5 – Basel II Implementation Approaches</b>	<b>51</b>
<b>1. Taiwan Approaches</b>	<b>51</b>
1.1. Standardized Approach for Capital Adequacy Ratio	51
1.2. Basel II Plans	51
1.3. Pillar 3 Disclosure	53
1.4. Pillar 2 Self Assessment	53
1.5. Conclusions from the Taiwan Approach	54
<b>2. Basel II Implementation Approaches – other countries</b>	<b>55</b>
2.1. UK	55
2.2. Korea and Thailand	56
2.3. Canada and Australia	57
<b>Chapter 6 – Capital Impact Assessment</b>	<b>58</b>
<b>1. Commercial Banking Exposures</b>	<b>58</b>
<b>2. Project Finance Exposures</b>	<b>60</b>
<b>3. Corporate Real Estate Exposures</b>	<b>60</b>
<b>4. Retail Exposures and Overall Conclusions</b>	<b>61</b>
<b>Chapter 7 – Conclusions and Possible Next Steps</b>	<b>63</b>
<b>1. What’s wrong with Basel II – what Basel III needs to address.</b>	<b>63</b>
<b>2. Basel II Winners and Losers</b>	<b>64</b>
2.1. Banks and Regulators	64
2.2. Basel II Stakeholders 2 – Others	66
<b>References</b>	<b>67</b>

# Chapter 1 – Content and Methodology of this Dissertation

## 1. The content of the dissertation

Banks across the globe are implementing the requirements of Basel II. Those banks are investing considerable time and effort. This dissertation is being written as more regulators in various different countries, are beginning to require banks in their jurisdictions to implement Basel II. Against this backdrop, we are also seeing banks, especially in the United States, suffer huge losses as a result of a crisis in the sub-prime mortgage market. The focus and intent of this paper is to look at the following:

- To examine why Basel II was necessary. An examination of both Basel I and Basel II is required. Basel II had its seeds in Basel I
- To identify the winners and losers in a Basel II implementation
- To understand why US banks are slow to adopt Basel II and also to assess if this reluctance has contributed to the current crisis
- To quantify the capital benefits of each of the various approaches suggested by Basel II. This will also require assessing capital required under Basel I.
- To assess if the benefits gained justify the costs.
- Finally, to assess if Basel II is actually meeting the Basel Committee's aims and objectives.

Following the introductory (second) chapter, the paper will proceed as follows:

Chapter 3 will consist of a summary of a review of the Basel accords. The purpose of this review is

- To understand the requirements of the Basel accords and their intent.
- To understand the key differences between Basel I and Basel II, and being able to clearly document why there was a need for a second accord.
- To understand how each of the Basel II pillars relate to each other.
- To assess how banks should approach Basel II implementation. (there is a view that a successful implementation should commence with Pillar 2 and use it to determine the correct strategy for deciding which Pillar 1 path to follow).

Chapter 4 will consist of a review of current Basel II related literature. The key objective of the literature review will be to answer the following questions:

- What is the industry's overall reaction to the Basel accord?
- Which country's regulators feel more strongly about the requirements and why?
- Why are US banks not implementing Basel II and could the current sub-prime crisis in the US have been anticipated if banks had implemented Basel II?
- Who gains and who loses as a result of a Basel II implementation?
- What type of costs does a bank typically incur by implementing Basel II?
- What are the business benefits which a bank gets from implementing Basel II?

Chapter 5 consists of summaries of a series of interviews and discussions held with Basel II implementers from various countries. Interviews centered on the regulatory landscapes in the various countries and ways in which Basel II programs can be implemented. There was a special focus on Taiwan where Basel II programs in most banks are in an early stage. Also, as this dissertation is being written in Taiwan, there is a greater amount of material available concerning the local environment, together with a greater interest from local teams on the outcomes and conclusions as they relate to Taiwan.

Chapter 6 consists of an assessment of the advantages and disadvantages a bank faces when implementing Basel II. This will be done by means of an analysis of a bank's regulatory capital requirements when implementing Basel II by:

- A standardized Basel treatment for calculating risk weighted assets (RWA)
- An Advanced – Internal Ratings Based (A-IRB) treatment for calculating RWA
- Additionally, the assessment will calculate the same portfolios under Basel 1 conditions.

Chapter 7 provides summaries of observations made in the prior chapters.

Recommendations for future and on-going Basel II implementations are provided. Also, the chapter will conclude with the results of who wins and loses when banks implement a Basel II program.

## **2. Methodology of the Dissertation**

The dissertation has been conducted using a mixture of literature reviews, interviews and an analysis of the Basel accords. Issues and challenges encountered by the author during Basel II implementations are referenced throughout the paper. It was not possible

to conduct surveys with other banks. During the initial stages of the work, it became clear that banks were not willing to share information on costs of implementation or on anticipated benefits.

## Chapter 2 – Introduction (Background and Key Research Questions)

The original Basel I accord came out in 1988. The aim of Basel I was to strengthen the soundness and stability of the international banking system in a consistent way. The concept of risk weightings was introduced whereby assets on a bank's balance sheet were separated and divided into different asset classes, with different risk weightings. Basel I was considered to be a very simple way and very much a first attempt to introduce some soundness. However, it never succeeded in aligning economic and regulatory capital. In order to address this, the Basel Committee on Banking Supervision introduced the banking industry to Basel II. This has required extra rigour to be put in-place via the implementation of three main principles. These are called the three pillars of Basel II and include the basic principles of minimum capital requirements, the supervisory review process and market discipline.

### Background

#### 1. Basel II – The Three Pillars

The three Pillars of Basel II are as follows:

**Pillar 1.** Pillar 1 provides banks with a selection of choices, which are intended to result in smaller capital charges when more sophisticated risk management approaches are used for each different banking portfolio. The three risk types, which Pillar 1 focuses on, include credit risk, market risk and operational risk.

- **Credit Risk**

Credit risk can best be defined as “risk due to uncertainty in counterparty's ability to meet its obligations”. (<http://www.riskglossary.com>) Under Pillar 1, the menu of choices for calculating credit risk weighted assets includes

1. **The standardized approach.** This measures risk weighted assets according to credit grades and ratings set by external ratings agencies. Standard and Poors, Moodys and Fitch are the rating agencies most often used. The standardized approach will only be used in banks which have portfolios made up of clients with poor or very poor credit ratings. The capital charge required for banks with this type of portfolio will be lower than if a more advanced approach was used.
2. **The foundation internal ratings based (F-IRB) approach.** This involves a bank assigning a probability of default (PD) to all of its exposures, then applying fixed loss given defaults (LGD), exposure at default (EAD) and

maturity parameters as prescribed in the Basel II framework. Banks will tend to use this approach to measure risk weighted assets as an interim or transitional step whilst getting ready to move towards the advanced approach.

3. **The advanced internal ratings based (A-IRB) approach.** This approach allows banks to set the risk parameters of PD, LGD and EAD using their own internally developed models. Banks wishing to use the A-IRB approach need to satisfy a broad set of requirements relating to data integrity and quality, together with systems requirements. Each regulator will require banks to submit an application, together with very detailed self-assessments on all aspects of risk management. Most top tier European banks will be using the A-IRB approach. The work required to raise the level of data quality and to introduce Basel calculation and reporting solutions under an A-IRB approach will require the greatest amount of investment by banks.

- **Market Risk**

Market risk is defined as “exposure to the uncertain market value of a portfolio”. If a bank’s trader holds a portfolio of commodity forwards, he/she will know what its market value is today, but there is uncertainty as to its market value a week from today. This uncertainty is market risk. (<http://www.riskglossary.com>)

As with credit risk, there is a standardized approach for measuring and assessing the capital charge. This uses measurements set by regulators. However, most banks will use internally developed models, typically Value-at-Risk (VaR) models. VaR is a category of risk metrics that describe probabilistically the market risk of a trading portfolio.

- **Operational Risk**

The Basel Committee defines operational risk as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. The new charge for operational risk can be calculated using three options. Two simplest approaches are the basic indicator approach and the standardized approach. These are not risk sensitive, with the capital charge based upon a percentage of income, typically 15% of revenue. The third approach, the advanced measurement approach for operational risk allows a bank to use estimates of risk to calculate operational risk capital charges. As with using the advanced approach for calculating credit risk weighted assets, the use of the advanced approach for operational risk requires regular approval.

**Pillar 2.** Under Pillar 2, a bank needs to assess risks specific to its business, then submit this assessment for supervisory review. This exercise is often linked to the application to use advanced approaches under Pillar 1. However, regulators will expect the process of risk self-assessment be repeated on a regular basis and will check its accuracy and validity. Via this supervisory review and evaluation process, (SREP), regulators can set higher or lower capital requirements. They will not only assess the quantitative calculations used by a bank to derive its capital adequacy, but also the strength of the bank's controls, robustness of governance, comprehensiveness of risk assessment, and the viability of its capital plans. From this review, a regulator will assess the capital required. They will issue an Individual Capital Guidance (ICG) advice.

Pillar 2 also includes the requirement for banks to implement an Internal Capital Adequacy Assessment Process (ICAAP) which caters for all risks a bank faces. This assessment may require adjustments to the Pillar 1 calculations and includes more than just the three risks covered in Pillar 1. Also, within the ICAAP, banks must demonstrate that they have considered stressed situations and what impact these will have on their capital. Regulators will tend to set specific stress scenarios to be considered. In Taiwan, the regulator has requested the impacts caused by catastrophic earthquake, economic downturn and economic recession (along the lines of the Asian crisis).

**Pillar 3.** The third pillar of Basel II relates to disclosure. Regulators tend to view external disclosure as an additional driver of good practice in risk management. Pillar 3 sets out the requirements aimed at providing a consistent and transparent disclosure framework that enhances comparability across banks. The UK regulator, the Financial Services Authority (FSA) has requested banks to start disclosure for the 2008 final results. However, the Taiwanese regulator has requested disclosure to commence from the first quarter of 2008.

## **Key Research Questions**

### **1. Costs and Benefits of a Basel II Implementation**

For banks to implement these three pillars of Basel II, a huge investment is required. This paper will examine how much investment banks have had to make. As part of any investment analysis, there should also be some consideration on how much benefit is derived from such an investment. In some banks, the implementation of Basel II is considered to be a mandatory program which, if not done, could lead to regulatory sanction and even suspension or cancellation of a bank's license. Other banks have looked at the Basel II implementation as a mandatory project which has

downstream benefits. These are often difficult to quantify but can include such things as improved risk management processes, improved data quality and better use of capital. This paper will address the two questions of how much does an implementation cost and what benefits are derived.

## **2. Basel II Implementation on an International Basis**

Basel II has been a Euro-centric initiative. It is fast becoming enshrined in EU law. However, many banking regulators across the world are requiring banks and other financial institutions in their jurisdictions to implement the Basel II requirements. For example, Canadian and Australian banks were very quick in implementing Basel II solutions. European banks with locally incorporated subsidiaries and branch networks outside Europe are required to implement the same solutions. Regulators in Korea, Taiwan, Hong Kong, India and the UAE have all followed suit. This paper will examine which countries have implemented Basel II into their financial institutions.. Also, there are some countries where regulators have shown a reluctance to have banks in their jurisdiction implement Basel II. The most notable example is the United States. The paper will also examine why there is such reluctance and what impacts a delay may have. In the light of the current sub-prime crisis, especially in the United States, the question of whether a Basel II regimen would have prevented such a crisis will be addressed.

## **3. Basel II Winners and Losers**

There are some schools of thought, which hold the opinion on Basel II that it has a similarity with Year 2000 (Y2K) projects. Skeptics suggest that the only group to really benefit from Basel II is the solution providers. This same group was the only beneficiaries of the Y2K projects. However, this paper will identify in detail who the key stakeholders are and what each one gains from Basel II and what each one loses. There are basically three main stakeholders involved in a Basel II program as follows:

- The banks and other financial institutions including their staff, management and shareholders
- The regulators in each country
- Basel II solution providers

A bank's customers may be considered as a stakeholder group, but it could be argued that this group should not gain or lose from such an implementation. However, this paper will examine how customers are in-fact a key stakeholder group when looking at Basel II. This group should be beneficiaries when banks understand

how much capital is required for each customer. Also, the benefits should translate into sophisticated risk based pricing processes and tools. For good customers, with high credit ratings, this should mean that any capital benefits accruing to the banks will be shared with them.

#### **4. Capital Advantages and Benefits from a Basel II Implementation**

One of the key benefits that a Basel II implementation was supposed to bring to banks was a reduction of capital. The second pillar of Basel II requires banks to assess the minimum capital a bank requires. In order to derive the correct number, a bank has to calculate its risk weighted assets, measure its market risk and determine a capital charge covering its operational risks. Under the second pillar, a bank is required to then calculate its economic capital. The three risks measured in Pillar 1, credit risk, market risk and operational risk, are further added to by the inclusion of other risks including liquidity risk, reputational risk and pension risk. The capital required to mitigate those risks and the consequences resulting from certain stress situations (e.g. economic downturn or recession) are all considered to calculate economic capital. The result should represent a reduction (IE economic capital is lower than regulatory capital). This is because banks will often mitigate the other risks via other means. The capital charge on operational risk under Pillar 1, is calculated by applying 15% against the bank's revenue, which is often greatly overstated when compared to actual operational losses. The paper will examine how regulatory capital under Pillar 1 is derived and will look at the components which make up the calculation behind economic capital under a Pillar 2 scenario. It should be understood that banks must have sufficient regulatory capital, even if their economic capital requirements are lower. Under Pillar 2, regulators can assess how well the bank manages its risk and if a reduction of regulatory capital can be allowed. Economic capital calculation under Pillar 2 is an internal process by which banks can accurately assess and manage their capital requirements and adequacy.

## **Chapter 3 – Background to the Basel Accords**

### **History of the Basel Committee**

The Basel Committee on Banking Supervision was formed in 1974. The document entitled History of the Basel Committee and its Membership – July 2007 (<http://www.bis.org/bcbs/history.pdf>) tells us that it was formed as a response to “serious disturbances in international currency and banking markets...” The first meeting took place in February 1975 and the committee continues to meet four times a year.

The Basel Committee was established as the Committee on Banking Regulations and Supervisory Practices, by central bank Governors of the Group of Ten countries. The membership has since expanded to include members from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom and the United States. All documents produced by the Committee can be found on the website of the Bank of International Settlements (BIS). This organization provides the secretariat functions for the Basel Committee. The role of BIS has expanded and now includes the provision of training and also communication to non-G10 regulators and supervisors of work being done by the Basel Committee.

### **History of the Basel Accords**

In 1988, the Basel Committee introduced a capital management system which was described in detail within the document entitled The International Convergence of Capital Measurement and Capital Standards or Basel Accord. Since then, several revisions have taken place as follows:

- January 1996 – Amendment to the Accord to include market risks
- April 1996 – Interpretation of the Capital Accord for the Multilateral Netting of Forward Value Foreign Exchange Transactions
- April 1998 – Amendment of the Basel Capital Accord
- May 2001 – The New Basel Accord (issued for comment in January 2001)
- June 2004 – Basel II: International Convergence of Capital Measurement and Capital Standards: a Revised Framework

The last revision cited above effectively moved the accord from Basel I to Basel II. The new framework was finally released on 26<sup>th</sup> June 2004. Since then, banks have been implementing the requirements of Basel II.

The sections which follow describe in some detail the contents of the original Basel Accord and the contents of the revised framework (Basel II).

## **1. Basel I**

The original accord had two fundamental objectives as follows:

- The framework was to help strengthen the soundness and stability of the international banking system
- The framework was to be fair and have a high degree of consistency in its application to banks in different countries with a view to diminishing an existing source of competitive inequality among international banks.

The original accord, which consists of a mere 25 pages, is divided into three main sections. The first section deals with the constituents of capital. The second section covers the risk weighting system. The third section of the accord covers the target standard ratio.

### **Section 1 – The Constituents of Capital**

The accord defines capital in two ways, core capital and supplementary capital. Core capital (or basic equity) includes paid-up share capital/common stock and disclosed reserves. The accord has defined this to be tier 1 capital. This is termed within the accord as being “wholly visible in published accounts”. It is used to form the basis of capital adequacy by external analysts. Annex 1 of the accord provides some additional definition around “disclosed reserves”. There are some examples mentioned in this section. These include share premiums, retained profits, general reserves and legal reserves. However, the concept of expected loss and the role this plays in determining capital is only expanded in greater detail in Basel II, and only when an internal ratings based approach is applied.

Supplementary capital (or tier two capital) includes undisclosed reserves, asset revaluation reserves, general provisions/general loan-loss reserves, hybrid (debt/equity) capital instruments and subordinated debt. The definitions of each of these categories of tier two capital are defined in summary form in the accord. However, the accord is deliberately vague on some of the definitions as they may depend on the accounting standards and regulations, which apply to different countries. For example, the category

defined as revaluation reserves is difficult to label as some countries allow, within their accounting standards, to revalue assets periodically in order for accounting records to reflect current values, rather than historic costs. The accord does define general provisions and general loan loss reserve in some detail. The basic principle for general loan-loss reserves, under the original Basel accord, was that these would be ineligible for inclusion in capital. However, the accord defines this category as being any general reserve “designed to protect a bank from identified deterioration in the quality of specific assets”.

This section of the accord also compares the characteristics of disclosed reserves (a tier one component) and undisclosed reserves (a tier two component). There is basically little difference between the two. Both cannot be “encumbered by a provision or other known liability but should be freely and immediately available to meet unforeseen future losses”. Annex 1 of the accord tells us that the only key difference is to do with the fact that disclosed reserves are included in a bank’s published balance sheet, whereas undisclosed reserves are not.

## **Section 2 – Risk Weighting System**

The section in the accord which covers risk weights opens by saying that a risk weighting system “is the preferred method for assessing the capital adequacy of banks”. The Committee recognized that there were other methods, but the accord cites three advantages as follows:

- it is a fairer method which can be used when making international comparisons between different banking systems and structures
- it can easily incorporate off-balance sheet items
- it does not deter a bank from holding less risky and/or liquid assets

The section on risk weightings concentrates attention on credit risk, which is defined as “the risk of counterparty failure”. The accord, at this point, makes reference to other risks, but suggests that credit risk, along with country transfer risk (being an aspect of credit risk) is the central point of the framework. The Committee decided that the country transfer risk was best addressed by categorizing countries into OECD and non-OECD. Richard Brealey of the London Business School, writing in the *Journal of Applied Corporate Finance* (Volume 18/Number 4/ Fall 2006 – Basel II. The Route Ahead or Cul-de-Sac?) provides us with an example which illustrates the limitations of this approach. He writes “much of the focus of the first Basel Accord was on categorizing asset risk and

devising a system of risk weights. All assets were allocated to one of four risk buckets, depending on the type of instrument and the issuer. At one extreme, cash, local currency claims on the country's government, and claims on OECD governments received zero weighting. At the other extreme, claims on the private sector, long-term claims on non-OECD banks, and foreign-currency claims on non-OECD governments all involved a 100% weighting". The limitations of the original Basel Accord when it comes to risk weighting are clear from this Brealey's statement. However, the author does acknowledge that the first accord was a good start, and was heading in the right direction.

The accord also provides details of claims on non-central government public sector entities (PSEs). The risk weighting applied in these cases would be determined by national supervisory authorities for domestic PSEs, but would attract a 20% standard weight for PSEs located in OECD countries. It would default to 100% for PSEs in non-OECD countries.

The next paragraph of this section of the accord covers collateral and guarantees as methods to reduce or mitigate credit risk. The text of this section indicates that it was not possible to incorporate collateral and guarantees into the weighting system. The reason cited within the accord was that banks in different countries have widely differing practices when it comes to handling and evaluating collateral. The scope of the weighting system was limited to collateral on loans secured by cash, or by securities issued by OECD central governments, by OECD non-government PSEs or by "specified multilateral development banks". The weighting used in such cases would be that given to cash or the securities used as collateral. Loans guaranteed by non-OECD incorporated banks would attract a 20% risk weighting, but with the condition that "the underlying transaction has a residual maturity of less than one year". The Committee was concerned with this and mentioned in the accord that it would monitor this aspect in order that "it does not give rise to inappropriate weighting of commercial loans".

The fifth section deals with loans secured on residential property. These loans are recognized as being very secure and the Committee assigned a risk weighting of 50% to loans fully secured by a mortgage. The accord, at this point, also recognizes that some countries will only allow the lower risk weighting to be applied just to first mortgages. Also, there are rules in some countries on loan-to-value (LTV) ratios. Loans to companies engaged in property speculation will not attract the lower risk rating.

The final paragraph of this section covers off-balance sheet engagements. The opening statement starts with the following statement. “The Committee believes that is of great importance that all off-balance sheet activity should be caught within the capital adequacy framework”. The Committee introduced a concept known as credit conversion factors (CCF) for such arrangements. It categorized CCFs according to the type of instruments as follows:

<b>Instrument Description</b>	<b>Risk Weighting</b>
Instruments which substitute for loans. These would include guarantees and stand-by letters of credit serving as financial guarantees	100%
Certain transaction related contingencies (EG performance bonds, bid bonds, warranties and stand-by letters of credit related to particular transactions)	50%
Short-term, self liquidating trade related contingent liabilities. These would include documentary credits (for import letters of credit and confirmed export letters of credit)	20%
Commitments with an original maturity exceeding one year. (Shorter term commitments or those which can be unconditionally cancelled at any time are considered low risk and carry a nil risk weight).	50%
Interest and exchange rate related items.	One of two methods 1). Current exposure method 2). Original exposure method

Annex 3 of the accord provides greater details on how CCFs are to be applied. The current exposure method for interest and exchange rate related items assumes that the credit risk on such items is calculated by assessing the current replacement cost by marking contracts to market. The original exposure method assumes a notional capital weight allotted to each contract, regardless of their market values.

### **Section 3 – A Target Standard Ratio**

The final section of the main body of the first Basel Accord is the shortest. It provides a summary of the minimum capital standard banks should hold. The final sentence of the

accord tells us that “...the Committee confirms that the target standard ratio of capital to weighted assets should be set at 8%. (of which the core capital element will be at least 4%)”.

## **Basel Accord Annexes**

There are three annexes to the accord as follows:

- Annex 1 covers the definition of capital included in the capital base
- Annex 2 covers risk weights by category of on-balance-sheet asset
- Annex 3 covers credit conversion factors for off-balance sheet items.

## **2. Basel II**

The objectives of the first Basel Accord were to help strengthen the soundness and stability of the international banking system, and to be fair and have a high degree of consistency in its application to banks in different countries with a view to diminishing an existing source of competitive inequality among international banks. The introduction to the revised framework (Basel II Accord) provides additional reminders of these objectives. The text says that “the fundamental objective of the Committee’s work to revise the 1988 Accord has been to develop a framework that would further strengthen the soundness and stability of the international banking system while maintaining sufficient consistency that capital adequacy regulation will not be a significant source of competitive inequality among internationally active banks”. The same objectives therefore appear in both Basel 1 and Basel 2 accord. However, the objectives of Basel II also include the following statement “the Committee believes that the revised Framework will promote the adoption of stronger risk management practices by the banking industry, and views this as one of its major benefits”.

The introduction to the revised framework describes what the Committee has termed as “a significant innovation”. This is the use of banks’ internal system to derive assessments of risk in order to determine capital calculations. In an interesting note which describes the roles and responsibilities of various parties involved, the Committee, in the introductory section of the revised framework says “It is not the Committee’s intention to dictate the form or operational detail of banks’ risk management policies and practices. Each supervisor will develop a set of review procedures for ensuring that banks’ systems and controls are adequate to serve as the basis for the capital calculations. Supervisors will need to exercise sound judgments when determining a bank’s state of readiness, particularly during the implementation process”. The same section goes on to say that

“the Committee expects national supervisors will focus on compliance with the minimum requirements as a means of ensuring the overall integrity of a bank’s ability to provide prudential inputs to the capital calculations and not as an end in itself”. From this, it can be concluded that individual regulators have a more enhanced role in determining a bank’s capital requirement than they had before. The next paragraph of the introduction discusses options for determining the capital requirements for credit and operational risk. The role of supervisors is further expanded here in that they now share a responsibility, along with banks in their jurisdiction, to select “approaches that are most appropriate for their operations and their financial market”. Consistency is shown as still being a key objective. To this end, the Committee established the Accord Implementation Group (AIG) to promote consistency in the application of the revised framework by encouraging supervisors to exchange information on implementation approaches.

The introduction also presents the concept of the three pillars of Basel II. The document is structured along the lines of the three pillars and has four main parts as follows:

- Part 1 covers the scope of the application of the Basel II requirements
- Part 2 cover the calculation of the minimum capital requirements for credit risk, operational risk, and market risk. This section covers the first pillar of the revised framework.
- Part 3 covers expectations concerning supervisory review. This section covers the second pillar of the revised framework.
- Part 4 covers market discipline. This section covers the third pillar of the revised framework.

## **Part 1 – Scope of Application**

This section provides details of what institution the rules and regulations apply to. There is frequent reference to “internationally active banks”. In this regard, this section defines how rules on capital adequacy can and should be applied to holding companies that act as parent entities within a banking group. One of the key paragraphs of this section says the following: “as one of the principal objectives of supervision is the protection of depositors, it is essential to ensure that capital recognised in capital adequacy measures is readily available for those depositors. Accordingly, supervisors should test that individual banks are adequately capitalised on a stand-alone basis”. This means that subsidiaries of banks which operate in different countries must satisfy the local regulators of that country when implementing the requirements of Basel II. This has resulted in some international banks having to deal with “home/host” issues. The home regulator is

the one to whom the consolidated entity provides consolidated reports, whilst the host regulator will look at the local subsidiary and ensure it is adequately capitalized on a stand-alone basis and also is implementing Basel II in the same ways other banks in that jurisdiction are implementing it. Issues relating to Home/Host differences have resulted in the Basel Committee issuing several papers containing guidelines on how to deal with such problems.

## **Part 2 – The First Pillar Minimum Capital Requirements**

Part 2 opens with the following: “Part 2 presents the calculation of the total minimum capital requirements for credit, market and operational risk. The capital ratio is calculated using the definition of regulatory capital and risk-weighted assets. The total capital ratio must be no lower than 8%. Tier 2 capital is limited to 100% of Tier 1 capital”.

### **Regulatory Capital, Risk Weighted Assets and Transition to Advanced IRB**

The definition of regulatory capital for tier 1 capital is not changed from what was given in the first Basel Accord. The paragraphs which cover the definition mention the two approaches for calculating risk weighted assets. These are the standardized approach and the internal rating based (IRB) approach. Under the latter, banks can deduct from tier 2 capital the general provisions classified as a part of tier 2 capital under Basel 1 from tier 2. The concept of expected loss (EL) is introduced at this point. EL, once calculated and if found to exceed general provisions, banks have to deduct the difference from capital (50% from tier 1 capital and 50% from tier 2 capital). If EL is less than eligible provisions, the accord tells us that banks can take the difference to tier 2 capital, up to a maximum of 0.6% of credit risk weighted assets.

The definition of risk weighted assets is also provided at the start of the Pillar 1 section. The accord provides the following definition: “Total risk-weighted assets are determined by multiplying the capital requirements for market risk and operational risk by 12.5 (i.e. the reciprocal of the minimum capital ratio of 8%) and adding the resulting figures to the sum of risk-weighted assets for credit risk”

The Basel Committee recognized that transitional arrangements need to be in-place as banks transition from Basel I through to an advanced IRB approach. The Committee suggested a period of parallel running and also the split of IRB into foundation and

advanced. The intent of foundation was that it would be transitional point between Basel I and advanced approaches in Basel II.

## The Constituents of Capital

Under Basel I, capital was defined as tier 1 capital and tier 2 capital. Under the revised framework, the definition remains unchanged. The following statement opens the section on the constituents of capital “The Committee considers that the key element of capital on which the main emphasis should be placed is equity capital and disclosed reserves. This key element of capital is the only element common to all countries' banking systems; it is wholly visible in the published accounts and is the basis on which most market judgments of capital adequacy are made; and it has a crucial bearing on profit margins and a bank's ability to compete”. This is very close to what the Committee had previously stated in the original accord. Similarly, tier 2 capital definitions in the revised framework, are largely unchanged from those in the original accord.

In the revised framework, an additional tier (tier 3) is also included. This consists of short-term subordinated debt. According to the revised framework, this form of eligible capital covers market risk. To qualify as tier 3 capital, the framework provides the following characteristics:

- be unsecured, subordinated and fully paid up;
- have an original maturity of at least two years;
- not be repayable before the agreed repayment date unless the supervisory authority agrees;
- be subject to a lock-in clause which stipulates that neither interest nor principal may
- be paid (even at maturity) if such payment means that the bank falls below or remains below its minimum capital requirement.

Under the revised framework, the following table summarises the constituents of capital.

Capital Tier	Constituent Parts
Capital Tier 1	<ul style="list-style-type: none"> <li>• Paid Up Capital</li> <li>• Common Stock</li> </ul>
Capital Tier 2	<ul style="list-style-type: none"> <li>• Undisclosed reserves</li> <li>• Asset revaluation reserves</li> </ul>

	<ul style="list-style-type: none"> <li>• General provisions/general loan-loss reserves</li> <li>• Hybrid (debt/equity) capital instruments</li> <li>• Subordinated debt</li> </ul>
Capital Tier 3	<ul style="list-style-type: none"> <li>• Short-term subordinated debt for meeting a proportion of the capital requirements for market risks.</li> </ul>

Deductions from capital are also detailed in this section of the revised framework. The same ones as listed in the original accord are listed (such as goodwill). However, in the revised framework, the Basel Committee as stressed that local regulators and supervisors can exercise some discretion over what can and what cannot be deducted from capital.

### **Calculation of capital Requirements – Credit Risk**

The revised framework allows for two methods for banks to calculate their capital requirements for credit risk, standardized approach and the IRB approach. Under the latter, there are two approaches within IRB, foundation and advanced.

#### **Standardized Approach**

This approach is the most simplified of the three. It measures credit risk in a standardized way, with reference to external credit agency ratings. It does not deviate much from what the original accord said.

#### **Risk Weighting Under the Standardized Approach**

Under Basel I, risk weighting was very simplified. The standardized approach has defined some additional risk weighting rules and guidelines. The following table provides some summary detail by counterparty type.

<b>Counterparty Type</b>	<b>Risk weighting rules</b>
Claims on Sovereigns	Risk weights determined by external credit agency (ECA) scores. (NOTE: ECA scores must be officially recognized by regulators)
Claims on non-central government public sector entities	Risk weighted at national discretion
Claims on multilateral development banks	The risk weights generally based on external credit assessments for claims on banks

Claims on Banks	Two options: 1). all banks incorporated in a given country will be assigned a risk weight one category less favourable than that assigned to claims on the sovereign of that country 2). risk weighting is based on the external credit assessment of the bank itself with claims on unrated banks risk-weighted at 50%.
Claims on Securities Firms	Risk weighting as for banks.
Claims on Corporates	Risk weighting as per external rating agency ratings. Claims on unrated corporates will be rated 100%.
Claims included in the regulatory retail	Covers all retail outstandings except mortgages. Risk weighting suggested to be 75% but can be higher depending on local discretions.
Claims secured by residential property	Risk weight assessed at 35%. Can be higher depending on local discretions. Also depends on other factors such as loan-to-value ratios.
Claims secured by commercial real estate	100% risk weighting to be applied
Past due loans	<ul style="list-style-type: none"> <li>• 150% risk weight when specific provisions are less than 20% of the outstanding amount of the loan;</li> <li>• 100% risk weight when specific provisions are no less than 20% of the outstanding amount of the loan;</li> <li>• 100% risk weight when specific provisions are no less than 50% of the outstanding amount of the loan, but with supervisory discretion to reduce the risk weight to 50%.</li> </ul>
Higher Risk Categories	Claims on sovereigns, PSEs, banks, and securities firms rated below B-.claims on corporates rated below BB-.and past due loans as per above will be risk weighted at 150%. Securitisation tranches that are rated between BB+ and BB- will be risk weighted at 350%. Supervisors have discretion to include other claim categories at higher risk weightings should they so wish.
Other Assets	Standard risk weighting for other assets is 100%
Off-Balance Sheet items	Various risk weightings apply and are detailed in the revised framework. As with Basel I, the calculation of risk weights for off-balance sheet items is dependent upon Credit Conversion Factors (CCFs).

## **The Role of External Credit Agencies**

A key component of the standardized approach is the part played by external rating agencies. The issue which this gives rise to when implementing Basel II requirements in a local environment is that many wholesale customers of a bank will only be rated by local credit agencies. The revised framework has provided clear guidelines which a supervisor should follow when considering an external credit assessment institution (ECAI). These are as follows:

- Objectivity – Supervisors must assess methodologies all ECAIs in their jurisdiction use. This assessment must be an on-going process
- Independence – ECAIs must be independent.
- International Access/ Transparency – Assessments by ECAIs should be available internationally. Also, ECAI methodologies should be freely accessible by the public.
- Disclosure – ECAIs should disclose their methodologies.
- Resources – ECAIs should have sufficiently qualified staff. Resources should be available, at a senior level, to interact with senior level staff at entities being assessed.
- Credibility – ECAIs must have credibility. This would be earned by complying with the above criteria.

The next section of the revised framework covers implementation issues relating to the credit assessments by ECAIs. These include establishing a mapping process, determining a process when more than one ECAI has provided assessments on one claim, short and long term assessments and unsolicited assessments.

## **Standardized Approach and Credit Risk Mitigation**

The first Basel Accord provided some details on credit risk mitigation. The revised framework contains details of two possible approaches when it comes to risk weighting of collateral. The first, the simplified approach, is detailed in the original accord. Under this approach, banks can substitute the risk weighting of the collateral for the risk weighting of the counterparty for the collateralised portion of the exposure. The second one, the comprehensive approach, allows fuller offset of collateral against exposures, by reducing the exposure amount by the value ascribed to the collateral. The framework suggests that Banks may operate under either, but not both approaches in the banking book, but only under the comprehensive approach in the trading book. The Basel Committee has provided some additional requirements detailing the application of the comprehensive

approach. At the local level, banks using the comprehensive method must have clear collateral allocation rules which comply with the requirements set out in the revised framework.

## **Credit Risk – The Internal Ratings-Based Approach**

Banks wishing to use the internal ratings based (IRB) approach must receive approval from their local supervisor. In order to get this approval, banks are required to meet certain conditions around data quality and the accumulation of data history. The approach will allow banks to use their own estimates of risk components to determine the capital needed for each exposure. The risk components include measures for:

- Probability of default (PD)
- Loss given default (LGD)
- Exposure at default (EAD)
- Effective maturity

The accord has required that banks categorize their assets into the following classifications:

- Specialized Lending including the following:
  - Project Finance (PF) (where the lender looks to revenues being generated by the project for repayments of the loan)
  - Object Finance (OF) (a method of funding the acquisition of large physical assets such as ships, aircraft etc)
  - Commodities Finance (CF) (short-term funding in relation to the acquisition of exchange-traded commodities such as crude oil, crops etc)
  - Income Producing Real Estate (IPRE) (funding to real estate where repayment depends on cash-flow generated by the asset. Examples would include office buildings, shopping centres and large multi-family residential sites)
  - High Volatility Commercial Real Estate (HVCRE) (funding to real estate which shows high loss volatility.
  - Sovereign Exposures – as determined under the standardized approach
  - Bank Exposures – exposures to banks and securities firms
- Retail Exposure are broken down as follows:
  - Exposures to individuals including lines of credit, revolving credits etc

- Residential mortgage loans
- Loans to small businesses which are managed as retail exposures
- Equity Exposures
- Eligible Purchased Receivables as follows:
  - Retail receivables
  - Corporate receivables

Paragraph 244 of the revised framework provides a good summary of the IRB approach as follows:

- “For each of the asset classes covered under the IRB framework, there are three key elements:
  - Risk components – estimates of risk parameters provided by banks some of which are supervisory estimates.
  - Risk-weight functions – the means by which risk components are transformed into risk-weighted assets and therefore capital requirements.
  - Minimum requirements – the minimum standards that must be met in order for a bank to use the IRB approach for a given asset class”

### **Foundation IRB and Advanced IRB**

The Basel Committee, in the revised framework, has provided banks two choices when it comes to IRB. A bank can chose the foundation IRB approach or the advanced IRB approach. Under foundation, banks provide their own estimates of PD, but would generally use supervisors’ estimates of LGD and EAD. Under advanced IRB, banks provide their own estimates of these parameters and also their own estimate of effective maturity.

<b>Basel Asset Category</b>	<b>Under F-IRB</b>	<b>Under A-IRB</b>
Corporate, Sovereign and Bank Exposures	Banks provide estimates of PD, but use supervisory estimates of LGD and EAD	Banks calculate and use their own estimates of PD, LGD and EAD
Specialised Lending (SP): <ul style="list-style-type: none"> <li>• PF</li> <li>• OF</li> </ul>	Banks unable to provide estimates for PD use the five supervisory categories (supervisory slotting criteria	Banks able to provide estimates for PD, LGD and EAD can use supervisory slotting for all SP classes except HVCRE or can use advanced

<ul style="list-style-type: none"> <li>• CF</li> <li>• IPRE</li> <li>• HVCRE</li> </ul>	approach)	corporate exposure approach for all SP classes except for HVCRE. This category has its own Basel II formula.
Retail Exposures	Banks calculate and use their own estimates of PD, LGD and EAD	Banks calculate and use their own estimates of PD, LGD and EAD
Equity Exposures	Supervisors to decide	Supervisors to decide
Eligible Purchased Receivables	Corporate receivables – foundation approach available Retail receivables no distinction between F-IRB and A-IRB	Corporate receivables – advanced approach available Retail receivables no distinction between F-IRB and A-IRB

### **Implementation and Adoption Issues**

The Basel Committee has recognized that banks wishing to adopt the advanced approach face many issues. For this reason, the Committee suggests that supervisors allow for a phased approach. One other suggestion that banks wishing to adopt the advance approach can use the supervisory slotting criteria for specialized lending. The Basel Committee also prefers banks not to “cherry-pick”. This means that banks are deterred from having some portfolios on one approach and some on others. However, banks can have minority portfolios on standardized.

Banks implementing the advanced approach are required to meet specific minimum criteria which will be provided by host supervisors. These standards will usually relate to data quality and availability of data history. Also, many supervisors will require banks to carry out a risk management self-assessment. This will help the supervisors determine if banks are sufficiently ready to use an advanced approach. During the transition and after it, banks are expected to continue calculating RWA using both Basel I and advanced approaches for a defined period. This is referred to as parallel running.

### **Models to Derive Risk Parameters**

One of the key parts of Basel II, for those banks adopting the advanced approach is the development of models required to derive PD, LGD and EAD risk parameters. The revised framework provides details on governance which supervisors will require on

model development, assessment, approval, use and review. The following is a list of key requirements:

- The burden is on the bank to satisfy its supervisor that a model or procedure has good predictive power and that regulatory capital requirements will not be distorted as a result of its use.
- The variables that are input to the model must form a reasonable set of predictors.
- The bank must have in place a process for vetting data inputs into a statistical default or loss prediction model which includes an assessment of the accuracy, completeness and appropriateness of the data specific to the assignment of an approved rating.
- The bank must demonstrate that the data used to build the model are representative of the population of the bank's actual borrowers or facilities.
- When combining model results with human judgment, the judgment must take into account all relevant and material information not considered by the model.
- The bank must have written guidance describing how human judgment and model results are to be combined.
- The bank must have procedures for human review of model-based rating assignments. Such procedures should focus on finding and limiting errors associated with known model weaknesses and must also include credible ongoing efforts to improve the model's performance.
- The bank must have a regular cycle of model validation that includes monitoring of model performance and stability; review of model relationships; and testing of model outputs against outcomes.

## **Operational Risk**

The revised Basel framework describes operational risk as follows:

“Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.”

There are three possible options for banks when it comes to banks calculating the capital charge for operational risk as follows:

1. Basic Indicator Approach
2. The Standardised Approach
3. Advanced Measurement Approach

Banks which use the Basic Indicator approach are required to calculate the capital charge for operational risk by simply taking 15% of average gross income over a three year period (assuming that gross income was positive for that whole period).

Banks using The Standardised Approach are required to map their business into eight separate business lines. They are then to work out the average gross income over three years and apply the percentages detailed in below:

Corporate finance	18%
Trading and sales	18%
Retail banking	12%
Commercial banking	15%
Payment and settlement	18%
Agency services	15%
Asset management	12%
Retail brokerage	12%

According to the revised framework, banks wishing to use the Standardised Approach, must meet the following requirements:

- “Its board of directors and senior management, as appropriate, are actively involved in the oversight of the operational risk management framework;
- It has an operational risk management system that is conceptually sound and is implemented with integrity;
- It has sufficient resources in the use of the approach in the major business lines as well as the control and audit areas”.

Banks can only use the Advanced Measurement Approach if approved to do so by their home supervisor. These banks assess the capital charge for operational risk via their own qualitative and quantitative operational risk systems. They must also satisfy regulators that they meet the same conditions required for the Standardised Approach.

## **Trading Book Issues**

The final part of the section describing Pillar 1 covers trading book issues. It opens with a definition of what is considered to be a trading book. The following is the definition which the Basel Committee has provided:

“A trading book consists of positions in financial instruments and commodities held either with trading intent or in order to hedge other elements of the trading book. To be eligible

for trading book capital treatment, financial instruments must either be free of any restrictive covenants on their tradability or able to be hedged completely. In addition, positions should be frequently and accurately valued, and the portfolio should be actively managed”.

The revised framework provides guidance on how banks should perform valuations of positions in their trading books. The framework suggests three key practices for prudent valuations as follows:

1. The establishment of good and clear systems and controls which will give supervisors confidence on the accuracy and reliability of the valuations
2. The use of established Valuation Methodologies. These can include:
  - a. Marking to market (“daily valuations of open positions against readily available independent close-out prices”)
  - b. Marking to model (“valuation which has to be benchmarked, extrapolated or otherwise calculated from a market input”).
  - c. Independent Price Verification (“to be performed on a less frequent basis than marking to market, by a unit which is totally independent from the dealing activity. The revised framework suggests this is done on a monthly basis”)
3. The establishment and maintenance of procedures for considering valuation adjustments or reserves.

This section also covers the treatment of counterparty risk in the trading book. The key requirement set by the Committee in this regard is consistency. Risk weights used to calculate RWA in the banking book must be the same as those used in the trading book. Approaches must also be consistent. Banks using a standardized approach for their banking book will do the same approach in their trading book.

### **Part 3 – The Second Pillar Supervisory Review Process**

The start of this section of the Convergence of Capital Measurement and Capital Standards – A Revised Framework introduces some new risk types which were not considered or discussed in the previous part of the document. These risks include:

- Interest rate risk on banking book (or IRRBB)
- Liquidity risk
- Reputational risk
- Legal and compliance risk
- Concentration risk

The whole section is well summarized in one of the early paragraphs. It says ‘the supervisory review process of the Framework is intended not only to ensure that banks have adequate capital to support all the risks in their business, but also to encourage banks to develop and use better risk management techniques in monitoring and managing their risks’.

Pillar 2 of the Basel II accord presents banks with two linked processes which aim to meet the objectives stated above. The first one is the supervisory review and evaluation process (SREP); the second is the internal capital adequacy assessment process (ICAAP). A bank’s management has a duty to ensure that the bank has sufficient capital to support its risks. However, supervisors have a responsibility to evaluate how well banks assess the amount of capital they need. The Committee suggest that dialogue occurs between supervisors and banks when capital assessments result in insufficient capital. This would result in either a reduction of risk or an increase in capital. The second option (an increase in capital) should not be considered as a remedy in isolation. The following appears in the text, at the start of the section on Pillar 2. “The Committee recognises the relationship that exists between the amount of capital held by the bank against its risks and the strength and effectiveness of the bank’s risk management and internal control processes”.

The revised framework suggests three areas suitable for Pillar 2 treatment as follows:

- Risks considered under Pillar 1 which are not fully captured by Pillar1. These would include concentration risk
- Risks not considered within Pillar1. These would include IRRBB and also strategic risk.
- Compliance with minimum standards required for banks to use advanced Pillar I methods (IE advanced IRB approach for credit risk and Advanced Measurement Approach for operational risk.

## **Four Key Principles of Supervisory Review**

The Basel Committee identified four principles of supervisory review.

These principles are as follows:

- 1. “Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining capital levels”.**

Banks are required to defend capital targets by demonstrating that they are consistent with risk profiles and operating conditions. The text discusses the importance of stress tests. Banks must be able to show that their capital targets are not just suitable for normal

conditions, but can withstand stressed conditions. The revised framework lists five main features of what is termed as a “rigorous process”. These are:

- a. Board and senior management oversight
- b. Sound capital assessment
- c. Comprehensive assessment of risks – including credit , operational, market, IRRBB, liquidity and other risks
- d. Monitoring and reporting
- e. Internal control review

**2. “Supervisors should review and evaluate banks’ internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the result of this process”.**

The following issues should be covered by supervisors when they perform their on-site inspections

- Review of adequacy of risk assessment
- Assessment of capital adequacy
- Assessment of the control environment
- Supervisory review of compliance with minimum standards
- Supervisory response

**3. “Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum”.**

Under Pillar 1, banks will have calculated the minimum capital that would be required. However, banks will be expected to include a buffer above the minimum. Supervisors are expected to ensure that these buffers are sufficient, especially if conditions exist that would cause a bank’s capital to fall below the regulatory capital.

**4. “Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored”.**

There should be a number of options available to a regulator in order to prevent a bank’s capital from falling below the minimum level.

### **Specific Issues to be addressed under supervisory review process**

The revised framework provides a list of issues which must be considered as part of the supervisory review process. These are summarized as follows:

- **Interest rate risk in the banking book**  
The Committee expressed concern over the impact of interest rate shock during stressed conditions. Reductions in tier 1 and tier 2 capital give some reasons for concern.
- **Credit Risk**  
There are several aspects of credit risk mentioned that provide some concern. These include the role played by stress tests, the definition of default, and residual risk following the application of collateral, concentration risk (IE significant exposure to one counterparty or a group of related counterparties)
- **Counterparty Credit Risk**  
The adequacy of counterparty credit risk management processes, policies and systems.
- **Operational Risk**  
There is concern that the capital charge for operational risks may be understated, especially for banks with low margins or profitability. It should be noted that the capital charge for two approaches is based on gross revenue. It is recognized that this is only a proxy assessment.
- **Market Risk**  
Policies and processes covering valuation stress testing and the use of risk modeling under the internal models approach are required to be clear and sufficiently detailed.

### **Part 4 – The Third Pillar Market Discipline**

The third Pillar of the revised framework provides banks with the requirements for disclosing risk and capital information. The following appears in the text as guiding principle:

“The purpose of Pillar 3 – market discipline is to complement the minimum capital requirements (Pillar 1) and the supervisory review process (Pillar 2). The Committee aims to encourage market discipline by developing a set of disclosure requirements which will allow market participants to assess key pieces of information on the scope of application, capital, risk exposures, risk assessment processes, and hence the capital adequacy of the institution.”

The scope of disclosure will differ from country to country, but the Basel Committee has provided some requirements. The general rule is that banks should disclose qualitative

and quantitative information covering the following risks and topics on the company websites and in published accounts:

- Capital structure
- Capital adequacy
- Credit risks
- Counterparty credit risks
- Securitized assets
- Market risk
- Operational risk
- Interest rate risk on banking book

## **Conclusions of Reviews of Basel Accords**

The first thing a reviewer of both Basel Accords notices when commencing a study is the fact that the second accord is much longer and more detailed than the first. It covers additional risks in Pillar 1 and further details of risk management processes in Pillar 2. The third Pillar on disclosure is also an additional component which was not included in the first accord. However, the two accords do agree on one thing, the minimum regulatory capital requirement being fixed at 8%.

The following is a list of major differences between the two accords:

- Basel I provided very rudimentary methods to calculate risk weights for credit risk
- Basel I did not include any sections on operational risk
- Basel I did not consider the additional risks which were covered in the second Pillar of Basel II.
- Basel I did not include any sections on the Supervisory Review and Evaluation Process (SREP) or Internal Capital Adequacy Assessment Process (ICAAP). Both of these are major components of the Pillar 2.
- Basel I contained a significant loophole in that no consideration was given to asset securitization and other ways banks can arbitrage their capital requirements. This loophole may be contributing to the current crisis in the US financial markets. Basel II may have come too late (and not at all in the US) to have prevented the crisis. The volume of residential mortgage backed securities increased following Basel I so that banks could better manipulate capital requirements. As these “packages” contained sub-prime components and as borrowers started to default, the banks holding these obligations started to experience their own problems.

- The roles of regulators and also rating agencies increased from Basel I to Basel II. As Basel II requires a stepped approach for all Pillar 1 risks, regulators have to take a more prominent role in allowing banks to progress from one approach to the next. Under Pillar 2, regulators are required to be involved in risk management review processes and will be required to comment on (and agree with) banks' internal capital adequacy assessments.

## **Chapter 4 – Basel II Literature Review**

### **Introduction**

This chapter will examine the main points out of a review of the current literature on Basel II. This review consisted of examining several articles and documents which were written on the subject. The main objectives of the review were to:

1. To understand the challenges and issues of Basel II which banks, regulators and other stakeholders face.
2. To understand the objectives of Basel II and how well they are being met
3. To gain an understanding of the costs being incurred by banks in implementing Basel II
4. To understand the key differences between Basel 1 and Basel II.
5. To understand why US banks are being slow to take on Basel II.
6. To assess how likely Basel III is.

### **1. Implementing Basel II: Is the Game Worth the Candle? –**

#### **Richard Herring**

The author opens this paper by reminding the readers that the aims of the new Basel Accord on capital Adequacy included correcting what he termed as “widely perceived defects in the original Basel Accord”. He also says that the new accord also aligned “capital regulations with evolving best practices in risk management. Herring suggests that the outcome of Basel II has resulted in more complex regulations around capital management and also higher costs incurred by banks in order to implement programs designed to comply with those regulations. He asks the question “are the potential gains in financial stability worth the additional costs?”

## 1.1. Objectives of Basel II

Herring suggests that the Basel Committee on banking Supervision “sought to reconcile a numbers of seemingly irreconcilable objectives”. These are as follows:

1. To increase the soundness of the banking system without changing the overall level of capital in the banking system
2. To encourage banks to adopt more sophisticated techniques by offering capital reduction incentives, but at the same time, “maintaining a level playing field”.
3. To understand and also recognize the roles played by regulators, but without increasing the costs of compliance
4. To link capital requirements with risk, but “without exacerbating the pro-cyclicality of lending”.

The paper Herring has provided aims to question if any of these objectives were met or are being met. His argument examines if the costs of implementation actually outweigh gains to banks who adopt the requirements of Basel II.

Herring outlines issues which regulators face. These include staffing up for Basel II, gaining skills and training, retaining skilled professionals and other human resource issues. In support of Herring’s point, the issues encountered by the Taiwanese regulator include all the ones quoted by Herring. Taiwanese banks are encountering long delays in approving requests to go for more advanced Basel II approaches. There is a lack of skilled resources to review and process such applications.

Herring refers to the fact that regulators need to understand the diversity of banks in getting an understanding of the local landscape. As previously noted, many variations exist in Basel II available solutions. Again, referring to the Taiwanese example, there are over 40 banks in Taiwan with different products and segments. The Taiwanese regulator has a far more difficult task in this regard than regulators from countries where there are only a few banks.

Another issue which Herring refers to is the fact that banks may well perceive their local regulator in participating in risk management process, taking a larger role in a bank’s own risk management governance process. Herring sees that this will lead banks to take greater risks, and thus place “greater burden on official oversight”.

Herring also sees dangers in implementing Basel II in emerging economies. There is a temptation that countries will indicate a desire to adopt advanced approaches in order to gain and/or retain competitive advantage over countries that do not. He also sees that

some countries will see a failure to adopt such approaches as resulting in rating agencies and international financial institutions setting penalties. Additional issues relating to Basel II implementation in emerging economies include the following:

1. An implementation, being a complex set of activities, diverts resources from managing risks. Also, risks not covered in Basel II (including political risk, currency inconvertibility, liquidity and funding risks) need to be managed in such economies
2. Lenders to riskier emerging economies face higher capital charges. There is a risk of capital outflows occurring as a result of Basel II.
3. Basel II has redefined “short-term” to 3 months. It is predicted by economists that the reliance on short-term borrowing could leave countries vulnerable to outflows of capital. Herring suggests that instead of avoiding another Asian crisis, Basel II may well be creating the conditions which caused the crisis.

## **1.2. Basel II and Procyclical Lending**

Herring suggests that Basel II may well run counter to cyclical requirements of economic decline and recovery. Capital charges, in a Basel II environment, will tend to rise during a recession and fall in a recovery. He says that banks, by following the requirements of Basel II may “exacerbate macroeconomic fluctuations by constricting credit in a recession and expanding credit in a recovery”.

## **1.3. Conclusions**

Herring makes the following conclusions:

- Basel II has improved bank safety and soundness. But this benefit could have been achieved at a lower cost
- Basel II could have been just as successful if market discipline as expressed in Pillar 3, had focused more on such data as “foreign/domestic currency breakdowns of assets and liabilities and exposures to sovereign borrowers, publicly controlled corporations, and commercial real estate”. All of these, Herring contends, played a part in past banking crises.
- The Basel Committee needs to focus its attention on the third Pillar of Basel II. There are a number of areas where improvements can be made which will strengthen the Accord and also bring about changes in risk management. Herring sees that enhanced market discipline will result in removing regulators from “the business of micromanaging risk measurement and risk management”.

## **2. The Rocky Road to Implementation of Basel II in the United States – Richard J. Herring**

In this second article on Basel II by Richard Herring, the author examines the reasons behind the US reluctance to have American banks adopt the requirements of Basel II. The author links two themes which were highlighted in the earlier paper. These are the “bifurcated” approach adopted by the US and the cost of implementing the goals of Basel II around the improvement of overall risk management.

### **2.1. The Bifurcated Approach**

In 2003, it was announced that only internationally active US banks with more than \$250 billion in total assets or with foreign exposures greater than \$10 billion would be expected to implement advanced Basel II approaches for calculating capital charges. A further ten large regional banks would be expected to “opt-in”. All other banks would continue to follow Basel I requirements unless they chose to adopt the advanced approaches. Herring tells us that the rationale on allowing the vast majority of US banks not to implement Basel II was based on the fact that these institutions tend to be much less complex than the bigger banks. The costs of implementation would far outweigh any gains accruing. Also, these banks already maintained higher levels of capital than what Basel II regulatory minimum. The Federal Reserve also suggested that these banks already benefit from enhanced supervisory oversight (as per Pillar 2) and disclose sufficient information to meet Pillar 3 requirements. Herring concludes this section by saying “in short, the US authorities argued that requiring these banks to bear the costs of shifting to Basel II was not justified by the probable benefits”.

The assumption that major US banks would have no issues with implementing Basel II was based on the fact that these banks would have risk management processes and systems already in-place which would be close enough to those specified in the second Accord. Little cost would be required to make the necessary changes. Also, these banks were led to believe that there would be a reduction in regulatory capital.

### **2.2. Criticisms of the Bifurcated Approach**

Herring discusses the key criticism of the approach. He informs the reader that non-core banks in the US were worried that Basel II adopters would have a competitive advantage over non-adopters. Lower capital requirements for adopting banks would

find their way into their pricing structures. Non-adopting banks would therefore be at a disadvantage. Declining market share and the possible increase in the rate of bank mergers were seen as key risks community and regional banks would face.

## **2.3. Conclusions**

Herring attempts to summarise his paper by looking for reasons why Basel II has been so delayed in the US. He sees two main contributing factors as follows:

- The indecision caused by the fragmented nature of banking regulations and the inefficiency of the US regulatory process
- The fact that US regulators are required to take direct control of financial institutions which are near to insolvency and thus resolve any capital shortages in companies under their control.

Herring sees plenty of compromise options which would be address the original concerns, but regulators and banks have allowed the comment time on such proposals to run out without resolution being achieved.

## **3. Assessing the regulatory impact: credit risk – going beyond Basel II by Richard Tschernjak**

### **3.1. Introduction**

The author opens the paper by giving a short background on Basel II. He tells the reader that “there are significant business benefits for banks that move towards best-practice risk management, implementing systems and processes that satisfy regulatory (Basel II) requirements”. In addition to the capital reduction benefits, banks can benefit from resulting competitive advantage. At the time of writing, the author suggests that banks “are either battling with implementation programs or scrambling to gather all the necessary data and upgrade risk practices....”

### **3.2. Implementation Challenges**

Tschernjak tells us that banks will find challenges in implementing Basel II. Full compliance will be difficult because of insufficient data, inadequate data warehouse and inadequate data architecture. The suggestion is made that banks should be looking at meeting the data challenges associated with a Basel II implementation by adopting an integrated data approach, rather than solving the above issues in a linear way.

### **3.3. Capital Advantages**

The author sees that Basel II will offer capital benefits to small and even to second- and third-tier banks that go for an advanced approach. The capital advantage to a bank which only has a highly secured mortgage portfolio is considerable. The investment required to implement Basel II at the advanced level, may be too onerous for banks operating on a relationship level. Any competitive advantage may not be significant in such cases.

The author discusses the advantages to a bank which has been able to achieve capital savings. He refers to the calculation of economic capital, either using a top-down approach or a bottom-up approach. The preference is for the second as it can provide details of capital impacts at a transaction level, a product level and even at a customer level. He also refers to regulatory capital.

Tschemernjak's final comment is how banks can manage their capital requirements by adopting policies and practices which will allow them to hedge their portfolios and also securitizing them. However, these practices became common immediately after Basel I, but the requirements introduced in Basel II tightened up this by applying specific risk weights to securitized portfolios. The practices of securitization can be considered as capital arbitrage. Interestingly, Tschemernjak makes no reference to this.

### **3.4. Risk Management**

Tschemernjak concludes his paper by saying that banks should be aiming for an integrated risk management approach. This approach would integrate credit, market and operational risks into an enterprise-wide risk management function. The concept of managing risks on this basis has merit. The author tells us that "top-tier banks are those taking predominant measures to integrate risk across the institution..." He suggests that Basel II has an objective to have banks manage risks on that basis. However, he overlooks the fact that operational risk which, in itself, cannot be linked to products, customers or counterparties, may be difficult to integrate with credit and market risks.

## **4. Basel II: The Route Ahead or Cul de Sac by Richard Brealey.**

### **4.1. Introduction**

Brealey starts his paper by quoting Jean-Claude Trichet, the Chairman of the G-10 group of central bank governors, when he welcomed in the second Basel Accord. Brealey quotes Trichet by saying that the new Accord “will enhance banks’ safety and soundness, strengthen the stability of the financial system as a whole, and improve the financial sector’s ability to serve as a source for sustainable growth for the broader economy”. Brealey views this rosy outlook with some degree of skepticism. His paper is broken down into three sections as follows:

- A review of bank failures
- A rationale for regulating bank capital
- The determinants of effective capital adequacy.

### **4.2. The Case for Regulations covering Bank Capital**

According to Brealey, the justification for regulation is in response to market failure. He suggests that there are three ways in which such a failure can occur as follows:

- A loss of confidence in the banking sector leading to a flight to cash
- Banks provoking credit restrictions which in-turn results in a negative economic shock, which in-turn reduces a bank’s equity and its ability to lend
- Via “implicit or explicit deposit” insurance. Brealey suggest that deposit insurance encourages banks to make riskier investments. Governments tend to impose capital requirements in an attempt to stop banks substituting risky assets because of the existence of deposit insurance.

Brealey examines the role of capital. He sees drawbacks in capital requirements as laid down by regulators, especially as the action of controlling capital ratios is the easy option for regulators. Capital constraints, he suggests, can lead to a tightening of credit (as happened in the US after Basel I) or can provoke banks into disposing of their riskier assets. This action will only pass on risks to other (non-regulated) parts of the capital market.

Brealey refers to role of the capital buffer and the incentives banks have to maintain them. He suggests that banks have many other motivations to hold capital in excess of regulatory minimums, which are additional to those imposed by regulators. He mentions the fact that banks wishing to access interbank and derivative markets need to maintain what he terms as “sufficient levels of capital”.

The author has concerns that regulators have not paid as much attention as they should to the way and even the frequency banks revalue assets. If the interval between revaluations is long or if “jump” factors such as exchange rate fluctuations are not taken into account, banks will need to hold more capital to mitigate the risks of resultant changes in asset values. Brealey also expresses concern on errors in revaluing a bank's assets.

Brealey also sees that Basel II has its shortcomings. He specifically focuses on risk weightings. Unrated companies have an advantage over those rated as BB or worse. Unrated default to a risk weighting of 100% whereas customers rated worse than BB will have a risk weighting of 150%. Capital required would be more for the latter than for the former. Obviously, this would only apply when a standardized approach is used. Under an advanced approach, banks can use their own internal ratings.

A further problem discussed by Brealey relates to the failure of the second Accord to address concentration risk. Brealey suggests that many bank failures were caused by large exposures to single sectors or industries. He also tells us that the second Accord focuses on probability of default, but ignores the cost of failure. He cites an example of a merger of two banks, with one guaranteeing the other's debt. Probability of default would decrease, whilst the possible cost of failure and the size of default would increase. These factors are not considered when calculating a bank's capital. A further flaw in the Accord which Brealey identifies is the risk associated with the mismatches of loan maturities.

### **4.3. Conclusion**

Brealey concludes his paper as follows:

- Regulations relating to capital standards have not prevented banking crises
- Reduce the impact of banking crises, especially in developing countries, by spreading risks through other parts of the capital markets and not confining them to banks.
- The inconsistencies and flaws in the ways banks measure assets impacts capital assessments. Regulations should be brought in to require market-value accounting for measuring bank assets.

## **5. Dealing with Basel II – the end of risk management by Robert Hudson**

### **5.1. Introduction**

In his preamble, Hudson suggests that the paper “takes a look at the (second Basel) accord from the point of view of those interested in managing (or investing in) banks’ capital”. He asks the question, “what does the new accord offer them?”

Hudson looks at the reasons why the second accord was required. He suggests that the rules relating to capital and risk, as they existed following Basel I, needed to be more “risk sensitive”. Securitization became one of the ways which banks could get around the rules. From this perspective, Hudson tells us that banks and regulators wanted changes. However, he sounds a note of caution. He quotes a Chinese proverb by saying “you should be careful what you wish for”.

### **5.2. The Problems with Basel II**

Hudson discusses some of the problems which banks will have or having with Basel II. These are summarized as follows:

- There are a number of areas within the accord which indicate differences resulting from national discretions. (Hudson estimates about 40 in total)
- Securitization, which was a loop-hole in Basel I, is in danger of being overly regulated in Basel II. Hudson sees that capital rules in Basel II governing securitization may be “excessively tough”.
- Too many options, including the fact that many banks in the US and also those in the developing world can continue to operate on Basel I basis, may lead to serious distortions. There is an absence of a level playing field.
- The short-term interbank business will be impacted because of changes in counterparty risk weightings. Under Basel I there was no difference (everyone had the same risk weight of 20% for transactions of less than one year maturity).
- The role of rating agencies is greater under Basel II. Hudson asks if “they will give in to (the) pressure in order to retain business or will they become more conservative in order to demonstrate their integrity?”
- Analysts may not be ready to interpret the huge amount of data which Pillar 3 disclosure will present them with.

### **5.3. Conclusions**

Hudson concludes his paper by saying that he fears the end of risk management. The demise will have been caused by the amount of “effort required (by banks) to comply”. Risk managers will spend their time on understanding and implementing the Basel II requirements, leaving little or no time to managing risks. He also sees that the similar efforts are needed by supervisors. Hudson leaves us with a question as follows: “A more risk sensitive accord was what everyone wanted. Now that we have it, will it be worth the cost?”

## **6. The Basel II Approach to Bank Operational Risk: Regulation on the Wrong Track by Richard J. Herring**

### **6.1. Introduction**

This is the third paper authored by Professor Herring included in this review of the literature written about the Basel Accords. In this paper Herring looks at the subject of operational risk as it relates to Basel II. He opens the paper by defining “Economic Capital”. He tells us that this “is the amount of capital a bank requires to achieve a given level of protection against default for its creditors”.

He goes on to describe the way that internal models, which were first introduced in the 1996 Amendment on Market Risk, were then adapted for credit risk. The inadequacies of Basel I were fully exposed. The internal models approach had worked well for market risk. Basel II came about but with some major differences, including the use of an internal ratings approach. The same approach was also applied to operational risk. However, Herring suggests that this “is vulnerable to criticism”. He tells us that “the Basel Committee is not simply changing regulation to conform to well-established best practice, as it did in market risk. It is attempting to define best practice”. He goes on to say that “this attempt to set capital charges for operational risk is fundamentally misguided”.

### **6.2. The Problems with the Basel II Definition of Operational Risk**

Basel II defines operational risk as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events”. Herring identifies two key omissions as follows:

- There is no mention made of the risk of a bank's inability to cut costs in response to falls in revenue
- There is no mention made of indirect costs or reputational risk.

Herring also makes the point that the Basel Committee's stated aim was to use operational risk capital charge to compensate for any reductions in capital gained as a result of using advanced credit risk approaches.

### **6.3. Differences between Operational Risk and other Pillar 1 risks**

Herring suggests that operational risk differs from credit and market risks in fundamental ways as follows:

1. The capital charge for operational risk under Basel II is an arbitrary estimate whereas the capital charge for the other risks is based on a rational process for measuring those risks.
2. Operational risk is an expense (possibly considered as avoidable) which banks will try to minimize. The Basel II treatment of operational risk can hardly be described as "risk-sensitive".
3. Credit and market risks can be mitigated by capital management. Such actions cannot effect operational risk
4. Instances such as happened in Berrings Bank (and more recently in Societe Generale) are as a result of poor internal controls, not an absence of capital. Herring suggests that "no reasonable amount of capital would be sufficient to cover such an extreme event".

### **6.4. Problems and Issues with Basel II Operational Risk**

Herring poses a number of questions in his concluding remarks to this paper as follows:

- Why did the Committee include this risk as a Pillar 1 risk and only included interest rate risk on banking book (IRRBB) as a Pillar 2 risk? Herring feels that operational risk belongs to Pillar 2 as it is better dealt with as a supervisory issue. IRRBB would be easier to quantify and would fit better in the Pillar 1 section of the accord.
- If dealt with as a supervisory issue, will supervisors be prepared to reduce capital charges for banks with "exemplary controls" or is this a "one-way ratchet" where supervisors will only increase the capital charge if they perceive controls

to be inadequate? Herring believes that there will only be increases in the charge, with no reductions likely or possible.

- When will the Committee get around to changing the Accord text on operational risk? According to Herring, this part of the Accord is “widely viewed as dysfunctional”.

## **7. Basel II and the Cyclicity of Bank Capital by Mark Illing and Graydon Paulin**

### **7.1. Introduction**

Illing and Paulin commence their paper by telling the reader that about the key objectives of the second Basel Accord. They draw attention to fact that the accord concentrates on credit risk and the calculation of capital required to support a bank's loan portfolio. The authors go on to make the point that “credit risk is strongly related to the business cycle”. The objective of the paper is to examine how and if Basel II rules will introduce cyclicity into banks' calculation and management of capital.

### **7.2. The Impact of Basel I**

The authors begin their detailed analysis by looking at the impacts of Basel I on Canadian banks. They provide an interesting comparison with US banks, but generally they cannot find a correlation between Basel I and overall macroeconomic impacts. Tighter regulations in Canada will have impacted the results, together with a move away from exposures which carry a higher risk weight (corporate exposures) towards residential mortgages.

### **7.3. The Impact of Basel II**

The authors believe the intentions and objectives of Basel II are “both sensible and laudable”. They do see problems with the Accord when the degree of risk is linked to business cycles. They say that banks faced with situations where additional capital is required, may tend to scale back lending during downturns, rather than raise new capital. During boom times, banks may well find that capital levels are high, which in turn results in an increase of lending activity. This fuels the intensity of the next downturn.

Illing and Paulin next look at the roles played by the risk parameters which are part of the Advanced – IRB approach for assessing credit risk. These are summarized as follows:

- Probability of default (PD). This is defined by the authors as being “the likelihood that the borrower will not repay all of his commitments over a given time horizon”.
- Loss given default (LGD). This is “proportion of the exposure that will be lost” in the event of a default.
- Exposure at default (EAD). This factor assumes that a distress borrower will exhaust all lines of credit prior to a default.

The authors suggest that all three are correlated to the business cycle and may “introduce cyclicity into minimum capital requirements”. They also suggest that Basel II encourages capital arbitrage strategies. They cite the increase of asset securitization in Canadian banks as an example of such a strategy.

#### **7.4. Conclusions**

The key question which is addressed by this paper is how volatile is capital under Basel II (as compared with Basel I). The authors conclude the following:

- Under Basel I, corporate exposures tend to be more volatile, especially at the lower credit rating end of the portfolio.
- Sovereign exposures result in higher capital requirements under Basel II, but are less volatile.
- Banks may well adjust loan portfolios to compensate for high capital volatility. The authors consider this to be one of the key reasons why there is concern over Basel II.
- Cyclicity may have already been present in the system. The authors suggest that other factors may have influenced volatility in bank capital over the period of the study.
- Canadian banks are considered sufficiently capitalized to absorb any volatile movements in minimum capital requirements.
- The study only included 35 % of total bank assets (corporate and sovereign exposure). Also, it focused on Pillar 1 only. Banks will calculate capital based on Pillar 2 requirements.

## **7.5. Final Thoughts**

The authors leave the reader with the final conclusion that further work is still required to prove the relationship between “bank capital, lending behaviour and economic outcomes”.

# **8. Competitive effects of Basel II on US bank credit card lending by William W. Lang, Loretta J. Mester and Todd A. Vermilyea**

## **8.1. Introduction**

In this article, the authors analyze the effect of Basel II on credit card lenders. They conclude that lending in this portfolio will result in higher capital charges. However, they also suggest that because credit cards are offered by nonbank companies which can transfer their credit card assets to nonbank parent companies, which in turn have the option to opt into Basel II A-IRB approaches if they so wish, they feel that nonbanks would gain some advantage if competitor banks are faced with large increases in their capital requirements because of adherence to Basel II.

## **8.2. Conclusions**

The authors refer to credit card speciality banks. These include such names as American Express Centurion Bank, Bank One, Discover Bank and Monogram Credit Card Bank. These banks, the authors found, did not fall within the Basel II net, but maintained levels of capital in excess of the minimums required by Basel II. They concluded that even standards required by Basel I are not binding on those banks. The authors also suggest that if Basel II requirements and rules were binding on these nonbanks, the action they would take would be to “either raise additional subordinated debt or increase their rate of securitization”.

An additional conclusion that the authors make relates to the capital impact of Basel II on banks operating under Basel II requirements during periods of economic stress. During periods when credit card performance is poor, capital requirements would rise. This situation is being faced by banks in Taiwan, which have large credit card portfolios. During the period from early 2005 until late 2007, Taiwan experienced a credit card crisis, which resulted in huge losses. As banks start to develop Basel II models, the impact of

this crisis is beginning to evidence itself in capital charges and even in risk appetite projections.

There are five main conclusions from this article. These are as follows:

1. US banks with large credit card portfolios will be reluctant to opt-in to Basel II or use advanced approaches if they do.
2. Banks, which are capital-constrained, will increase securitization activities.
3. Banks will increase their reserves by increasing their levels of expected losses.
4. New credit card asset backed securities (CC-ABS) deal structures will be developed.
5. Under stressed conditions, incentives would increase to allow banks “to engage in informal recourse to support its CC-ABS deals.
6. Nonbanks that opt-in are likely transfer credit card portfolios to parent companies to avoid capital charge increases.

## **Overall Conclusions from Literature Review**

Overall the Basel II literature reviewed as disclosed that there are some interesting conclusions

### **1. Benefits of Basel II**

The following is a list of benefits which writers on Basel II often refer to:

- Basel II was a logical consequence following Basel I and the market risk amendment
- Basel II introduces a more sophisticated approach in determining risk weighted assets and a bank’s capital adequacy
- The processes of capital arbitraging by banks following Basel I were tightened up in Basel II
- The Three Pillars of Basel II introduced new processes for managing risk and market discipline which will impact capital adequacy.

### **2. Shortcomings associated with Basel II**

There are several shortcomings associated with Basel II. These include the following:

- From a macroeconomic standpoint, Basel II can exacerbate economic cycles. During economic downturns, Basel II can result in banks tightening credit.

Economists would suggest that banks should be doing the opposite in order to stimulate an economy. During boom times, banks are likely to relax restrictions which can result in problems later.

- The advanced approaches detailed in Basel II are very costly to implement. Small financial institutions may find the cost too much to bear. The benefits of lower capital charges may be unachievable.
- There is no clear rationale which has determined the regulatory capital adequacy ratio as being 8%. The fact that this ratio is unchanged from Basel I and that it is unexplained in Basel II has given cause for concern.
- The capital charge for operational risk for two approaches (Basic Indicator and Standardised) is based on an arbitrary estimate rather than on a more accurate models approach. The charge is only included to compensate for capital reductions gained by using Basel II approaches for market and credit risks.
- The delays in US banks implementing Basel II or just opting for standardized approaches indicates that the issues relating to cyclicalities, the inappropriateness of the operational risk capital charge and the removal of a "level playing field" have not been addressed.
- As Basel II advanced approaches can only be implemented by banks which can afford the costs of implementation, it can give rise to those banks receiving an unfair competitive advantage over those that can't.
- Pillar I of Basel II excludes some key risks which banks face. These include interest rate risk on banking book, liquidity and reputational risks.

## **Chapter 5 – Basel II Implementation Approaches**

In this chapter, the dissertation will cover various different approaches banks have adopted to implement Basel II requirements. The material for this chapter was assembled by a series of interviews conducted with various implementers of Basel II in different locations.

### **1. Taiwan Approaches**

In this section, summaries of interviews with Basel II implementers in Taiwan are presented. The purpose of this section is to show how banks in Taiwan are approaching Basel II and how the Taiwanese regulator is seeing Basel II from its own perspective.

#### **1.1. Standardized Approach for Capital Adequacy Ratio**

Interviews were conducted with Basel II teams from Hwa Nan Bank, Far Eastern Bank, E-Sun Bank and Standard Chartered Bank Taiwan Limited. The approaches which all of these banks are following have been influenced by the Financial Supervisory Commission (FSC), the Taiwanese regulator. The first thing all banks in Taiwan had to do was to cease the reporting of their capital adequacy ratios using Basel I and immediately report using the standardized approach as specified by Basel II. This came into effect in January 2007. There was no period of parallel running which was the case for banks in UK. The banks studied in this review all changed their reporting from that date. However, the FSC did require some Taiwanese banks to report some portfolios on an A-IRB basis. One bank in the study, E-Sun Bank, was asked later to consider moving the retail mortgage portfolio to an advanced approach. All other banks in Taiwan are not being encouraged to adopt advanced approaches for any of their portfolios, for any of the Pillar 1 risks.

#### **1.2. Basel II Plans**

The second deliverable the FSC requested from all banks in Taiwan was a detailed roll-out plan. In January 2007, the regulator sent out instructions to all banks on how to complete the plan and also a list of self-assessment questions. The plan was to cover all aspects of Basel II. Banks were required to provide comments on each of their portfolios and how they are profiled. The FSC also required banks to give details of their Basel II plans for each portfolio, in terms of credit risk. Other sections

included plans to meet Basel II requirements for operational risk and market risk. There were also sections on how banks in Taiwan calculate expected loss and comments on how banks were to reach compliance on areas covered in the self-assessment which they knew they were not compliant.

All banks had difficulties in completing the plan. The FSC instructions were vague and imprecise. Far Eastern Bank submitted a plan which had a focus on the expected loss calculation. Hwa Nan Bank's plan covered the non-compliant areas. E-Sun Bank decided that the FSC's requirements were to assess the overall readiness of Taiwanese banks and responded with a very high level plan. Owing to Standard Chartered Bank's recent acquisition of a local bank at that time, the FSC allowed the bank to submit their plan three months later. The bank opted for a similar strategy used by E-Sun Bank. The plan consisted of high-level statements with reference to short, medium and long-term deliverables. Following submission of the plans, most of the banks were asked to attend meetings with the FSC in order for them to defend their plans. Interviews conducted for this dissertation disclosed that the FSC chose different parts of the plan for detailed discussion with each bank. For example, Far Eastern Bank was questioned in detail on how they calculated expected loss. The questions the regulator asked were quite detailed. Hwa Nan Bank representatives were asked to explain the plans to gain compliance in those areas highlighted. E-Sun Bank and Standard Chartered Bank were not required to attend meetings with the FSC.

Banks in Taiwan received no formal communication from the FSC that plans were acceptable. Instead, the regulator just stopped asking questions. One bank actually requested a meeting, but was told that the FSC had nothing to discuss concerning the plan. In the interviews conducted for this study, most banks suggested that the FSC used the plans to increase their own knowledge about Basel II.

The FSC requested one section of the plan to cover how banks were going to approach the actual implementation of Basel II. E-Sun and Standard Chartered both had dedicated Basel II teams, whereas the other banks had Basel II objectives included in managers' goals. In all banks, the main drive came from the risk management areas. Standard Chartered was a little different in that this bank saw Basel II implementation as being jointly owned by risk management and finance functions.

### **1.3. Pillar 3 Disclosure**

The next key deliverable required by the FSC in Taiwan was the disclosure of qualitative and quantitative data on banks' websites. This was required by the end of April 2008. Banks were to provide disclosure of their closing 2007 year-end data. This included a summary of their Basel II capital adequacy ratios and also qualitative commentary on key risks. The risks covered in the disclosure also include Pillar 2 risks on liquidity, interest rate risk on banking book and also details on how banks are managing securitized assets.

All banks submitted disclosures as required, but those interviewed did not fully understand the amount of detail required. Standard Chartered submitted the most detail, with their disclosure running into several pages. Other banks tended to disclose much less. For all banks, this was the first Pillar 3 disclosure that they had made. Even Standard Chartered Bank, with its widespread network of banks in other countries, had not made a Pillar 3 disclosure anywhere else. UK banks are not being asked to disclose on a Pillar 3 basis until 2009, on 2008 data.

### **1.4. Pillar 2 Self Assessment**

In early 2007, the FSC submitted a detailed list of questions to all Taiwanese banks. The questions covered all Pillar 1 and Pillar 2 risks. The FSC required banks to complete quantitative tables on credit risk, market risk and operational risk. Many of the sections were taken directly from the Basel II accord. In order to complete the deliverable, banks had to answer the questions, citing bank policies and other references as appropriate. In addition to completing the pack, banks had to have the material reviewed by internal audit functions. The whole pack had then to be approved by local bank boards of directors.

Most banks described the exercise as being part of Pillar 2. It clearly falls under the Supervisory Review and Evaluation Process (SREP). As with all other requests from the FSC, there was little or no explanation or clarification around this deliverable. However, there was a recommendation from the FSC that Taiwan banks use a leading Taiwan credit bureau's system to calculate their risk adjusted return on economic capital (RAROEC). This was one of the required quantitative fields in the pack. All banks interviewed except for Standard Chartered Bank used the service. There was a feeling that the calculation of economic capital was outside most banks'

capabilities. They had only just mastered calculating regulatory capital under Basel II, Pillar 1.

As of the time of writing this dissertation, no Taiwanese banks have received feedback or comment on their Pillar 2 submissions. The opinion expressed by those interviewed suggests that all banks will be asked by the FSC to complete an internal capital adequacy assessment process (ICAAP). This, with the SREP, is a key part of the second Pillar of Basel II. It is also expected that the FSC will send their own reviewers to the larger banks to make their own assessments of the accuracy of the submissions. However, the FSC is experiencing a skills shortage. The recent change of government has introduced some temporary instability inside the FSC. What is clear is that the self-assessment exercise will be repeated on an annual basis from now on.

## **1.5. Conclusions from the Taiwan Approach**

The approach being adopted by the FSC and therefore by Taiwanese banks can be described as Basel II in reverse. The regulator has required banks to report their capital adequacy ratio on a standardized Basel II basis. As we have seen, this is no major departure from Basel I. Implementation is quite easy and straightforward. The next big deliverable was a Pillar 3 disclosure. After the Pillar 3 disclosure, the next deliverable was the Pillar 2 pack. Most banks in Taiwan are at that point of Basel II implementation. As discussed, the ICAAP requirement is expected to be the next thing the regulator will ask for. After that, and according to most Taiwanese banks' roll-out plans, applications to move on to advanced Pillar 1 approaches will be prepared. According to Basel II, banks must satisfy regulators that they meet all the criteria on data integrity, internal controls, governance and overall risk management before they can use advanced approaches. The FSC seems to be following the logic that by going from Pillar 3 to Pillar 2 and then to Pillar 1, banks will be able to meet the criteria eventually. The advantage for the FSC is that banks will not be adopting approaches which could result in lower capital for a long time. Most banks in Taiwan are looking at an A-IRB implementation no sooner than 2015. To the FSC, the prize that Basel II is offering banks of being able to have lower capital should only be awarded once the Basel II race is run, not whilst it is still in progress.

## 2. Basel II Implementation Approaches – other countries

In this section, summaries of interviews held with Basel II implementers in other countries are summarized.

### 2.1. UK

The approach in the United Kingdom has been more aggressive than in most countries. The Financial Supervisory Authority (FSA) embraced Basel II from the earliest stage. In 2006, the FSA issued The Prudential Sourcebook for Banks Building Societies and Investment Firms (BIPRU). This document was the FSA's summary of Basel II and its 14 sections provided banks with a basic Basel II implementation manual for all UK banks.

Standard Chartered Bank has followed the requirements as laid down in BIPRU. The Basel II program commenced in 2004. The key objectives were as follows:

- To achieve approval to implement advanced approaches for credit risk and market risk
- To be compliant with new regulatory rules, on an on-going basis
- To derive business benefits from a Basel II implementation
- To provide accurate regulatory reports and disclosure information
- To maintain capital within target ranges
- To improve the quality of risk management

To achieve these objectives, the bank commenced the program by making a decision that the bank would apply for A-IRB for credit risk. In order to do this, banks in UK were required to submit waiver applications to the FSA. These requested approval from the FSA to waive the requirement for banks to report on a standardized Basel II basis.

The next stage of the program was to start work on developing Basel II compliant models. The challenge, according to the Standard Chartered Bank interviewee, was with the quality of the data. Basel II requires and assumes good quality data. Most UK banks (and also banks in other countries) commenced the Basel II programs with setting up teams to improve the quality of their data. These teams worked alongside the model developers who relied on historical data to build reliable and usable models. The final part of this stage of the program required banks to build data stores, which also housed the developed Basel II models, the calculation engines and also the regulatory reporting processes. This final stage required significant investment. Anecdotal information suggests that large banks spent over US \$50

million on Basel II implementation. Banks would incur most of these costs in implementing solutions to resolve these data challenges.

Having addressed the data issues, UK banks would then have to submit applications to use advanced approaches. FSA required all UK banks following this path to undergo a rigorous self-assessment process. Standard Chartered Bank submitted their A-IRB application following completion of the self-assessment exercise. In 2008, the bank issued its first regulatory report on an A-IRB basis, following the FSA's approval to do so. After the second submission, the Basel II program team disbanded. Pillar 1 of Basel II had been fully implemented. Programs covering Pillar 2 and Pillar 3 commenced, but were being driven out of separate business units such as the Legal and Compliance and the Finance functions.

Standard Chartered Bank, in common with the large UK banks, assumed Basel II's main challenges were around Pillar 1, especially around the credit risk part. The use of Basel II going forward, including the implementation of risk management improvements and the processes around disclosure were outside the scope of the Basel II program. The requirements, which the FSA had summarized in BIPRU, also encouraged banks to look with greater emphasis on Pillar 1.

## **2.2. Korea and Thailand**

Both Thailand and Korea have adopted similar approaches to Basel II implementation. Both countries suffered very badly during the Asian financial crisis. The regulator in Korea, the Financial Supervisory Service (FSS) has been encouraging local banks to adopt Basel II. However, there has been some reluctance in allowing banks apply to use advanced approaches. In Korea, there are two foreign banks which are locally incorporated. The FSS is finding home/host issues difficult to deal with and resolve. In an interview with the head of Basel II for Standard Chartered First Bank (Korea), it was disclosed that the FSS has disagreed with the UK regulator about when the bank in Korea would be allowed to adopt the A-IRB approach. The regulator in Korea had concerns about the lack of a level playing field caused by one bank adopting advanced approaches whilst others could not or would not. These concerns still exist, but the bank is continuing with its application to use A-IRB.

According to the head of Basel II in Standard Chartered Bank in Bangkok, the regulator there, the Bank of Thailand (BoT), has been enthusiastic about banks

adopting Basel II. Unlike the Korean regulator, BoT has endorsed applications by banks in their jurisdiction to apply for advanced approaches. As of September 2008, only Standard Chartered Bank has applied, but more are expected. It would seem that BoT is looking to Standard Chartered Bank as being a local leader in the Basel II implementations. Instead of being worried by the lack of a level playing field, BoT is hoping that local banks will follow the example being set by Standard Chartered Bank. As a result of this, the implementation at Standard Chartered is looking at the Basel II program as being something more than a compliance exercise.

### **2.3. Canada and Australia**

The strategies adopted by Canadian and Australian banks was summarized in an interview conducted with Mac Kalyan who had headed up Basel II implementation teams in the Royal Bank of Canada, CIBC and in National Australia Bank. These three banks, like all banks in Canada and Australia, were early Basel II adopters. The European banks were at the forefront, but Canada and Australia were not far behind.

The Office of the Superintendent of Financial Institutions (OSFI), the Canadian banking regulator mandated that all Tier I banks in Canada follow the AIRB approach for Credit Risk and follow the Standard Approach for Operational Risk in the short term since most banks did not have enough loss event data to comply with the Advanced Approach. All Canadian Banks are following the Advanced Approaches or are planning to do so in the future.

The strategies adopted by these banks were similar to those adopted by the large UK banks. The main focus was on getting data cleaned up and collected in one virtual storage facility for Basel II calculation and reporting. The regulators in both locations were keen for banks to go on to advanced approaches as quickly as possible. However, both were keen to ensure that banks in their jurisdictions should be completely ready before submitting applications. It is interesting to note that many Basel II implementation teams in Asia consist of resources from Canada and Australia. These two countries completed their programs long before Asian banks started theirs and therefore became suppliers of Basel II expertise.

## Chapter 6 – Capital Impact Assessment

In this chapter, the results of running a small sample of a bank's wholesale portfolio through risk weight calculation model will be presented. The methodology used for this section required that three separate customers, each with different credit rating were assessed using an A-IRB calculator. The same exercise was repeated for different exposure types, including commercial banking exposures, project finance exposures and commercial real estate exposures.

### 1. Commercial Banking Exposures

The table below provides details of the results of the calculation for three clients with A+, BB and B equivalent credit ratings. As internal bank ratings are used, the banks own rating system would be used, but these will be mapped into a rating agency equivalent. In this case, the rating agency used is Standard and Poors.

		Commercial Banking Exposures			
<b>Claim details</b>					
Maturity		5 years			
Counterparty		Large Corporate			
Country of Incorporation		Taiwan			
Product		Term loan			
Amount of outstanding		US\$100m			
Line is fully committed?		Yes			
Annual turnover		Us\$500m			
<b>Collateral details</b>					
Country		Taiwan			
Type		Commercial real estate			
Amount/value		US\$60 m			
		<b>Standard and Poors Ratings</b>	<b>A+</b>	<b>BB</b>	<b>B</b>
<b>A-IRB Approach Basel II</b>	<b>Exposure at default</b>	US\$100m	US\$100m	US\$100m	
	<b>Loss given default</b>	40%	54%	54%	
	<b>Risk weight</b>	40%	126%	223%	
	<b>Risk weighted asset</b>	40	126	223	
<b>Standardised Approach Basel II</b>	<b>Risk weighted asset</b>	100	100	150	
<b>Basel I</b>	<b>Risk weighted asset</b>	50	50	50	

From this, it can be seen that the capital required increases as the credit ratings for a customer get worse. It is interesting to note that the risk weights and therefore the capital required under Basel I and under the standardized approach in Basel II make those approaches more beneficial. Under the scenario presented above, it can be concluded that banks which have portfolios of commercial banking customers with credit grades of BB or worse will gain no benefit from using the advanced method for credit risk. The capital benefit will only accrue to banks whose customers have, on average, credit ratings better than BB+.

When other variables are changed, there are changes which impact risk weights. When the collateral type is changed to cash, risk weights, even for BB rated customers, drop to 79%. However, if the customer credit grade drops to BB- equivalent, risk weight increases to 110%.

#### Commercial Banking Exposures

##### Claim details

Maturity	5 years
Counterparty	Large Corporate
Country of Incorporation	Taiwan
Product	Term loan
Amount of outstanding	US\$100m
Line is fully committed?	Yes
Annual turnover	Us\$500m

##### Collateral details

Country	Taiwan
Type	Cash
Amount/value	US\$60m

	Standard and Poors Ratings	A+	BB	B
<b>A-IRB Approach Basel II</b>	<b>Exposure at default</b>	US\$100m	US\$100m	US\$100m
	<b>Loss given default</b>	25%	34%	34%
	<b>Risk weight</b>	25%	79%	139%
	<b>Risk weighted asset</b>	20	79	139
<b>Standardised Approach Basel II</b>	<b>Risk weighted asset</b>	100	100	150
<b>Basel I</b>	<b>Risk weighted asset</b>	50	50	50

The above models have used large corporate as the counterparty type. When the counterparty is a sovereign borrower, risk weights for all credit grades are reduced. Even at B or worse, risk weights come out at less than 100%.

## 2. Project Finance Exposures

In this scenario, three customers with project finance exposures are examined. Again, each customer has very different credit grades.

<b>Project Finance Exposures</b>	
<b>Claim details</b>	
Maturity	5 years
Counterparty	Large Corporate (Oil and gas)
Country of Incorporation	Taiwan
Product	Term loan
Amount of outstanding	US\$100m
Line is fully committed?	Yes
Annual turnover	Us\$500m
<b>Collateral details</b>	
Country	Taiwan
Type	Industrial property
Amount/value	US\$60 m

	<b>Standard and Poors Ratings</b>	<b>A+</b>	<b>BB</b>	<b>B</b>
<b>A-IRB Approach Basel II</b>	<b>Exposure at default</b>	US\$100m	US\$100m	US\$100m
	<b>Loss given default</b>	32%	32%	32%
	<b>Risk weight</b>	25%	75%	132%
	<b>Risk weighted asset</b>	25	75	132
<b>Standardised Approach Basel II</b>	<b>Risk weighted asset</b>	100	100	150
<b>Basel I</b>	<b>Risk weighted asset</b>	50	50	50

From this analysis, it can be seen that the capital required also increases as the credit ratings for a customer get worse. However, for project finance exposures, even when the credit grade goes to BB, A-IRB approach provides benefit over Basel I and the standardized approach of Basel II. Banks lending in this sector are likely to get capital benefits. However, most banks will not just be participating in project finance deals only. Under Basel II, it is not possible to have just a chosen portfolio or customer segment going on to A-IRB whilst others stay using standardized approach.

## 3. Corporate Real Estate Exposures

Under Basel II, exposures relating to corporate real estate can also be included under a specialized lending category. Supervisory slotting can be used for these exposures. Using this approach, risk weights increase to 250% for B rated customers. However, if

these exposures are not classified as specialized lending, A-IRB approach, assuming collateral is at the same levels fixed for other exposure, is beneficial across the whole portfolio, even for customers with bad credit grades. It should be noted that when collateral levels reduce, increases in LGD will result in higher risk weights.

#### Commercial Real Estate

##### Claim details

Maturity	5 years
Counterparty	Large Corporate
Country of Incorporation	Taiwan
Product	Term loan
Amount of outstanding	US\$100m
Line is fully committed?	Yes
Annual turnover	Us\$500m

##### Collateral details

Country	Taiwan
Type	Cash
Amount/value	US\$60m

	Standard and Poors Ratings	A+	BB	B
<b>A-IRB Approach Basel II</b>	<b>Exposure at default</b>	US\$100m	US\$100m	US\$100m
	<b>Loss given default</b>	15%	15%	15%
	<b>Risk weight</b>	12%	35%	62%
	<b>Risk weighted asset</b>	12	35	62
<b>Slotting Approach</b>	<b>Risk Weight</b>	70	90	250
<b>Standardised Approach Basel II</b>	<b>Risk weighted asset</b>	100	100	150
<b>Basel I</b>	<b>Risk weighted asset</b>	50	50	50

## 4. Retail Exposures and Overall Conclusions

When a similar exercise is applied to banks which have retail exposures, the result is different. Banks, with a healthy mortgage portfolio, especially with mortgages to owner-occupiers, will gain from much lower risk weights than they do from other retail exposures. Mortgage portfolios tend to be very secure. Also, under the Basel II A-IRB approach, the lower the loan-to-value (LTV) ratios are, the lower the risk weights. Obviously, this will trend the opposite way when property values slide and LTVs increase.

For other retail exposure, the story is quite different. Unsecured loans and credit card outstandings will have very high risk weights regardless of the quality of the borrowers. As detailed in Basel II, it is assumed that borrowers will default only when they have exhausted all credit lines. This will include taking their credit card debt to the maximum limit. For this reason, and also because lines are unsecured, banks will be penalized

under Basel II A-IRB approach. This is especially true for Taiwan. Models developed for credit card exposures have been worked out using historical data collected during a 1 in a 100 year crisis (Taiwan's credit crisis ended in 2005). This will influence all credit card and unsecured exposure risk weights for all banks in Taiwan wishing to use the A-IRB approach, causing a much higher capital requirement. Banks with large credit card exposures would prefer to remain on a standardized approach. Risk weights for these exposures are set by the regulator and are a lot lower than would be the case if an A-IRB approach is used.

From this exercise, it is clear that capital benefits will accrue to banks which have a high quality portfolio. As the quality decreases, the advantage starts to disappear. For banks which have mainly a wholesale business, the pressure will be on them to ensure that the average credit ratings for their customers are higher than BB Standard and Poors equivalent grade before they apply for A-IRB. For banks with retail exposures, the pressure is de-emphasize unsecured portfolios if possible, but concentrate on the secured loans, especially on mortgages to prime borrowers. This could be a difficult strategy for most retail banks. Credit cards would be considered as a core product and impossible to exit without losing overall market share. In order to maintain market share and manage Basel II capital requirements, banks may need to segment the credit card market carefully and focus on low risk segments only. At the same time, they may wish to cross-sell lower risk (and lower capital requiring) products to these segments. Data enhancements, resulting from a good Basel II implementation, may well give banks enhanced capability to segment and cross-sell.

## Chapter 7 – Conclusions and Possible Next Steps

This paper is being written as financial markets in the US and in Europe are experiencing a crisis so severe that established financial institutions such as Lehman Brothers, AIG Bradford and Bingley and Fortis Bank are either closing down or are at high risk of closing down. The question asked is why did Basel II not protect these banks and the overall financial system from this new spate of bank failures? One of the objectives of Basel II was to “strengthen the soundness and stability of the international banking system in a consistent way”. Clearly this is not happening. There are a number of reasons for this apparent failure. Some are linked to the fact that Basel II did not adequately protect banks from prior lending decisions, whilst others are linked to the fact that Basel II focused on the wrong things.

Also, the dissertation is being written at a time when the governments of many countries are intervening in the banking industry. In the UK, high street banks including the Royal Bank of Scotland, HBOS, Barclays and Lloyds TSB have been nationalized. In Iceland, the banking industry has almost collapsed completely. In many European countries, banks are being required to implement big and fundamental changes. In the US, President Bush has announced a major bail-out plan. Basel II may well have contributed to the situation. Banks have stopped lending to banks, with the effect that the flow of money has come to a halt. It can be argued that Basel II introduced this grid-lock and required banks to have ever increasing capital requirements, which soaked up a bank's overall ability to lend, even to themselves.

### 1. What's wrong with Basel II – what Basel III needs to address.

The other question on many people's minds is whether there will be a Basel III. We have seen that Basel I came about as a result of bank failures during the late 1970s and 1980s. Basel II was needed to plug gaps identified in Basel I. Now that gaps are being identified in Basel II, there may well be sufficient reasons to suggest that the Basel committee will start to consider a Basel III. If the committee does go that route, the recommendations which many would make would be as follows:

- Tighten up the rules around liquidity risk.
- Remove the arbitrary capital charge rules in Pillar 1 on operational risk
- Examine how sub-prime sector can be controlled
- Examine the rules controlling rating agencies

- Under the Pillar 2 section, examine how effective stress testing has been. It is suggested that regulators should require banks to change stress tests into destruction tests. This would mean that banks would run such tests over their portfolios that would indicate at what point or under what scenarios banks would actually fail. The current focus of stress tests has been from the perspective of what would happen to banks if stressed situation were to occur. The next revision of Basel II should focus on identifying which stressed scenarios actually cause distress in the system.
- Address the conflicting objectives between key stakeholders. Banks will find lower capital requirements attractive. However, some regulators (for example the FSC in Taiwan) will not support or approve any application for approaches which will result in banks in their jurisdictions to have lower capital requirements.
- Address the gap in Basel II on concentration risk. There is no additional capital required for banks that have portfolios geared to a single or few industry concentrations.
- Address the lack of a level playing field. One of the reasons why banks in the US have not supported Basel II is because of this issue.
- Address the fact that Basel II, from a macroeconomic standpoint, can exacerbate downturns by:
  - Firstly, allowing banks to loosen credit restrictions during the good times (and thus lay the seeds for the next downturn)
  - Secondly, tightening credit restrictions during the downturns and thus not allow banks the opportunity to stimulate the economy when it's most in need of such stimulation.

## **2. Basel II Winners and Losers**

### **2.1. Banks and Regulators**

Basel II stakeholders include two main groups, banks and regulators. Both are required to become familiar with the requirements of Basel II and both need to identify dedicated and skilled teams to manage and implement the requirements. In many large multi-national banks, there is interplay between home regulators and host regulators.

If banks are considered winners because they can take advantage of lower capital requirements by following the rules of the Basel II game, is it appropriate to consider regulators as losers? In Taiwan, this would appear to be the case. The fact that the Taiwanese regulator is only allowing banks to adopt advanced approaches for credit risk as a long term objective would indicate that the FSC is very reluctant to allow banks to have lower capital. It would also appear that in this case, the regulator wants banks to adopt all the requirements of Basel II (and therefore shoulder significant costs) without implementing the parts of Basel II which would give them the benefits. It would seem that improvements in risk management, the overall lift in the quality and accuracy of bank data and the other non-financial benefits of Basel II are things banks in Taiwan are allowed to aspire to, but A-IRB for credit risk is still a long way off.

In other jurisdictions, banks can take advantage of reductions in capital. However, the winners in this group of banks are those with highly collateralized portfolios, are those with corporate customers that have a good credit rating and those retail banks whose mortgage books consist of prime borrowers with relatively low loan-to-value ratios. For this last group, this condition depends on how well residential property, in the economies where these banks are, is holding its value.

Banks, which have unsecured portfolios, with customers with low credit grades and with a mortgage book on residential properties in a falling market, can be considered as losers in the Basel II game. Losers also include banks which have bought residential mortgage backed securities consisting of defaulting mortgages.

There is another group of banks, which fall into the loser category. This group includes banks, which implement Basel II purely as a compliance program (IE do just enough to appease the regulator, and nothing more). Winning banks are those who see Basel II as an opportunity to improve processes and data, but also see gains as a result of additional benefits. For example, a bank can gain significant advantage by up-grading its data which can then lead to better risk pricing, to more effective cross-selling and even to better customer relationship management.

Regulators can also be winners. A bank which has a successful Basel II implementation will have better data, better risk management, better internal controls and will be more efficiently managed than a bank which is struggling with Basel II or which stays on the less advanced approaches. For a regulator, such a bank can

serve as an example to others within its jurisdiction. This is the case with Standard Chartered Bank in Thailand where the Bank of Thailand shows what can be achieved by one bank using advanced techniques.

## **2.2. Basel II Stakeholders 2 – Others**

The key stakeholders in Basel II do not just include banks and regulators. The literature review has identified other parties as follows:

- Rating agencies (Moody's, Standard and Poors, Fitch) etc. When implementing Basel II, using a standardized approach for credit risk, external ratings are required to determine risk weights and therefore capital. This group should not be considered a winning or losing group.
- Central banks. Basel II is of interest to central banks especially as it can influence economic cycles of an economy.
- Customers. Implementation of Basel II advanced approaches can impact a bank's pricing structure. Banks can pass on capital savings to customers. It can also "price" customers with poor credit ratings out of the market.
- Deposit insurance providers. The intent of Basel II was to increase the soundness and safety of the banking industry. It should therefore provide a greater degree of comfort for those agencies that provide deposit insurance. However, as liquidity risk is not dealt with in Pillar 1 and as this risk cannot be mitigated by capital injections, the amount of protection Basel II gives to this stakeholder group is not certain.

## References

- Bank of International Settlements – History of the Basel Committee and its Membership – July 2007 (<http://www.bis.org/bcbs/history.pdf> accessed June 2008)
- Bank of International Settlements – Basel Committee on Banking Supervision – Basel I Accord (1988) (<http://www.bis.org/publ/bcbasc111.pdf> accessed June 2008)
- Bank of International Settlements – Basel Committee on Banking Supervision – The International Convergence of Capital Markets and Capital Standards (2004) (<http://www.bis.org/publ/bcbs118.pdf> accessed June 2008)
- Brealey, R – Basel II: The Route Ahead or Cul-de-Sac? (Morgan Stanley Publication – Journal of Applied Corporate Finance, Volume 18, Number 4 pp34-43 Fall 2006)
- Herring, R.J – The Basel 2 Approach to Bank Operational Risk: Regulation on the Wrong Track (Journal of Risk Finance – Fall 2002 pp 42-44)
- Herring, R.J – Implementing Basel II: Is the Game Worth the Candle? (Financial Markets, Institutions and Instruments V. 14, No. 5 – December 2005)
- Herring, R.J – The Rocky Road to Implementation of Basel II in the United States (International Atlantic Economic Society 2007 – November 2007)
- Hudson, R – Dealing with Basel II: Basel II – the end of risk management? (Balance Sheet Vol 11 No. 4 2003 pp 32-35 Emerald Publishing Ltd)
- Illing, M and Paulin, G – Basel II and the Cyclicity of Bank Capital (Canadian Public Policy – Analyses de Politiques Vol XXX1 No. 2 2005)
- Lang, W.W , Mester L.J and Vermilyea, T.A – Competitive effects of Basel II on US bank credit card lending (Journal of Financial Intermediation October 2008 Vol 17 Issue 4 pp 478-508)
- Morgan Stanley – All You Really Need to Know about Basel II in four pages (August 2006)

Prudential Sourcebook for Banks Building Societies and Investment Firms (BIPRU) – Financial Services Authority UK ([http://fsahandbook.info/FSA/handbook/LI/2006/2006\\_41.pdf](http://fsahandbook.info/FSA/handbook/LI/2006/2006_41.pdf) - accessed August 2008)

Risk Glossary (<http://www.riskglossary.com> – accessed June 2008)

Tschemernjak, R – Assessing the Regulatory Impact: Credit Risk – Going Beyond Basel II (Balance Sheet – Vol 12 No. 4 2004 pp 37-41 Emerald Publishing Ltd)