



# Implementation of Basel accords in India

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## **Abstract**

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The purpose of this master thesis is to understand how successfully Basel 3 was implemented in India. The literature highlights the historic issue of how markets became global but regulation and supervision for banks still remained local. This created the problem of a level playing field and required an intervention for standardized international banking regulations. Which led to the formation of the BASEL accords. The study explores how the the Basel accords evolved over the years to make the banking system more resilient and stable.

This study looks at the implementation process of these accords in India to add to the existing literature. Thematic analysis is used to understand themes from the 12 semistructured interviews. To check the robustness of the process the study explores 3 major themes to check Was the implementation successful. 1) Comparison of perceived benefits vs actual situation, 2) Addressing older risks while also talking about how to mitigate new risks and 3) The economic impact. This would give the reader a comprehensive outlook of how successfully the Basel implementation was in India.

## **Resumo (Just convert to portuguesa)**

O objetivo desta dissertação de mestrado é compreender o sucesso da implementação de Basileia 3 na Índia. A literatura destaca a questão histórica de como os mercados se tornaram globais, mas a regulamentação e a supervisão dos bancos ainda permaneceram locais. Isso criou o problema de igualdade de condições e exigiu uma intervenção para regulamentações bancárias internacionais padronizadas. O que levou à formação dos acordos da BASILEIA. O estudo explora como os acordos da Basileia evoluíram ao longo dos anos para tornar o sistema bancário mais resiliente e estável.

Este estudo analisa o processo de implementação desses acordos na Índia para adicionar à literatura existente. A análise temática é utilizada para compreender os temas das 12 entrevistas semiestruturadas. Para verificar a robustez do processo, o estudo explora 3 temas principais para verificar se a implementação foi bem-sucedida. 1) Comparação dos benefícios percebidos versus a situação real, 2) Abordar os riscos mais antigos e, ao mesmo tempo, falar sobre como mitigar os novos riscos e 3) O impacto econômico. Isso daria ao leitor uma visão abrangente do sucesso da implementação da Basileia na Índia.

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## **Table of Abbreviations**

RBI : Reserve bank of India

BCBS : Basel Committee on Banking Supervision

BIS : Bank for International Settlements

SBI : State bank of India

SIB : Systematically important banks

GARP : Global Association of Risk Professionals

LCR : Liquidity Coverage Ratio

NSFR: Net stable funding ratio

CCB: capital conservation buffer

CCyB: Countercyclical Capital Buffer

CET1: Common Equity Tier 1 capital

AT1 : Additional Tier 1 capital

## **1 Statement of the Problem**

Post the second world war globalization started to pickup at an accelerated pace. As trade became international it was soon evident that an international banking standard was required. The oil crisis in 1973 and finally the Herstat collapse in 1974 led to the demand of international standardization in the banking system. Because It became evident that domestic regulations would no longer work when the trade is international. For this cause the leaders of the G10 countries came together & with banking International standards (BIS), created the Basel Committee on Banking Supervision (BCBS) in 1975. This was done to create a level playing field as no bank would domestically create buffers that would make them less competitive in the international market (Kreidl, Jan 2012).

Over the years BCBS would create many documents but the most popular ones were the Basel accords created in 1988 . This document was the first step towards a internationally standardized and regulated banking system. Countries wanted to adopt these standards as it would make the countries banking system more risk averse and attractive to international investors. (History of the Basel Committee, 2014)

But implementing the Basel accords meant a complete overhaul for almost all member countries. As they had to uproot the current set of practices in place and implement new ones. This required allot of time and capital. (History of the Basel Committee, 2014) Over the years three versions of the Basel accords were implemented, with Basel 3 being the latest one. The latest model has a 3 pillar structure. 1) The first pillar specifies minimum specified capital adequacy requirements. This created monetary challenges for banks as they had to raise a large amount of money in buffers to do the same amount of business. 2) The second pillar aimed at establishing a supervisory review & The Third one aimed at creating a strong market discipline i.e. consistent reporting structure (Jayadev, 2013). Both pillar 2 & 3 were hit because of technological challenges, such as countries having different reporting systems or irregularity in reporting style. (Luneborg & Nielsen, 2003)

The implementation process over the years faced multiple challenges. some challenges were mitigated as we moved along newer versions of the Basel accords, but some challenges still

prevail and need to be addressed for smoother implementation of future versions of the Basel accords.

## 2 Research Question

(Kapoor & Kaur, 2017) As highlighted in the by the problem statement, the implementation process of the Basel accords comes with multiple challenges such as dominance of large banks, higher capital requirements, lot of data required for reporting, poor IT infrastructure and many more. The objective of this paper is to add to the existing literature. (Kapoor & Kaur, 2017) For this reason the study would look at the implementation process of the Basel 3 in India. This would help us understand the perceived benefits of the Basel accords were and what were some of the challenges faced during this implementation process. This would also allow us to comment if the implementation was successful and if it was possible to identify better ways for the future by improving the current process or mitigating some challenges posed while the implementation took place. Hence the research question we would try to answer is : Did the implementation of Basel accords make the Indian bankings system more reliant and was it successful?

### **3 Literature Review**

In order to answer the research question mentioned above, the literature review focuses on different aspects of the existing literature on the given issue. The thesis starts by (I) the history of the banking sector and explaining why there was a need for an international framework, (II) Then a look at the guidelines laid out by the BCBS called the BASEL accords (I, II, III) and how they have evolved over time, (III) Then the research talks about the Indian banking system and their plans to implement the Basel accords (IV) the paper focuses on some challenges during the implementation process, these challenges would be elaborated in the analysis section.

#### **3.1) Historical study of the banking sector and why was there a need for an international framework**

(Kreidl, Jan 2012) By 1970 financial markets became international and global in scope, but regulations, supervision and control remained national. This led to the level playing field issue, which meant that no country or bank would tighten regulations as tightly regulated banks would lose out on business. But at the same time these loosely regulated banks were running a risk of collapse.

(Kreidl, Jan 2012) On 26 June, 1974 Herstatt Bank in Germany was the first major collapse that sparked a big crisis in the foreign exchange market. The bank had accumulated a total debt of 470M and had an ongoing transaction with a US based bank to get Deutsche mark in exchange of US dollars. The US banks delivered the Deutsche mark on German time and were promised the US dollars when the American banks open in the morning. Before the transaction could be concluded German regulators stepped in and decided to shut Herstatt Bank and the US dollars were never delivered to the American bank. This led to the formation of the term “herstatt risk” and highlighted systemic risks related to the increasing internationalization of banks.

(History of the Basel Committee, 2014) At this point it was evident that standardization in banks was the only way forward. The European union were the first ones that tried to incorporate standard procedures all over Europe. But that was not sufficient as they soon

understood standardized regulations were required between the major trade partners of the world i.e. USA, Japan and the European Union. This led to the creation of Basel Committee on Banking Supervision (BCBS) by the end of 1974. Created by the central banks governors of G10 countries, the Basel committee of banking supervision (BCBS) was created to respond to the growing instability of the international banking system. The idea was to create a global standard for the banks across the world to promote cooperation in banking supervision and enhance financial stability of banks.

(Report on the Supervision of Banks' Foreign Establishments - Concordat, 1975) on 25th September, 1975 BCBS published the very first document the '**Concordat**'. The document aimed at creating guidelines for cooperation among national authorities in supervision of foreign establishments. The concordat was the first document holding regulators responsible to fulfill certain responsibilities such as licensing, supervising, and ensuring the stability of their domestic banking systems.

In May 1983, the concordat was revised and updated to "Principles for the supervision of banks and foreign establishments". This update in the 1983 document focused on enhanced supervision and tried to establish a consolidated technique of measurement of banks financial health. (Principles for the Supervision of Banks' Foreign Establishments (Concordat), 1983)

This was further updated in April, 1990 to the "Exchanges of information between supervisors of participants in the financial markets". Jointly established by BCBS and IOSCO, this amendment aimed at improving cross border flow of information. (Exchanges of Information Between Supervisors of Participants in the Financial Markets, 1990) Due to the banking and securities market being interlinked it was important to establish a information sharing system. The guidelines clarified the manner and the type of information to be shared for supervisory purposes.

In July 1992, minimum standards for the supervision of international banking groups and their cross-border establishments. The document still had faith in the soundness of the concordat and its subsequent updates but also recognized the fact that by 1992 the market had completely changed from the 70's. So the dual goal of the document was to update those minimum standards and ensure that the global implementation is taken more seriously.

(Minimum Standards for the Supervision of International Banking Groups and Their Cross-border Establishments, 1992)

This was followed by two subsequent updates In October 1996, with The supervision of cross-border banking and in 1997, Core principles for effective banking supervision. These amendments by the BCBS established the groundwork for the BASEL accords as they already laid out a supervisory structure for international banking ecosystem. Because the supervisory framework was established it was easy for discussions around capital adequacy to pop up in the Basel accords in the coming years. (The Supervision of Cross-Border Banking, 1996)

### **3.2) Regulators & Basel Framework**

To completely understand the implementation process of the Basel accords in India, first we have to understand The 3 main document created by the BCBS, namely Basel 1 , Basel 2 and Basel 3 (Balthazar, 2006). Theses accords are considered the backbone of the modern banking industry and a that's why a detailed breakdown is given in this section. The section would also focus on how the Basel accords have evolved over time.

#### **3.2.1) BASEL 1 , 1988**

Developed by the Basel Committee on Banking Supervision (BCBS) in 1988, Basel 1 refers to the first set of global banking regulations. Initially signed by G10 countries and soon adopted by the world, the primary objective of these regulations was to establish a minimum capital requirement for banks to foster stability and reliability within the worldwide banking system. Some key features of the Basel 1 will be discussed in this section.

(International Convergence of Capital Measurement and Capital Standards, 1988) A minimum regulatory capital requirement was set by the BASEL accords which meant that banks would have to maintain a minimum capital adequacy ratio (CAR) of 8% now based on their risk-weighted assets (RWAs). This 8% regulatory capital was made up with Tier 1 and Tier 2 capital. Tier 1 capital can be calculated more accurately and was considered a more stringer measure of financial health. Tier 1 capital is comprised of paid-up capital, Disclosed

reserves (retained profits & legal reserves). While goodwill was deducted from Tier 1 capital as its valuation was always considered subjective. (Bandyopadhyay, 2016) Tier 2 capital included undisclosed reserves, asset revaluation reserves, general provisions, hybrid instruments, subordinated debt.

**The combination of T1 capital + T2 capital = Minimum total capital (8%)**

The second aspect was, Risk of Weighted Assets. to calculate the overall risk of an organization Basel 1 assigned specific risk weights to different categories of assets. For example loans to private organizations might carry a RWA of 100% while cash and government securities might be assigned a risk weight of 0%. This was one of the most criticized features of Basel 1 as it was a traditional approach towards risk management and only accounted for credit risk. (Amendment to the Capital Accord to Incorporate Market Risks, 2005)

(Penikas, H, 2015) The third highlight was a standardized method to determine the capital requirements, Basel 1 provided a standard framework to all the banks. According to this framework all the assets were divided into different asset classes based on the pre-determined risk weights. It was eventually criticized for its one shoe fits all approach. Basel 1 had a traditional risk approach as it only accounted for credit risk and left out risks such as operational risk, market risk and others.

Basel 1 also provided a degree of freedom to local regulators to adapt to the set guidelines in their own way. This meant that regulators could not fall below the minimum capital requirements but could adapt the frameworks according to their own market. Although before implementing any regulations they would have to get an approval from BCBS. (Penikas, H, 2015) Furthermore, a new soft reporting system was established that aimed at improving the transparency. This was created by the BCBS to have a constant check over the banks so that no bank falls below the minimum capital requirement.

### 3.2.2) BASEL 2 , 2005

**(Bromiley, 2014)** Historically risk management has been seen as a isolated concept strictly adhering to the field of finance. Finance scholars believed that shareholders only care about systematic risk (beta), so investing resources to reduce unsystematic risk was wasteful. This traditional ideology was first question by **Kloman's (1976)**, “The Risk Management Revolution,” which dealt with concepts around ERM coming out of Europe around the mid 70’s. By the time Basel 2 was on the horizon it was evident that credit risk was not the only kind of risk that banks had to measure. Hence the major change was to adopt frameworks that would account for market and operational risks as well.

(Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework, 2004b) In 2004 the Basel 2 came out with an updated framework. The updated framework aimed to be more risk inclusive and adopted Enterprise Risk Management, strengthen capital adequacy standards and improve stability, while establishing a more sound reporting and disclosure structure. (Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework - Comprehensive Version, 2006) It introduced a new three pillar structure which went on to become the backbone of Basel 3 as well. **(Samriti Kapoor, 2011)** Some key features are listed below :

**Pillar 1: New capital adequacy framework :** Basel 2 decided to maintain the minimum capital requirement of 8%. But they decided to change the structure by breaking down Tier 1 capital (T1 Cap) into common equity tier 1 (CET1) & Additional tier 1 capital (AT1). CET1 is considered the highest quality of regulatory capital, as it has the ability to absorb losses as soon as they occur. While AT1 also provides loss absorption on an ongoing basis but it fails to meet all the criteria of CTE1. Table 1 shows us the breakdown of the ratios outlined by Basel 2.

**CET1 (2%) + AT1 (2%) + T2 Capital (4%) = Minimum total capital (8%)**

**Pillar 2:** Supervisory review : which has guidelines to help supervisors effectively monitor and make sure that companies are adhering to the guidelines, they are also tasked with job to validate banks risk management models. The third and final pillar was Market discipline. As the name suggests it's about developing a disciplined culture in the market.

**Pillar 3: Market Discipline :** The third pillar relates to periodical disclosures to regulators, board of bank and market about various parameters which indicate risk profile of bank (**Goyal and Agrawal, 2010**).

(**Kreidl, Jan 2012**) Basel 2 was more risk inclusive as it accounted for Market risk and operational risk in the RWA calculation. For operational risk Basel 2 created frameworks that would allocate capital to cover potential losses, while for market risks they created models that accounted for factors such as interest rate, foreign exchange and equity exposure.

### **3.2.3) BASEL 3 , 2010**

But Basel 2 also came with it's shortcomings and wasn't able to prevent the financial crisis. (M. Jayadev, 2013) which led to the third edition of Basel accords. Agreed in 2010, Basel 3 maintained the three pillar structure of Basel 2. But the five major improvements were

**Updated Capital Adequacy :** The updated capital adequacy framework focused on increasing CET1 to 4.5% and decreasing AT1 to 1.5%, while also decreasing AT2 to 2%. This was done because CT1 is considered the highest quality of regulatory capital.

**(4.5%) CET1+ (1.5%) AT1 + (2%) AT2 = (8%) Minimum capital requirement**

With a idea to improve the quantity and quality of capital 2 new capital buffers were introduced :- 1) **capital conversion buffer** ; this is the additional 2.5% of buffer over the existing 8%. The buffer is expected to be created during non-stressful times to absorb losses

without deleveraging and while maintaining minimum capital ratios. This meant that the updated capital buffer now was **(8%) existing minimum cap requirement + (2.5%) CCB = (10.5%)**.

(Jayadev, 2013) The second buffer was countercyclical capital buffer, this buffer is created because of cyclical nature of the economy. In an expansionary or a normal period banks tend to give out a higher amount of credit as credit risk management systems generate probabilities of default that are lower than the long term average. So when a bank enters a recessionary phase the probability of default goes higher than the long term average thereby increasing the risk of weighted assets. (King, P., & Tarbert, H. 2011) To balance this cyclical nature of the economy and to avoid a market wide failure, banks are expected to maintain the countercyclical capital buffer. Although this buffer has not been adopted by a lot of countries because of Basel 3's high capital requirements. (Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring, 2010)

(Bandyopadhyay, 2016) Basel 3 came out with LCR and NSFR to tackle the issue of liquidity in banks. After the global financial crisis it was evident that the liquidity standards were to be improved. 1) **Liquidity coverage ratio (LCR)** was created to tackle the issue of short term resilience, LCR deals with banks maintaining high quality liquid assets & total net cashflows over the next 30 calendar days. The idea is to have liquidity of assets in case of any emergency and hence these balances are maintained. 2) **Net stable funding (NSFR)** : NSFR guides banks to opt for more stable sources of funding, this is done to improve the overall structural resilience of the industry. Thereby dealing with the long term aspect of liquidity. Leverage ratios were also introduced during this period. They are basically the debt to equity ratio of a bank. The introduction of leverage ratios was directly correlated to the collapse of Lehman Brothers in 2008 financial crisis. The idea was to create a backstop to prevent excessive leverage ratio within the banking system.

There was a change in ideology as well as Basel 3 was more forward looking, the idea here was to move from a traditional incurred loss approach where banks incur the loss and the make

provisions for it, to a expected loss approach. The idea was to be more forward looking approach.

### **3.3) Basel implementation in India**

**(M. Jayadev, 2013)** Founded in 1935, RBI is responsible for supervision and regulation of Banking and Non-Banking Financial Institutions in India. Under the ministry of finance, RBI is considered the central bank as well as the regulatory body of India. As per Collins dictionary 2021 A regulator is a person or organization appointed by a government to regulate an area of activity such as banking or industry. As a regulatory body of India RBI is responsible for making standards that would be accepted in the Indian regulatory environment by banks. With globalization on the rise, In 1991 prime minister Manmohan Singh opened up to the world by adopting a new economic policy, which meant that there was going to be a sudden rise in foreign investments. This meant that India had to adopt the global standard of Basel accords to improve resilience of banks and investor confidence.

Created to improve the stability of banks, Basel 1 was adopted in 1998 in India. Indian banks took 7 years to be fully compliant with the accords and in 2005 Basel 1 was fully implemented. But by then Basel 2 had already started rolling out.

(Singh, 2017) Basel 1 was heavily criticized for it's one shoe fits all approach and because of this Basel 2 allowed regulators a certain degree of freedom to implement the accords according to their own market conditions. RBI created committees with members from the top private and public banks in India, these leaders with RBI created their own adapted version of the Basel accords. RBI even went a step further by organizing multiple sessions in order to educate the top management of these banks to ensure non disruptive migration to BASEL 2 accords.

As Table 1 suggests RBI always had a conservative approach towards the Basel norms and opted always to have an extra cushion. For example the BCBS norm indicated an 8% minimum total capital With a composition of 4% for Tier 1 and 4% for tier 2. While RBI

opted to go for a 9% buffer with an composition of 6% and 3% for tier 1 and tier 2 respectively.

	Basel 2 BCBS	BASEL 2 RBI	BASEL 3 BCBS	BASEL 3 RBI
Minimum common equity Tier 1 (CET 1) (A)	2.00%	3.60%	4.50%	5.50%
Capital conservation buffer (CCB)	Introduced in BASEL 3	Introduced in BASEL 3	2.50%	2.50%
<b>Total equity/capital ratio (C=A+B)</b>	2.00%	3.60%	7.00%	8.00%
Additional Tier 1 capital (D)	4.00%	2.40%	1.50%	1.50%
Total Tier 1 capital (C+D)	4.00%	6.00%	8.50%	9.50%
Tier 2 capital	4.00%	3.00%	2.00%	2.00%
<b>Minimum Total Capital + CCB</b>	8.00%	9.00%	10.50%	11.50%
<b>Leverage Ratio</b>	Introduced in BASEL 3	Introduced in BASEL 3	3.00%	4.50%

Table 1 : Showing prescribed ratios by BCBS for Basel 2 &3. It also highlights the ratios prescribed by RBI

But in wake of the financial crisis the world understood that new regulations were required that would improve the shock absorbing capacity of banks and also ensure that the banking system as a whole does not crumble and its spill-over impact on the real economy is minimized. **(Pushkant Shaktwip, Masuma Mehta, 2017)**

Agreed in 2010, Basel 3 was adopted by Reserve bank of India in 2013. **(Dr. Manisha, 2015)** says, In India Basel 3 implementation had been phased out, with higher burden on

capital requirements to be in the latter years and less burden on the initial years. The capital requirements are to be met by 2018, while the international deadline to completely implement it was March 31st, 2019. As we saw in Table 1 the BCBS internationally prescribed ratio was 10.5% but RBI chose to adopt a higher ratio of 11.5%. Where the CET1 was 5.5% instead of the 4.5%. Table 2 shows the yearly progress RBI expected from Indian banks to reach the 11.5% regulatory capital.

#### **1.4) Challenges faced by Indian banks in implementing Basel accords in India**

The implementation of Basel accords came with its own set of challenges, some key challenges faced by Indian banks have been listed in this section. The first challenge that RBI faced was around developing a risk aware culture as Basel accords would only be influential if the management at banks understand and is equally inclined to implement the policies.

Another challenge was, meeting capital requirements set by the Basel Accords. This would mean that banks would require additional amount of capital for doing the same amount of business. What was more challenging for banks initially was maintaining a balance between improving their buffers while also maintaining profitability, this was specially more difficult for the smaller banks. (Shakdwipee & Mehta, 2008)

According to **(Mukul Jain, 2013)** because of additional buffers like capital conservation buffers & counter cyclical buffers, the capital needs of Indian banks would significantly increase. These buffers would require banks to take on more selective lending practices. Because giving out more loans would mean increase in risk of weighted assets and thereby increase in the capital requirements.

These high capital buffer requirements could also mean a short term GDP decline in India (3.2%) until Basel 3 is fully implemented. This situation theoretically would arise because banks would need to have additional capital to do the same amount of business, leading to a more selective lending process, causing a short term decline in GDP until BASEL 3 is

completely implemented. **(M. Jayadev, 2013)** also highlights that because of less access to capital markets and inability to raise a high amount of funds, typically the smaller or regional banks would be the ones facing major challenges in implementing the Basel accords and might be the ones significantly impacted by any economic decline. Another issue for the smaller banks would be keeping up with the IT infrastructure requirements, as risk measurement models & stress testing require advanced IT systems. Constantly updating to newer and more advanced technology is a costly affair and might be an issue for smaller organizations. **(M. Jayadev, 2013)**

Technological challenges also impact the third pillar which is market discipline. India like many other countries faced a problem in establishing a reporting structure. Even though supervisory regulations were the first and most important aspect of BCBS, in developing countries establishing a strong supervisory and reporting structure has been challenging because of firms having different softwares. size and number of banks has also impacted the process as it is tough getting standard procedures across 34 banks with over a 100 thousand branches is challenging.

In the analysis section we would be addressing some of the challenges with a forward looking approach, so that implementation of Basel 4 and other documents could be smoother.

## 4 Methodology

The aim of this chapter is to understand the methods used to answer the research question. The focus of the study is to add to the existing literature about the implementation process by evaluating the outcome of the implementation of the Basel accords done in India. In this section the objective is to explain the methodology used to answer the research question. The methodology section has been divided into the following parts, (I) Conduct semi structured interviews to obtain some qualitative data, (II) we talk about how we selected the participants for the study, (III) finally we talk about the data collection process and briefly interpret the data, This would create a Segway to the analysis section. (Finlay, L, 2021)

### 4.1) Semi structured interviews and qualitative data

The study aims to answer the research question by conducting a qualitative research. The idea would be to conduct 10 semi structured interviews, (Braun & Clarke, 2006) which would involve opened questions being asked to prompt a discussion and thereby gain in-depth knowledge on the existing themes, while also exploring new themes as they come up in discussion. To ensure the unbiased nature of the interviews, the questions would not be disclosed to participants. This would allow the reader to have contrasting opinions as the participants would answer the questions subjectively and on the spot. These semi structured interviews would further be analyzed in the analysis section, contributing to the evaluation of the impact of Basel norms on Indian banks.

### 4.2) Participants

(Finlay, L, 2021) The participants chosen for this study would selected based on their relevance to the field and knowledge on the research topic. The number of participants were decided based on data saturation i.e. when information started to repeat itself. For the purpose of this study it was important to divide the people being interviewed into 2 categories, (I) Employees working in systematically important banks (SIB) such as state bank of India (SBI), ICICI or HDFC bank and, (II) Regulatory bodies in India such as Reserve bank of India (RBI) & Global Association of Risk Professionals (GARP).

This classification among the 2 groups was important because this would help us understand both sides of the same coin and provide contrasting perspectives. While the regulators would have contributions about implementing the BASEL norms in India, the systematically important banks (SIB's) could benefit the study by outlining the benefits or challenges faced by banks in the implementation process. The respondents would further be diversified by their different levels of seniority, this would allow the reader to understand how do the Basel norms impact risk appetite and awareness at different levels of the organization. (McAllum, et al., 2019).

#### 4.3) data collection and interpretation of data

In this section I would talk about how the data was collected and would briefly touch upon the interpretation of the data before I finally synthesize it in the analysis section to answer the research question.

(Braun & Clarke, 2006) The data collection process required reaching out to multiple people over LinkedIn, the success rate of this method was quite low as after sending out over a hundred messages to potential participants only a few responded and out of them only 4 agreed to meet for a interview. The other participants were reached out by more lucrative measures such as referrals from friends and family members. This was a more sound approach as out of thirteen referrals, eight agreed to meet for an interview. The initial or exploratory interviews were solely constructed based on the existing literature and aimed to gain more understanding or identify gaps in the current literature. But as the research progressed and gained a more in-depth understanding about the topic the quality of questions improved until a point of data saturation.

To interpret the data I have used thematic analysis, which would help me look for patterns and develop themes from the collected information. The concept of thematic analysis allows the researcher to make sense of the the participants subjective knowledge. Since the study is a qualitative study that focuses on semistructured interviews, I would have a lot of information that is going to differ because of personal opinions and different backgrounds. Hence the use of thematic analysis seems like the obvious choice for the research.

## 5) Analysis

The objective of this section would be to analyze the data collected from the semi structured interviews. As explained in the methodology section the study would be using thematic analysis to make sense of the the participants subjective knowledge (Braun & Clarke, 2006).

**The diagram below aims to highlight two main problems that the analysis section aims to answer.**



In the first section the study would try to understand if the implementation process of the Basel accords was successful and was it able to fulfill perceived benefits, to understand the first theme the thesis has been divided the it into three subparts

where the first part briefly talks about the perceived benefits vs the actual situation of implementing of the three pillar structure, breaking down each pillar would give the reader an idea about the actual position of the capital adequacy norms, supervisory situation and reporting structure. The second section would focus on how resilient Basel accords were against it's first major challenge COVID 19.

Third, the study would analyze the challenges faced in the implementation process and how they could be mitigated for the future. In this section the study would try to address 3 major challenges which are challenges faced by smaller banks, technology challenges and regulatory challenges or reporting challenges. This would give us a comprehensive analysis of how successful the overall impact of implementing Basel 3 was.

## **5.1) Analyzing the three pillar strategy**

As highlighted in the literature, Basel implementation started in 1998 and has been an ongoing process until 2019, where it went through 3 editions of the Basel accords to become more resilient. The three pillars established during Basel 2 were adopted by Basel 3 as well and form the basis of the whole Basel document. In this section the focus would be to analyze whether the implementation of Basel 3 was actually able to achieve the perceived benefits of the three pillar strategy

### **5.1.1) Pillar 1: New capital adequacy framework**

Basel accords aimed at creating buffers which would allow banks to mitigate any unexpected capital requirements due to credit, operational or market risks.

According to (Respondent 1) “Indian are conservative when it comes to spending money as savings have been a part of our culture for a long time. That has been represented in our banking culture as well. RBI had its own buffers before the BASEL standards were created, called the cash reserve ratio (CRR) and Statutory Liquidity Ratio (SLR)”. (Respondent 2) highlighted an instance from the global financial crisis, according to (respondent 2) the impact of the financial crisis was not that significant because of household savings.

While (Respondent 3) highlighted the fact India is not yet as big on credit as the American economy, it's still more debit oriented because of the people. It is also evident in the policies adopted by RBI as they have taken an additional cushion over the prescribed Basel guidelines. As highlighted in the literature the current ratio stands at 11.5% which is 1% higher than the prescribed 10.5%. This only tells us that RBI and India have always had a good approach to manage risk.

(Respondent 8) talked about the RCAAP (Regulatory and Capital Adequacy Assessment Program), This committee was established to rank the implementation of the Basel accords. The scale was divided as compliant, LC (largely compliant), MNC (materially non-compliant) and NC (non-compliant). (Table 4) shows that India was compliant with all

the capital adequacy requirements. So overall the implementation of pillar 1 has been handled well and is also compliant with smaller banks.

- **Pillar 2: Supervisory review :**

The RCAAP document specified that RBI has been successfully able to implement a strong regulatory framework and has received a compliant status for the same. (Respondent 7) mentioned that over the years RBI has successfully established a supervisory framework that has been able to reach the systematically important banks as well as the domestically important banks as well. (Respondent 4) Highlighted multiple initiatives taken by RBI to train top management, because multiple studies such as (Bromiley et al., 2015) state that the role of top management attitude significantly contributes to the risk appetite of an organization.

- **Pillar 3: Market Discipline :**

(Bandyopadhyay, 2016) The Basel guidelines have created a regular disclosure and reporting frameworks to enhance consistency of reporting. Half yearly disclosure are expected of banks, while capital adequacy and credit risk is to be disclosed quarterly by banks. This would allow regulators to compare and analyze data across the world as it would be consistent and regularly updated. All though the RCAAP document gave India a compliant status the reality on the ground is something else.

According to (respondent 10) Reporting has been a challenge in India because of the diverse banking landscape. (respondent 10) specified that with different levels of data management structure and technological infrastructure creating a standardized reporting system is very tough. (Respondent 2) also specified that that allot of banks are still on legacy systems, this was a traditional data management system which is not inline with the current market requirements.

## **5.2) How did BASEL accords do against covid the first challenge (COVID 19)**

In 2008 when the global financial crisis happened it was evident that the banking industry and specially Basel 2 had somewhat failed because it was not able to identify the leverage and

liquidity threat posed by the market. (De Cos, 2021) COVID 19 came as the first major challenge after the implementation of Basel 3, But compared to the global financial crisis the system was more robust now with, CET1 stood at around 13% compared to 7% in 2011. Moreover quality of capital, the leverage ratios and liquidity ratios were also instated and improved. The study aims to include a small section around COVID 19 to check the resilience of Basel 3 against it's first challenge, as it would provide an analysis of how the policies created by the regulators stood when they faced an actual challenge.

(Respondent 3) told us that it was the ecosystem that survived, the regulators had to work with multiple government agencies and without that the survival would've been impossible.

Liquidity standards : Ratios like (LCR) and (NSFR) focused on maintaining liquidity ratios for banks. According to (Respondent 1) This was a major difference compared to global financial crisis as banks had a liquidated operating buffer which allowed them to operate until the government intervention happens or new regulations came out.

Regulatory Flexibility : Because COVID was an exceptional circumstance RBI gave the banks relaxations. (RESPONDENT 3) told us that RBI deferred implementation of certain regulatory requirements, while also easing classification of loan restructuring and asset classification norms. (RESPONDENT 4) told us that the implementation of Basel requirements such as Basel 3.1 or otherwise called Basel 3.5 also came to an halt during this period.

Supervisory Guidance : Because of supervisory guidelines laid out by the Basel accords, RBI closely monitored the financial health of banks, this meant that they had to ensure that borrowers facing financial struggles are able to pay back the loans to the banks, otherwise it could've spiralled negatively and led to another financial crisis. (Respondent 5) told us that for this RBI created loan restructuring schemes that eased pressure from borrowers who were under financial distress to pay back the loans and thereby tried to ensure there's not a heavy stress on the buffers created by the banks. (Respondent 1) Told us that when we talk about COVID 19 it was something no one could've anticipated and because of it's unexpected nature it was impossible to anticipate what would happen to a market if all economic activities suddenly came to an halt. As the buffers created by Basel 3 would mostly last a year,

but because of supervisory guidelines in place a quick liquid infusion plan was created and reported to the BCBS. These infusions were namely long term repo operations and open market operations. (Respondent 2) told us that the banking ecosystem in India was quite robust and all the buffers definitely helped the country out. As they gave banks a fighting chance for an extended period

Conclusively, Basel III Supervisory framework stood soundly as it gave the banks enough time to withstand the economic shock of COVID 19 long enough for the government and regulators to navigate the challenges and create an plan to counter the threats posed by COVID 19.

### **5.3) What were the challenges faced & how can they be mitigated for the future**

In this section the study would analyze possible ways to mitigate some challenges listed in the literature review. We will mainly address challenges faced by smaller banks in terms of "corporate consolidation" and the new and upcoming challenges of technology. This section has been added to the analysis section to analyze what could have been done better in the past and how can we make the implementation of Basel 4 more smoother.

#### **5.2.1) Addressing technology challenge**

As (Respondent 7) said "Adapting to technology is something that we'll always be behind on because by the time we implement the use of computers properly we'll have AI already in the market". By this (Respondent 7) meant that technology over the years is growing at a pace that it is impossible to keep updating that in organizations. Because updating technology requires allot of time, money and staff training to get used to it. From Basel 1 to Basel 3 the technological changes have been drastic. Going from a generation where computers were just starting to rollout to an age where computers are running complex risk models on their own, this in itself explains the kind of challenges regulators must face creating and implementing regulations around technology.

According to (Respondent 6) like any other business even in the banking sector the central banks such as SBI which has more resources and would be the first one to adopt to the changes compared to (PSB) Punjab sindh bank, a regional bank. But (Respondent 2) told us with the rise of payment gateways and e-banking, it was important for the smaller and regional banks to keep up with the digital revolution and the safety measures. Many banks faced huge losses during this period arising from poor security measures and breaches. To counter this Basel 3 includes Capital Adequacy for Cybersecurity and IT Risks in the capital adequacy calculation. But according to (Respondent 7) the weights assigned to IT and technological risks would rapidly change with the rollout of Basel 4 or 4.5 because of AI on the horizon.

Another key aspect highlighted by (Respondent 4) Was that stress testing scenario analysis prescribed by Basel 3. Where banks are constantly told to test their resilience in adverse situations. According to (Respondent 4) technological risks are the one's which have slowly climbed the ladder since e-banking was adopted by people.

This clearly establishes that with Basel 4 on the horizon it is important for banks to address these challenges. (Respondent 8) Told us that with the new document expected changes around the cybersecurity guidelines, data protection and outsourcing and cloud computing are expected and banks would be creating allot of tech jobs in the future.

### **5.2.2) Addressing challenges faced by smaller banks**

Qui-Gon said the proverb there's always a bigger fish in the sea. This meant that no matter how big you think you are, there's definitely a bigger fish somewhere. Putting this proverb strictly in a age where survival for smaller banks is getting tougher and the concept of "corporate consolidation" or "corporate concentration." Is seeming more realistic everyday. The term refers to a trend of a few dominant companies gaining significant market share and influence, potentially leading to a less competitive and diverse economic landscape.

(Respondent 4) who is a CRO at Punjab sindh bank (PSB) a regional bank In India told us that even though it will get tougher in the future for smaller banks to survive but every

smaller bank has a niche that they specialize in and that is what usually tends to be the point of difference and survival. He specified that if the bank loses out on that niche then it does run a chance of going out of business.

According to (Respondent 6) the Basel guidelines have created a strong supervisory review that allows RBI to have freedom of decision making according to the market needs. This has allowed RBI to be financially inclusive of Rural banks and local area banks. These banks cater to the niche population in rural areas in India. (Respondent 6) says that “The creation of schemes like Prompt Corrective Action (PCA) are very helpful for smaller banks, under PCA reserve bank of India tries to identify banks under financial stress and helps them mitigate these challenges”

(Jayadev, 2013) says that the Basel committee requires regulators to outline a plan to achieve the minimum capital adequacy requirements. To comply with this RBI has to outline yearly targets. For example if the overall target is 5%, RBI has to create a plan of achieving 1% each year until the next 5 years. Smaller banks sometimes struggle at achieving these targets. According to (Respondent 4) RBI makes sure to infuse additional capital through different channels to help out the smaller banks in achieving these targets. (Respondent 4) concludes by saying that the continuity of locally created schemes and a robust supervisory review is the key for the survival of small banks.

## **6 Conclusions and limitations of the dissertation**

### **6.1) Conclusion**

The study focuses on analyzing the implementation of the Basel accords. India was chosen as the country of choice to analyze the implementation and check whether the Basel accords were able to achieve the objects it was created for. The aim of the study was to add to the existing literature around the implementation process. (Bandyopadhyay, 2016) Overall the implementation has been successful and has achieved the objective to make the countries banking system more resilient to a great extent.

The literature around the implementation process in India has been consistent until 2017-18. When Basel 3 was being implemented in India but then there has been a gap as no one talks about the post covid era. (De Cos, 2021) This study explored the challenges posed by COVID 19 and how strong did the Basel Model stand against it. It was highlighted that the Basel model gave the government enough buffer to formulate policies that could tackle Covid. This was our first indicator towards reaching the conclusion that the banking system was made resilient because of the Basel accords and the implementation had been handled properly.

(Bandyopadhyay, 2016) The second instance was comparing the the perceived benefits vs the actual position to gain a comprehensive overview of the current situation in the market. This helped us understand the people or the customers in the market and also the current market scenario in India. And helped us understand how the three pillars have shaped the market. India has superseded expectations when it comes to the first pillar as they have been able to maintain an additional 1% buffer over the guidelines given by the accords. The respondents believed this was due to the conservative spending nature of the Indian's. The second pillar also stood strong as multiple efforts by RBI were highlighted by RBI to improve the supervisory process but it came with it's challenges. Any good supervisory framework demands consistency in work, so that measurements can be made to enhance the process. This was unfortunately a setback for India and hindered the supervisory review to some extent. The third pillar around market discipline and the reporting system is also struggling because of technological challenges. Some major ones highlighted were the were different data management systems which generated reports that were inconsistent.

The study also found out two consistent theme which contributed to the majority of challenges in the implementation process 1) Technological challenge & 2) challenges faced by smaller banks. (Respondent 10) told us that "you would not see a bank with big pockets struggling with the implementation of the Basel accords unless they make a big mistake". These challenges were

consistent to the one's highlighted in the literature review but the idea was to understand the opinion of how people in the Indian market are planning to deal with them as Basel 4 rollout in the future.

For smaller banks respondents had a consensus that a case by case analysis is required and RBI over the years has improved on this idea. As RBI issues a date with which banks need to comply with certain standards and accords but given the fact that it's not a level playing field for all the banks it understands the need for extended deadlines or provide financial support if needed. training and workshops was another helpful step by RBI towards improving the situation for small banks. For technology challenges it was found that RBI is still lacking behind with the implementation of a consistent DBM's to improve reporting and supervision.

## **6.2) Limitations and scope for future research**

The study initially faced challenges around data collection as the participants from the study had to be a mix of regulators and banking officials. This mix was necessary to understand the two sides of the story. With the regulators contributing to regulatory knowledge and the banks contributing to our knowledge about the implementation process and feedback to the regulations. Getting the right set of respondents who had the time and knowledge to answer the questions around the Basel implementation was tough, as the primary method of reaching out respondents was through LinkedIn, which comes with a set of limitations as everyone is not active on LinkedIn.

Furthermore because COVID 19 was fairly recent there is a gap in the literature. This meant all the analysis for the section was based solely on respondents, who also sometimes didn't have allot to offer as even they didn't have a complete understanding of what happened amongst the chaos that COVID was. Time was another constraint as sometimes scheduling interviews with employees meant waiting 10 to 15 days because they didn't have enough time for a interview. Given a extended period and an opportunity to be in India during the process of writing the thesis the outcome could have been more fruitful.

The analysis section of this study highlights some interesting themes which could be easily built upon given a longer duration and more resources. Checking how the Basel model was resilient against COVID 19 can be done for any country to identify the resilience of the model against it's first challenge. A quantitative study that creates a multivariate regression model could also be useful. Researchers could quantify which factors of the Basel accords contributed significantly to improving the reliance of the structure. This could also highlight which factors do not contribute much and could be amended as Basel 4 rolls out.

The study has been limited to the implementation of Basel 3 and therefore doesn't talk about Basel 4. This new version of the accords is an improvement over the previous model and is expected to rollout by 2023, it also address new challenges such as climate change and how the older practices can be updated according to the current market. A comparative study between Basel 3 and 4 could be done. Researchers could elaborate on the differences and help the readers see the progress BCBS has made since the completion of Basel 3 in 2019.

Furthermore a more in-depth study about the challenges faced by smaller banks and their mitigation needs to be done. As the current literature currently lacks a solid framework which could be implemented in developing countries to mitigate these challenges. Every country has their own specific frameworks to address these challenges but there's still allot of ambiguity around this topic that could be addressed in future research.

Currently Basel 3 accounts for technological risks that cover cybersecurity but with tools like AI on the horizon and cryptocurrencies taking over the world, technological challenges are only going to rise for banks. Research around the application of AI and cryptocurrency could be another topic for researchers as it could contribute to further visions of the Basel accords

Overall this field has several themes that could be researched upon as building a robust banking system as very important for any economy. External research around the Basel accords could help in enhancing the pace of the process to achieve a resilient international banking system.

# Appendices

Figure 1: (Plan by RBI To adopt the Basel accords over time)

Minimum capital ratios	April 1,2013	March 31, 2014	March 31, 2015	March 31, 2016	March 31, 2017	March 31, 2018	March 31, 2019
Minimum Common Equity Tier 1 (CET1)	4.5	5	5.5	5.5	5.5	5.5	5.5
Capital Conservation Buffer (CCB)	-	-	-	0.625	1.25	1.875	2.5*
Minimum CET1 + CCB	4.5	5	5.5	6.125	6.75	7.375	8
Minimum Tier 1 Capital	6	6.5	7	7	7	7	7
Minimum Total Capital**	9	9	9	9	9	9	9
Minimum Total Capital +CCB	9	9	9	9.625	10.25	10.875	11.5

Figure 2: Improvements on Basel 2 from 3

IMPROVEMENTS ON Basel 3 from Basel 2	
I) increased quantity and quality of capital	<p>1) Introduction of new concepts such as:</p> <ul style="list-style-type: none"> <li>• <b>capital conversion buffer</b> ; this is the additional 2.5% of buffer over the existing 8%. The buffer is expected to be created during non-stressful times to absorb losses without deleveraging and while maintaining minimum capital ratios. If the requirement is not met then restrictions are imposed on dividend payouts, share buybacks, staff bonuses until the minimum equity tier 1 requirement of 7% (4.5% + 2.5%) is met.</li> <li>• <b>countercyclical capital buffer</b> ; this buffer is created because of cyclical nature of the economy. In a expansionary or a normal period banks tend to give out a higher amount of credit as credit risk management systems generate probabilities of default that are lower than the long term average. So when a bank enters a recessionary phase the probability of default goes higher than the long term average thereby increasing the risk of weighted assets. To balance this cyclical nature of the economy and to avoid a market wide failure, banks are expected to maintain the countercyclical capital buffer.</li> </ul>

IMPROVEMENTS ON Basel 3 from Basel 2	
II) Increased short term liquidity coverage	<ul style="list-style-type: none"> <li>• To tackle short term resilience and structural resilience Basel 3 introduced LCR and NSFR respectively.</li> <li>• <b>Liquidity coverage ratio (LCR)</b> ; created to tackle the issue of short term resilience, LCR deals with banks maintaining high quality liquid assets &amp; total net cashflows over the next 30 calendar days. The idea is to have liquidity of assets in case of any emergency and hence these balances are maintained.</li> <li>• <b>Net stable funding (NSFR)</b> : NSFR incentivizes banks to opt for more stable sources of funding, this is done to improve the overall structural resilience of the industry. Thereby dealing with the long term aspect of liquidity.</li> </ul>
III) modifications in provisioning norms	The idea here was to move from a tradition incurred loss approach where banks incur the loss and the make provisions for it, to a expected loss approach. The idea was to be more forward looking and
(iv) introduction of leverage ratio	Leverage ratio is the debt to equity ratio of a company. Hence a highly levered firm would have a lot of debt and vice versa. The introduction of leverage ratios was directly correlated to collapse of Lehman brothers in 2008 financial crisis.

**Figure 3: Market share of Indian banking sector**

Indian banking system – share by asset size Institution	Market share of total banking assets (September 2014) (in percentage )
Scheduled commercial banks, of which	<b>87%</b>
Public sector banks	63%
Private sector banks	18%
Foreign banks	6%
Regional rural banks (RRBs)	3%
Urban cooperative banks	3%
Rural cooperative banks	7%
Total	<b>100%</b>

**Figure 4 : Market share of Indian banking sector**

Summary assessment grading	
Key components of the Basel capital framework Overall	Grade
Overall grade:	C
Scope of application	C
Transitional arrangements	C
<b>Pillar 1: Minimum capital requirements</b>	
Definition of capital	C
Credit risk: Standardised Approach	C
Credit risk: Internal Ratings-Based Approach	C
Securitisation framework	C
Counterparty credit risk framework	C
Market risk: Standardised Measurement Method	C
Market risk: Internal Models Approach	C
Operational risk: Basic Indicator Approach and Standardised Approach	C
Operational risk: Advanced Measurement Approaches	C
Capital buffers (conservation and countercyclical	C
<b>Pillar 2: Supervisory review process</b>	
Legal and regulatory framework for the Supervisory Review Process and for taking supervisory actions	C
<b>Pillar 3: Market discipline</b>	
Disclosure requirements	C

Compliance assessment scale: C (compliant), LC (largely compliant), MNC (materially non-compliant) and NC (non-compliant).

## Appendix A : List of people interviewed

<b>Respondent Number</b>	<b>Name</b>	<b>Designation</b>
<b>Respondent 1</b>	Lalit Taneja	Director of GARP, (Regulatory body for CFA in India)
<b>Respondent 2</b>	Ajay Pandey	AGM, Teaching faculty at SBI
<b>Respondent 3</b>	Manish Yadav	Chief manager, ICICI Bank (private bank in India)
<b>Respondent 4</b>	Dheeraj Gaur	CRO, Punjab sindh bank (regional Public bank)
<b>Respondent 5</b>	Usha Yadav	DGM, risk management at State bank of India.
<b>Respondent 6</b>	Han Krishan Panda	AGM, Reserve bank of India (Regulator)
<b>Respondent 7</b>	Dev Kumar Malik	Assistant General Manager & Faculty , SBI
<b>Respondent 8</b>	B D Gaur	Assistant General Manager , SBI
<b>Respondent 9</b>	Pawan Kumar	Assistant General Manager , Compliance SBI
<b>Respondent 10</b>	Arvind kumar	General manager, State bank of India

**Appendix B : Questions asked to the regulators and bankers in India**

Category of question	Questions
Perceived benefits vs actual situation	<p>Q1) What were the perceived vs actual benefits of implementing the BASEL accords?</p> <p>Q2) Was the implementation Successful, I mean did it achieve the perceived benefits?</p>
COVID	<p>Q3) So COVID was the first challenge of BASEL 3, How resilient were banks during COVID, Did BASEL 3 help out?</p>
3 pillar implementation	<p>Q4) can you highlight some challenges faced by Indian banks in the implementation of the three pillar strategy?</p> <p>Q5) Do you think Indian banks have the technological infrastructure to cope up with the rising threats posed by e-payments and online banking?</p> <p>Q6) Can you explain the challenges faced by banks to maintain the new capital adequacy standards given by Basel ?</p> <p>Q7) Could you explain the new reporting system under the Basel accords, How effective do you think it is?</p>
Small Banks	<p>Q8) What would you say about the Issues faced by smaller banks for Implementing BASEL accords?</p> <p>Q9) Do you think the increased capital requirements are a burden for these smaller banks?</p> <p>Q10) How big a burden is keeping up with the technology requirements for smaller banks?</p>

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