

**IMPACT OF CAPITAL BUFR, LIQUIDITY AND
RISK MANAGEMENT PRACTICES (BASEL III) ON
FINANCIAL STABILITY AND FINANCIAL
GROWTH OF FINANCIAL INTERMEDIARIES:
EVIDENCE FROM THE EMERGING ECONOMIES**



Researcher:
Muhammad Asghar
REG NO.51-FMS/PHDFIN/F12

Supervisor:
Dr. Zaheer Abbas
Asso. Professor, FMS
Co-Supervisor
Dr. Abdul Rashid
Professor, IIE



Faculty of Management Sciences
INTERNATIONAL ISLAMIC UNIVERSITY,
ISLAMABAD

Accession No. TH-26575 1/2

PhD
332.10 681

MUI

Financial institutions - Management

Risk management - Developing countries

Liquidity (Economics) - Management

Capital - Adequacy - Standards

Financial stability - Developing countries

Economic development - " "

Basel III (Accords)

**IMPACT OF CAPITAL BUFER, LIQUIDITY AND
RISK MANAGEMENT PRACTICES (BASEL III) ON
FINANCIAL STABILITY AND FINANCIAL
GROWTH OF FINANCIAL INTERMEDIARIES:
EVIDENCE FROM THE EMERGING ECONOMIES**



Muhammad Asghar
REG NO.51-FMS/PHDFIN/F12

A thesis submitted in partial fulfillment of the requirements for the Degree of Doctor of
Philosophy/Science in Management with specialization in Finance at
the Faculty of Management Sciences
International Islamic University,
Islamabad

October 2022

Accession No. TH-26575

DEDICATION

This thesis is dedicated to my parents who have been a great source of motivation, inspiration and believe in the richness of learning.

COPYRIGHTS

Copyright © 2011 by IIUI Student

All rights reserved. Reproduction in whole or in part in any form requires the prior written permission of Mr. Muhammad Asghar or designated representative.

DECLARATION

I hereby declare that this thesis, neither as a whole nor as a part thereof, has been copied out from any source. It is further declared that I have prepared this thesis entirely on the basis of my personal effort made under the sincere guidance of my supervisor and co-supervisor. No portion of work, presented in this thesis has been submitted in support of any application for any degree or qualification of this or any other university or institute of learning.

Mr. Muhammad Asghar

PhD (Finance)

Faculty of Management Sciences

APPRECIATION AND GRATITUDE

Foremost, I am grateful to **Almighty Allah** for enabling me to complete this thesis.

I am deeply indebted to my supervisor **Dr. Zaheer Abbas** and Co-Supervisor **Prof. Dr. Abdul Rashid** for the continuous support of my PhD research, for their patience, motivation, enthusiasm, and immense knowledge. Their guidance helped me during the research and writing of this thesis.

Besides my supervisors, I would like to thank the Faculty of Management Sciences and Dean **Prof. Dr. Abdul Rehman** for their encouragement, insightful comments, and deep knowledge. I am also thankful to **Hamid** from Program Office for his help throughout the study.

I am thankful to the **Higher Education Commission (HEC)** of Pakistan for financial support under Indigenous PhD Fellowship Program.

I wish to express my warm and sincere thanks to my father **Prof. Dr. M. Yousaf** who gave me imperative guidance from my first step to the higher studies. His ideas and concepts have had a remarkable influence on my entire career. I attribute the level of my PhD degree to his encouragement and effort and without him this thesis would not have been completed or written. Also, I owe my most sincere gratitude to my beloved mother **Saira Yousaf** whose kind support and guidance have been of great value in this study.

I would like to express my earnest gratitude to my dear brother **Dr. Akhter Ali** for all the emotional support, entertainment and caring he provided me throughout this research. Also, I would like to give my special thanks to my wife **Dr. Rahila** and my kids **Ahmad, Hadia, Ayzal and Muhammad** whose patient love enabled me to complete this work. In many ways I have learnt much from them.

M. Asghar

(Acceptance by the Viva Voce Committee)


Title of Thesis: "Impact of Capital Buffer, Liquidity and Risk Management Practices (Basel III) on Financial Stability and Financial Growth of Financial Intermediaries: Evidence from the Emerging Economies"

Name of Student: Muhammad Asghar

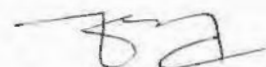
Registration No: 51-FMS/PHDFIN/F12

Accepted by the Faculty of Management Sciences INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD, in partial fulfillment of the requirements for the Doctor of Philosophy Degree in Management Sciences with Specialization in Finance.

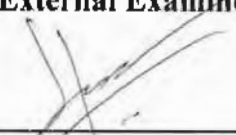
Viva Voce Committee

✓ 

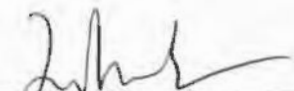
Dr. Khalid Sohail
(External Examiner)

✓ 

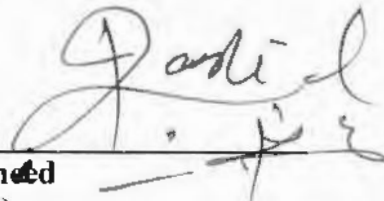
Dr. Ahmad Fraz
(External Examiner)



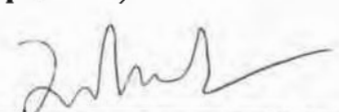
Dr. Hameeda Akhtar
(Internal Examiner)



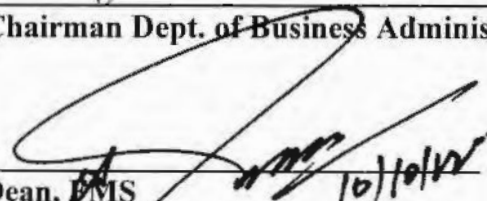
Dr. Zaheer Abbas
(Supervisor)



Dr. Abdul Rashid
(Co-Supervisor)



Chairman Dept. of Business Administration



Dean, FMS

Date: 6th July 2022

FORWARDING SHEET

The thesis entitled “Impact of Capital Buffer, Liquidity and Risk Management Practices (Basel III) on Financial Stability and Growth of Financial Intermediaries: Evidence from the Emerging Economies”, submitted by Mr. Muhammad Asghar has partial fulfillment of PhD degree in Management Sciences with specialization in Finance, has completed under my guidance and supervision. The changes advised by the external and the internal examiners have also been incorporated. I am satisfied with the quality of student’s research work and allow him to submit this thesis for further process as per IIU rules & regulations.

Date: _____

Signature: _____

Name : _____

ABSTRACT

This study examines the influence of Basel III reforms (Net Stable Funding Ratio, Liquidity Coverage Ratio & Capital Buffer), risk management, and banking sector efficiency on banks' financial stability and loan growth in emerging countries. The data for this study is collected from Banker Database and International Monetary fund (IMF) database. Based on the GDP classification of IMF, the top 22 countries were selected as the sample for 2005-2018. The sampling frame includes all six regions of the world including 482 banks and 3022 observations in total. The empirical analysis is carried out by estimating the fixed effects models. It is found that the effects of capital buffer, liquidity, and risk management practices are significant on financial stability. It is also noticed that the capital buffer has a positive influence on financial stability as described by the theory of capital buffer. However, liquidity management shows positive impacts on financial stability and negative impacts on growth. Risk management practices have a positive influence on financial stability in the case of large economies. However, the results are insignificant in the case of small economies. Bank-specific variables, namely profitability, size, and efficiency have a positive, whereas, loan quality has a negative impact on financial stability in the emerging countries. GDP has a positive impact on financial stability whereas inflation and unemployment both have a negative effect on financial stability. The Basel III implementation have positive impact on Islamic bank's financial stability. However, Basel III implementations in emerging countries decrease the possibility of financial sector's fall out.

Keywords: Capital Buffer, Liquidity, Risk Management, Efficiency, Financial Stability,
Basel III.

TABLE OF CONTENTS

LIST OF TABLES	4
LIST OF FIGURES	5
CHAPTER # 01 INTRODUCTION	6
1.1 Background and Purpose of the Study	6
1.2 Research Gap	11
1.3 Problem Statement.....	12
1.4 Objectives	12
1.5 Research Questions	13
1.6 Significance of the Study	14
1.6.1 Significance of the Study for Commercial Banks.....	14
1.6.2 Significance of the Study used for Islamic Banks	15
1.6.3 Significance of the Study for the Central Banks	15
1.6.4 Significance of the Study for the Basel Committee	15
1.7 Contribution of the Study	16
1.8 Capital Requirements in Emerging Countries	16
1.9 Organization of the study.....	17
CHAPTER # 02 LITERATURE REVIEW	18
2.1 Capital Buffer and Financial Stability	18
2.2 Liquidity and the Financial Stability	22
2.3 Risk Management and the Financial Stability	23
2.4 Basel III and the Financial Stability.....	24
2.5 Basel III Implementation and Islamic Banks	26
2.6 Basel III Implementation and Loan Growth.....	26
CHAPTER # 03 HISTORY OF BASEL REFORMS	28
3.1 Background	28
3.2 Regulatory Waves	29
3.2.1 First Regulatory Wave 1974-1986 (Concordat)	30
3.2.2 Second Regulatory Wave 1987-1998 (Basel I).....	30
3.2.3 Third Regulatory Wave 1999-2008 (Basel II).....	32
3.2.4 Fourth Regulatory Wave 2009-2011 (Basel III)	33

3.2.5	Fifth Regulatory Wave 2012-2019 (Post Basel III)	34
CHAPTER # 04 THEORETICAL FRAMEWORK		36
4.1.	Capital Buffer effect on Financial Stability	36
4.2	Net Stable Funding Ratio and Financial Stability	37
4.3	Liquidity Coverage Ratio and Financial Stability	37
4.4	Risk Management and Financial Stability	37
4.5	Operational Efficiency and Financial Stability	38
4.6	Business Cycle and Financial Stability	38
4.7	Bank Size and Financial Stability	38
4.8	Capital Buffer and Loan Growth	39
4.9	Liquidity Coverage Ratio and Loan Growth	39
4.10	Loan Quality and Loan Growth	39
4.11	Business Cycle and Loan Growth	40
4.12	Bank Size and Loan Growth	40
CHAPTER # 05 RESERCH METHODOLOGY		41
5.1	Data	41
5.1.1	Population/ Sampling Frame	41
5.1.2	Sample Period	41
5.1.3	Sample Selection	41
5.1.4	Source of Data	44
5.2	Research Methodology	44
5.2.1	Measurement of Research Variables	44
5.2.2	Model I: Basel III effect on Financial Stability	49
5.2.3	Model II: Basel III impact on Loan Growth	51
CHAPTER # 06 RESULTS AND DISCUSSION		53
6.1	Descriptive Analysis	53
6.2	Correlation Analysis	56
6.3	Empirical Analysis	59
6.3.1	Durbin-Wu- Hausman Test	59
6.3.2	Fixed Effects Model	60
6.4	Regression Analysis	60
6.4.1	Basel III Effect on Financial Stability in Africa	60

6.4.2 Basel III effect on Financial Stability in Asia Pacific.....	64
6.4.3 Basel III effect on Financial Stability in Central Asia	67
6.4.4 Basel III effect on Financial Stability in Central and Eastern Europe	69
6.4.5 Basel III effects on Financial Stability in Middle East	71
6.4.6 Basel III effects on Financial Stability in South America	73
6.4.7 Impact of Ownership on Financial Stability.....	75
6.4.8 Islamic Banking and Financial Stability	78
6.4.9 Basel III effects on Loan Growth.....	80
6.5 Robustness	90
CHAPTER # 07 CONCLUSIONS AND RECOMMENDATIONS	95
7.2 Implications of the Study for the Commercial Banks.....	96
7.2.1 Implication of Study for Theory	96
7.2.2 Implication of the Study for the Basel Committee on Banking Supervision	96
7.2.3 Implication for the Researchers.....	97
7.3 Limitation and Future Research Directions	97
References	98
Appendix I	110
Appendix II.....	111
Appendix III	113

LIST OF TABLES

Table 3. 1 List of Regulatory Waves	29
Table 3. 2 Fundamentals of Basel I	31
Table 3. 3 Fundamentals of Basel II	32
Table 3. 4 Fundamentals of Basel III.....	33
Table 3. 5 Implementation Dateline for Basel III	35
 Table 5. 1: Country Wise Description of Data covering various regions.....	 43
 Table 6. 1: Descriptive Analysis.....	 54
Table 6. 2 Correlation Analysis	60
Table 6. 3: Durbin-Wu-Hausman Test.....	59
Table 6. 4: Basel III effects on financial stability in Africa.....	63
Table 6. 5: Basel III effects on financial stability in Asia Pacific	65
Table 6. 6: Basel III effects on financial stability in Central Asia.....	68
Table 6. 7: Basel III effects on financial stability in Europe	70
Table 6. 8: Basel III effects on Financial Stability in Middle East.....	72
Table 6. 9: Basel III effects on financial stability in South America.....	74
Table 6. 10: Impact of Ownership on the Financial Stability	77
Table 6. 11: Islamic Bank and financial Stability.....	79
Table 6. 12: Basel III effects on Financial Growth in Africa	80
Table 6. 13: Basel III effects on Financial Growth in Asia Pacific	82
Table 6. 14: Basel III effects on Financial Growth in Central Asia	84
Table 6. 15: Basel III effects on Financial Growth in Europe.....	86
Table 6. 16: Basel III effects on Financial Growth in Middle East	87
Table 6. 17: Basel III effects on Financial Growth in South America	89
Table 6. 18: Financial Stability during Pre-Crisis, Crisis and Post Crisis periods	91
Table 6. 19: Financial Growth during Pre-Crisis, Crisis and Post-Crisis periods	930

LIST OF FIGURES

Fig. 5. 1: Country-wise distribution of sample data..... 425

CHAPTER # 01 INTRODUCTION

1.1 Background and Purpose of the Study

Financial stability is always a central focus point for the financial managers and the stability in the financial intermediaries is directly correlated with economic stability and economic growth. The financial stability as defined by International Monetary Fund (IMF), is a financial system that motivates and the growing economic system, handle risk and absorbs financial stresses. The financial stability as well-defined through International Monetary Fund (IMF), stands a financial system that motivates and the growing economic system, handle risk and absorbs financial stresses. The World Bank narrated that the product of financial stability is a stable financial system that allocates resources, manages risk, decreases unemployment and manages inflation that is essential for financial growth. The economic growth in the economic system is correlated with financial stability of financial institutes. The instability in the financial intermediaries decreases the credit in the economic system along with hyperinflation, unemployment, and a decrease in the gross domestic product (GDP).

The financial stress that was handled by the financial institutes after the nonfulfillment of the Bretton Wood System in 1973 and a major crisis of West Germany foreign exchange bank in 1974 were the main forces for the development of new regulations. G10 countries formed a banking regulation and supervision committee with the mandate to develop regulations for financial intermediaries. This committee was then renamed as Basel Committee on Banking Supervision (BCBS). BCBS main objective was toward develop the standards for the regulations and supervision of banks. One of the core unexplained

questions in the economic system is how to overcome the financial stress on the financial intermediaries that directly affect all sectors of the economies. Financial stress proved to be harmful to the economic system and badly disturbs the GDP growth, credit supply, investment growth, discount rate, purchasing power and employment of the emerging and developing economies (Klemkosky, 2013). Walter (2010) pointed out that banking crisis annual probability is 4-5% both in the industrial and emerging economies that may lead to global economic imbalance. The global financial crisis (GFC) (2008) highlighted the equal need both for the capital buffer along with liquidity holding contribute toward the financial, fastness of the economic system. The key goal of capital buffer that is a more capital than capital adequacy ratio that is static by the regulator and the liquidity procedures introduced through the Basel III is to develop financial intermediaries' further shocks absorbers and more stable (Valencia & Bolanos 2018). Financial intermediaries are the supplier of finance in the economic system. Their performance and growth a significant factor for the growth of an economic system of any country. Financial constancy of the economic intermediaries has an encouraging effect on the efficiency and development in the industrial, agricultural and services sector of the economy. Regulators always give their best regulations for the financial stability and growth.

The global financial crisis 2007-2008 emphasized the need for the incorporation of good liquidity and risk management (related to credit progress) factors in the Basel II. The credit growth and mispricing of credit and liquidity risks are the core factors of the GFC. In 2010, the novel capital and liquidity values were introduced for G20 countries and this model is commonly recognized as Basel III. One more coating of common equity Basel III, capital buffer, liquidity ratio (LR), Liquidity coverage ratio (LCR) and net stable funding ratio

(NSFR). The concept of capital buffer was announced in Basel III, increased credit share of the private sector may increase the credit share in the economy (Jokivuolle *et al.*, 2015). The main findings after the crisis is the weakness in the identification of risk and coverage. Regulators also get their lesson to reconsider regulations for the reliability of the economic system. Basel II has given three pillars of regulations:

Pillar1= Capital obligation models and risk management.

Pillar2= Supervisory monitoring

Pillar3= Market discipline

In Basel III, the fourth pillar is added, that is given as

Pillar 4= Additional capital buffer management by the economic cycle.

Financial intermediaries used the capital buffer as a tool to build up resilience against the financial shocks. In the international financial crisis of 2008-2010, the high-profile financial intermediaries get bailout packages or unwanted imposed takeover e.g. the Forties, Citigroup, USB and Royal Bank of Scotland (Guidara *et al.*, 2013). The practical research findings highlighted that under-capitalized banks chances to enter into crisis are more as compared to well- capitalized banks. Canadian banks used the capital buffer during the global financial crisis and proved that within spite of close economic ties with the USA, not a single financial institution enters a financial disaster (Guidara *et al.*, 2013). The financial intermediaries with the lower capital buffer and mismatch of structural funding are more likely to fail (Vazquez and Federio, 2012).

The use of capital buffer by the financial intermediaries is considered an important pillar towards financial stability by the BCBS. The global emerging countries are the fastest growing economies in the world and financial stability is the most wanted goal by the regulators. Capital buffer increases the financial stability, safety and reduces the cost of fund-raising in the emerging countries (Tabak *et al.*, 2013). Global financial crisis gave birth to the Dodd-Frank Act, which is now regulating the US financial Institutions, every crisis gives new regulations to the financial world. There is always room to inspect the effect of Basel III principles on the economic system and their effective role in prevention of economic and financial crisis. The same efforts were also taken in the other developing countries of the world like the Vickers Report in the UK and Liikanen report in the EU.

The trade-off theory describes how banks interlink the cost and benefit of a different forms of financing. Financial institute is different due to the active role of regulators that may change the regulations from time to time to shelter the attention of shareholders. Basel III after the GFC now imposed the condition of the capital buffer that is supposed to safeguards the interest of all stakeholders.

Moral hazard theory describes the agency problem between risk management practices adopted by the financial managers of financial intermediaries and shareholders. The cost of moral hazard may come in the new episode of a banking crisis that may be transmitted into the GFC. The moral hazard may exist due to the differences in the interest of the principal and agent. The financial managers may enter in risky projects at the cost of default. The main justification for the existence of financial intermediaries is that the deposit holder does not have enough information for their portfolio managements of funds and effective monitoring. The Moral hazard theory tested by Shrieves and Dahl (1992) and

pointed out an optimistic relationship between the bank capital and bank risk. They also highlighted those changes in bank capital is always risk based. Jacques and Nigro (1997) also discovered the positive connection between the changes in bank capital and risk management. Aggarwal and Jacques (2001) inspected the relationship between the credit risk and bank capital and find out same positive correlation. Rim (2001) narrated that here is a helpful bond in the bank capital management and risk management.

Capital buffer theory developed by Marcus (1984) and Mine & Whalley (2002) that narrated the connection among the capital buffer and financial stability. This theory highlighted the coordination among the capital also risk those alterations be contingent on the excess capital maintained by the bank. Banks through high capital buffers attempt on the way to maintain their capital buffer, when the capital is increased and on the other hand banks through the small capital buffers alter capital (risk) faster than banks within higher capital buffers. Capital buffer management of the financial system is reliant on the capital buffer theory (Pererira, 2011). The empirical literature indicates that most of the researchers have used the capital buffer theory with the dynamic model i.e., Ayuso *et al.*, (2004) pointed out an adverse relationship among the capital buffer and business cycle. Wong *et al.* (2005), Xu (2016) found the relationship between the capital buffer and the business cycle and find out the negative relationship among the capital buffer and business cycle for a sample of Chinese commercial banks. Francis and Osbore (2009) narrated that here is a negative relationship among the loan growth and capital buffer.

Capital buffer theory is also tested by Frank *et al.*, (2004) for the German saving banks and narrated that the finding of their research support, the capital buffer philosophy that banks having short holding capital buffer try to rise the capital buffer through growing their

capital and falling the risk, on the other side, banks by high holding capital buffer seek to preserve their capital buffer through growing risk after capital growths.

The regulatory part of the central bank in the supervision of financial institution in the economic sector is of from top to bottom importance for the financial growth and economic stability in monetary intermediaries. The central bank through the Basel III implementation in the banking sector get goal of economic stability in the financial system. In the emerging countries due to the financial liberalization now a day central bank plays an effective regulatory role for financial stability and loan growth in the emerging countries.

1.2 Research Gap

The emerging countries' contribution toward the world economic system is more than 50 percent (IMF-2013). The importance and role of emerging countries' financial intermediaries due to their fast growth are well established. Existing literature reveals that this is the originally study that focuses on the application of Basel III on the emerging economies with this data set. Loan growth and financial stability both have equal importance for the emerging countries. The finding of this research will contribute to the existing research by incorporating the same time loan growth and financial stability. BSBC introduced Basel III in 2010 after the financial crisis and in this way, this is quite a new concept (Basel III) in the zone of financial stability. The capital buffer proved as caution in the global financial crisis period both for the Australian and Canadian banking sector (Durrani, 2014). The goals of growth and financial stability have equal importance for the emerging countries. Naceur *et al.* (2017) narrated that the implementation of Base III in the United States and Europe decreases the loan growth. The findings of this learning contribute to the existing research by incorporating the same time loan growth and financial

stability. In view of available literature, this study is the first attempt to document the effect of Basel III implementation on the financial stability and loan growth of the emerging countries. The considered dataset also added the Islamic and public sector financial intermediaries.

1.3 Problem Statement

Financial intermediaries are the provider of finance in the financial system. The stability of financial intermediaries is essential for the economic growth of the world financial structure. The GFC 2008-2010 highlighted the weakness in the financial intermediaries and in this way a new regulatory model of Basel III is to be implemented in the universal financial system. The empirical finding in the developed economies shows that the introduction of the capital buffer and new liquidity ratio increase economic stability and decrease economic growth in the world economic and financial system. The emerging economies are at the same time concerned about financial stability and loan growth. The application of Basel III either going to rise the economic stability in the emerging economies without disturbing their financial growth. The economic growth of the emerging countries is very much related to the loan growth in the financial system, so this is interesting to discover how the emerging countries tradeoff between financial stability and loan growth.

1.4 Objectives

This study has the following aims:

1. To study the effect of capital buffer on the financial stability of financial intermediaries in emerging economies.
2. To investigate the impact of liquidity on the financial stability of financial intermediaries in the emerging countries
3. To study the effect of risk management on the financial stability of financial intermediaries in emerging countries
4. To study the impact of capital buffer on Islamic banks of emerging countries
5. To inspect the influence of liquidity management on Islamic banks in emerging countries
6. To investigate the impact of Basel III on the Public sector bank in the emerging countries.
7. To study the impact of capital buffer on loan growth in the emerging countries
8. To investigate the impact of capital buffer on global financial crisis.
9. To observe the effect of liquidity management on the loan growth in emerging countries
10. To study the effect of risk management on loan growth in emerging countries
11. To inspect the impact of macroeconomic variables on loan growth in emerging countries

1.5 Research Questions

The following research queries going to be addressed in this study:

- Is the capital buffer management increase financial stability in the emerging countries?
- What could be the impact of the liquidity management on financial stability in the emerging countries?
- Is the risk management increase financial stability in the emerging countries?
- How the capital buffer management affect the loan growth in emerging countries?
- Is liquidity management decrease loan growth in emerging countries?
- What could be the impact of the capital buffer management on financial stability in the Islamic banks of emerging countries?
- Is the capital buffer management increase financial stability in the state owned banks of emerging countries?

1.6 Significance of the Study

The monetary growth is completely correlated with the progress of financial intermediaries as they are the provider of finance in the economy, constancy of financial intermediaries is also very vital for the emerging countries. This study show, how the Basel III is helpful in the prevention of financial stress and crisis in the emerging countries. The Basel III implementation in the emerging countries is documented and the outcome of this study provides a policy guideline for the regulators to overcome the problem in the future related to financial stability and loan growth.

1.6.1 Significance of the Study for Commercial Banks

The findings of this study determination be helpful for the commercial banks provide them policy guidelines about the capital buffer and risk management and their influence on the

commercial banks in day to day management of risk. The credit growth and deposit growth along with profitability are the main vital for the commercial banks. The findings of this study give emerging countries' commercial banks, a line of action for their future decision.

1.6.2 Significance of the Study used for Islamic Banks

The fast development of the Islamic banks in the world banking system with financial stability shows that financial-economic system is better and stable as related to the conventional banking system of the world. The outcomes of this study in the emerging countries provide a roadmap for the execution of Basel III according to the Islamic business model. The Islamic financial model is more stable as compared to the conventional financial model. The study of both models at the same time provide baseline for future research related to financial stability and financial growth.

1.6.3 Significance of the Study for the Central Banks

The central banks are the regulators of the banks in a country. The central bank is responsible to take all actions that are helpful for the banking and financial stability together with the loan growth of the financial institutions. This study give policy guidelines to the central banks of the emerging countries regarding the implement Basel III regulations on the commercial banks.

1.6.4 Significance of the Study for the Basel Committee

The Basel committee is considered as the highest regulatory form of the banks in the world. The Basel committee provides the rules and regulations that may play an effective role for global financial stability. This study will be helpful for the Basel committee as it will highlight, how the implementation of their guidelines is ensured in emerging economies and how commercials banks face challenges while Basel III implementation.

1.7 Contribution of the Study

This study contribute significantly, as it will offer a new awareness into the performance of capital buffers by means of data from the emerging countries. This study explore that how the capital holding in the form of capital buffer (after the application of Basel III) affects the credit growth, deposit growth, GDP growth and the financial stability of emerging countries. There is empirical evidence that credit growth is certainly related to the production and the GDP growth of the emerging countries but in the developed world the capital buffer holding will reduce the credit growth and resultantly reduce the GDP growth. This study discover how the emerging countries will manage the implementation of Basel III and in what way it moves toward financial stability and GDP growth. This study also answer the question that whether capital buffer reduces the probability of financial shocks in the global financial system.

1.8 Capital Requirements in Emerging Countries

Capital requirements in the emerging countries are depended on the capital requirements of the world's developed economies. G20 countries of the world have an influence on the global economic system. The emerging countries are mostly trade partners with the developed worlds. The regulatory measures adopted by the developed world related to capital requirements of the financial intermediaries have a spill-over impact on emerging economies. A Task force with the title of "Making Basel III work for emerging markets and developing economies" highlighted the following fundamentals difference between the emerging and advance economies.

- High flexible entree to global capital
- Tall macroeconomic and economic volatility

- Less established financial systems
- Inadequate availability of market data
- Limited transparency
- Capacity governess

1.9 Organization of the study

The current thesis is organized as the first chapter is based on the introduction of the study.

Second chapter is written to provide the literature review, chapter third is comprises on the history of Basel reforms whereas the theoretical framework is provided in chapter 4.

Chapter 5 is given to enlighten the research methodology of the thesis and results are discussed in chapter 6. Thesis is concluded in chapter 7 along with recommendations.

References are given in the end.

CHAPTER # 02 LITERATURE REVIEW

This chapter analyses the works related to Basel III and financial stability and financial growth.

2.1 Capital Buffer and Financial Stability

Capital buffer plays its effective role for the economic and financial stability of the financial intermediaries, Durrani and Cummings (2014) observed that the regulator pressure and regulations are positively related to the capital buffer managing of the economic institutions in the Austrian banking sector. The soundness and economic stability of the economic institutions are depended on the effective implementations of the regulations designed by the regulators. Good management and financial regulations discourage the financial shocks that may lead to the banking crisis and financial crisis. The capital buffer acts as insurance against the financial shocks and the financial intermediaries save themselves from the strong action of the regulators if the Capital Adequacy Ratio (CAR) falls the lowest level. The US economy recession after the GFC of 2008, that was caused due to the failure of many banks and the regulators get a lesson about capital buffer management. Enough capital buffer helps the financial intermediaries to handle the financial shocks without the major suffering of the whole economy.

Capital buffer is also holding by the financial institutions to get the trust and confidence of the stakeholders. Guidar *et al.* (2013) studied the effect of the commercial cycle and supervisory changes in the Canadian banking system and they revealed that the capital buffer is helpful for the Canadian banks to successfully defend themselves from the financial shocks that encounter during the global financial crisis period. Findings of the Canadian banks' system support the new model of Basel III, that the implementation of capital buffer reduces the probability of a financial crisis in the economy.

Ayuso *et al.* (2004) originate the connection among the capital buffer and the economic cycle and they pointed out an adverse relationship flanked by the capital buffer and the economic cycle of the economy. The result of Ayuso *et al.* (2004) showed that a rise in one percent in GDP progress reduces the capital buffer through 17 percent. Coffinet *et al.* (2012) studied the bond among the capital buffer, GDP growth, besides credit growth. They also discovered a negative connection among the capital buffer besides the loan growth and pointed out that the rise in capital buffer may put the financial system at the recession and resultantly decreased in the GDP growth as well.

The central banks under the financial shocks period or according to internal environment conditions may impose the additional capital buffer on the CAR to safeguard the economic and financial system from the distress. Pereira and Saito (2015) investigated the role of central bank supervision on the Brazil financial intermediaries and they observed that the small and medium bank's capital buffer management was helpful for financial stability. Market discipline has positive role and business series has an adverse role taking place the buffer capital management. The central bank's effective monitoring has built a robust effect on the solvency ratio in the banks.

The banks tradeoff among the amount of capital and the cost of disaster while taking decisions about the capital buffer managements (Wong *et al.*, 2005; Osborne, 2009). Financial stability is inversely related to the risk sustaining ability in East Asia Banking Sector. (Chalermchatvichien *et al.*, 2014). Basel III implementation might also rise the borrowed cost designed for small and medium scale businesses throughout the globe.

Basel III regulatory ratios decrease the possibility of banking crisis so that the cost of implementation of the regulatory requirements is less than the cost that may be borne by the economy in case of the financial crisis. The cost of new capital buffer requirements is a negative function in terms of economic loss for the credit market. Buffer capital requirements left less room for the high-risk related projects and as a result, the bank may lose so high return options.

Capital structure adjustment speed was different throughout the world depending on the different factors such as developed capital markets, better supervision of regulators and high inflation (Jonghe *et al.*, 2015). Matejasak (2015) pointed out that the Basel III implementation in the advanced economies also motivated the developing economies to redesign their regulatory measures and this was very successfully implemented in the Czech and Slovak banks. The capital adequacy ratio along with the capital buffer increased from 14.1 percent to 17.1 percent in 2013. Both countries bank adopted the different techniques as in the case of Czech banks increased their capital by the implementation of Basel III and the Slovak banks by reducing their risks. The capital buffer is also set by 2.5 percent by both countries.

There is a common understanding that the rise in capital buffer and capital requirements by the Basel III may reduce the economic growth of the country and also play an effective role to safeguard the economic system from the crisis but the logical and the arithmetical mark showed that the capital regulatory necessities alone not only slow down the economic growth and alone not saved the country from the economic crisis. Majcher (2015) also

inferred that the higher capital buffer requirements may also have a noteworthy adverse effect on the economic growth, credit growth and GDP growth rate.

Shimizu (2015) investigated the capital ratio denominators for the Japanese banks and revealed that assets positively affected the income of the financial institutions. The bank with the income diversification and diversified assets were less likely to enter financial distress. Carvallo *et al.* (2015) observed an undesirable connection among the capital buffers and GDP for the five Latin American countries and a positive connection between the capital buffer and gross domestic product aimed at six countries of the same region. They also determined that the important determinants of bank holding were adjustment costs, size, profitability, and risks. They also provided evidence that capital buffer is dependent on the regulatory environments.

Huang and Xiong (2015) studied the capital buffer decision underneath macroeconomic instabilities for the banking sector of China and invention that the capital buffers counter-cyclically fluctuate in the emerging countries like China is different than the developed world. A credit quality is harmfully connected to the capital buffer. Capital buffer was proved to be less effective for the loan premiums irrespective of business cycles. Benes and Kunhof (2015) observed that bank capital buffer was very helpful against the loan loss that was faced by the financial institutions. They also inferred that the capital buffer significantly increases the welfare concept of the financial institutions and reduces the frequent changes in the interest rate policy. Pessarossi and Weill (2015) found the noteworthy effect of capital requirements on the cost productivity of the China financial institutions and revealed that a rise in the capital ratio has a positive impact on cost-

efficiency. They also observed that a capital requirement is very helpful to improve cost-efficiency. Braslins and Arefjevs (2014) pointed out that main objective in the counter-cyclical capital buffer is toward encourage bank holding in the form of capital buffer at the good time that can be used by them in the adverse time to save the financial system from the financial stress. Rubio and Yao (2020) narrated that Basel III implementation decrease the probability of financial crisis in the global financial system.

2.2 Liquidity and the Financial Stability

Liquidity coverage ratio (LCR) was developed by Basel III with the goal to increase the short-term constancy of the financial intermediaries. High-quality liquid assets (HQLA) introduction in the Basel III is helpful to meet the short-term shocks that may affect the banks. HQLA has the capacity to survive from the financial shocks for 30 days. The HQLA is considered as the assets of the banks that consist of cash and convertible into cash without any loss (BIS-2013). Milne (2013) narrated that HQLA are considered useful by the Basel III to save from the financial shocks of less intensity. Hong *et al.* (2014) investigated the relationship among the Basel III liquidity risk actions and the bank failure and they observed that only the relationship is significantly positive in the liquidity short term stress period and relationship is negative in the long term and cost of maintaining these ratios is very high. They also pointed out that there was a limited effect of these ratios with the bank failures.

Capital stability of the financial intermediaries under the Basel III is measured by the NSFR. This ratio describes the connection between the long-term assets of the financial institutions and the long-term funds available to support them. The impact and issues of NSFR were studied by Gobat *et al.* (2014) of International Monetary Fund and they

determined that larger bank impact was more vulnerable than the impact on the small banks. They also observed that the NSFR ratio was more constant measure than the other regulatory measures to study bank's risk. The main objective of the NSFR was to use the construction of assets and liabilities of the financial institutes that were more stable with reference to the risk management. Basel III assumed that the NSFR was helpful to decrease the discrepancy of assets and liabilities of the economic intermediaries. The empirical evidence proved that the NSFR is a decent tool for the risk management of economic institutes. King (2013) computed the NSFR for the panel of fifteen countries and observed that the NSFR worth is lesser than the internal value established by the regulators. He also observed that the NSFR and NIM are negatively associated with each other. Patel *et al.* (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

2.3 Risk Management and the Financial Stability

Adam (2006) discussed the part of banks under market discipline in a report submitted to the federal reserve bank of New York. He discovered that the problem of moral hazard may exist because of the selection problem that may exist between the selection of debt and equity. This problematic of moral hazard is going to be addressed in Basel III, as there is no requirement of capital buffer maintenance.

Market discipline refers to the reforms that are related to the adoption of standard risk management measures and internal rating-based approach used by the economic institutions under the direction of the economic regulators (central bank). The empirical investigation sorted out that the market discipline is positively interrelated to financial stability. Akram (2014) also narrated that other macroeconomic variable (unemployment

rate, wage rate, discount rate, and exchange rate) are also affected by the higher capital requirements of the financial institutions. Chernykh and Cole (2015) observed different alternative measures of bank capital adequacy ratio (CAR) and introduced the non-performing assets coverage ratio (NPACR). They also revealed that NPACR ratio performance is outperformed than the capital adequacy coverage ratio. They also pointed out the main advantages of NPACR i.e., aligns both risk (capital and credit risk) of the bank. Loan losses impact was studied by Jokivuoli *et al.* (2015) and observed that three factors play their effective role i.e., productivity shocks, real interest rate and credit development in the private sector of the economy. The empirical research highlighted for the policy makers to put their focus on the productivity changes, discount rate changes and the credit growth to save the economy from the financial stress and the financial crisis. Chai *et al.* (2022) narrated that risk management show a positive impact on the financial stability in the emerging counties.

2.4 Basel III and the Financial Stability

Allen *et al.* (2012) pointed out that the effect of Basel III implementation on the economic system has very costly as it reduced the credit growth in the economy and as a result change the business model. GDP growth is also desperately affected by the decline in the credit progress and resultantly affects the discount rate, productivity, consumer price index, exchange rate besides employment rate of the economy. Akram (2014) studied the Basel III implementation on Norway and he found that there was a significant effect on the housing values and credit growth. The capital buffer also provided the shelter against the financial shocks up to 2.5 percent and time duration in the range of 1-12 quarters. Yan *et al.* (2011) observed the positive effect of Basel III implementation on the financial

performance of the banks in the UK. They observed that Basel III has a significant positive effect on the banking sector. They also described that the benefits are more than the cost that is associated with the application of Basel III. Hazel *et al.* (2012) conducted a study to determine the effect of Basel III implementation on the Philippines economy and they inferred that there was initial short-term negative effect on the economy of the country but due to capital buffer management, long run impact was constructive because the probability of financial crisis was reduced.

Gavalas (2015) studied the effect of Basel III on the lending rates and credit growth and revealed that the implementation of new capital regulatory requirement reduces the long-term loan growth of the country by 4.97 percent in those countries that experienced crisis and 18.67 percent in those countries that did not enter into the crisis. The domestic economic dynamic condition of the different countries affects the credit interest rate besides bank net cost of rising equity.

Rossignolo (2013) observed the impact of Basel III on the market crisis and capital requirements for the developing countries of the euro region and highlighted that many demerits are related to the application of the Basel III. They also focused on the extreme value theory due to outstanding performance in the market crisis period. Schmaltz *et al.* (2014) pointed out that under Basel III the regulators now demanded the additional ratios i.e., leverage ratio, liquidity coverage ratios, and net stable funding ratio. Patel *et al.* (2022) revealed that the implementation of Basel III increase the financial stability.

2.5 Basel III Implementation and Islamic Banks

The Islamic Finance Service Board as the Islamic Banks Regulatory body fully endorses the Basel III implementation in the Islamic financial intermediaries (Ashraf, 2016). The GFC highlighted the problems in the global economic system and put the focus on the successful model of the Islamic banks as related to the conventional banks that have annual growth rate 17 percent during the period 2008-2013 (IFSB, 2015a). The Islamic financial banks with the annual growth rate of more than 10 percent in the emerging economic system of the Muslim world is now considered to be more stable as compared to conventional banks. The Islamic financial intermediaries used a different business model as compared to the conventional business model and rendering to the International Monetary Fund (IMF) business model of Islamic banks are more stable as compared to other conventional banks. The IMF highlighted the part of Islamic banks in the world's financial system. There are very rare studies that incorporate the implementation of Basel III in Islamic banks.

2.6 Basel III Implementation and Loan Growth

Credit risk rises once a bank's customers flop to meet their obligation and negative relationship with the loan growth in the economic system. The central point designed for the emerging countries is to maintain their gross domestic product (GDP) growth rate with an upward movement. There is empirical evidence that profitability is likely to be positively related with loan growth in emerging countries. The Basel III implementation may increase the capital buffer, capital adequacy ratio, NSFR, LCR, leverage ratio and reduce the reserve and loan growth in the emerging economies.

Kolade (2019) investigated the impact of NSFR and LCR on the loan growth in Africa. The Panel data with the sample of 361 banks among 38 African countries used for this study and find out that significant constructive effect on the growth rate. Fidrmuc and Lind (2022) pointed out the implementation of Basel III decrease the loan growth and GDP growth in the emerging countries.

CHAPTER # 03 HISTORY OF BASEL REFORMS

3.1 Background

The collapse of Bretton Woods's system of foreign exchange in 1973 and resultantly a large foreign currency loss and the liquidation of Herstatt bank of Germany flopped the financial system in 1974 of the developed economies. This stress motivated the ten governors of central banks to develop the Basel Committee on Banking Practices (BCBP) in Basel, Switzerland at the end of 1974.

The BCBP then renamed as Basel Committee on Banking Supervision (BCBS). A group of ten countries (G10) along with the Luxembourg and Spain were the pioneer members of the BCBS Committee. After the conversion of G10 into a group of twenty countries (G20), the members of the BCBS committee increased. Currently, all major countries of the global financial system are members of this committee.

The first goal of the Basel Committee on Banking Supervision was to form cooperation between the member-countries to set minimum standards for the financial stability of the financial intermediaries. The basic agenda of the BCBS is to set an effective supervisory system for all the financial marketplace that eliminates financial instability in the global economic system. This committee used methods and procedures to determine the existing and emerging risk for the global financial system.

The current membership of BCBS comprised of 28 along with 3 observer countries. The members countries of BCBS consists of Argentina, Australia, Belgium, Brazil, Canada, China, European Union, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.

3.2 Regulatory Waves

Penikas (2014) in the “History of Basel Reforms” divided the regulatory work of the BCBS into five regulatory waves. BCBS through their regulatory documentation act as an international de facto international body. The detail about the five regulatory waves are discussed in table 3.1.

Table 3.1 List of Regulatory Waves

Regulatory waves			
Sr. #	From	To	Name
1	1974	1986	Concordat
2	1987	1998	Basel I
3	1999	2008	Basel II
4	2009	2011	Basel III
5	2012	2019	Post Basel III

3.2.1 First Regulatory Wave 1974-1986 (Concordat)

In February 1975, the BCBS's first meeting was conducted, the Concordat was the first paper that set the principles for foreign branches supervisory responsibility (Sbarcea, 2014). The main objective of this banking regulatory waves was to introduce the fundamental regulatory rules and cooperation among the global financial system countries foreign financial institutions. The first regulatory waves also define the relationship between the host and parent country regulations related to international banking. This fundamental document also describes the position among the host and parent country related to liquidity, solvency, and foreign exchange positions. This fundamental document that also develop a mechanism related to information sharing between the host and parent country of foreign banks. The revised Concordat with the improvement in the regulations related to foreign branches was issued in 1983. This first wave focus was the development of fundamental rules that insure effective banking Supervision in the global financial system.

3.2.2 Second Regulatory Wave 1987-1998 (Basel I)

The bank failures rate increase in 1980s in the international financial system that derive the necessity for Basel accord. The savings besides loan (S&L) disaster in the US in 1980s also play a role need to develop a international framework interrelated to capital also risk management with the objective to get the financial stability in the global financial structure. Basel capital agreement (Basel I) was developed by the BCBS in July 1988. Three contributions of Basel I in the global financial system was introduced by Toma (2007). The Basel I introduce the connection between the capital and the risk management.

- Definition of Capital
- Calculation of Risk Weights
- Capital Adequacy Ratio (8 percent)

The amendment included market risk for polishing Basel I (Penikas, 2014). The timeframe deadline for the implementation of Basel I was till 31 December 1992. This accord was completely applied in the G10 through the end of September 1993.

Table 3. 2 Fundamentals of Basel I

Basel I	
Pillars	Smallest capital requirement
Risks	Credit risk
	Market risk
Approach	Standard approach of measurement and capital calculation

3.2.3 Third Regulatory Wave 1999-2008 (Basel II)

The BCBS was issued a new regulatory framework in 1999 with the name of Basel II due to the deficiency pointed out in Basel I. Basel II stood revised in 2004. Basel II introduce a comprehensive definition of risk. Three fundamental Table 3.3.

Table 3. 3 Fundamentals of Basel II

Basel II	
Pillars	Minimum Capital Prerequisite
	Supervisory Assessment and Role
	Marketplace Discipline and Disclosure
Risks	Credit Risk
	Operations Risk
	Market Risk
Approach	Multiple Approach for measurement of each of the capital calculation and risk

3.2.4 Fourth Regulatory Wave 2009-2011 (Basel III)

The GFC of 2008 highlighted the need for the revision of Basel II. The main factors that contribute in the global financial crisis (GFC) high leverage and low amount of capital buffer to absorb the financial stress. The New capital regulatory standard (Basel III) was recommended thru the G20 in November 2010. Walter (2011) pointed out that three factors motivated the Basel III Implementation in the global banking system (GBS):

- I. Banking crisis harmful effect on the global banking structure.
- II. The regularity of the banking disaster in the global banking system.
- III. Cost of execution of the Basel III is less than long term benefits.

The major Points of Basel III are presented in Table 3.4.

Table 3. 4 Fundamentals of Basel III

Basel III	
Pillars	Minimum Capital Requirement
	Capital Buffer Management
	Supervisory Review and Role
	Market Discipline and Disclosure
	Credit Risk

Risks	Operations Risk
	Market Risk
Liquidity Management	Liquidity Coverage Ratio
	Net Stable Funding Ratio
	Leverage Ratio
Approach	Scientific Approach aimed at Calculation

3.2.5 Fifth Regulatory Wave 2012-2019 (Post Basel III)

The application of Basel III expected to increase the financial stability in the international financial system by reducing the cost of default. The Basel III introduce also have a significant impact on the global financial system.

Table 3. 5 Implementation Dateline for Basel III

Instrument	Starting Date	Fully Effective Date
Capital Buffer	1 st January 2016	1 st January 2019
Tier 1 Capital	1 st January 2013	1 st January 2015
Leverage Ratio	1 st January 2013	1 st January 2017
Liquidity Coverage Ratio	1 st January 2015	1 st January 2019
Net Stable Funding Ratio	1 st January 2015	1 st January 2018

Source: Bank for International Settlement

The research conducted by the researchers on the effect of Basel III on the financial stability named as Post Basel III wave. Yan *et al.* (2012) narrated application of Basel III has long term positive impact on the financial stability in the United Kingdom. Allen *et al.* (2012) pointed out that Basel III reduce the credit supply in the economic system and reduce the economic growth. Kim and Sohn (2017) narrated that due to limited stable funds in the crisis period decreases the loan growth in the global financial system. Adesina (2019) discovered a positive impact of NSFR and LCR on the loan growth in the Africa. Rubio and Yao (2020) narrated that Basel III implementation decrease the probability of financial crisis in the global financial system.

CHAPTER # 04 THEORETICAL FRAMEWORK

This chapter emphasizes on the empirical justification of literature related to the effect of Basel III arranged the financial stability and financial growth. The data and the model specification correlated to the study are also presented in this chapter.

4.1. Capital Buffer effect on Financial Stability

Basel III introduce the capital buffer to make the economic system more resilient. Capital buffer implementation in the global financial system initiated current debate around the outcome of capital buffer arranged financial stability. Capital buffer theory is also tested by Frank *et al.*, (2004) for the German saving banks and narrated that the finding of their research support, the capital buffer philosophy that banks having short holding capital buffer try to rise the capital buffer through growing their capital and falling the risk, on the other side, banks by high holding capital buffer seek to preserve their capital buffer through growing risk after capital growths. The Capital buffer should be increase by more than 2.5 percent to make the economic system more stable at the time of crisis (The Bank of England). Capital buffer is considered as controversial increase in equity may be difficult to tradeoff between costs and benefits (Bui *et al.*, 2017). The individual bank absorbed the economic shocks due to capital buffer and crisis not transmitted to the whole financial system (Anginer *et al.*, 2018). Rubio & Yao (2020) pointed out that bank capital have a positive impact on the financial stability

The hypotheses in this regard are as under:

H 1: There exists a positive impact on the capital buffer and financial stability.

4.2 Net Stable Funding Ratio and Financial Stability

The focal goal of net stable funding system is to make the global economic system further resilient (Pohl, 2017). NSFR in the literature proved to be positively affected the financial stability. Patel *et al.* (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

H 2: There is a positive connection among the NSFR and financial stability.

4.3 Liquidity Coverage Ratio and Financial Stability

LCR introduce to boost banks to clutch high quality liquidity assets for financial stability (Keister, 2019). The liquidity coverage ratio act as premium and used at the time of short-term shock for financial stability. The effect of LCR may be spillover on the global financial system. Patel *et al.* (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

H 3: There exists a positive connection among the LCR and financial stability.

4.4 Risk Management and Financial Stability

The trade-off theory describes how banks interlink the cost and benefit of a different forms of financing. Financial institute is different due to the active role of regulators that may change the regulations from time to time to shelter the attention of shareholders. The risk means that future is unknown and in this way risk management adopted through the economic institutions to decrease the uncertainty about future outcome (Valencia, 2015).

Credit risk along with market risk may have a positive effect on the financial stability. Chai et al (2022) pointed out that risk management have positive impact on the financial stability in the emerging counties.

H 4: There is a positive connection among the risk management and financial stability.

4.5 Operational Efficiency and Financial Stability

Cost and income ratio are proxy used for operational efficiency and banks with operational efficiency may have positive effect on the economic stability. Cost to income ratio show the effectiveness of the financial system and operational efficiency play their effective role in the financial stability.

H 5: There is a positive association between operational efficiency and financial stability.

4.6 Business Cycle and Financial Stability

Business cycle might have an optimistic result on the financial stability. Boom in the business cycle leads toward the sustainable financial stability and vice versa. Business Cycle have a positive impact on the financial stability (Crockett *et al.*2003)

H 6: There is a positive connection among the business cycle and financial stability.

4.7 Bank Size and Financial Stability

Too big to fall concept narrated that bank size matter then may partake a constructive outcome on the financial stability. Literature show a mixed effect size in the financial

stability. Both positive and negative role along with no role is discovered by the researchers.

H 7: There is a positive connection among bank size and financial stability.

4.8 Capital Buffer and Loan Growth

Capital buffer as increase the equity, so also increase the cost of loan and at the same time decrease the loan growth (Bui *et al.*, 2017). Outcome of capital buffer on the credit progress is negative (Ayuso *et al.*, 2004; Stolz and Wedow, 2011; Shim, 2012; Chen *et al.*, 2014; Vu and Turnell 2015 and Carvallo *et al.*, 2015). There remains a helpful connection among the capital holding and financial progress (Thakor, 2014) where Cajueriro *et al.* (2011) pointed out an adverse relationship among the capital buffer and the loan growth.

H 8: There remains a positive connection among the capital buffer and loan growth.

4.9 Liquidity Coverage Ratio and Loan Growth

LCR expected to decrease the loan growth. Foos *et al.* (2010) find out there is an adverse relation among the financial growth and solvency ratio. Whereas implementation of liquidity coverage ratio decreases the Loan growth. Sidhu *et al.*, (2022) pointed out than implementation of liquidity coverage ratio in emerging countries decrease the loan growth.

H 9: There exists a negative connection among liquidity coverage ratio and loan growth.

4.10 Loan Quality and Loan Growth

Loan growth expected to increase the nonperforming loan and, in this way, decrease the loan quality in the global financial system. Loan quality effected by the subsequent three

year due to non-performing loans (Foos *et al.*, 2010). Sidhu *et al.*, (2022) also pointed out that the non performing loan is consider to have a negative impact on the loan growth in the emerging countries.

H 10: There is a negative connection among nonperforming loan and loan growth.

4.11 Business Cycle and Loan Growth

Business cycle may have a constructive effect on the loan growth. Gross domestic product growth is directly affected by the performance of the economic system (Ovi *et al.*, 2020). There is practical evidence that indicate that GDP growth have a positive impact on the loan growth.

H 11: There is a positive connection among business cycle and loan growth.

4.12 Bank Size and Loan Growth

The bank size indicate a mixed evidence in the current literature (Berger and Udell, 2004). Bank size and Loan growth have an adverse connection (Jokipii and Milne, 2008; Lindquist, 2004; Nier and Baumann, 2006). Large bank due to their size have a capacity to entry into risky project and they always play their progressive role in the loan growth.

H 12: There is a positive connection among bank size and loan growth.

The hypotheses cited above tested in this study.

CHAPTER # 05 RESERCH METHOLOGY

The data and research methodology to undertake the study is narrated in the following text.

5.1 Data

This study used unbalanced annual data from the banker database of the financial times.

The macroeconomic variables are collected from International Monetary Fund (IMF). The data related details to the current study are given below.

5.1.1 Population/ Sampling Frame

All emerging countries are the total population related to this study. Emerging countries due to the fundamental distinguish qualities of high growth and low income are unique and significant pillars in the world global financial system.

5.1.2 Sample Period

The sample period related to the current study consist of the period 2005-2018. The sample period consists of pre-crisis period i.e., 2005-2007, the Global financial crisis period i.e., 2008-2010 and post-crisis period i.e., 2011-2018.

5.1.3 Sample Selection

The top 20 emerging countries according to the classification of the IMF based on the gross domestic product used for this study are presented in Appendix I.

The model of this study consists of almost 50 percent of the world GDP.

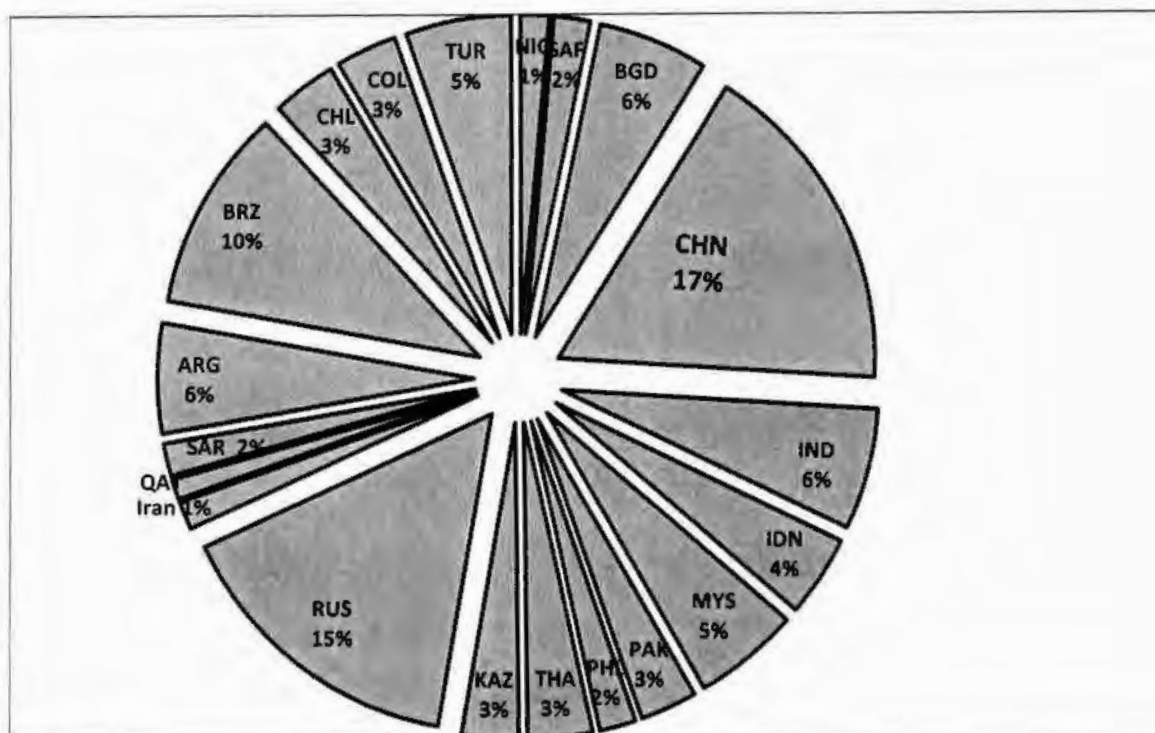


Fig. 5. 1: Country-wise distribution of sample data.

The top twenty countries according to GDP were collected by way of a sample from the total population of emerging countries. Total sample was collected from the seven-world region with the 482 banks and total number of observations for this study was 3022.

Comprehensive data set was collected from the Banker data base of the financial time for the period 2005-2018. The details about the description of data are reported in Table 5.1.

Table 5. 1: Country Wise Description of Data covering various regions.

Name of World Region	Name of countries	Number of Banks	Number of Observations
Africa	Nigeria	07	45
	South Africa	09	59
Asia-Pacific	Bangladesh	27	86
	China	82	647
	India	30	198
	Indonesia	20	127
	Malaysia	26	173
	Pakistan	14	67
	Philippines	09	53
	Thailand	16	112
	Turkey	26	168
Central Asia	Kazakhstan	14	82
Central and Eastern Europe	Russia	74	389
Middle East	Iran	07	32
	Qatar	05	28
	Saudi Arabia	08	55
South America	Argentina	27	177
	Brazil	50	306
	Chile	16	110
	Colombia	15	108
Total	20	482	3022

5.1.4 Source of Data

The financial statements i.e., Income statement besides balance sheet data of the sample nations remain collected from the Banker database of the Financial Times. The macroeconomic variables together from the International financial statistic (IFS) of the IMF.

5.2 Research Methodology

5.2.1 Measurement of Research Variables

The measurement of dependent besides independent variables related to the current study are calculated as follows:

(i) Dependent Variables

a. Z- Score as a Measure of Financial Stability.

Z-score is calculated by way of return on assets (ROA) plus the capital adequacy ratio divided by the standard deviation of assets returns. The Z-Score explore the distance after insolvency (Roy, 1952). Insolvency is well-defined as a state wherever losses surmount equity Therefore, the Z-score signifies the amount of standard deviations that a bank ROA must droplet below its predictable value before equity is exhausted.

$$Z_{ijt} = \frac{ROA_{ijt} + CAR_{ijt}}{\sigma(ROA_{ijt})}, \quad (5.1)$$

Wherever CAR is capital adequacy ratio, ROA is return on assets, i represents the bank, j is for country and t represents the year. A calculated Z score specifies that the bank is extra stable, and the lower Z score indicate that the bank is not stable.

b. Credit Growth as a Measure of Loan Growth

Loan growth is measured through credit growth and for emerging countries, credit growth is very sensitive because credit growth drives toward gross domestic growth. So, in the second model growth rate of the loan is used as a proxy for financial growth (Bui *et al.*, 2017).

(ii) Independent Variables

a. Basel III Variables

(a1) Capital Buffer

Capital buffer is the term that was introduced through the Basel III in command to safeguards the economic system from the financial shocks. The capital buffer is considered as an insurance against financial distress. The capital buffer may be helpful to decline the possibility of a financial crisis. The empirical investigation proved that the capital buffer is useful against financial shocks (Angelini *et al.*, 2011, Bui *et al.*, 2017).

$$BUF_{ijt} = \frac{\text{Excess regulatory capital}_{ijt}}{\text{Risk-weighted assets}_{ijt}} \quad (5.2)$$

(a2) Net Stable Funding Ratio (NSFR)

The NSFR is demarcated as a lowest quantity of stable funds that are available to the banks in the financial stress period as well. This ratio is helpful to put less emphasis on the outsourcing of monetary intermediaries and central banks to meet their short-term liabilities (Locarno, 2011; Hlatashwayo, 2013; Wei *et al.*, 2017).

$$NSFR_{ijt} = \frac{\text{Avaiable stable funding}_{ijt}}{\text{Required Stable funding}_{ijt}} \quad (5.3)$$

(a3) Liquidity Coverage Ratio (LCR)

The LCR remains used to offset the short-range stress impact on the cash flow of the bank due to financial stress. High-quality liquid assets that are liquid popular in the marketplace

even in the period of economic crisis (Hartlage, 2012; Milne, 2013; Hong *et al.*, 2014; Li *et al.*, 2017).

$$LCR_{ijt} = \frac{\text{Stock of high-quality liquid assets}_{ijt}}{\text{Total net cash outflow over the next 30 days}_{ijt}} \quad (5.4)$$

b. Risk Management (RM)

Risk Management is measured through Credit Risk Weighted Assets (CRWA), Market Risk Weighted Assets (MRWA), and Operational Risk Weighted Assets (ORWA). Risk management is directly affected by the financial stability and loan growth.

(b1) Credit Risk Weighted Assets

Credit risk management remains introduced in Basel II by the BCBS to brand the economic system stronger for financial stability (Bui *et al.*, 2017).

$$CRWA_{ijt} = \frac{\text{Credit Risk Weighted Assets}_{ijt}}{\text{Total Risk Weighted Assets}_{ijt}} \quad (5.5)$$

(b2) Market Risk Weighted Assets

A stable market asset is supposed to be considered as an important pillar on the road to the financial constancy of the economic system.

$$MRWA_{ijt} = \frac{\text{Market Risk Weighted Assets}_{ijt}}{\text{Total Risk Weighted Assets}_{ijt}} \quad (5.6)$$

(b3) Operational Risk Weighted Assets

ORWA are related toward the operational efficiency of the assets concerning the Risk weighted assets.

$$ORWA_{ijt} = \frac{Operational\ Risk\ Weighted\ Assets_{ijt}}{Total\ Risk\ Weighted\ Assets_{ijt}} \quad (5.7)$$

c. Bank Specific Variables

Bank specific variables define the fundamental qualities related to each bank. These variables are repeatedly used by the different researcher throughout the globe, in the literature related to financial stability. Four variables are used for this study i.e. efficiency, loan quality, profitability, and bank size.

(c1) Efficiency

The proxy used to calculate the efficiency is the cost to income ratio. The management performance measure through this representation and likely to have a constructive effect on economic stability and financial growth (Barajas *et al.*, 2010).

$$Efficiency_{ijt} = \frac{Cost_{ijt}}{Income_{ijt}} \quad (5.8)$$

(c2) Loan Quality

Loan quality considers as important variables that at the identical time affect the loan growth and financial stability. Loan quality is slow through non-performing loan divided total loans (Guo and Stepanyan, 2011).

$$Loan\ quality_{ijt} = \frac{Non\ Performing\ Loan_{ijt}}{Total\ loan_{ijt}} \quad (5.9)$$

(c3) Profitability

Profitability is an important parameter that drives financial stability and loan growth. The banks with profitability supposed to affect loan growth in the global financial system (Bui *et al.*, 2017).

$$ROE_{ijt} = \frac{Pre\ Tax\ Profit_{ijt}}{Total\ Equity_{ijt}} \quad (5.10)$$

(c4) Size

The global financial crisis demolishes the concept that big size institute does not enter in to crisis and after post-crisis period size may be significant towards financial stability and loan growth. The proxy used to measure the size of the banks i.e. Log of total assets (Leaven *et al.*, 2016; Bui *et al.*, 2017).

(c5) Spread

Spread is the change among the income from loan and expense on deposit (Bui *et al.*, 2017). The spread is likely to have a positive and significant effect on loan growth.

(c6) Deposit Growth

Deposit growth is the growth in deposit and expected that here is a positive connection among deposit growth and credit growth (Barajas *et al.*, 2010).

d. Macroeconomic

Macroeconomic variables show the overall economic environment of the country. Three macroeconomic variables are used for this study and these variables are determinants of loan growth and financial stability.

(d1) Gross Domestic Product (GDP)

The GDP is used to amount the consumption and investment decision that have a strong practical implication on financial stability and financial growth. Higher GDP growth rate has a positive connection towards financial stability and loan growth (Tan, 2012, Bui *et al.*, 2017).

(d2) Inflation

Inflation is calculated through the consumer price index and may have an adverse effect on financial stability besides loan growth (Ivanovic, 2015, Bui *et al.*, 2017).

(d3) Unemployment

Nonproductive force is measured through unemployment rate and expected that have an adverse impact on financial stability and loan growth (Ivanovic, 2015, Bui *et al.*, 2017).

5.2.2 Model I: Basel III effect on Financial Stability

Three measure of Basel III NSFR, Capital Buffer and LCR is used in equation

$$X_{ijt} = (NSFR_{ijt}, BUF_{ijt}, LCR_{ijt}) \quad (5.11)$$

Basel III specific variable in X_{ijt} (Fonseca and Gonzalez, 2010)

Bank specific four measured is used (Beck *et al.*, 2012) Size, ROE, NPL and Cost to income ratio by way of a measure of efficiency.

$$Y_{ijt} = (SIZE_{ijt}, ROE_{ijt}, NPL_{ijt}, Efficiency_{ijt}) \quad (5.12)$$

Three macroeconomic variables are used

$$M_{jt} = (GDP_{jt}, UR_{jt}, I_{jt}) \quad (5.13)$$

Baseline equation

The baseline model discovers the impact of Basel III, Bank definite variables besides macroeconomic variables arranged in financial stability. This model is often used in the financial stability literature for unbalance data set

$$Z_{ijt} = \alpha + X_{ijt}\beta + Y_{ijt}\lambda + M_{jt}\gamma + \sum_{k=1}^4 \delta_k REGION_k + v_i + YD_t + \epsilon_{ijt} \quad (5.14)$$

Where i indicates the bank ($i=1, \dots, n$), j indicates the country besides t indicates the annual time period ($t=2005, \dots, 2018$).

Z_{ijt} Is a Z score by way of a proxy used for economic stability.

X_{ijt} Is a matrix of Basel III determinants i.e., NSFR, LCR, capital buffer.

Y_{ijt} Consists of bank specific control variable i.e., size, not performing loan, return on equity and efficiency.

M_{jt} Consists of country specific macro-economic variables i.e., GDP, unemployment, inflation

To check the outcome of Basel III happening the Islamic bank arranged the Islamic bank a dummy (1) for the Islamic bank and zero else. Intermingle with the Islamic bank imitation with additional variables in our study concluded numerous conditions to relate Islamic and conservative banks

$$\begin{aligned}
Z_{ijt} = & \alpha + \phi D_i^{ISB} + X_{ijt}\beta + D_i^{ISB} \times X_{ijt}\beta + Y_{ijt}\lambda + D_i^{ISB} \times Y_{ijt}\lambda + M_{jt}\gamma \\
& + D_i^{ISB} \times M_{jt}\lambda + \sum_{k=1}^4 \delta_k REGION_k + v_i + YD_t + \epsilon_{ijt} \quad (5.15)
\end{aligned}$$

We likewise consist of dummy variables used for government ownership and publicly listed banks (PUBLIC). We, in line, interrelate these dummy variables through the Islamic bank dummy as well as other variables at hand in directive to observe these provisions in relative to the serious subjects at hand.

$$\begin{aligned}
Z_{ijt} = & \alpha + \phi D_i^{PUB} + X_{ijt}\beta + D_i^{PUB} \times X_{ijt}\beta + Y_{ijt}\lambda + D_i^{PUB} \times Y_{ijt}\lambda^{PUB} \\
& + M_{jt}\gamma + D_i^{PUB} \times M_{jt}\gamma^{PUB} + \sum_{k=1}^4 \delta_k REGION_k + v_i + YD_t \quad (5.16) \\
& + \epsilon_{ijt}
\end{aligned}$$

5.2.3 Model II: Basel III impact on Loan Growth

The model is as under

$$\begin{aligned}
\Delta LG_{i,j,t} = & \alpha_0 + \alpha_1 GDP_{j,t-1} + \alpha_2 IR_{j,t-1} + \alpha_3 UR_{j,t-1} + \alpha_4 Spread_{i,j,t-1} \\
& + \alpha_5 DG_{i,j,t-1} + \alpha_6 NPL_{i,j,t-1} + \alpha_7 Inefficiency_{i,j,t-1} \\
& + \alpha_8 Profitability_{i,j,t-1} + \alpha_9 BUF_{i,j,t-1} + \alpha_{10} NSFR_{i,j,t-1} \quad (5.17) \\
& + \alpha_{11} LCR_{i,j,t-1} + \lambda_{i,t-1} + e_{i,t-1}
\end{aligned}$$

where LG is loan growth, GDP_{t-1} growth is lag value of gross domestic product growth, IR_{t-1} is lag value of inflation. UR_{t-1} is lag value of unemployment, $Spread_{t-1}$ is the lag value of difference between interests, DG_{t-1} is lag value deposit growth, NPL_{t-1} is lag

value of non-performing loan, $Inefficiency_{t-1}$ is lag value of cost to income ratio, Profitability is lag value of ROE, BUF is lag value of capital buffer, NSFR is lag value of net sale funding ratio, LCR is lag value of liquidity coverage ratio. Naceur *et al.* (2017) in IMF working paper pointed out lag once (t-1) is used in the model to tackle the problem of endogeneity.

CHAPTER # 06 RESULTS AND DISCUSSION

The results and discussion chapter divided into descriptive analysis, correlation analysis, and regression analysis and discussion section. The analysis is based on the data described in the methodology Section.

6.1 Descriptive Analysis

The explanation of variables is reported in Table 6.1. The ZScore used to measure the financial stability and the mean value of ZScore is 23. However, there is a lot of dissimilarity in the value of ZScore with lowest value of -39 then maximum worth of 432. The variable BUF is used to measure the capital buffer. The mean of capital buffer remains 16 with smallest value at 2 and maximum worth at 31.

The variable LCR describes the liquidity coverage ratio. The mean value of LCR is 133 with minimum value of -133 then maximum worth of 431. The NSFR describes the net stable funding ratio. The mean value of NSFR is 111. The smallest value of NSFR is -55 and the maximum worth is 156. The ROE is return to equity. The mean value of return to equity is 5. The smallest value of ROE is -185 and the maximum value is 143. The variable size has mean value of 505. The minimum value is 1.34 and maximum value is 4955.

The variable CRWA is the credit risk weighted assets. The mean value of CRWA is 131. The minimum value is 21 and the maximum value is 294. The MRWA is market risk weighted assets. The mean value of MRWA is 178. The smallest value of MRWA is 36 and the maximum value is 323. The variable ORWA is the operation risk weighted assets. The mean value of ORWA is 129, with smallest value of 21 and maximum worth of 271.

The variable efficiency has mean value of 19 through minimum value of -214 are the maximum value of 650. The variable LQ remains the nonperforming loans. The mean value of LQ is 3.77 with smallest value at -7.4 and maximum worth at 44. The variable GDP describes the gross domestic product with mean value at 4.33. The minimum value is -2 and maximum value is 12.43. The variable UR is the unemployment rate. The mean value of UR is 6.52. The smallest value of UR is 1 and the maximum value of UR is 39.26. The variable I indicate the inflation. The mean value of inflation is 7.8. The smallest value of inflation is 2 and maximum worth is 15.69.

Table 6. 1: Descriptive Analysis

Variables	Mean	Std. Dev.	Minimum	Maximum
ZScore	23	127	-39	432
BUF	16	15	2	31
LCR	133	165	-133	431
NSFR	111	439	-55	156
ROE	5	39	-185	143
Size	505	3176	1.34	4955
CRWA	131	191	21	294
MRWA	178	122	36	323
ORWA	129	171	21	271
Efficiency	19	31	-214	650
LQ	3.77	3.74	-7.4	44
GDP	4.33	2.88	-2	12.43
UR	6.52	5.21	1	39.26
I	7.80	3.11	2	15.69

Note: Z-Score measure of financial stability, BUF measure of capital buffer, LCR stands liquidity coverage ratio, NSFR remains net stable funding ratio, ROE stands return of equity, Size national log of total assets, CRWA is credit risk weighted assets, MRWA is market risk weighted assets, ORWA is operation risk weighted assets. LQ Nonperforming loan, GDP gross domestic product, UR unemployment rate, and I is inflation.

6.2 Correlation Analysis

The correlation among all the variables usage in the analysis are presented in Table 6.2.

Correlation values varies between positive one and negative one i.e., 1 and -1. The value close to 1 indicates strong correlation either positive or negative while the values close to zero indicates negative correlation either positive or negative depending upon the values.

The correlation between ZScore and Buffer is weak and negative i.e. -0.028. The correlation between ZScore and LCR is weak and negative i.e. -0.025. The correlation between Buffer and LCR is positive having value of 0.291. The correlation between ZScore and NSFR is also negative and weak while the correlation between buffer and NSFR is strongly positive. The correlation between LCR and NSFR is strongly positive.

The correlation between ROE and ZScore, Buffer and ROE, LCR and ROE, NSFR and ROE are all positive but weak. The correlation between ZScore and CRWA is positive having value of 0.21. The correlation between Buffer and CRWA, LCR and CRWA, NSFR and CRWA are negative. The correlation between ROE and CRWA are positive.

The correlation between ZScore and MRWA are positive. The correlation between Buffer and MRWA, LCR and MRWA, NSFR and MRWA are negative weak .The correlation between ROE and MRWA are positive. The correlation between CRWA and MRWA are strongly positive.

The correlation between Z-Score and ORWA is positive. The correlation between Buffer and ORWA, LCR and ORWA, NSFR and ORWA are negative. The correlation between ROE and ORWA are positive. However, the correlation between CRWA and ORWA, MRWA and ORWA are positive

The correlation between ZScore and Efficiency are negative. The correlation between buffer and efficiency are positive. The correlations between LCR and Efficiency, NSFR and Efficiency, ROE and efficiency, CRWA and Efficiency, MRWA and Efficiency, ORWA and Efficiency are negative. The correlation between ZScore and LQ are negative. Capital buffer and LQ are positively correlated. LCR and LQ, NSFR and LQ, ROE and LQ, ROE and LQ, CRWA and LQ, MRWA and LQ, ORWA and LQ are negatively correlated. The correlations between Efficiency and LQ are weak and positive.

The correlation between GDP and ZScore is positive. The correlations between Buffer and GDP, LCR and GDP, NSFR and GDP are weak but negative. The correlation between ROE and GDP are weak negative. The correlations between CRWA and GDP, MRWA and GDP, ORWA and GDP are positive. The correlation between Efficiency and GDP are weak adverse. The correlation among LQ and GDP are weak adverse.

The correlation among Z-Score and UR is positive. However, the correlation between Buffer and UR, LCR and UR, NSFR and UR, ROE and UR is negative. The correlations between CRWA and UR, MRWA and UR, ORWA and UR, Efficiency and UR are medium positive. The correlations between LQ and UR are weak and negative. The correlation between GDP and UR are positive i.e. 0.138.

The correlations between Inflation (I) and Z-score, Investment and Buffer are negative. However, correlation between Inflation and LCR is positive. The correlation between NSFR and Inflation is negative. The correlation between ROE and Inflation are positive. The correlations between Inflation and CRWA, Inflation and MRWA, Inflation and ORWA are medium negative. The correlation between inflation and efficiency are positive.

6.3.2 Fixed Effects Model

Fixed Effects Model is the method in which the group means are fixed while in case of random effects model the group means are random. In fixed effects model the model parameters are fixed while in case of random effect model the model parameters are random. In fixed effect model each group mean is a group-specific fixed quantity. Such models can help in controlling the unobserved heterogeneity. In the empirical analysis different regions wise analysis has been carried out to have clear picture regarding effect of Basel III on economic stability.

6.4 Regression Analysis

6.4.1 Basel III Effect on Financial Stability in Africa

The results regarding effect of Basel III organized financial stability in Africa are presented in Table 6.4. A set of independent variables was included in the model. The results for Buffer remains positive and significant at the 10 percent level of significance, signifying that buffer contributes positively to financial stability in Africa and results are in line with Oduor *et al.*, (2017). Capital requirement impact on the financial stability with the data set of 167 banks increased financial stability in 37 countries. The results for LCR remain positive, although non-significant.

The results for the NSFR are positive at the 5 percent level of significance and are similar to the findings of Bui *et al.*, (2017), Oduor *et al.*, (2017) and Wei *et al.*, (2017), Ashraf *et al.*, (2016) study the impact of NSFR for 984 banks in 85 countries and results in line with our finding. Mutarindwa *et al.*, (2020) outcome related to liquidity and Basel III implementation in the African Bank found the positive impact on the financial stability. The capital buffer and liquidity finding are consistent with the finding of Patel *et al.* (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

Several risk management factors were also included in the model and results for the CRWA are positive and significant at the 10 percent level of significance. The outcomes aimed at

the MRWA are similarly positive also highly significant by the side of 1 percent level of significance. The results regarding ORWA are positive and non-significant. Risk management Risk management results are consistent with the finding of Bashaija and Mahina (2018) pointed out that risk management have positive impact on the financial stability in Rwanda.

Our results are similar with the finding of Djibali and Zaghdoudi (2020) as they pointed out positive effect of liquidity risk and credit risk on the financial stability.

A common of bank explicit variables was also included in the model and results for the profitability and size were positive, although non-significant. The results for the efficiency were positive and significant at the 5 percent level of significance. The results regarding the loan quality were negative besides extremely significant at 1 percent level of significance. The results are in line with the result of Saeed *et al.*, (2020) and Lu *et al.*, (2020).

Several macroeconomic indicators were also included in the model and results for the GDP were positive and significant at the 10 percent level. The results used for the unemployment rate were negative and significant at the 10 percent level. The results for the inflation were positive and significant. Wu *et al.*, (2020) find out that economic uncertainty in the emerging countries have negative impact on the financial stability in the emerging countries consistent with our findings that GDP have positive where inflation and unemployment have negative impact on the financial stability.

The value of R-square indicates that how much variation in dependent variable is due to independent variables included in the model and in the current analysis the worth is quite

high i.e., 0.72 signifying that 72 percent variation in dependent variable is due to independent variables included in the model. In the current model the worth of Durbin-Watson test is 1.76 indicating slight positive autocorrelation, hence indicating that results are robust.

Table 6. 4: Basel III effects on financial stability in Africa

	Variable	Coefficient	Std. Err.	t-values
Basel III	BUF	15.10**	7.21	2.09
	LCR	14.88	11.01	1.35
	NSFR	7.361**	3.10	2.37
Risk Management	CRWA	7.68*	4.13	1.85
	MRWA	3.43***	1.05	3.26
	ORWA	19.70	13.87	1.42
Bank specific	Profitability	8.36	6.11	1.36
	Size	24.04	18.55	1.29
	Efficiency	14.60**	6.40	2.28
	Loan Quality	-3.75***	1.26	-2.98
Macroeconomic	GDP	4.35*	2.24	1.94
	UR	-2.32*	1.38	-1.68
	I	3.29**	1.64	2.00
	Constant	2.15*	1.11	1.93
R-Squared	0.72			
Adjusted R-Squared	0.63			
Number of Observations	104			
Durbin-Watson Stat	1.76			

Note: Outcomes are significant at ***, **, *, 1, 5 and 10 percent levels.

6.4.2 Basel III effect on Financial Stability in Asia Pacific

The empirical results regarding Basel III effect on financial stability in Asia Pacific region is reported in Table 6.5. The capital buffer coefficient is positive and significant at the 5 percent level of significance indicating that buffer contributes positively to financial stability. Chalermchatvichien *et al.*, (2014) find out from the data set of Asian countries that capital buffer has positive impact on the financial stability. Our results of capital buffer are consistent with the results of Chalermchatvichien *et al.*, (2014). The result of capital buffer are in line with the finding of Bui *et al.*, (2017) The value of LCR coefficient is also positive and significant at the 10 percent level of significance. The coefficient NSFR is positive, although non-significant. Patel *et al.* (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

The risk management variables i.e., CRWA, MRWA and ORWA were also included in the model. The values of CRWA, MRWA are positive and significant while the coefficient ORWA is positive, although non-significant as was also reported by Chalermchatvichien *et al.*, (2014) and Bashaija and Mahina (2018). Chai *et al.*, (2022) pointed out that risk management have positive impact on the financial stability in the emerging countries.

The bank variables were also comprised in the model. The profitability coefficient is positive and noteworthy at the 10 percent level. The size and efficiency coefficient are positive and not-significant consistent with the findings of Saeed *et al.*, (2020). Lu *et al.*, (2020) also pointed out that the bank efficiency and profitability also contribute toward the financial stability. The loan quality coefficient is negative and significant at the 5 percent

level of significance indicating that nonperforming loan has a negative impact on the financial stability (Afrifa, 2019)

The macroeconomic variables included in the model were GDP, unemployment Rate (UR) and Inflation (I). The value of GDP is positive and significant at the 10 percent level of significance. The coefficient value of the coefficient UR is negative and non-significant. The Inflation coefficient is negative and significant at the 5 percent level. Results are also in the line with previous findings in the region Chalermchatvichien (2014)

The R-square value is 0.85 indicating that 85 percent variation in the dependent variable is due to independent variables included in the model and rest 15 percent is due to unknown variables. As the R-square worth stands quite high hence it also indicates that strength of the variable included in the model. The total number of observations was also quite high i.e., 1631. The Durbin-Watson test value is 1.69 indicating slight positive autocorrelation, hence signifying the robustness of the results.

Table 6.5: Basel III effects on financial stability in Asia Pacific

Basel III	Variable	Coefficient	Std. Err.	t-values
	BUF	4.55**	2.01	2.26
	LCR	6.22*	3.65	1.70
	NSFR	4.65	2.78	1.67
Risk Management	CRWA	6.11*	3.13	1.95
	MRWA	8.04**	4.01	2.00
	ORWA	8.56	6.87	1.24
Bank specific	Profitability	10.36*	5.82	1.78
	Size	11.04	8.55	1.29
	Efficiency	12.68	8.40	1.50
	Loan Quality	-14.38**	6.34	-2.26
Macroeconomic	GDP	8.10*	4.65	1.74
	UR	-11.39	9.84	-1.15
	I	-3.29**	1.64	-2.00
	Constant	3.42	3.17	1.07
R-Squared	0.85			
Adjusted R-Squared	0.72			
Number of Observations	1631			
Durbin-Watson Stat	1.69			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels.

6.4.3 Basel III effect on Financial Stability in Central Asia

The results regarding Basel III effect on financial stability in Central Asia are presented in table 6.6. The buffer coefficient is positive and highly significant by 1 percent level of significance. Our outcome of capital buffer is consistent with the results of Chalarchtovichien *et al.*, (2014). The LCR coefficient is positive and significant at 10 percent level of significance (Li, 2017). The NSFR, and CRWA coefficients are positive although non-significant (Wei, 2017). Patel *et al.*, (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

The MRWA and ORWA coefficients are positive and significant at 10 and 5 percent levels, respectively and in line with the findings of Bui *et al.*, (2017) and Chai *et al.*, (2022). The Profitability, Size and Efficiency coefficients are positive and significant. The loan quality coefficient negative and significant at 10 percent level. The GDP coefficient is positive and significant. The Unemployment rate and Inflation are negative and non-significant in line with the finding of Wu *et al.*, (2020).

The R-square value is 0.87 hence indicating that 87 percent variation in dependent variable is due to independent variable included in the model hence indicating the robustness of the variables included in the model.

Table 6. 6: Basel III effects on financial stability in Central Asia

	Variable	Coefficient	Std. Err.	t-values
Basel III	BUF	3.65***	1.21	3.01
	LCR	2.88**	1.35	2.13
	NSFR	2.53	2.37	1.06
Risk Management	CRWA	2.60	2.09	1.24
	MRWA	2.89*	1.53	1.88
	ORWA	3.39**	1.33	2.54
Bank specific	Profitability	2.22**	1.01	2.19
	Size	2.26***	0.86	2.62
	Efficiency	4.80**	2.40	2.00
	Loan Quality	-5.75*	3.26	-1.76
Macroeconomic	GDP	6.35*	3.41	1.86
	UR	-1.59	1.21	-1.31
	I	-1.29	1.19	-1.08
	Constant	4.51	5.27	0.85
R-square	0.87			
Adjusted R-Square	0.72			
Number of Observations	82			
Durbin-Watson Stat	1.71			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

6.4.4 Basel III effect on Financial Stability in Central and Eastern Europe

The results regarding Basel III effect on financial stability in Central and Eastern Europe are presented in Table 6.7. A set of independent variables was involved in the model. The buffer coefficient is positive and significant at the 5 percent level of significance. Capital buffer finding are in line with Oduor *et al.*, (2017) and Rubio & Yao (2020). The LCR coefficient is also positive also significant at 10 percent level of significance in line with the Li *et al.*, (2017). The NSFR coefficient is also positive and significant at the 10 percent level in line with the outcome of Wei *et al.*, (2017) and Patel *et al.*, (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

The risk management coefficient i.e., CRWA is positive and non-significant. The other risk management coefficients i.e., MRWA and ORWA are positive and significant at 1 and 10 percent levels, respectively. Results are in line with the finding of Chalermchatvichien *et al.*, (2014) and Chai *et al.*, (2022). Better risk management contributes toward the financial stability. Basel III implementation also play an effective role in the financial stability. The profitability coefficient is positive also non-significant. The size and efficiency coefficients are positive and highly significant at the 1 percent significance level. The loan quality remains negative and non-significant. The results are in line with the finding of Le *et al.*, (2020), Dibali and Zaghdoudi (2020). The GDP coefficient is positive and significant at the 5 percent level of significance like the findings of Le *et al.*, (2020). The unemployment (UR) and Inflation (I) coefficients are negative and significant in line with the finding of Le *et al.*, (2020) and Wu *et al.*, (2020).

The value of R-square and Durbin-Watson test indicates the robustness of the variables involved in the model. The total number of observations were 389.

Table 6. 7: Basel III effects on financial stability in Central and Eastern Europe

	Variable	Coefficient	Std. Err.	t-values
Basel III	BUF	6.42**	3.12	2.05
	LCR	1.85*	1.10	1.68
	NSFR	3.71*	2.05	1.80
Risk Management	CRWA	10.24	8.32	1.23
	MRWA	4.43***	1.27	3.48
	ORWA	8.84*	5.30	1.66
Bank specific	Profitability	6.23	4.17	1.49
	Size	5.04***	1.55	3.25
	Efficiency	6.21***	2.35	2.64
	Loan Quality	-3.69	3.10	-1.19
Macroeconomic	GDP	4.23**	2.01	2.10
	UR	-5.80*	3.04	-1.90
	I	-4.10**	2.05	-2.00
	Constant	2.01	2.68	0.75
R-Square	0.86			
Adjusted R-Square	0.73			
Number of observations	389			
Durbin-Watson stat	1.52			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

6.4.5 Basel III effects on Financial Stability in Middle East

The results regarding Basel III effects on financial stability in Middle East are presented in table 6.8. Several variables were included in the model. The buffer coefficient is positive and significant at the 5 percent level of significance and similar results were reported by Oduor *et al.*, (2017) and Rubio & Yao., (2020). The LCR and NSFR coefficients are positive and significant at 1 and 5 percent levels, respectively and results are in line with finding of Wei *et al.*, (2017), Li *et al.*, (2017) and Patel *et al.* (2022).

The risk management coefficients i.e., MRWA, CRWA and ORWA are all positive and highly significant. Admat & Hellwig, (2013) also pointed out that higher capital and liquidity management increase financial stability in the global financial system. Chai *et al.*, (2022) pointed out that risk management have positive impact on the financial stability.

The profitability, size and efficiency coefficients are positive and significant at the 5 percent level of significance. The loan quality coefficient is negative and significant at the 5 percent level of significance. Our results of bank specific variables are in line with the finding of Bashaija & Mahina., (2018) and Le *et al.*, (2020).

The GDP coefficient is positive and significant at the 10 percent level. The unemployment UR coefficient is negative also significant. The inflation I coefficient remains non-significant (Wu *et al.*, 2017). The R-square value is 0.74 and Value of Durbin-Watson test is 1.46 indicating slight positive auto correlation.

Table 6. 8: Basel III effects on Financial Stability in Middle East

	Variable	Coefficient	Std. Err.	t-values
Basel III	BUF	2.25**	1.09	2.06
	LCR	3.49***	1.28	2.72
	NSFR	7.31**	3.36	2.17
Risk Management	CRWA	5.26***	1.65	3.18
	MRWA	7.24***	2.04	3.54
	ORWA	7.10**	3.54	2.00
Bank specific	Profitability	8.23**	3.11	2.64
	Size	4.04**	1.73	2.33
	Efficiency	6.50**	2.75	2.36
	Loan Quality	-7.35**	3.67	-2.00
Macroeconomic	GDP	4.35**	2.11	2.06
	UR	-11.31**	4.25	-2.66
	I	-5.52	3.50	-1.57
	Constant	5.19	4.28	1.21
R-Square	0.74			
Adjusted R-Square	0.65			
Number of observations	115			
Durbin-Watson stat	1.46			

Note: Outcomes are significant on ***, **, *, 1, 5 and 10 percent levels.

6.4.6 Basel III effects on Financial Stability in South America

Basel III effects on financial stability in South America are presented in Table 6.9. The results for buffer are positive and significant at 10 percent level of significance (Oduor *et al.*, 2017). The results for the LCR and NSFR coefficients are positive and significant at 5 percent level of significance (Ashraf *et al.*, (2016), Li *et al.*, 2017, Wei *et al.*, 2017, Rubio & Yao., 2020). Patel *et al.*, (2022) pointed out that both capital buffer and liquidity have positive impact on the financial stability.

Results aimed at the risk management factors i.e., CRWA, MRWA and ORWA are positive and significant at the 10, 5 and 1 percent levels, respectively (Bui *et al.*, 2017, Wei *et al.*, 2017). Chai *et al.* (2022) pointed out that risk management have positive impact on the financial stability.

The results regarding profitability coefficient are negative and non-significant. The results for size and efficiency are positive and significant at the 5 and 1 percent level respectively. The loan quality coefficient is positive and non-significant in line with the finding of Bashaija & Mahina (2018) and Le *et al.*, (2020).

Results designed for the GDP and UR are positive and significant at 5 and 1 percent levels respectively while the results regarding the inflation (I) remain positive and non-significant consistent with the finding of Mutarindwa *et al.*, (2020).

The R-square also quite high signifying the robustness of variables included in the model.

The Durbin-Watson test indicates slight positive correlation.

Table 6. 9: Basel III effects on financial stability in South America

	Variable	Coefficient	Std. Err.	t-values
Basel III	BUF	8.22*	4.86	1.69
	LCR	5.34**	2.45	2.17
	NSFR	12.55**	4.32	2.90
Risk Management	CRWA	7.49**	3.52	2.12
	MRWA	7.73**	3.45	2.24
	ORWA	8.65***	3.15	2.74
Bank specific	Profitability	8.44	6.90	1.22
	Size	5.72**	2.65	2.15
	Efficiency	9.66***	3.30	2.92
	Loan Quality	8.57	6.22	1.37
Macroeconomic	GDP	5.89***	2.01	2.93
	UR	-8.57**	3.64	-2.35
	I	-8.29	6.64	-1.24
	Constant	3.25	2.89	1.12
R-Square	0.73			
Adjusted R-Square	0.64			
Number of observations	701			
Durbin-Watson stat	1.52			

Note: Outcomes stand significant on ***, **, *, 1, 5 and 10 percent levels.

6.4.7 Impact of Ownership on Financial Stability

The results regarding effect of ownership on financial stability are presented in Table 6.10.

Wu et al., (2020) pointed out that the bank ownership structure may change the results, so we divided our sample banks into to public sector and private sector banks. The outcomes for the public sector and private sector are presented separately. A set of independent variables were as included in the model. The outcomes for the capital buffer coefficient were positive and highly significant aimed at the public sector, while positive and no significant used for the private sector results for capital buffer support the finding of Wu et al., (2020) as state own bank more stable. The results for LCR and NSFR are positive also significant both in circumstance of public sector and private sector (Ashraf et al., (2016), Bui et al., (2017), Oduor et al., (2017), Wei et al., (2017) and Patel et al. (2022).

The results for the risk management variables i.e., CRWA, MRWA and ORWA are positive also significant together common case of public sector also private sector. The results meant for the Profitability in addition Size coefficients are positive and non-significant in case of public sector, though positive and significant in case of private sector (Bashaija and Mahina (2018) Le et al., (2020)). The outcome for GDP is positive and significant both in case of public sector and private sector. The coefficients unemployment and inflation are negative also significant both in case of public sector and private sector (Wu et al., 2020). To find out the impact of state ownership, a dummy variable public interacts in the regression equation. The buffer, LCR, NSFR coefficients are positive and highly significant. The results for CRWA, MRWA, and ORWA are positive and significant. The results for the Profitability and size coefficients are constructive and non-

significant. The outcomes for GDP are beneficial for public sector banks (Pak, 2019). The coefficients both of unemployment and inflation are negative in the case of the public sector. The results indicate that state-owned banks have significant different responses to Basel III, risk management, bank-specific variables, and macroeconomic indicators. These findings have significant implications for investors and policymakers.

The R-square and Durbin Watson test value indicates the robustness of the variables involved in the model.

Table 6. 10: Impact of Ownership on the Financial Stability

	Variable	Coefficient	S. E	t-value
Basel III	BUF	8.10***	2.65	3.05
	LCR	7.88**	3.87	2.03
	NSFR	8.65*	4.65	1.86
	BUF×Pub	7.50**	3.65	2.05
	LCR×Pub	9.84	6.87	1.43
	NSFR×Pub	6.35**	3.11	2.04
Risk Management	CRWA	7.68**	3.13	2.45
	MRWA	3.43***	1.05	3.26
	ORWA	8.50***	3.20	2.65
	CRWA×Pub	5.69*	3.13	1.81
	MRWA×Pub	10.43*	6.24	1.67
	ORWA×Pub	9.72	6.39	1.52
Bank specific	Profitability	13.36	8.11	1.64
	Size	14.04**	5.55	2.52
	Efficiency	18.65*	10.20	1.82
	Loan Quality	-20.20**	9.87	-2.04
	Profitability×Pub	8.38	7.21	1.16
	Size×Pub	15.04*	8.23	1.82
	Efficiency×Pub	21.34	17.43	1.22
Macroeconomic	Loan Quality×Pub	-16.20*	8.25	-1.96
	GDP	17.95***	6.36	2.82
	UR	-16.80*	9.64	-1.74
	I	-24.21*	11.98	-2.02
	GDP×Pub	13.97***	5.42	2.57
	UR×Pub	-11.83	10.64	-1.11
	I×Pub	-14.66*	8.23	-1.78
	Constant	1.45	1.32	1.09

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

6.4.8 Islamic Banking and Financial Stability

The comparative analysis of various variables regarding Islamic banking and conventional banking are reported in table 6.11. Wu *et al.*, (2020) pointed out that there may be a different result among the commercial banks due to banking practices. The outcomes indicate that mostly here are similar results both intended for Islamic banking then conventional banking. Capital buffer results are strongly positive and significant for Islamic banks as compared to conventional banks our findings consistent with the finding of Masood *et al.*, (2017) Saeed *et al.*, (2020)

The coefficient LCR is positive also not significant in case of Islamic banking, although significant in case of conventional banking. Hassan *et al.*, (2019) make a comparative analysis between the Islamic banks and conventional banks and narrated that Islamic bank performance in liquidity and credit risk is better than conventional banks. The efficiency coefficient is also not significant in case of Islamic banking while significant in case of conventional banking. The coefficient Unemployment and inflation are negative also not significant in case of Islamic banking, although negative also significant in case of conventional banking. The estimated value of the coefficient of the interaction terms provides strong evidence that the effects of Basel III measures, risk management instruments, bank-specific factors, and macroeconomic indicators on financial stability are quite different for Islamic and conventional banks. These findings help understand how both types of banks behave differently when they face any shocks. The R-square value remains likewise quite high signifying the robustness of the model.

Table 6. 11: Islamic Bank and financial Stability

	Variable	Coefficient	Std. Err.	t-value
Basel III	BUF	6.65*	4.01	1.65
	LCR	10.15	7.01	1.44
	NSFR	6.81*	3.35	2.03
	BUF×Isl	7.75***	2.22	3.49
	LCR×Isl	8.15**	3.95	2.06
	NSFR×Isl	8.81*	4.95	1.77
Risk Management	CRWA	8.32*	4.85	1.71
	MRWA	13.43*	7.81	1.71
	ORWA	8.84	7.95	1.11
	CRWA×Isl	10.88**	4.82	2.26
	MRWA×Isl	8.43*	4.71	1.78
	ORWA×Isl	9.66	6.95	1.38
Bank specific	Profitability	7.23*	3.82	1.89
	Size	6.04*	3.23	1.86
	Efficiency	7.01	6.40	1.09
	Loan Quality	-4.69*	2.26	-2.07
	Profitability×Isl	5.44**	2.22	2.45
	Size×Isl	6.55**	3.23	2.02
	Efficiency×Isl	7.01*	4.07	1.72
	Loan Quality×Isl	-5.25	3.58	-1.46
	GDP	6.23**	2.53	2.46
	UR	-4.80**	2.33	-2.06
	I	-6.10*	3.22	-1.89
Macroeconomic	GDP×Isl	8.55**	4.12	2.07
	UR×Isl	-2.50**	1.21	-2.06
	I×Isl	-8.33	7.61	-1.09
	Constant	2.43	2.59	0.93

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

6.4.9 Basel III effects on Loan Growth

Basel III effects on Loan growth has been estimated separately for each region and details are presented as follows.

Basel III effects on Loan Growth in Africa

The results regarding impact of Loan growth in Africa are presented in table 6.12. A set of independent variables are involved in the model. The Basel III variables i.e., Buffer, LCR also NSFR remain mostly negative and significant. The negative relationship is also reported by Bui *et al.*, (2017) and (Wei *et al.*, 2017) However, the bank specific variables i.e., profitability, Size, GTD, Spread and Efficiency, NPL remain positive besides significant. Fidrmuc & Lind (2020) narrated capital buffer and liquidity management reduce the loan growth in the global financial system.

Regarding Macroeconomic variables the results for GDP remain positive also highly significant while for the unemployment remain negative also significant while for inflation are positive and significant. Our results in line with finding of Le *et al.*, (2020) and Wu *et al.*, (2020). The R-square worth is 0.65 representing that 65 percent difference in dependent variable is due to independent variables included in the model. The Durbin-Watson value is 1.58 indicating the robustness of the results and model estimated.

Table 6. 12: Basel III effects on Loan Growth in Africa

Basel III	Variable	Coefficient	Std. Err	t-values
	BUF_{t-1}	-13.21*	7.51	-1.75
	LCR_{t-1}	-2.15*	1.13	-1.90
	$NSFR_{t-1}$	-14.85**	6.94	-2.13
Bank specific	$Profitability_{t-1}$	12.99	8.34	1.55
	$Size_{t-1}$	15.33*	8.53	1.79
	GTD_{t-1}	14.26***	5.63	2.53
	$Spread_{t-1}$	13.55**	6.06	2.23
	$Efficiency_{t-1}$	18.01*	10.21	1.76
	NPL_{t-1}	15.54*	7.98	1.94
Macroeconomic	GDP_{t-1}	-13.56***	6.01	-2.25
	UR_{t-1}	-14.61**	7.21	-2.02
	I_{t-1}	15.21*	8.21	1.85
	Constant	2.10	2.45	0.85
R-square	0.65			
Adjusted R-square	0.59			
Durbin-Watson stat	1.58			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

Basel III effects on Loan Growth in Asia Pacific

The results regarding impact of Loan growth in Asia Pacific are presented in Table 6.13.

The coefficient buffer remains negative also significant at 5 percent level of significance Bui *et al.*, (2017) pointed out that increase in the capital buffer decrease the loan growth in the global financial system. The results for LCR are negative and non-significant. The outcomes for the NSFR are negative also significant at the 10 percent significance level Adesina (2019) observed that that NSFR and LCR both have positive impact on the loan growth and negative impact the nonperforming loan.

Several bank specific variables were also included in the model and results for the profitability, GTD, spread and efficiency are positive also significant while the results aimed at the size and NPL are negative and significant.

Several macroeconomic variables stayed also elaborate in the model and results for GDP are negative also significant however for unemployment besides inflation remain negative also significant.

Table 6. 13: Basel III effects on Loan Growth in Asia Pacific

	Variables	Coef.	Std. Err	t-values
Basel III	BUF_{t-1}	-12.86**	6.06	-2.12
	LCR_{t-1}	-15.38	10.52	-1.46
	$NSFR_{t-1}$	-14.36*	7.94	-1.80
	Profitability $_{t-1}$	12.99*	6.86	1.89
Bank specific	$Size_{t-1}$	-13.33**	5.53	-2.41
	GTD_{t-1}	7.41**	3.32	2.23
	$Spread_{t-1}$	8.43**	4.01	2.10
	$Efficiency_{t-1}$	10.80*	6.07	1.77
	NPL_{t-1}	-15.54***	6.25	-2.48
	GDP_{t-1}	13.23*	6.95	1.90
Macroeconomic	UR_{t-1}	-15.49**	7.52	-2.05
	I_{t-1}	-9.81***	3.55	-2.76
	Constant	1.9	2.01	0.94
R-square	0.69			
Adjusted R-square	0.62			
Durbin-Watson stat	1.53			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

Basel III effects on Loan Growth in Central Asia

Basel III effects on loan growth in Central Asia are presented in table 6.14. Several independent variables were involved in the model. The buffer coefficient was negative also significant by 10 percent significance level (Fidrmuc and lind, 2020). The LCR coefficient was negative also significant by 5 percent significance level. The NSFR was also negative also significant by 10 percent level of significance. These results are consistent with the results of Li *et al.*, (2017) and Wei *et al.*, (2017).

Several bank related variables were involved in the model. The outcomes for the profitability were positive also highly significant by 1 percent significance level. The results for size were also positive, although non-significant. The results for the GTD were positive also significant by 5 percent significance level. The results for spread were positive also highly significant at 1 percent significance level. The results for efficiency were also positive also significant at 5 percent level of significance. The NPL coefficient was negative also significant at 5 percent level of significance Le *et al.*, (2020) and Wu *et al.*, (2020).

Several macroeconomic variables remained also involved in the model. The outcomes for the GDP were positive also highly significant by 1 percent level of significance. The results aimed at the UR were also positive and significant at 5 percent level of significance. Results for the inflation were positive also highly significant by 1 percent significance level.

The R-square worth stands as well quite high signifying the robustness of the variables involved in the model. The Durbin-Watson value of 1.84 indicates negligible auto correlation.

Table 6. 14: Basel III effects on Loan Growth in Central Asia

	Variables	Coefficient	Std. Err	t-values
Basel III	BUF_{t-1}	-8.50*	5.05	-1.68
	LCR_{t-1}	-6.54**	3.10	-2.10
	$NSFR_{t-1}$	-7.65*	4.25	-1.80
Bank specific	Profitability $_{t-1}$	7.68***	3.48	2.20
	Size $_{t-1}$	13.13	7.99	1.64
	GTD $_{t-1}$	9.70**	4.43	2.18
	Spread $_{t-1}$	8.36***	3.16	2.64
	Efficiency $_{t-1}$	7.04**	3.51	2.00
	NPL $_{t-1}$	-8.60**	4.11	-2.09
Macroeconomic	GDP $_{t-1}$	7.68***	3.11	2.46
	UR $_{t-1}$	9.43**	4.35	2.16
	I $_{t-1}$	9.70***	4.37	2.21
	Constant	1.95	1.82	1.07
R-Squared	0.82			
Adjusted R-Squared	0.76			
Durbin-Watson stat	1.84			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

Basel III effects on Loan Growth in Central and Eastern Europe

Basel III effects on loan growth in Central and Eastern Europe are presented in table 6.15. Number of independent variables was involved in the model. The buffer coefficient was negative also significant at 5 percent significance level. The LCR coefficient was negative also non-significant. The NSFR is as well negative and significant at 5 percent level of significance. Elbadry (2018) find out that high value capital ratio has negative impact on the loan growth and LCR have positive impact the loan growth. Adensina *et al.*, (2019) also pointed out that Basel III implementation also has a positive impact on the loan growth.

The profitability stands also positive then non-significant. The Size stays also positive also highly significant by 1 percent level of significance. The GTD remains also positive besides significant at the 5 percent significance level. The Spread is also positive besides significant at 10 percent significance level. The efficiency coefficient is also positive and highly significant at 1 percent level of significance. The NPL is negative besides significant at 10 percent significance level.

The GDP and UR coefficients stay positive also significant. The Inflation stays positive also highly significant by 1 percent significance level in line with the finding of Galvals, (2015).

The worth of R-squared remains 0.89 signifying that 89 percent difference in dependent variable stands due to independent variable included in the model. The Durbin-Watson value is 1.58 indicating slight auto correlation.

Table 6. 15: Basel III effects on Loan Growth in Central and Eastern Europe

	Variables	Coefficient	Std. Err	t-values
Basel III	BUF_{t-1}	-9.15**	4.25	-2.15
	LCR_{t-1}	-15.47	9.88	-1.56
	$NSFR_{t-1}$	-16.50**	8.02	-2.05
Bank specific	Profitability $_{t-1}$	9.42	7.80	1.20
	$Size_{t-1}$	8.33***	3.22	2.58
	GTD_{t-1}	12.23**	5.61	2.18
	$Spread_{t-1}$	10.43*	6.21	1.67
	$Efficiency_{t-1}$	8.23***	3.56	2.31
	NPL_{t-1}	-12.16*	6.10	-1.99
Macroeconomic	GDP_{t-1}	13.58	8.61	1.57
	UR_{t-1}	15.23	12.20	1.24
	I_{t-1}	18.71***	7.12	2.62
	Constant	1.90	1.70	1.11
R-Squared	0.89			
Adjusted R-Squared	0.74			
Durbin –Watson Stat	1.58			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

Basel III effects on Loan Growth in Middle East

Basel III effects on Loan growth in Middle East is presented in table 6.16. Several independent variables are involved in the model. The buffer coefficient stays negative also significant by 5 percent significance level. The LCR stays also negative also significant at 5 percent significance level. The NSFR is also negative and significant at 5 percent level of significance. Basel III results are in line with the finding of Sidhu *et al* (2022)

The profitability coefficient stays positive also significant by 10 significance level. The Size coefficient stands positive also non-significant. The GTD, Spread and Efficiency

coefficients remain positive also significant. The NPL coefficient stays negative and significant by the 10 percent significance level.

Several macroeconomic indicators were involved in the model. The GDP was positive also significant at 10 significance level. The UR stays also positive besides highly significant by 1 percent significance level. The Inflation (I) stays also positive also significant by 10 percent significance level.

Table 6. 16: Basel III effects on Loan Growth in Middle East

	Variables	Coefficient	Std. Err	t-values
Basel III	BUF_{t-1}	-13.38**	6.21	-2.15
	LCR_{t-1}	-12.38**	5.78	-2.14
	$NSFR_{t-1}$	-13.20**	6.35	-2.07
Bank specific	$Profitability_{t-1}$	12.03*	6.21	1.93
	$Size_{t-1}$	13.33	8.53	1.56
	GTD_{t-1}	11.32**	5.28	2.14
	$Spread_{t-1}$	11.21**	5.06	2.21
	$Efficiency_{t-1}$	10.85*	6.07	1.78
	NPL_{t-1}	-15.42***	6.82	-2.26
Macroeconomic	GDP_{t-1}	13.89*	7.45	1.86
	UR_{t-1}	14.58***	7.12	2.04
	I_{t-1}	12.23*	7.20	1.69
	Constant	1.74	1.53	1.13
R-Squared	0.83			
Adjust R-Squared	0.72			
Durbin-Watson stat	1.43			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

Basel III effects on Loan Growth in South America

Basel III effects on Loan Growth in South America are presented in Table 6.17. The coefficients buffer, LCR, NSFR are negative and significant (Wei *et al.*, 2017).

The coefficients profitability, Size, GTD, Spread and Efficiency remain positive and significant. The NPL stays negative besides significant at 10 percent significance level consistent with the results of Galvals (2015). The GDP and Inflation are positive and significant. The unemployment is negative and significant. The R-square value stays 0.79 while the Durbin-Watson value is 1.59.

Table 6. 17: Basel III effects on Loan Growth in South America

	Variables	Coef.	Std. Err	t-values
Basel III	BUF_{t-1}	-12.31**	6.01	-2.04
	LCR_{t-1}	-11.55*	6.18	-1.86
	$NSFR_{t-1}$	-17.65*	9.44	-1.86
Bank specific	$Profitability_{t-1}$	16.37**	8.14	2.01
	$Size_{t-1}$	16.21**	7.21	2.24
	GTD_{t-1}	10.23***	3.21	3.18
	$Spread_{t-1}$	15.54**	7.25	2.14
	$Efficiency_{t-1}$	11.80**	5.23	2.25
	NPL_{t-1}	-15.21*	8.21	-1.85
Macroeconomic	GDP_{t-1}	8.21*	4.31	1.90
	UR_{t-1}	-9.31**	4.20	-2.21
	I_{t-1}	10.21	6.41	1.59
	Constant	2.65	2.35	1.12
R-Squared	0.79			
Adjusted R-Square	0.63			
Durbin-Watson stat	1.59			

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

6.5 Robustness

On the way to check the strength of our outcomes of financial stability and financial growth. We separated sample hooked on pre-crisis, crisis also post crisis period. The results show the same outcome as it was shown in the prior section (Table 6.18).

The outcomes for buffer coefficient stay positive also significant in all Pre-Crisis, Crisis in addition post-crisis periods. The results designed for LCR are positive also not significant in Pre crisis period, positive also significant throughout the crisis period while negative also significant during post crisis periods. Similarly, the results for NSFR are positive and not significant in Pre crisis period, positive also significant during the crisis period while negative also significant through post crisis periods(Jone and Zeitz, 2019). The results for the profitability are positive and significant during all three periods. The results for Size are positive and significant during pre-crisis while negative and significant during post crisis periods while not significant during crisis period. Results for efficiency are positive and significant during all three periods. Otherwise, the outcome for the loan quality are negative and significant during all three periods (Jones and Zeitz, 2017). The results for GDP are positive also significant during all three periods. Results for the Unemployment are negative also significant during all three periods.

The results for the Inflation are positive and significant during crisis periods while negative and significant throughout post crisis periods and not significant during pre-crisis period.

Table 6. 18: Financial Stability during Pre-Crisis, Crisis and Post Crisis periods

	Variables	Pre-Crisis			Crisis			Post-Crisis		
		Coef.	Std. Err	T	Coef.	Std. Err	T	Coef.	Std. Err	t
Basel III	BUF_{t-1}	15*	8	1.87	8*	4.5	1.77	12**	5	2.40
	LCR_{t-1}	16	11	1.45	10**	5	2.00	15	11	1.36
	$NSFR_{t-1}$	14	9	1.55	14*	8	1.75	17*	10	1.70
Bank Specific	$Profitability_{t-1}$	16*	9	1.77	15**	6	2.50	12*	7	1.71
	$Size_{t-1}$	16***	7	2.28	12	8	1.50	-13**	6	-2.1
	$Efficiency_{t-1}$	17*	9	1.88	19**	9	2.11	17**	8	2.12
	NPL_{t-1}	-18	12	-1.50	-13***	5	-2.60	-8**	3	-2.6
Macroeconomic	GDP_{t-1}	8*	4.5	1.77	12**	5	2.40	15**	7	2.14
	UR_{t-1}	-12*	6.5	-1.84	-18**	7.5	-2.40	-19***	8	-2.37
	I_{t-1}	-13	8	1.62	7***	3	2.33	8*	4.5	1.77
	Constant	2.56	2.14	1.19	2.44	2.12	1.15	2.30	2.01	1.14
R-Squared	0.83									
Adjusted R Squared	0.76									
Durbin-Watson stat	1.69									

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

The value of R-square indicates that 83 percent difference in dependent variable stays due nearby independent variables included in the model. The Durbin Watson test value of 1.69 indicates slight positive autocorrelation.

Financial growth during Pre-Crisis, Crisis in addition Post Crisis Periods

The results regarding financial growth during pre-crisis, crisis in addition post crisis periods is presented in table 6.19. A few independent variables were involved in the model. The buffer variable is negative and significant during all three periods i.e. pre crisis, crisis and post crisis. The LCR coefficient is negative during pre-crisis and crisis periods while

positive during post crisis period. Similarly, NSFR is negative and significant during pre-crisis and crisis while positive and significant during post crisis period.

The profitability is positive during all three periods while significant only during crisis and post crisis periods. The Size is positive and significant during all three periods. Similarly, the size is positive and significant during all three periods. The GTD is also positive and significant during all three periods.

The Spread coefficient is positive and significant during pre-crisis and crisis while negative and not significant during post crisis periods. The efficiency coefficient is positive and significant during all three periods while NPL is negative and significant during all three periods. The coefficients GDP, UR and I are mostly positive during all three periods.

Table 6. 19: Loan Growth during Pre-Crisis, Crisis and Post-Crisis periods

	Variables	Pre-Crisis			Crisis			Post-Crisis		
		Coef.	Std Err	t- value s	Coef .	Std Err	t- value s	Coef.	Std Err	t- value s
Basel III	BUF_{t-1}	-13**	6	2.16	-6**	3	-2	-14**	7	-2
	LCR_{t-1}	-16	10	-1.60	-21*	12	-1.75	15	11	1.36
	$NSFR_{t-1}$	-16**	7.5	-2.13	-14*	8	-1.75	6*	3.2	1.87
	$Profitability_t$	17	12	1.41	17**	8	2.12	16*	7.8	2.05
Bank Specific	$Size_{t-1}$	16 ***	6.2	2.58	13 ***	6	2.16	16 ***	7.5	2.13
	GTD_{t-1}	14 **	6	2.33	15 ***	5	3.00	17 *	8	2.12
	$Spread_{t-1}$	8 *	5	1.60	14 **	6	2.33	-8	5	-1.60
	$Efficiency_t$	10 ***	4	2.50	12 **	5	2.40	8 *	4	2.00
	NPL_{t-1}	-12 *	7	-1.71	-15 *	8	1.85	-14 *	7.5	-1.86
Macroeconomic	GDP_{t-1}	13	9	1.44	12*	7	1.71	-13	9	1.44
	UR_{t-1}	15	10	1.50	- 16**	7	-2.28	13** *	5	2.60
	I_{t-1}	18***	7	2.57	16	11	1.45	15	11	1.36
	Constant	2.89	2.1 7	1.33	2.40	2.0 7	1.15	2.68	2.0 8	1.28
R-squared	0.86									
Adjusted R-squared	0.75									
Durbin-Watson Test	1.77									

Note: Results are significant at ***, **, *, 1, 5 and 10 percent levels, respectively.

Hypothesis	Outcomes
Hypothesis 1: There remains a positive relationship among the capital buffer and financial stability	Accepted
Hypothesis 2: There remains a positive relationship among the Net stable funding ratio and financial stability	Accepted
Hypothesis 3: There remains a positive relationship among the liquidity coverage ratio and financial stability	Accepted
Hypothesis 4: There remains a positive relationship among the risk management and financial stability	Accepted
Hypothesis 5: There remains a positive relationship among operational efficiency and financial stability	Accepted
Hypothesis 6: There remains a positive relationship among the business cycle and the financial stability	Accepted
Hypothesis 7: There remains a positive relationship among bank size and financial stability	Accepted
Hypothesis 8: There remains a negative relationship among the capital buffer and loan growth	Accepted
Hypothesis 9: There remains a negative relationship between liquidity coverage ratio and loan growth.	Accepted
Hypothesis 10: There remains a negative relationship between nonperforming loan and loan growth	Accepted
Hypothesis 11: There remains a positive relationship between business cycle and loan growth	Accepted
Hypothesis 12: There remains a positive relationship among bank size and loan growth	Accepted

CHAPTER # 07 CONCLUSIONS AND RECOMMENDATIONS

This study investigated the effects of Basel III reforms of BCBS on the financial stability also loan growth in the emerging countries. The static panel fixed effect model is used to study the impact of Basel III the financial stability and the loan growth. The empirical analysis indicated that capital buffer has a significant and positive impact on the financial stability in the emerging countries. Liquidity management (net stable funding ratio and liquidity ratio) has positive and significant impact on the financial stability in the emerging countries. Risk management has significant positive impact on the financial stability. Risk management has significant negative impact on the loan growth. The impact of size on the financial stability and on the financial growth is not significant. The impact of loan non-performing loan has negative impact on the financial stability and loan growth. Capital buffer has significant and negative impact on the loan growth. Liquidity management has significant and negative impact on the loan growth. The business cycle measure through the GDP growth has positive impact on the financial stability and loan growth. The inflation has negative impact on the financial stability and positive impact loan growth. The unemployment has a significant negative impact on the financial stability and loan growth. The Basel III implementation in the Islamic and state owned bank also have a positive impact on the financial stability in the emerging countries. The empirical investigation proved that the implementation of the Basel III in the emerging countries increase the financial stability in the emerging counties and decrease the loan growth in the emerging counties.

7.2 Implications of the Study for the Commercial Banks

Capital buffer management is positively related with financial stability and negatively associated with the loan growth. Implementation of Basel III reforms in the emerging countries create a serious issue that how they trade-off between the financial stability and loan growth. The results indicated that liquidity management along with risk management changes the balance sheet of the commercial banks. The banks in the emerging countries may change their capital structure on the basis of empirical results related to financial stability and the loan growth.

7.2.1 Implication of Study for Theory

The finding of this research supports the capital buffer theory that banks with large capital buffer maintain the capital buffer and banks with the shortage of capital buffer try to build it as it works as a cushion in the stress period. The finding also support the tradeoff theory of capital structure. Capital buffer theory and tradeoff theory are consider as most significant theories relate to literature of financial stability and financial growth.

7.2.2 Implication of the Study for the Basel Committee on Banking Supervision

Basel Committee on Banking Supervision should consider the heterogeneous banks fundamentals. The capital buffer along with the liquidity management play their effective role in the financial stability of the financial system. At the same time reduce the loan growth in the economic system that is essential part for the economic growth of the emerging countries. The core function of the financial system is to supply of credit that contribute toward economic growth. Emerging countries due to their large potential of economic growth need more credit. The evolving scenario of the global financial system calls for a careful balancing of globally coordinated, locally decentralized regulation on the

one hand and effective, centralized intervention mechanisms on the other hand, in order to preserve stability without foregoing too much the economic growth

7.2.3 Implication for the Researchers

Financial stability along with financial growth is a hot area for the researchers in the developed countries, according to existing knowledge this is first study that focus on the emerging counties with the data set. Impact of Basel reforms on the financial stability and the financial growth for emerging countries are of high interest for the researcher. One of the challenging goals for the emerging countries policy maker is to consider at the same time for the financial stability and financial growth. The Basel reforms always attract the researchers to discover the impact on the financial system.

7.3 Limitation and Future Research Directions

The top twenty emerging countries according to gross domestic product (GDP) are used for this study and due to the limitation of data availability there is limited sample used for this to get impact on the financial stability and the financial growth. Macroeconomics and microeconomic indicators are different for the developed economics and emerging economics, in future there should be a study that undertake a comparative analysis to discover the impact on both economies outlined above. The Basel reforms since Basel I (1988) produce a large body of literature in the financial stability area. The post Basel III reforms after their full implementation in the global financial system are expected to increase the investigations that discover their impact on financial stability and the financial growth.

References

- Adesina, S, K. (2019). Basel III liquidity rules: The implications for bank lending growth in Africa. *Economic Systems*, 43, Article 100688.
- Afrifa, A, G., Gyapong, E., & Zalata, M, A. (2019). Buffer capital, loan portfolio quality and the performance of microfinance institutions: A global analysis. *Journal of Financial Stability*, 44, Article 100691.
- Aggarwal, R., & Jacques, K. T. (2001). The Impact of FDICIA and Prompt Corrective Action on Bank Capital and Risk: Estimates Using a Simultaneous Equations Model. *Journal of Banking and Finance*, 25, 1139-1160.
- Akram, F. Q. (2014). Macro effects of capital requirements and macro prudential policy. *Economic Modeling*, 42, 77-93.
- Allen, B., Chan, K. K., Milne, A., & Thomas, S. (2012). Basel III: Is the cure worse than disease? *International Review of Financial Analysis*, 25, 159-166.
- Altman, I.E., (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 23, 589-604.
- Angelini, P., Clerc, L., Cúrdia, V., Gambacorta, L., Gerali, A., Locarno, A., Motto, R., Roeger, W., Van den Heuvel, S., & Vilek, J. (2011). BASEL III: Long-term impact on economic performance and fluctuations. *Working Papers*, 323.
- Anginer, D., Demircug-Kunt A., & Mare, D. S. (2018). Bank Capital, Institutional Environment and Systemic Stability. *Journal of Financial Stability*, 37, 97-106.
- Arellano, M., & Bond, S. (1991). Some test of specification for panel data: Monte Carlo evidence and application to employment equations. *Review of Economic Studies*, 58, 227-297.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error – components models. *Journal of Econometrics*, 68(1), 29-51.
- Ashcraft, B. A. (2006). Does the Market Discipline Banks? New evidence from the regulatory capital Mix. *Federal Reserve Bank of New York, Staff Report No. 244*.

- Ayuso, J., Perez, D., & Saurina, J. (2004). Are capital buffers pro-cyclical? Evidence from Spanish panel data. *Journal of Financial Intermediation*, 13, 2149-2164.
- Barakova, I., & Palvia, A. (2014). Do banks internal Basel risk estimates reflect risk? *Journal of Financial Stability*, 13, 167-179.
- Baro, R., & Sala-i-Martin, X. (2004). Economic growth (2nd ed.). London: MIT Press.
- Bashaija, W., Mahina, N. J. (2018). Effect of risk management on financial stability micro finance institutions in Rwanda. *European Business & Management*, 4, 75-79.
- BCBS, Basel Committee on Banking Supervision, 1988(Jul). Basel Committee: International Convergence of capital measurements and Capital Standards: BCBS, *Basel Committee on Banking Supervision, Basel, Switzerland*
- BCBS, Basel Committee on Banking Supervision, 2004 (Jun). Basel Committee: International Convergence of capital measurements and Capital Standards: A revised framework BCBS, *Basel Committee on Banking Supervision. Basel, Switzerland*
- BCBS, Basel Committee on Banking Supervision, 2010 (Oct). Basel Committee: Response to the financial crisis: Report to the G 20 BCBS, *Basel Committee on Banking Supervision, Basel, Switzerland*.
- Beck, T. (2008). The econometrics of finance and growth. *Policy research working paper series, 4608*, The World Bank.
- Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance*, 28, 423-442.
- Beck, T., Levine, R., & Loayza, N. (2000). Finance and the sources of growth. *Journal of Financial Economics*, 58, 261-300.
- Benes, J., & Kumhof, M. (2015). Risky bank lending and countercyclical capital buffers. *Journal of Economic Dynamics & Control*, 58, 58-80.
- Berger, A. N., & Udell, G. (2004). The institutional memory hypothesis and the procyclicality of banking lending behavior. *Journal of Financial Intermediation*, 13, 458-495.
- Berger, A. N., Herring, R. J., & Szego, G. P. (1995). The role of capital in financial Institutions. *Journal of Banking & Finance*, 19 (3), 393-430.

- Bikker, J. A., & Hu, H. (2002). Cyclical Patterns in Profits, Provisioning and lending of Banks. *DNB Staff Reports*, 86, 1-29.
- BIS, Bank for International Settlements (2013). Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools. *Basel Committee on Banking Supervision, Basel*, Switzerland.
- Blundell, R., & Bond, S. (1998). "Initial conditions and moment restrictions in dynamic panel data models". *Journal of Econometrics*, 87, 115-143.
- Boissay, F. (2011). Financial Imbalances and Financial Fragility. *ECB Working Paper Series* No.1317, April 2011.
- Braslins, G., & Arefjevs, I. (2014). Basel III: countercyclical capital buffer proposal- the case of Baltics. *Procedia-Social and behavioral Science*, 110, 986-996.
- Brock, W. A., & Durlauf, S. (2001). Growth empirics and reality. *World Bank Economic Review*, 15, 229-272.
- Bui, C., Scheule, H., & Wu, E. (2017). The value of Capital Buffers in maintaining financial system. *Journal of Financial Stability*, 33, 23-40.
- Cajuciro, D., Norpnaha, A. C., & Tabak, B. M. (2011). Bank capital buffers lending growth and economic cycle: empirical evidence for Brazil. *2nd BIS CCA Conference on Monetary Policy, Financial Stability and the business cycle*.
- Caporale, M. G., Raul, C., Sova, R., & Sova, A. (2009). Financial development and economic growth: Evidence from ten new EU members. *International Journal of Finance & Economics*, 20, 48-60.
- Carthcart, L., Jahel, E, L., & Jabbour, R. (2015). Can regulators allow banks to set their own capital ratios? *Journal of Banking & Finance*, 53, 112-123.
- Carvalho, O., Kasman, A., & Busun, S, K. (2015). The Latin American bank capital buffers and business cycle: Are they pro-cyclical? *Journal of International Financial Markets, Institutions & Money*, 36, 148-160.
- Carvalho, O., Kasman, A., & Kontbay-Busun, S. (2015). The Latin American bank capital buffers and business cycle: Are they pro-cyclical? *Journal of International Financial Market, Institutions and Money*, 36, 148-160.

- Chai, Z., Sadiq, N, M., Ali, N., Malik, M., Hamid, R,A,S.,(2022).Bank specific risks and financial stability nexus: evidence from Pakistan. *Front Psychol*.PMC 9263592
- Chalermchatvichien, P., Jumreornvong, S., & Jiraporn, P. (2014). Basel III, capital stability, risk-taking, ownership: Evidence from Asia. *Journal of Multinational Financial Management*, 28, 28-46.
- Chen, Y., Yueh-Fang, Ho, A., & Hsu, C. (2014). Are Bank Capital Buffers Cyclical? Evidence of Developed and Developing Countries. *Journal of Financial Studies*, 22(3).
- Chernykh, L., & Cole, A. Rebel. (2015). How should we measure bank capital adequacy for triggering Prompt Corrective Action? A (Simple) Proposal. *Journal of Financial Stability*, 20, 131-143.
- Cihak, M., & Hesse, H. (2010). Islamic banks and Financial Stability: An empirical analysis. *Journal of Financial Serv. Reserve*, 38, 95-113
- Coffinet, J., Coudert, V., Pop, A., & Pouvelle, C. (2012). Two-way interplays between capital buffers and credit growth: Evidence from French banks. *Journal of International Financial Markets, Institutions & Money*, 22, 1110-1125.
- Crocket, A., Ferguson, W, R., Issing, O., Mussa, M., Yamaguchi, Y., (2003). Monetary stability, financial stability and the business cycle: five views. BIS Papers, Bank for International Settlements,18.
- Dermine, J. (2015). Basel III leverage ratio requirement and the probability of bank runs. *Journal of Banking & Finance*, 53, 266-277.
- Derviz, A. (2013). Bubbles, Bank Credit and Macro prudential Policies. *ECB Working Paper Series No 1551* (Macro prudential Research Network), 1–50.
- Dib, A. (2010). Capital Requirement and Financial Frictions in Banking. Bank of Canada, *Working Paper, Article* 2010-26.
- Djebali, N., Zaghdoudi, K. (2020). Threshold effects of liquidity risk and credit risk on bank stability in the MENA region. *Journal of Policy Modeling* accepted
- Durlauf, S., & Quah, D. (1999). The new empirics of economic growth. In J. Taylor & M. Woodford (Eds.), *Handbook of macroeconomics*. Madison, WI: University of Wisconsin, Madison and LSE.

- Elbadry, A. (2018). Bank's financial stability and risk management. *Journal of Islamic Accounting and Business Research*, 9.
- Fidrmuc, J., Lind, R. (2020). Macroeconomic impact of Basel III: Evidence from a meta-analysis. *Journal of Banking & Finance*, 112, 10559.
- Fink, G., Haiss, P., & Vuksic, G. (2005). Importance of financial sectors for growth in accession Countries. *Conference on European Economic Integration 2005 (CEEI)*, Vienna.
- Fonseca, A. R., & Gonzalez, F. (2010). How bank capital vary across countries: The influence of cost of deposits, market power and bank regulation. *Journal of Banking & Finance*, 34, 892-902.
- Foos, D., Norden, L., & Weber, M. (2010). Loan growth and riskiness of banks. *Journal of Banking & Finance*, 34, 2929-2940.
- Francis, W., & Osborne, M. (2009). On the behavior and determinants of risk-based capital ratio: revisiting the evidence from UK banking institutions. *FSA occasional Paper, No. 31*, London.
- Gavalas, D. (2015). How do banks perform under Basel III? Tracing lending rates and loan quantity. *Journal of Economics and Business*, 81, 21-37.
- Georg, C. P. (2011). Basel III a Systemic Risk Regulation - What Way Forward? *University Jena & University Halle, Working Papers on Global Financial Markets*, No. 17.
- Giordana, G., & Schumacher, I. (2012). An Empirical Study on the Impact of Basel III Standards on Banks? Default Risk: The Case of Luxembourg. *Banque Centrale Du Luxembourg, Working Paper No. 79*, 1-37.
- Gobat, J., Yanase, M., & Maloney, J. (2014). The Net Stable Funding Ratio: Impact and Issues for Consideration. *IMF Working Paper*, WP/14/106.
- Goodhart, C. (2011): *The Basel Committee on Banking Supervision: A history of the* Cambridge University Press.

- Grosse, S., & Schumann, E. (2014). Cyclical behavior of German banks capital resources and the countercyclical buffer of Basel III. *European Journal of Political Economy*, 34, 540-544.
- Guidara, A., Lai, S. V., Soumare, I., & Tchana, T. F. (2013). Banks' capital buffer, risk and performance in the Canadian banking system: Impact of business cycles and regulatory changes. *Journal of Banking & Finance*, 37, 3373-3387.
- Hadri, K. (2000). Testing for stationarity in heterogeneous panel data. *Econometric Journal*, 3, 148-161.
- Hahn, F. R. (2003). Financial development and macroeconomic volatility: Evidence from OECD Countries. *WIFO working paper no.* 198.
- Hartlage, A. W. (2012). The Basel III Liquidity Coverage Ratio and Financial Stability. *Michigan Law Review*, 111, 453-473.
- Hassan, K. M., Khan, A., Paltrinieri, A. (2019). Liquidity risk, credit risk and stability in Islamic and Conventional banks. *Research in International Business and Finance*, 48, 17-31.
- Hazel, C., Santos, P., Jr, B. M. E. (2012). The Macroeconomic effects of Basel III implementation in the Philippines: A preliminary Assessment. *BSP working paper series* No. 2012-02.
- Heid, F., Porath, D., & Stolz, S. (2004). Does capital regulation matter for bank behavior? Evidence for German saving banks. Discussion paper series 2. *Banking and Financial Supervision*.
- Hlatshwayo, L. (2013). Basel III and the Net Stable Funding Ratio. *ISRN Applied Mathematics*
- Hong, H., Huang, Z. J., & Wu, D. (2014). The information content of Basel III liquidity risk measures. *Journal of Financial Stability*, 15, 91-111
- Huang, X., & Xiong, Q. (2015). Bank capital buffer decisions under macroeconomic fluctuations: Evidence for the banking industry of China. *International Review of Economics and Finance*, 36, 30-39.
- Jacques, K., & Nigro, P. (1997). Risk-based capital, portfolio risk, and bank capital: A simultaneous equations approach. *Journal of Economics and Business*, 49, 533-547.

- Jensen, Michael C. (1986). Agency Cost of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review*, 76 (2), pp. 323-329.
- Jokipii, T., Milnne, A. (2008). The cyclical behavior of European bank capital buffers. *Journal of Banking & Finance*, 32(8), 1440-1451.
- Jokipii, T., Milnne, A. (2011). Bank capital buffer and risk adjustment decisions. *Journal of Financial Stability*, 7, 165-178.
- Jokivuolle, E., Pesola, J., Viren, M. (2015). Why is Credit-to- GDP a good measure for setting countercyclical capital buffers? *Journal of Financial Stability*, 18, 117-126.
- Jones, E., Zeitz, A, O., (2017). The limit of globalization Basel banking standards. *Journal of Financial Regulation*, 3 (1) 89-124.
- Jones, E., Zeitz, A, O., (2019).Regulatory convergences in the financial periphery: How interdependent shape regulators decisions. *International Studies Quarterly*, 63(4) 908-922.
- Jonghe, D, O., Oztekin, O. (2015). Bank Capital Management: International evidence. *Journal of financial Intermediation*, 24, 154-177.
- Keister, T. (2019). The interplay between liquidity regulation, monetary policy implementation and financial stability. *Global Finance Journal*, 39, 30-38.
- Kim, D., Sohn, W. (2017). The effect of bank capital on lending: Does liquidity matter? *Journal of Banking & Finance*, 77, 95-107.
- King, M. R. (2013). The Basel III net stable funding ratio and bank net interest margins. *Journal of Banking & Finance*, 37, 4144-4156.
- Klemkosky, C, M. (2013). Financial system fragility. *Business Horizons*, 56, 675-683.
- Koivu, T. (2002). Do efficient banking sectors accelerate growth in transition countries? (*BOFIT discussion paper, no.14*).
- Kosak, M., Li, S., Loncarski, I., & Marinc, M. (2014). Quality of bank capital and bank lending behavior during the global financial crisis. *International Review of Financial Analysis*, 00162-8.
- Laeven, L., Ratnovski, L., & Tong, H. (2016). Bank size capital and systemic risk: Some international evidence. *Journal of Banking & Finance*, 69, S25-S34.

- Laidroo, L. (2012). Lending growth determinants and cyclicalities: evidence from CEE banks. *Tallinn University of Technology Akadeemia* tee 3, Tallinn 12618, Estonia.
- Le, T. N. L., Nasir, M. A., & Huynh, T. L. D. (2020). Capital Requirement and banks performance under Basel III: A comparative analysis of Australian and British Banks. *Quarterly Review of Economics and Finance*, Accepted Paper.
- Levine, A., C. F. Lin., & Chu, C. S. J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of econometrics*, 1-24.
- Li, B., Xiong, W., Chen, L., & Wang, Y. (2017). The impact of liquidity coverage ratio on money creation: A Stock-flow based dynamic approach. *Economic Modelling*, 67, 193-202.
- Lindquist, K. (2004). Bank buffer capital: How important is risk? *Journal of International Money and Finance*, 23, 493-513.
- Locarno, A. (2011). The macroeconomic impact of Basel III on the Italian economy. *Procedia Economic and Finance*, 25, 249-255.
- Majcher, P. (2015). Increased Bank Capital Requirements: Neither Panacea nor Poison. *Procedia Economics and Finance*, 25, 249-255.
- Manlagit, V. C. M., (2015). Basel regulations and banks efficiency: The case of the Philippines. *Journal of Asian Economics. Journal of Asian Economics*, 39, 72-85.
- Masood, O., Bellalah, M., Ghauri, S., (2017). Basel III implementation outcome in Islamic Banks. *Journal of Risk*, 19,210-226.
- Matejasak, M. (2015). Did the Czech and Slovak banks increase their capital ratios by decreasing risk, increasing capital or both? *16th Annual Conference on Finance and Accounting, ACFA Prague 2015*.
- Milne, A. (2013). Register, Cap and Trade: A Proposal for Containing Systemic Liquidity Risk, Economics. *The Open-Access, Open-Assessment E-Journal*, 7(2013-7)
- Mutarindwa, S., Schafer, D., & Stephan, A. (2020). The impact of liquidity and capital requirements on lending and stability of African banks. *Journal of International Financial Markets, Institutions and Money*, 67, Article 101201.
- Myers, S, C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, 39-3(574).

- Nier, E., & Baumann, U. (2006). Market discipline, disclosure, and moral hazard in banking. *Journal of Financial Intermediation*, 15, 332-361.
- Oduor, J., Ngoke, K., & Odongo, M. (2017). Capital requirement, bank competition and stability in Africa. *Review of Development Finance*, 7(1) 45-51.
- Ovi, N., Bose, S., Gunasekarage, A., & Shams, S. (2020). Do the business cycle and revenue diversification matter for banks capital buffer and credit risk: Evidence from ASEAN banks. *Journal of Contemporary Accounting and Economics*, 16.
- Patel, A., Sorokina, N., Jr, Thornton, H, J. (2022). Liquidity and bank capital structure. *Journal of Financial Stability*, 62, 101038
- Penikas, H. (2015). History of Banking Regulation as Developed by the Basel Committee on Banking Supervision in 1974-2014 (Brief overview). *Financial Stability Journal of the Bank of Spain*, 28, 9-48.
- Pereira, M, C, A, J., & Saito, R. (2011). How do capital buffer respond to Basel? *An empirical analysis of the Brazilian Banking system*. XXXV EnANPAD, RJ-4a7.
- Pereira, M, C, A, J., & Saito, R. (2015). How banks respond to central Bank Supervision: Evidence from Brazil. *Journal of Financial Stability*, 19, 22-30.
- Pessarossi, P., & Weill, L. (2015). Do Capital requirements affect cost efficiency? Evidence from China. *Journal of Financial Stability*, 19, 119-127.
- Pohl, M. (2017). Basel III liquidity monitoring tools. Occasional paper no 14, Bank for International Settlements.
- Rajhi, W., & Hassairi, S, A. (2014). Islamic banks and financial stability: a comparative empirical analysis between MENA and southeast countries. *Productivite et capital humain dans les pays du Sud de la Mediterranean: Region et Development*, No 37.
- Rossignolo, F, A., Fethi, D, M., & Shaban, M. (2013). Market crises and Basel capital requirements: Could Basel III have been different? Evidence from Portugal, Ireland, Greece and Spain (PIGS). *Journal of Banking & Finance*, 37, 1323-1339.

- Rousseau, P. L., & Wachtel, P. (2000). Equity markets and growth: Cross country evidence on timing and outcomes, 1980–95. *Journal of Banking & Finance*, 24, 1933–1957.
- Rubio, M., Yao, F. (2020). Bank capital, financial stability and Basel regulation in a low interest-rate environment. *International Review of Economics & Finance*, 67, 378–392.
- Saeed, M., Izzeldin, M., Hassan, K, M., & Pappas, V. (2020). The inter-temporal relationship between risk, capital and efficiency: The case of Islamic and conventional banks. *Pacific-Basin Finance Journal XXX*
- Sbarcea, R, I. (2014): International Concerns of Evaluating and Preventing, The Bank-Risks-Basel I Versus Basel II Versus Basel III. *21st International Economic Conference 2014, IECS 2014, 16-17 May 2014, Sibiu, Romania.*
- Schmaltz, C., Pokutta, S., Heidorn, T., & Andrae, S. (2014). How to make regulators and shareholders happy under Basel III. *Journal of Banking & Finance*, 46, 311–325.
- Shim, J. (2012). Bank capital buffer and portfolio risk: The influence of business cycle and revenue diversification. *Journal of Banking & Finance*, 37, 761–772.
- Shim, J. (2013). Bank capital buffer and portfolio risk: The influence of business cycle and revenue diversification. *Journal of Banking & Finance*, 37, 761–772.
- Shimizu, K. (2015). Adjusting denominators of capital ratios: Evidence from Japanese banks. *Journal of Financial Stability*, 19, 60–68.
- Shrieves, R., & Dahl, D. (1992). The relationship between risk and capital in the commercial banks. *Journal of Banking & Finance*, 16, 439–457.
- Sidhu, V, A., Rastogi, S., Gupte, R., & Bhimavarapu, M, V., (2022). Impact of liquidity coverage ratio on performance of select Indian Banks. *Journal of Risk and Financial Management*. 15–226.
- Stolz, S. (2002). The Relationship between Bank Capital, Risk –Taking and Capital Regulations: A Review of the Literature. *Kiel Working Paper, No.1105.*

- Stolz, S. (2007). Capital and risk adjustments over the business cycle, Bank capital and risk-taking the impact of capital regulations, charter value, and the business cycle. 1st ed. New York: Springer, chap.4. p.78-110.
- Stolz, S., & Wedow, M. (2005). Banks regulatory capital buffer and the business cycle: evidence for German savings and cooperative banks. *Discussion Paper 2: Banking and Financial Supervision*.
- Stolz, S., & Wedow, M. (2011). Banks regulatory capital buffer and the business cycle: Evidence for Germany. *Journal of Financial Stability*, 7, 98-110.
- Tabak, M, B., Vasconcelos, L, V, Joao., & Cajueiro, O, D. (2013). Do capital buffers matter? A study on the profitability and funding costs determinants of the Brazilian banking system. Working Paper no 333.
- Tan, P, B, T. (2012). Determinants of credit growth and interest margins in the Philippines and Asia. *International Monetary Fund working paper*, WP/12/123.
- Temple, J. (1999). The new growth evidence. *Journal of Economic Literature*, 37, 112–156.
- Thakor, A. (2014). Bank capital and Financial Stability: an economic trade- off or a fautian bargain? *Annu. Rev. Financial Econ. Econ*, 6, 185-223.
- Toma, R. (2007). Politici si tehnici bancare”, Editura Univesitatii Lucian Blaga, Sibiu.
- Toniolo, G. (2005). Central bank cooperation at the Bank for International Settlements 1930-1973. *Cambridge University Press*.
- Valencia, C, O., & Bolanos,O, A. (2018). Bank capital buffers around the world: Cyclical patterns and the effect of market power. *Journal of Financial Stability*. 38, 119-131.
- Valencia, F. (2015). Bank capital and uncertainty. *Journal of Banking & Finance*, 69, S1-S9.
- Vu, H., Turnell S. (2015). The Behavior of Australian Banks Capital Buffers: Pro or Counter- Cyclical? *Applied Economics and Finance*, 2(1).

- Wachtel, P. (2001). Growth and finance – What do we know and how do we know it? *International Finance*, 4, 335–362
- Walter, S. (2010). Basel III and financial stability, speech given at 5th Biennial conference on risk management and supervision. Basel: Bank for International Settlements (BIS).
- Walter, S. (2011). Basel III: Stronger banks and a more resilient financial system. *Conference on Basel III, financial stability*, 1-2.
- Wei, X., Gong, Y., & Wu, M, H. (2017) The impact of Net Stable Funding Ratio requirement on Banks choices of debt maturity. *Journal of Banking & Finance*, 82, 229-243.
- Wong, J., Choi, K., & Fong, T. (2005). Determinants of the capital level of banks in Hong Kong. *Hong Kong Monet, Auth. Q. Bull.*, 14-37.
- Wu, J., Li, H., Zheng, D., & Liu, X. (2020). Economic uncertainty or financial uncertainty? An empirical analysis of bank risk-taking in Asian emerging markets. *Finance Research Letters*, Article 101542
- Xu, H. (2016). Business cycle, Banking market structure and capital buffer, *Modern Economy*, 7, 404-410
- Yan, M., J, M., Hall, B., & Turner, P. (2012). A cost-benefit analysis of Basel III: Some evidence from the UK. *International Review of Financial Analysis*, 25, 73-82.

Appendix I

Name of the Member Countries BCBS.

Sr. No	Country	Central Bank
1.	Argentina	Central Bank of Argentina
2.	Australia	Reserve Bank of Australia
3.	Belgium	National Bank of Belgium
4.	Brazil	Central Bank of Brazil
5.	Canada	Bank of Canada
6.	China	People s Bank of China
7.	European Union	European Central Bank
8.	France	Bank of France
9.	Germany	Deutsche Bundesbank
10.	Hong Kong SAR	HongKong Monetary Authority
11.	India	Reserve Bank of India
12.	Indonesia	Bank Indonesia
13.	Italy	Bank of Italy
14.	Japan	Bank of Japan
15.	Korea	Bank of Korea
16.	Luxembourg	Surveillance Commission
17.	Mexico	Bank of Mexico
18.	Netherlands	Netherlands Bank

19.	Russia	Central Bank of the Russian Federation
20.	Saudi Arabia	Saudi Arabian Monetary Agency
21.	Singapore	Monetary Authority of Singapore
22.	South Africa	South African Reserve Bank
23.	Spain	Bank of Spain
24.	Sweden	Sveriges Riksbank
25.	Switzerland	Swiss National Bank
26.	Turkey	Central Bank of the Republic of Turkey
27.	United Kingdom	Bank of England
28.	United States	Board of Governors of the Federal Reserve System
Country Observers		
1.	Chile	Central Bank of Chile
2.	Malaysia	Central Bank of Malaysia
3.	United Arab Emirates	Central Bank of UAE

Source: Bank for International Settlements (BIS)

Appendix II

Table: List of Emerging Countries according to GDP

Sr. NO	Country Name	GDP(millions of \$)	GDP-Share in World	World- Rank
1.	China	21,269,331	17.85%	1
2.	India	8,720,758	7.23%	3

3.	Russia	3,745,081	3.14%	6
4.	Brazil	3,134,247	2.63%	7
5.	Indonesia	3,027,746	2.54%	8
6.	Mexico	2,227,176	1.87%	11
7.	South Korea	1,916,439	1.60%	13
8.	Saudi Arabia	1,720,027	1.44%	14
9.	Turkey	1,665,332	1.39%	17
10.	Iran	1,439,295	1.20%	18
11.	Thailand	1,152,421	0.96%	20
12.	Nigeria	1,128,025	0.94%	21
13.	Egypt	1,092,634	0.91%	23
14.	Pakistan	982,380	0.82%	25
15.	Argentina	971,608	0.81%	26
16.	Malaysia	859,881	0.72%	27
17.	Philippines	793,193	0.66%	29
18.	South Africa	735,078	0.61%	30
19.	Colombia	690,847	0.58%	31
20.	United Arab Emirates	669,679	0.56%	32
21.	Bangladesh	620,376	0.52%	33
Total			48.98%	

Source: International Monetary Fund (IMF)

Appendix III

Name of Sample Banks

	Bank Name	Country Name	World Region	Bank City
1	Banco Bradesco Argentina	ARG	South America	Buenos Aires
2	Banco Cetelem Argentina	ARG	South America	Buenos Aires
3	Banco CMF	ARG	South America	Buenos Aires
4	Banco Columbia	ARG	South America	Buenos Aires
5	Banco Comafi	ARG	South America	Buenos Aires
6	Banco Credicoop	ARG	South America	Buenos Aires
7	Banco de Cordoba	ARG	South America	Córdoba
8	Banco de Corrientes	ARG	South America	Corrientes
9	Banco de Galicia	ARG	South America	Buenos Aires
10	Banco de la Ciudad de Buenos Aires	ARG	South America	Buenos Aires
11	Banco de la Nacion Argentina	ARG	South America	Buenos Aires
12	Banco de La Pampa	ARG	South America	Santa Rosa La Pampa
13	Banco de la Provincia de Buenos Aires	ARG	South America	Buenos Aires
14	Banco de la Republica Oriental del Uruguay	ARG	South America	Buenos Aires
15	Banco de San Juan	ARG	South America	San Juan
16	Banco del Chubut	ARG	South America	Chubut
17	Banco Formosa	ARG	South America	Formosa
18	Banco Hipotecario	ARG	South America	Buenos Aires
19	Banco Industrial	ARG	South America	Buenos Aires
20	Banco Itau Argentina	ARG	South America	Buenos Aires
21	Banco Macro	ARG	South America	Buenos Aires
22	Banco Mariva	ARG	South America	Buenos Aires
23	Banco Patagonia	ARG	South America	Buenos Aires
24	Banco Piano	ARG	South America	Buenos Aires
25	Banco Provincia del Neuquen	ARG	South America	Neuquen
26	Banco Rioja	ARG	South America	La Rioja
27	Banco Saenz	ARG	South America	Buenos Aires
28	Banco Santander Rio	ARG	South America	Buenos Aires
29	Banco Supervielle	ARG	South America	Buenos Aires
30	Bank of America Argentina	ARG	South America	Buenos Aires
31	BBVA Banco Frances	ARG	South America	Buenos Aires

32	BNP Paribas Argentina	ARG	South America	Buenos Aires
33	Citibank Argentina	ARG	South America	Buenos Aires
34	HSBC Bank Argentina	ARG	South America	Buenos Aires
35	Industrial and Commercial Bank of China Argentina	ARG	South America	Buenos Aires
36	Nuevo Banco de Entre Rios	ARG	South America	Parana
37	Nuevo Banco de Santa Fe	ARG	South America	Santa Fe
38	Nuevo Banco del Chaco	ARG	South America	Chaco
39	Agrani Bank	BGD	Asia-Pacific	Dhaka
40	Islami Bank Bangladesh	BGD	Asia-Pacific	Dhaka
41	Mercantile Bank	BGD	Asia-Pacific	Dhaka
42	National Bank	BGD	Asia-Pacific	Dhaka
43	Prime Bank	BGD	Asia-Pacific	Dhaka
44	Pubali Bank	BGD	Asia-Pacific	Dhaka
45	SouthEast Bank	BGD	Asia-Pacific	Dhaka
46	Arab Banking Corporation Brasil	BRA	South America	SÃ£o Paulo
47	Banco Alfa de Investimento	BRA	South America	SÃ£o Paulo
48	Banco BBM	BRA	South America	Salvador
49	Banco BMC	BRA	South America	SÃ£o Paulo
50	Banco BNP Paribas Brasil	BRA	South America	SÃ£o Paulo
51	Banco Bonsucesso	BRA	South America	Belo Horizonte
52	Banco Bradesco	BRA	South America	SÃ£o Paulo
53	Banco BTG Pactual	BRA	South America	SÃ£o Paulo
54	Banco Caixa Geral Brasil	BRA	South America	SÃ£o Paulo
55	Banco Cooperativo do Brasil	BRA	South America	Brasilia
56	Banco Cooperativo Sicredi	BRA	South America	Porto Alegre
57	Banco Credit Agricole Brasil	BRA	South America	SÃ£o Paulo
58	Banco da Amazonia	BRA	South America	Belem
59	Banco Daycoval	BRA	South America	SÃ£o Paulo
60	Banco de Brasilia	BRA	South America	Brasilia
61	Banco de Brasilia	BRA	South America	Brasilia
62	Banco do Estado de Sergipe	BRA	South America	Aracaju
63	Banco do Estado do Espirito Santo	BRA	South America	Vitoria
64	Banco do Estado do Para	BRA	South America	Belem
65	Banco do Estado do Rio Grande do Sul	BRA	South America	Porto Alegre
66	Banco do Nordeste do Brasil	BRA	South America	Fortaleza
67	Banco Fibra	BRA	South America	SÃ£o Paulo
68	Banco Guanabara	BRA	South America	Rio de Janeiro
69	Banco Industrial do Brasil	BRA	South America	SÃ£o Paulo
70	Banco Intermedium	BRA	South America	Belo Horizonte

71	Banco International do Funchal Brasil	BRA	South America	São Paulo
72	Banco JP Morgan Brazil	BRA	South America	São Paulo
73	Banco Mercantil do Brasil	BRA	South America	Belo Horizonte
74	Banco Mizuho do Brasil	BRA	South America	São Paulo
75	Banco Modal	BRA	South America	Rio de Janeiro
76	Banco Morgan Stanley Brazil	BRA	South America	São Paulo
77	Banco Neon	BRA	South America	Belo Horizonte
78	Banco Pine	BRA	South America	São Paulo
79	Banco Rendimento	BRA	South America	São Paulo
80	Banco Rural	BRA	South America	Belo Horizonte
81	Banco Safra	BRA	South America	São Paulo
82	Banco Santander Brasil	BRA	South America	São Paulo
83	Banco Societe Generale Brazil	BRA	South America	São Paulo
84	Banco Sofisa	BRA	South America	São Paulo
85	Banco Sumitomo Mitsui Brasileiro	BRA	South America	São Paulo
86	Banco Triangulo	BRA	South America	Uberlandia
87	Banco Tricury	BRA	South America	São Paulo
88	Banco Votorantim	BRA	South America	São Paulo
89	Bank of America Merrill Lynch Banco	BRA	South America	São Paulo
90	Bank of Tokyo Mitsubishi Brazil	BRA	South America	São Paulo
91	Caixa Economica Federal	BRA	South America	Brasilia
92	China Construction Bank Brasil	BRA	South America	São Paulo
93	Citibank Brazil	BRA	South America	São Paulo
94	Credit Suisse Brazil	BRA	South America	São Paulo
95	Deutsche Bank Brazil	BRA	South America	São Paulo
96	Goldman Sachs Brazil	BRA	South America	São Paulo
97	HSBC Bank Brasil	BRA	South America	Curitiba
98	Itau Unibanco Holding	BRA	South America	São Paulo
99	Natixis Brasil	BRA	South America	São Paulo
00	Parana Banco	BRA	South America	Paraná
01	Rabobank International Brasil	BRA	South America	São Paulo
02	Scotiabank Brasil	BRA	South America	São Paulo
03	Standard Chartered Bank Brazil	BRA	South America	São Paulo
04	Banco BICE	CHL	South America	Santiago
05	Banco Consorcio	CHL	South America	Santiago
06	Banco de Chile	CHL	South America	Santiago
07	Banco de Credito e Inversiones (BCI)	CHL	South America	Santiago
08	Banco de la Nacion Argentina Chile	CHL	South America	Santiago
09	Banco del Estado de Chile	CHL	South America	Santiago

0	Banco Falabella	CHL	South America	Santiago
1	Banco Internacional	CHL	South America	Santiago
2	Banco Itau Chile	CHL	South America	Santiago
3	Banco Ripley	CHL	South America	Santiago
4	Banco Santander Chile	CHL	South America	Santiago
5	Banco Security	CHL	South America	Santiago
6	Bank of Tokyo Mitsubishi Chile	CHL	South America	Santiago
7	BBVA Chile	CHL	South America	Santiago
8	HSBC Bank Chile	CHL	South America	Santiago
9	JP Morgan Chase Bank Chile	CHL	South America	Santiago
20	Rabobank Chile	CHL	South America	Santiago
21	Scotiabank Chile	CHL	South America	Santiago
22	Agricultural Bank of China	CHN	Asia-Pacific	Beijing
23	Bank of Anshan	CHN	Asia-Pacific	Anshan
24	Bank of Beijing	CHN	Asia-Pacific	Beijing
25	Bank of Chengdu	CHN	Asia-Pacific	Chengdu
26	Bank of China	CHN	Asia-Pacific	Beijing
27	Bank of Chongqing	CHN	Asia-Pacific	Chongqing
28	Bank of Communications	CHN	Asia-Pacific	Shanghai
29	Bank of Dalian	CHN	Asia-Pacific	Dalian
30	Bank of Dongguan	CHN	Asia-Pacific	Dongguan
31	Bank of Guiyang	CHN	Asia-Pacific	Guiyang
32	Bank of Hangzhou	CHN	Asia-Pacific	Hangzhou
33	Bank of Hebei	CHN	Asia-Pacific	Shijiazhuang
34	Bank of Jiangsu	CHN	Asia-Pacific	Nanjing
35	Bank of Jilin	CHN	Asia-Pacific	Changchun
36	Bank of Jining	CHN	Asia-Pacific	Jining
37	Bank of Jinzhou	CHN	Asia-Pacific	Liaoning
38	Bank of Jiujiang	CHN	Asia-Pacific	Jiujiang
39	Bank of Kunlun	CHN	Asia-Pacific	Kelamayi
40	Bank of Lanzhou	CHN	Asia-Pacific	Gansu
41	Bank of Liaoyang	CHN	Asia-Pacific	Liaoyang
42	Bank of Luoyang	CHN	Asia-Pacific	Luoyang
43	Bank of Nanjing	CHN	Asia-Pacific	Nanjing
44	Bank of Ningbo	CHN	Asia-Pacific	Ningbo
45	Bank of Ningxia	CHN	Asia-Pacific	Ningxia
46	Bank of Qingdao co., ltd.	CHN	Asia-Pacific	Qingdao
47	Bank of Rizhao	CHN	Asia-Pacific	Rizhao
48	Bank of Shanghai	CHN	Asia-Pacific	Shanghai

9	Bank of Shaoxing	CHN	Asia-Pacific	Shaoxing
10	Bank of Suzhou	CHN	Asia-Pacific	Suzhou
11	Bank of Taizhou	CHN	Asia-Pacific	Taizhou
12	Bank of Tianjin	CHN	Asia-Pacific	Tianjin
13	Bank of Tokyo Mitsubishi China	CHN	Asia-Pacific	Shanghai
14	Bank of Weifang	CHN	Asia-Pacific	Shandong
15	Bank of Wenzhou	CHN	Asia-Pacific	Wenzhou
16	Bank of Xi'An	CHN	Asia-Pacific	Xian
17	Bank of Zhengzhou	CHN	Asia-Pacific	Henan
18	Baoshang Bank	CHN	Asia-Pacific	Baotou
19	Beijing Rural Commercial Bank	CHN	Asia-Pacific	Beijing
20	Chang'an Bank	CHN	Asia-Pacific	Xian
21	Chengdu Rural Commercial Bank	CHN	Asia-Pacific	Chengdu
22	China Bohai Bank	CHN	Asia-Pacific	Tianjin
23	China Citic Bank	CHN	Asia-Pacific	Beijing
24	China Construction Bank Corporation	CHN	Asia-Pacific	Beijing
25	China Everbright Bank	CHN	Asia-Pacific	Beijing
26	China Guangfa Bank	CHN	Asia-Pacific	Guangzhou
27	China Merchants Bank	CHN	Asia-Pacific	Shenzhen
28	China Minsheng Bank	CHN	Asia-Pacific	Beijing
29	China Zheshang Bank	CHN	Asia-Pacific	Ningbo
30	Chongqing Rural Commercial Bank	CHN	Asia-Pacific	Chongqing
31	Chongqing Three Gorges Bank	CHN	Asia-Pacific	Chongqing
32	Citibank China	CHN	Asia-Pacific	Shanghai
33	DBS Bank China	CHN	Asia-Pacific	Beijing
34	Deutsche Bank China	CHN	Asia-Pacific	Beijing
35	Dongguan Rural Commercial Bank	CHN	Asia-Pacific	Dongguan
36	Evergrowing Bank	CHN	Asia-Pacific	Yantai
37	Fudian Bank	CHN	Asia-Pacific	Kunming
38	Fujian Haixia Bank	CHN	Asia-Pacific	Fuzhou
39	Guangdong Huaxing Bank	CHN	Asia-Pacific	Guangzhou
40	Guangdong Nanyue Bank	CHN	Asia-Pacific	Zhanjiang
41	Guangxi Beibu Gulf Bank	CHN	Asia-Pacific	Guangxi
42	Guangzhou Rural Commercial Bank	CHN	Asia-Pacific	Guangzhou
43	Guilin Bank	CHN	Asia-Pacific	Guilin
44	Hang Seng Bank China	CHN	Asia-Pacific	Shanghai
45	Hankou Bank	CHN	Asia-Pacific	Wuhan
46	Harbin Bank	CHN	Asia-Pacific	Harbin
47	HSBC Corp China	CHN	Asia-Pacific	Beijing

18	Hua Xia Bank	CHN	Asia-Pacific	Beijing
19	Huishang Bank	CHN	Asia-Pacific	Hefei
20	Industrial and Commercial Bank of China	CHN	Asia-Pacific	Beijing
21	Industrial Bank	CHN	Asia-Pacific	Fuzhou
22	Jiangsu Changshu Rural Commercial Bank	CHN	Asia-Pacific	Changshu
23	Jiangsu Jiangnan Rural Commercial Bank	CHN	Asia-Pacific	Jiangsu
24	Jiangsu Jiangyin Rural Commercial Bank	CHN	Asia-Pacific	Jiangyin City
25	Jiangsu Zhangjiagang Rural Commercial Bank	CHN	Asia-Pacific	Zhangjiagang
26	Jiangxi Bank	CHN	Asia-Pacific	Nanchang
27	Jinshang Bank	CHN	Asia-Pacific	Shanxi
28	Laishang Bank	CHN	Asia-Pacific	Laiwu
29	Leshan City Commercial Bank	CHN	Asia-Pacific	Leshan
30	Linshang Bank	CHN	Asia-Pacific	Linyi
31	Mizuho Bank China	CHN	Asia-Pacific	Shanghai
32	Ping An Bank	CHN	Asia-Pacific	Shenzhen
33	Qilu Bank	CHN	Asia-Pacific	Jinan
34	Qishang Bank	CHN	Asia-Pacific	Zibo
35	Shanghai Pudong Development Bank	CHN	Asia-Pacific	Shanghai
36	Shanghai Rural Commercial Bank	CHN	Asia-Pacific	Shanghai
37	Shenzhen Rural Commercial Bank	CHN	Asia-Pacific	Shenzhen
38	Shunde Rural Commercial Bank	CHN	Asia-Pacific	Guangdong
39	Sichuan Tianfu Bank	CHN	Asia-Pacific	Nanchong
40	Sumitomo Mitsui Banking Corporation China	CHN	Asia-Pacific	Shanghai
41	The Bank of East Asia China	CHN	Asia-Pacific	Shanghai
42	Tianjin Rural Commercial Bank	CHN	Asia-Pacific	Tianjin
43	United Overseas Bank China	CHN	Asia-Pacific	Shanghai
44	Weihai City Commercial Bank	CHN	Asia-Pacific	Weihai
45	Wuhan Rural Commercial Bank	CHN	Asia-Pacific	Wuhan
46	Wujiang Rural Commercial Bank	CHN	Asia-Pacific	Wujiang
47	Wuxi Rural Commercial Bank	CHN	Asia-Pacific	Jiangsu
48	Xiamen Bank	CHN	Asia-Pacific	Xiamen
49	Xiamen International Bank	CHN	Asia-Pacific	Xiamen
50	Yellow River Rural Commercial Bank	CHN	Asia-Pacific	Anshan
51	Zhangjiakou City Bank	CHN	Asia-Pacific	Zhangjiakou
52	Zhejiang Chouzhou Commercial Bank	CHN	Asia-Pacific	Chouzhou
53	Zhejiang Mintai Commercial Bank	CHN	Asia-Pacific	Zhejiang
54	Zhejiang Tailong Commercial Bank	CHN	Asia-Pacific	Taizhou
55	Banco Agrario de Colombia	COL	South America	Bogotá; D.C.
56	Banco AV Villas	COL	South America	Bogotá; D.C.

17	Banco Caja Social	COL	South America	Bogotá; D.C.
18	Banco Colpatria	COL	South America	Bogotá; D.C.
19	Banco Davivienda	COL	South America	Bogotá; D.C.
20	Banco de Bogotá	COL	South America	Bogotá; D.C.
21	Banco de Occidente	COL	South America	Cali
22	Banco GNB Sudameris	COL	South America	Bogotá; D.C.
23	Banco Popular	COL	South America	Bogotá; D.C.
24	Bancolombia	COL	South America	Medellin
25	BBVA Colombia	COL	South America	Bogotá; D.C.
26	Citibank Colombia	COL	South America	Bogotá; D.C.
27	African Export Import Bank (Afreximbank)	EGY	Africa	Cairo
28	Al Baraka Bank Egypt	EGY	Africa	Giza
29	AlexBank	EGY	Africa	Cairo
30	Arab African International Bank	EGY	Africa	Cairo
31	Arab Banking Corporation Egypt	EGY	Africa	Cairo
32	Arab International Bank (AIB)	EGY	Africa	Cairo
33	Banque du Caire	EGY	Africa	Cairo
34	Banque Misr	EGY	Africa	Cairo
35	Commercial International Bank Egypt	EGY	Africa	Cairo
36	Credit Agricole Egypt	EGY	Africa	Cairo
37	Faisal Islamic Bank of Egypt	EGY	Africa	Giza
38	Housing & Development Bank	EGY	Africa	Giza
39	HSBC Bank Egypt	EGY	Africa	Cairo
40	National Bank of Egypt	EGY	Africa	Cairo
41	National Bank of Egypt	EGY	Africa	Cairo
42	National Bank of Kuwait Egypt	EGY	Africa	Giza
43	QNB Alahli Bank	EGY	Africa	Cairo
44	Union National Bank Egypt	EGY	Africa	Cairo
45	Allahabad Bank	IND	Asia-Pacific	Calcutta
46	Andhra Bank	IND	Asia-Pacific	Hyderabad
47	Axis Bank	IND	Asia-Pacific	Mumbai
48	Bank of Baroda	IND	Asia-Pacific	Mumbai
49	Bank of India	IND	Asia-Pacific	Mumbai
50	Bank of Maharashtra	IND	Asia-Pacific	Pune
51	Canara Bank	IND	Asia-Pacific	Bangalore
52	Central Bank of India	IND	Asia-Pacific	Mumbai
53	Corporation Bank	IND	Asia-Pacific	Mangalore
54	Dena Bank	IND	Asia-Pacific	Mumbai
55	Federal Bank	IND	Asia-Pacific	Alwaye

6	HDFC Bank	IND	Asia-Pacific	Mumbai
7	HSBC India	IND	Asia-Pacific	Mumbai
8	ICICI Bank	IND	Asia-Pacific	Mumbai
9	IDBI	IND	Asia-Pacific	Mumbai
0	Indian Bank	IND	Asia-Pacific	Chennai
1	Indian Overseas Bank	IND	Asia-Pacific	Chennai
2	IndusInd Bank	IND	Asia-Pacific	Mumbai
3	ING Vysya Bank	IND	Asia-Pacific	Bangalore
4	Jammu & Kashmir Bank	IND	Asia-Pacific	Srinagar
5	Karnataka Bank	IND	Asia-Pacific	Mangalore
6	Karur Vysya Bank	IND	Asia-Pacific	Karur
7	Kotak Mahindra Bank	IND	Asia-Pacific	Mumbai
8	Oriental Bank of Commerce	IND	Asia-Pacific	New Delhi
9	Punjab & Sind Bank	IND	Asia-Pacific	New Delhi
0	Punjab National Bank	IND	Asia-Pacific	New Delhi
1	South Indian Bank	IND	Asia-Pacific	Thrissur
2	Standard Chartered Bank India	IND	Asia-Pacific	Mumbai
3	State Bank of India	IND	Asia-Pacific	Mumbai
4	Syndicate Bank	IND	Asia-Pacific	Manipal
5	Tamilnad Mercantile Bank	IND	Asia-Pacific	Tuticorin
6	UCO Bank	IND	Asia-Pacific	Calcutta
7	Union Bank of India	IND	Asia-Pacific	Mumbai
8	United Bank of India	IND	Asia-Pacific	Calcutta
9	Vijaya Bank	IND	Asia-Pacific	Bangalore
0	Yes Bank	IND	Asia-Pacific	Mumbai
1	ANZ Bank Indonesia	IDN	Asia-Pacific	Jakarta
2	Bank Artha Graha Internasional	IDN	Asia-Pacific	Jakarta
3	Bank BJB	IDN	Asia-Pacific	Bandung
4	Bank Bukopin	IDN	Asia-Pacific	Jakarta
5	Bank Bumi Arta	IDN	Asia-Pacific	Jakarta
6	Bank Central Asia (BCA)	IDN	Asia-Pacific	Jakarta
7	Bank Danamon Indonesia	IDN	Asia-Pacific	Jakarta
8	Bank DKI	IDN	Asia-Pacific	Jakarta
9	Bank Maybank Indonesia	IDN	Asia-Pacific	Jakarta
0	Bank Mega	IDN	Asia-Pacific	Jakarta
1	Bank Negara Indonesia	IDN	Asia-Pacific	Jakarta
2	Bank OCBC NISP	IDN	Asia-Pacific	Jakarta
3	Bank of India Indonesia	IDN	Asia-Pacific	Jakarta
4	Bank Pan Indonesia	IDN	Asia-Pacific	Jakarta

15	Bank Pembangunan Daerah Riau	IDN	Asia-Pacific	Pekanbaru
16	Bank Permata	IDN	Asia-Pacific	Jakarta
17	Bank Rakyat Indonesia	IDN	Asia-Pacific	Jakarta
18	Bank Tabungan Negara (BTN)	IDN	Asia-Pacific	Jakarta
19	Bank Tabungan Pensiunan Nasional	IDN	Asia-Pacific	Jakarta
20	China Construction Bank Indonesia	IDN	Asia-Pacific	Jakarta
21	Chinatrust Indonesia	IDN	Asia-Pacific	Jakarta
22	CIMB Niaga	IDN	Asia-Pacific	Jakarta
23	Commonwealth Bank Indonesia	IDN	Asia-Pacific	Jakarta
24	DBS Bank Indonesia	IDN	Asia-Pacific	Jakarta
25	Deutsche Bank Indonesia	IDN	Asia-Pacific	Jakarta
26	HSBC Bank Indonesia	IDN	Asia-Pacific	Jakarta
27	Mizuho Bank Indonesia	IDN	Asia-Pacific	Jakarta
28	PT. Bank Mandiri (Persero) Tbk.	IDN	Asia-Pacific	Jakarta
29	United Overseas Bank Indonesia	IDN	Asia-Pacific	Jakarta
30	Bank Eghtesad Novin (EN Bank)	IRN	Middle East	Tehran
31	Bank Keshavarzi (Agri Bank)	IRN	Middle East	Tehran
32	Bank of Industry and Mine	IRN	Middle East	Tehran
33	Bank Pasargad	IRN	Middle East	Tehran
34	Bank Saderat Iran (BSI)	IRN	Middle East	Tehran
35	Bank Sepah	IRN	Middle East	Tehran
36	Bank Tejarat	IRN	Middle East	Tehran
37	Export Development Bank of Iran	IRN	Middle East	Tehran
38	Karafarin Bank	IRN	Middle East	Tehran
39	Parsian Bank	IRN	Middle East	Tehran
40	Saman Bank	IRN	Middle East	Tehran
41	AsiaCredit Bank	KAZ	Central Asia	Almaty
42	ATFBank	KAZ	Central Asia	Almaty
43	Bank CenterCredit	KAZ	Central Asia	Almaty
44	Bank of China Kazakhstan	KAZ	Central Asia	Almaty
45	Capital Bank Kazakhstan	KAZ	Central Asia	Almaty
46	Citibank Kazakhstan	KAZ	Central Asia	Almaty
47	Eurasian Bank JSC	KAZ	Central Asia	Almaty
48	Eximbank Kazakhstan	KAZ	Central Asia	Almaty
49	ForteBank	KAZ	Central Asia	Almaty
50	Halyk Bank	KAZ	Central Asia	Almaty
51	Home Credit Bank Kazakhstan	KAZ	Central Asia	Almaty
52	Kaspi Bank	KAZ	Central Asia	Almaty
53	Kazakhstan Ziraat International Bank	KAZ	Central Asia	Almaty

4	Kazinvestbank	KAZ	Central Asia	Almaty
5	Kazkommertsbank	KAZ	Central Asia	Almaty
6	Nurbank	KAZ	Central Asia	Almaty
7	Qazaq Banki	KAZ	Central Asia	Almaty
8	Royal Bank of Scotland Kazakhstan	KAZ	Central Asia	Almaty
9	Sberbank Kazakhstan	KAZ	Central Asia	Almaty
0	Temirbank	KAZ	Central Asia	Almaty
1	Tsesnabank	KAZ	Central Asia	Astana
2	Zaman Bank	KAZ	Central Asia	Ekibastuz
3	Affin Bank	MYS	Asia-Pacific	Kuala Lumpur
4	Al Rajhi Bank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
5	Alliance Financial Group	MYS	Asia-Pacific	Kuala Lumpur
6	AmBank Group	MYS	Asia-Pacific	Kuala Lumpur
7	Asian Finance Bank	MYS	Asia-Pacific	Kuala Lumpur
8	Bangkok Bank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
9	Bank Kerjasama Rakyat Malaysia	MYS	Asia-Pacific	Kuala Lumpur
0	Bank Muamalat Malaysia	MYS	Asia-Pacific	Kuala Lumpur
1	Bank of China Malaysia	MYS	Asia-Pacific	Kuala Lumpur
2	Bank of Tokyo Mitsubishi Malaysia	MYS	Asia-Pacific	Kuala Lumpur
3	Bank Simpanan Nasional	MYS	Asia-Pacific	Kuala Lumpur
4	BIMB Holdings	MYS	Asia-Pacific	Kuala Lumpur
5	Cagamas Berhad	MYS	Asia-Pacific	Kuala Lumpur
6	CIMB Group	MYS	Asia-Pacific	Kuala Lumpur
7	Citibank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
8	Deutsche Bank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
9	Hong Leong Bank	MYS	Asia-Pacific	Kuala Lumpur
0	HSBC Bank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
1	Industrial and Commercial Bank of China Malaysia	MYS	Asia-Pacific	Kuala Lumpur
2	JP Morgan Chase Bank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
3	Kuwait Finance House Malaysia	MYS	Asia-Pacific	Kuala Lumpur
4	Malayan Banking Berhad	MYS	Asia-Pacific	Kuala Lumpur
5	OCBC Bank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
6	Public Bank	MYS	Asia-Pacific	Kuala Lumpur
7	RHB Bank Berhad	MYS	Asia-Pacific	Kuala Lumpur
8	Royal Bank of Scotland Malaysia	MYS	Asia-Pacific	Kuala Lumpur
9	Scotiabank Malaysia	MYS	Asia-Pacific	Kuala Lumpur
0	SME Bank	MYS	Asia-Pacific	Kuala Lumpur
1	Standard Chartered Bank Malaysia Berhad	MYS	Asia-Pacific	Kuala Lumpur
2	United Overseas Bank Malaysia	MYS	Asia-Pacific	Kuala Lumpur

3	Banca Afirme	MEX	Central America	Monterrey
4	Banco ABC Capital	MEX	Central America	Mexico City
5	Banco Actinver	MEX	Central America	Lomas de Santa Fe
6	Banco Ahorro Famsa	MEX	Central America	Monterrey
7	Banco Azteca	MEX	Central America	Iztapalapa
8	Banco Compartamos	MEX	Central America	Mexico City
9	Banco del Bajío	MEX	Central America	Leon
0	Banco Inbursa	MEX	Central America	Mexico City
1	Banco Invex	MEX	Central America	Mexico City
2	Banco Mifel	MEX	Central America	Mexico City
3	Banco Monex	MEX	Central America	Mexico City
4	Banco Multiva	MEX	Central America	Mexico City
5	Banco Regional de Monterrey (BanRegio)	MEX	Central America	Monterrey
6	Banco Ve por Mas	MEX	Central America	Mexico City
7	Bancoppel	MEX	Central America	Mexico City
8	Bank of America Mexico	MEX	Central America	Mexico City
9	Bank of Tokyo Mitsubishi Mexico	MEX	Central America	Mexico City
0	Bankaool	MEX	Central America	Mexico City
1	Bansi	MEX	Central America	Guadalajara
2	Barclays Bank Mexico	MEX	Central America	Mexico City
3	CI Banco	MEX	Central America	Guadalajara
4	Credit Suisse Mexico	MEX	Central America	Mexico City
5	Deutsche Bank Mexico	MEX	Central America	Mexico City
6	Grupo Financiero Banorte	MEX	Central America	Mexico City
7	Grupo Financiero BBVA Bancomer	MEX	Central America	Mexico City
8	Grupo Financiero HSBC	MEX	Central America	Mexico City
9	Grupo Financiero Interacciones	MEX	Central America	Mexico City
0	Grupo Financiero Santander Mexico	MEX	Central America	Mexico City
1	Grupo Financiero Scotiabank Inverlat	MEX	Central America	Mexico City
2	Investa Bank	MEX	Central America	Mexico City
3	JP Morgan Chase Bank Mexico	MEX	Central America	Mexico City
4	UBS Mexico	MEX	Central America	Mexico City
5	Access Bank	NGA	Africa	Lagos
6	Citibank Nigeria	NGA	Africa	Lagos
7	Diamond Bank	NGA	Africa	Lagos
8	Ecobank Nigeria	NGA	Africa	Lagos
9	Fidelity Bank	NGA	Africa	Lagos

00	First Bank of Nigeria	NGA	Africa	Lagos
01	First City Monument Bank	NGA	Africa	Lagos
02	Guaranty Trust Bank	NGA	Africa	Lagos
03	Skye Bank	NGA	Africa	Lagos
04	Stanbic IBTC Holdings	NGA	Africa	Lagos
05	Sterling Bank	NGA	Africa	Lagos
06	Union Bank of Nigeria	NGA	Africa	Lagos
07	United Bank for Africa	NGA	Africa	Lagos
08	Zenith Bank	NGA	Africa	Lagos
09	Allied Bank Limited	PAK	Asia-Pacific	Lahore
10	Askari Bank	PAK	Asia-Pacific	Rawalpindi
11	Bank AL Habib	PAK	Asia-Pacific	Multan
12	Bank Alfalah	PAK	Asia-Pacific	Karachi
13	Bank of Punjab	PAK	Asia-Pacific	Lahore
14	Faysal Bank	PAK	Asia-Pacific	Karachi
15	Habib Bank	PAK	Asia-Pacific	Karachi
16	Habib Metropolitan Bank	PAK	Asia-Pacific	Karachi
17	MCB Bank	PAK	Asia-Pacific	Lahore
18	Meezan Bank	PAK	Asia-Pacific	Karachi
19	National Bank of Pakistan	PAK	Asia-Pacific	Karachi
20	NIB Bank	PAK	Asia-Pacific	Karachi
21	Samba Bank Pakistan	PAK	Asia-Pacific	Karachi
22	Soneri Bank	PAK	Asia-Pacific	Lahore
23	Standard Chartered Bank Pakistan	PAK	Asia-Pacific	Karachi
24	United Bank	PAK	Asia-Pacific	Karachi
25	Asia United Bank	PHL	Asia-Pacific	Pasig City
26	Bank of Commerce	PHL	Asia-Pacific	Makati City
27	Bank of the Philippine Islands	PHL	Asia-Pacific	Makati City
28	BDO Unibank	PHL	Asia-Pacific	Makati City
29	China Banking Corporation	PHL	Asia-Pacific	Makati City
30	CTBC Bank Philippines	PHL	Asia-Pacific	Taguig City
31	Development Bank of the Philippines (DBP)	PHL	Asia-Pacific	Makati City
32	East West Banking Corp	PHL	Asia-Pacific	Makati City
33	Land Bank Philippines	PHL	Asia-Pacific	Manila
34	Metropolitan Bank & Trust Company	PHL	Asia-Pacific	Makati City
35	Philippine Bank of Communications	PHL	Asia-Pacific	Makati City
36	Philippine National Bank	PHL	Asia-Pacific	Pasay City
37	Philippine Veterans Bank	PHL	Asia-Pacific	Makati City
38	Philtrust Bank	PHL	Asia-Pacific	Manila

99	Rizal Commercial Banking Corp (RCBC)	PHL	Asia-Pacific	Makati City
90	Security Bank Corporation	PHL	Asia-Pacific	Makati City
91	UnionBank of Philippines	PHL	Asia-Pacific	Makati City
92	United Coconut Planters Bank (UCPB)	PHL	Asia-Pacific	Makati City
93	Ahli Bank Qatar	QAT	Middle East	Doha
94	Al Khalij Commercial Bank	QAT	Middle East	Doha
95	Commercial Bank	QAT	Middle East	Doha
96	Doha Bank	QAT	Middle East	Doha
97	International Bank of Qatar	QAT	Middle East	Doha
98	Masraf Al Rayan	QAT	Middle East	Doha
99	Qatar International Islamic Bank (QIIB)	QAT	Middle East	Doha
70	Qatar Islamic Bank (QIB)	QAT	Middle East	Doha
71	Qatar National Bank	QAT	Middle East	Doha
72	Absolut Bank	RUS	Central and Eastern Europe	Moscow
73	Ak Bars Bank	RUS	Central and Eastern Europe	Kazan
74	Alef Bank	RUS	Central and Eastern Europe	Moscow
75	Alfa Bank	RUS	Central and Eastern Europe	Moscow
76	Aljba Alliance Bank	RUS	Central and Eastern Europe	Moscow
77	AO Raiffeisenbank	RUS	Central and Eastern Europe	Moscow
78	Avtogradbank	RUS	Central and Eastern Europe	Habyeryesniye Chelnyi
79	B&N Bank	RUS	Central and Eastern Europe	Moscow
80	Baltic Investment Bank	RUS	Central and Eastern Europe	St Petersburg
81	Banca Intesa Russia	RUS	Central and Eastern Europe	Moscow
82	Bank Avangard	RUS	Central and Eastern Europe	Moscow
83	Bank BFG Credit	RUS	Central and Eastern Europe	Moscow
84	Bank Levoberezhniy	RUS	Central and Eastern Europe	Novosibirsk
85	Bank Rossiya	RUS	Central and Eastern Europe	St Petersburg
86	Bank Saint Petersburg	RUS	Central and Eastern Europe	St Petersburg
87	Bank Severo Vostochny Alliance	RUS	Central and Eastern Europe	Moscow
88	Bank Soyuz	RUS	Central and Eastern Europe	Moscow
89	Bank Uralsib	RUS	Central and Eastern Europe	Moscow
90	Bank Vozrozhdenie	RUS	Central and Eastern Europe	Moscow
91	Bank Zarechye	RUS	Central and Eastern Europe	Kazan
92	BNP Paribas Russia	RUS	Central and Eastern Europe	Moscow
93	Bratskiy Narodny Bank	RUS	Central and Eastern Europe	Bratsk
94	Center Invest Bank	RUS	Central and Eastern Europe	Rostov-on-Don
95	CentroCredit Bank	RUS	Central and Eastern Europe	Moscow
96	Chelindbank	RUS	Central and Eastern Europe	Chelyabinsk
97	Credit Bank of Moscow	RUS	Central and Eastern Europe	Moscow

08	Credit Europe Bank Russia	RUS	Central and Eastern Europe	Moscow
09	Deutsche Bank Russia	RUS	Central and Eastern Europe	Moscow
10	Evrofinance Mosnarbank	RUS	Central and Eastern Europe	Moscow
11	Garanti Bank Moscow	RUS	Central and Eastern Europe	Moscow
12	Gazbank	RUS	Central and Eastern Europe	Samara
13	Gazprombank	RUS	Central and Eastern Europe	Moscow
14	Grand Invest Bank	RUS	Central and Eastern Europe	Moscow
15	Home Credit and Finance Bank	RUS	Central and Eastern Europe	Moscow
16	ING Bank Eurasia	RUS	Central and Eastern Europe	Moscow
17	International Bank of St Petersburg	RUS	Central and Eastern Europe	St Petersburg
18	InterProgressBank	RUS	Central and Eastern Europe	Moscow
19	Investment Trade Bank	RUS	Central and Eastern Europe	Moscow
20	Isbank	RUS	Central and Eastern Europe	Moscow
21	Lanta Bank	RUS	Central and Eastern Europe	Moscow
22	Locko Bank	RUS	Central and Eastern Europe	Moscow
23	MDM Bank	RUS	Central and Eastern Europe	Novosibirsk
24	Metallinvestbank	RUS	Central and Eastern Europe	Moscow
25	Mezhtopenenergobank	RUS	Central and Eastern Europe	Moscow
26	Mordovpromstroybank	RUS	Central and Eastern Europe	Saransk
27	Moscow City Bank	RUS	Central and Eastern Europe	Moscow
28	Moscow Industrial Bank	RUS	Central and Eastern Europe	Moscow
29	Moskommertsbank	RUS	Central and Eastern Europe	Moscow
30	National Investment Industrial Bank	RUS	Central and Eastern Europe	Moscow
31	National Reserve Bank	RUS	Central and Eastern Europe	Moscow
32	NBD Bank	RUS	Central and Eastern Europe	Nizhny Novgorod
33	New Symbol Bank	RUS	Central and Eastern Europe	Moscow
34	Nordea Bank Russia	RUS	Central and Eastern Europe	Moscow
35	Novikombank	RUS	Central and Eastern Europe	Moscow
36	Orient Express Bank	RUS	Central and Eastern Europe	Blagoveschensk
37	Otkritie Financial Corporation Bank	RUS	Central and Eastern Europe	Moscow
38	OTP Bank Russia	RUS	Central and Eastern Europe	Moscow
39	Primsotsbank	RUS	Central and Eastern Europe	Vladivostok
40	Promsvyazbank	RUS	Central and Eastern Europe	Moscow
41	Rosbank	RUS	Central and Eastern Europe	Moscow
42	Rosdorbank	RUS	Central and Eastern Europe	Moscow
43	RosEvroBank	RUS	Central and Eastern Europe	Moscow
44	Rosgosstrakh Bank	RUS	Central and Eastern Europe	Moscow
45	Russian Agricultural Bank	RUS	Central and Eastern Europe	Moscow
46	Russian Regional Development Bank	RUS	Central and Eastern Europe	Moscow

17	Russian Standard Bank	RUS	Central and Eastern Europe	Moscow
18	Sarov Business Bank	RUS	Central and Eastern Europe	Sarov
19	Sberbank	RUS	Central and Eastern Europe	Moscow
20	SDM Bank	RUS	Central and Eastern Europe	Moscow
21	SKB Bank	RUS	Central and Eastern Europe	Ekaterinburg
22	SMP Bank	RUS	Central and Eastern Europe	Moscow
23	Sovcombank	RUS	Central and Eastern Europe	Kostroma
24	Surgutneftegasbank	RUS	Central and Eastern Europe	Surgut
25	Sviaz bank	RUS	Central and Eastern Europe	Moscow
26	Tatfondbank	RUS	Central and Eastern Europe	Kazan
27	The Ural Bank for Reconstruction and Development	RUS	Central and Eastern Europe	Ekaterinburg
28	Transcapital Bank	RUS	Central and Eastern Europe	Moscow
29	Uniastrum Bank	RUS	Central and Eastern Europe	Moscow
30	UniCredit Bank Russia	RUS	Central and Eastern Europe	Moscow
31	United Financial Capital Bank	RUS	Central and Eastern Europe	Moscow
32	VTB Bank	RUS	Central and Eastern Europe	St Petersburg
33	ZAO Citibank	RUS	Central and Eastern Europe	Moscow
34	Zapsibcombank	RUS	Central and Eastern Europe	Tyumen
35	Zenit Banking Group	RUS	Central and Eastern Europe	Moscow
36	Al Rajhi Bank	SAU	Middle East	Riyadh
37	Alawwal Bank	SAU	Middle East	Riyadh
38	Arab National Bank	SAU	Middle East	Riyadh
39	Bank Albilad	SAU	Middle East	Riyadh
40	Bank AlJazira	SAU	Middle East	Jeddah
41	Banque Saudi Fransi	SAU	Middle East	Riyadh
42	National Commercial Bank	SAU	Middle East	Jeddah
43	Riyad Bank	SAU	Middle East	Riyadh
44	Samba Financial Group	SAU	Middle East	Riyadh
45	Saudi British Bank (SABB)	SAU	Middle East	Riyadh
46	Saudi Investment Bank	SAU	Middle East	Riyadh
47	Absa Group Limited	ZAF	Africa	Johannesburg
48	African Bank Holdings	ZAF	Africa	Midrand
49	Al Baraka Bank South Africa	ZAF	Africa	Durban
50	Bidvest Bank	ZAF	Africa	Johannesburg
51	Capitec Bank Holdings	ZAF	Africa	Stellenbosch
52	FirstRand	ZAF	Africa	Sandton
53	GBS Mutual Bank	ZAF	Africa	Grahamstown
54	Habib Overseas Bank	ZAF	Africa	Marshalltown
55	HBZ Bank	ZAF	Africa	Durban

76	Investec South Africa	ZAF	Africa	Sandton
77	Mercantile Bank Holdings	ZAF	Africa	Sandton
78	Nedbank Group	ZAF	Africa	Johannesburg
79	Sasfin Bank	ZAF	Africa	Waverley
80	South African Bank of Athens	ZAF	Africa	Johannesburg
81	Standard Bank Group (Stanbank)	ZAF	Africa	Johannesburg
82	Ubank	ZAF	Africa	Halfway House
83	VBS Mutual Bank	ZAF	Africa	Louis Trichardt
84	Bangkok Bank	THA	Asia-Pacific	Bangkok
85	Bank of Ayudhya	THA	Asia-Pacific	Bangkok
86	Bank of China Thailand	THA	Asia-Pacific	Bangkok
87	CIMB Thai	THA	Asia-Pacific	Bangkok
88	Citibank Thailand	THA	Asia-Pacific	Bangkok
89	Export-Import Bank of Thailand	THA	Asia-Pacific	Bangkok
90	Government Savings Bank	THA	Asia-Pacific	Bangkok
91	Industrial and Commercial Bank of China Thailand	THA	Asia-Pacific	Bangkok
92	JP Morgan Chase Bank Thailand	THA	Asia-Pacific	Bangkok
93	Kasikornbank	THA	Asia-Pacific	Bangkok
94	Kiatnakin Bank	THA	Asia-Pacific	Bangkok
95	Krung Thai Bank	THA	Asia-Pacific	Bangkok
96	Land and House Bank	THA	Asia-Pacific	Bangkok
97	Siam Commercial Bank	THA	Asia-Pacific	Bangkok
98	Standard Chartered Bank Thailand	THA	Asia-Pacific	Bangkok
99	Thanachart Bank	THA	Asia-Pacific	Bangkok
00	TISCO Bank	THA	Asia-Pacific	Bangkok
01	TMB Bank	THA	Asia-Pacific	Bangkok
02	United Overseas Bank Thailand	THA	Asia-Pacific	Bangkok
03	Akbank	TUR	Europe	Istanbul
04	Anadolubank	TUR	Europe	Istanbul
05	Burgan Bank Turkey	TUR	Europe	Istanbul
06	Denizbank	TUR	Europe	Istanbul
07	Industrial and Commercial Bank of China Turkey	TUR	Europe	Istanbul
08	ING Bank Turkey	TUR	Europe	Istanbul
09	Kuveyt Turk Katalim Bankasi	TUR	Europe	Istanbul
10	QNB Finansbank	TUR	Europe	Istanbul
11	Sekerbank	TUR	Europe	Istanbul
12	TC Ziraat Bankasi	TUR	Europe	Ankara
13	Turk Ekonomi Bankasi (TEB)	TUR	Europe	Istanbul
14	Turkiye Finans Katilim Bankasi	TUR	Europe	Istanbul

15	Turkiye Garanti Bankasi	TUR	Europe	Istanbul
16	Turkiye Halk Bankasi	TUR	Europe	Istanbul
17	Turkiye Is Bankasi	TUR	Europe	Istanbul
18	Turkiye Vakiflar Bankasi	TUR	Europe	Istanbul
19	Yapi Kredi Bankasi	TUR	Europe	Istanbul

